Information Processing Apparatus and Method, and Program Storage Medium

Field of the Invention

The present invention relates to an information processing apparatus and method, in which predetermined contents are handled, and a program storage medium having stored therein an information processing program for use in the information processing apparatus and method to effect such an information processing.

Description of the Related Art

To record contents such as many musical data or select and play back a desired content from any recorded contents, an information processor such as a personal computer is used. The information processor of this type includes a speaker and other decoding function for playback of a musical content.

When handling many contents, the personal computer requests the user to register a combination of desired contents. When the desired contents are registered, the personal computer permit to display or play back a content based on the registered content combination.

However, if the personal computer has recorded a great number of contents, it will be very troublesome for the user to register a combination of desired contents. Also, even if the personal computer has recorded many contents, when the user

registers a combination of contents, he or she is apt to select same contents as having ever been selected and thus it is very difficult to combine many contents to provide various content combinations.

Disclosure of the Invention

Example embodiments may overcome the above-mentioned drawbacks of the conventional information processing apparatus such as a personal computer by providing improved and novel information processing apparatus and method, capable of easily arbitrarily combining many contents to provide various combination of the contents, and a program storage medium having stored therein a program for use in the information processing apparatus and method to effect such an information processing.

Example embodiments can provide an information processor including a recording unit which records either first information indicative of a history of content usage or second information about contents, and third information intended for computation of a weight corresponding to a content, a computation unit which computes a weight of each content based on either the first or second information and the third information, a selection mechanism which selects a content based on the weight computed by the computation unit, and means for relating a content selected by the selection mechanism with a combination of contents corresponding to the third information.

Example embodiments can provide an information processing method including steps of computing a weight of each content based on either recorded first or second information and third information, selecting a content based on the weight computed at the computing step, relating the content selected at the selecting step with a combination of contents corresponding to the third information.

Example embodiments can provide a program storage medium having stored therein a program including steps of computing a weight of each content based on either recorded first or second information and third information, selecting a content based on the weight computed at the computing step, and relating the content selected at the selecting step with a combination of contents corresponding to the third information.

In accordance with a first aspect of the present invention, there is provided an information processing method performed by an information processor, comprising the steps of:

managing a plurality of content files and corresponding content file identification data;

selecting a package of content files from the plurality of content files on the basis of filtering data;

registering the content file identification data corresponding to the content files selected for the package; and

displaying package identification data corresponding to the package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

In accordance with a second aspect of the present invention, there is provided an information processing program recordable on a computer readable medium and executable by an information processor to perform the steps of:

managing a plurality of content files and corresponding content file identification data;

selecting a package of content files from the plurality of content files on the basis of filtering data;

registering the content file identification data corresponding to the content files selected for the package; and

displaying package identification data corresponding to the package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

In accordance with a third aspect of the present invention, there is provided an information processor, comprising:

a storage unit for storing a plurality of content files and corresponding content file identification data;

a processing unit for managing the plurality of content files and corresponding content file identification data; selecting a package of content files from the plurality of content files on the basis of filtering data; and registering the content file identification data corresponding to the content files selected for the package; and

a display unit for displaying package identification data corresponding to the package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

In accordance with a fourth aspect of the present invention, there is provided an information processor, comprising:

managing means for managing a plurality of content files and corresponding content file identification data;

selecting means for selecting a package of content files from the plurality of content files on the basis of filtering data;

registering means for registering the content file identification data corresponding to the content files selected for the package; and

display means for displaying package identification data corresponding to the package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

Advantages of the example embodiments will become more apparent from the following detailed description of the best modes for carrying out the example embodiments when taken in conjunction with the accompanying drawings.

Brief Description of the Drawings

FIG. 1 is a schematic drawing of an embodiment of the music data management system incorporating the present invention;

FIG. 2 shows the architecture of a personal computer used in the music data

management system in FIG. 1;

FIG. 3 shows the configuration of an EMD registration server used in the music data management system in FIG. 1;

FIG. 4 is a block diagram of the personal computer, showing the functions of the personal computer;

FIG. 5 shows an example of the content usage rule;

FIG. 6 shows an example of the relation between original package display data belonging to a display data file, and content files;

FIGS. 7A to 7C shows an example of the composition of the display data file;

FIG. 8 shows an example of the relation between My Select package display data and content files;

FIG. 9 shows a relation between filtering package display data and content files;

FIG. 10 explains the operations made for EMD registration;

FIG. 11 shows an example of the display for execution of the registration;

FIG. 12 shows an example of the display made by the EMD selection program;

FIG. 13 shows an example of the display made by the purchase application program;

FIG. 14 shows an example of the display made by the purchase driver;

FIG. 15 shows an example of the display/operation instruction window;

FIG. 16 explains a window the recording program has the display unit;

FIG. 17 shows a property dialog box where it is set which of the WWW servers

is to be selected;

FIG. 18 shows a property dialog box where it is set which of the WWW servers is to be selected;

FIG. 19 explains a window the recording program has the display unit;

FIG. 20 explains a window the recording program has the display unit;

FIG. 21 explains a dialog box the recording program has the display unit;

FIG. 22 explains a dialog box the recording program has the display unit;

FIG. 23 explains a dialog box the recording program has the display unit;

FIG. 24 explains a dialog box the recording program has the display unit;

FIG. 25 explains a dialog box the recording program has the display unit;

FIG. 26 explains a dialog box the recording program has the display unit;

FIG. 27 shows an example of the display/operation instruction window;

FIG. 28 shows another example of the display/operation instruction window;

FIG. 29 shows still another example of the display/operation instruction window;

FIG. 30 shows still another example of the display/operation instruction window;

FIG. 31 shows still another example of the display/operation instruction window;

FIG. 32 shows still another example of the display/operation instruction window;

FIG. 33 shows still another example of the display/operation instruction window;

FIG. 34 shows still another example of the display/operation instruction window;

FIG. 35 explains the generation of filtering package;

FIG. 36 shows an example of the display/operation instruction window;

FIG. 37 shows another example of the display/operation instruction window;

FIG. 38 shows still another example of the display/operation instruction window;

FIG. 39 shows still another example of the display/operation instruction window;

FIG. 40 shows still another example of the display/operation instruction window;

FIG. 41 shows still another example of the display/operation instruction window;

FIG. 42 is a flow chart of the operations effected for registration;

FIG. 43 is a flow chart of the operations effected for recording from a CD;

FIG. 44 is a flow chart of the operations effected for acquisition of information corresponding to CD;

FIG. 45 is a flow chart of the operations effected for generation of filtering package;

FIG. 46 is a flow chart of the operations effected for checkout or check-in;

FIG. 47 is a flow chart of the operations effected for image pasting; and

FIG. 48 is a flow chart of the operations effected for image display.

Best Mode for Carrying Out the Invention

In the following, an information processing apparatus and method and a program storage medium according to the present invention will be described in detail.

In the following description, embodiments in which the present invention is applied to a music data management system will be exemplified. Referring now to FIG. 1, there is illustrated an embodiment of the music data management system according to the present invention. As shown, the system includes a personal computer 1 connected to a network 2 composed of a local area network (LAN), Internet or the like. The personal computer 1 receives music data (will be referred to as "content" hereinafter) from EMD (electrical music distribution) servers 4-1 to 4-3 or those read from a CD (compact disc) which will further be described later, converts the music data to a one compressed by a predetermined method (e.g., ATRAC3 (trade mark)), encrypts the data by a method such as DES (Data Encryption Standard), and then records the data.

Correspondingly to the above content recorded as encrypted, the personal computer 1 records a usage rule under which the content should be used. The usage rule data concerns for example simultaneous use of the contents corresponding to the

usage rule at three portable devices (also called "PD") 6-1 to 6-3, copy to the portable devices 6-1 to 6-3, move to another personal computer, etc. The usage rule data will further be described later.

The personal computer 1 stores the content recorded therein as encrypted into the portable device 6-1 connected thereto, and updates the usage rule data for the content having thus been stored into the portable device 6-1 (which will be referred to as "checkout" hereinafter). Also, the personal computer 1 stores the content recorded therein as encrypted as well as data related to the content into the portable device 6-2 connected thereto, and updates the usage rule data for the content having thus been stored into the portable device 6-2. Further, the personal computer 1 stores the content recorded therein as encrypted as well as data related to the content into the portable device 6-3 connected thereto, and updates the usage rule data for the content having been thus stored into the portable device 6-3.

Moreover, the personal computer 1 has the portable device 6-1 connected thereto erase the content stored in the latter, and updates the usage rule data for the content having thus been erased (which will be referred to as "check-in" hereinafter). Also, the personal computer 1 has the portable device 6-2 connected thereto erase the content stored in the latter, and updates the usage rule data for the content having thus been erased. Further, the personal computer 1 has the portable device 6-3 connected thereto erase the content stored in the latter, and updates the usage rule data for the content having thus been erased.

As shown, the music data management system includes an EMD (electrical music distribution) registration server 3. Upon reception of a request content distribution from the personal computer 1 starting acquisition of a content from the EMD servers 4-1 to 4-3, the EMD registration server 3 sends to the personal computer 1 via the network 2 an authenticate key necessary for mutual authentication between the personal computer 1 and EMD servers 4-1 to 4-3, and also a program required for connection to the EMD servers 4-1 to 4-3.

Correspondingly to the request from the personal computer 1, the EMD server 4-1 supplies a content to the personal computer 1 via the network 2. Also the EMD server 4-2 supplies a content to the personal computer 1 via the network 2 correspondingly to that request. Further the EMD server 4-3 supplies a content as well as data related to the content to the personal computer 1 via the network 2 correspondingly to the request from the personal computer 1.

The content supplied from the EMD servers 4-1 to 4-3 have been compressed by the same method or different methods, and also encrypted by the same method or different methods.

As shown, the music data management system further includes WWW (worldwide web) servers 5-1 and 5-2. Correspondingly to the request from the personal computer 1, the WWW server 5-1 supplies to the personal computer 1 via the network 2 data on a CD from which a content has been read (e.g., name of album recorded in the CD, distributor or supplier of the CD and the like) and data (e.g., music

title (or content name), composer's name (or artist name) and the like) corresponding to the content having been read from the CD. Also correspondingly to the request from the personal computer 1, the WWW server 5-2 supplies to the personal computer 1 via the network 2 data on a CD from which a content have been read and data corresponding to the content having been read from the CD.

The portable device 6-1 stores the content supplied from the personal computer 1 (namely, "checked-out content"). The portable device 6-1 plays back the stored content and output them to a headphone or the like (not shown). The user can disconnect from the personal computer 1 the portable device 6-1 having the content stored therein, carry it with him or her, and play back the stored content. Thus the user can listen to music pieces or the like corresponding to the content using an electrical acoustic converter such as a headphone or the like.

Also, the portable device 6-2 stores the content supplied from the personal computer 1 as well as data related to the content. The portable device 6-2 plays back the stored content and output them to a headphone or the like (not shown). The user can disconnect from the personal computer 1 the portable device 6-2 having the content stored therein, carry it with him, and play back the stored content. Thus the user can listen to music pieces or the like corresponding to the content using a headphone or the like.

Also, the portable device 6-3 stores the content supplied from the personal computer 1 as well as data related to the content. The portable device 6-3 plays back

the stored content and output them to a headphone or the like (not shown). The user can disconnect from the personal computer 1 the portable device 6-3 having the content stored therein, carry it with him, and play back the stored content. Thus the user can listen to music pieces or the like corresponding to the content using a headphone or the like.

The personal computer 1 used on the music data management system shown in FIG. 1 has a structure shown in FIG. 2, and a CPU (central processing unit) 11 comprised in the personal computer 1 actually executes a variety of application programs (will be detailed later) and OS (operating system). Also, the personal computer 1 includes a ROM (read-only memory) 12 and a RAM (random-access memory) 13. Generally, the ROM 12 stores programs used by the CPU 11 and basically fixed data of arithmetic parameters. The RAM 13 stores programs executed by the CPU 11 and parameters which will appropriately vary during the execution of the programs. These components are connected to each other via a host bus 14 composed of a CPU bus, etc. The host bus 14 is connected to an external bus 16 such as a PCI (peripheral component interconnect/interface) via a bridge 15.

The personal computer 1 is provided also with a keyboard 18, mouse 19, display unit 20 and an HDD 21. The keyboard 18 is operated by the user to input a variety of commands to the CPU 11. The mouse 19 is also operated by the user for pointing and selection on the screen of the display unit 20. The display 20 is an LCD (liquid crystal display) unit or a CRT (cathode ray tube) display unit to display a variety of

information as a text or image. The HDD (hard disc drive) 21 drives a hard disc or hard discs to write or read a program executed by the CPU 11 and information to or from the hard disc.

Further the personal computer 1 is provided with a drive 22 to read data or program recorded in a magnetic disc 41, optical disc 42 (including CD), magneto-optical disc 43 or semiconductor memory 44 set in the drive 22, and supply it to the RAM 13 connected via an interface 17, external bridge 16, bridge 15 and host bus 14 to the drive 22.

Moreover the personal computer 1 is provided with USB (universal serial bus) ports 23-1 to 23-3, The portable device 6-1 is connected to the USB port 23-1via a predetermined cable. The USB port 23-1 delivers to the portable device 6-1 the data (e.g., content or command to the portable device 6-1) supplied from the HDD 21, CPU 11 or RAM 13 via the interface 17, external bus 16, bridge 15 or host bus 14.

To the USB port 23-2, there is the portable device 6-2 via a predetermined cable. The USB port 23-2 delivers to the portable device 6-2 the data (e.g., content or command to the portable device 6-2) supplied from the HDD 21, CPU 11 or RAM 13 via the interface 17, external bus 16, bridge 15 or host bus 14.

The USB port 23-3 has the portable device 6-3 connected thereto via a predetermined cable. The USB port 23-3 delivers to the portable device 6-3 the data (e.g., content or command to the portable device 6-3) supplied from the HDD 21, CPU 11 or RAM 13 via the interface 17, external bus 16, bridge 15 or host bus 14.

The personal computer 1 is further provided with a speaker 24 which outputs a predetermined sound corresponding to a content based on data or sound signal supplied from the interface 17.

As shown, the above components from the keyboard 18 to speaker 24 are connected to the interface 17 which is connected to the CPU 11 via the external bus 16, bridge 15 and host bus 14.

Further the personal computer 1 is provided with a communications unit 25 to which the network 2 is connected. The communications unit 25 stores in the form of a predetermined packet data supplied from the CPU 11 or HDD 21 (e.g., request for registration, request for sending of a content or the like), and sends the data via the network 2, and outputs data stored in the received packet (e.g., authenticate key, content or the like) to the CPU 11, RAM 13 or HDD 21 via the network 2.

The communications unit 25 is connected to the CPU 11 via the external bus 16, bridge 15 and hist bus 14.

The EMD registration server 3comprised in the music data management system to which the present invention has been applied has the configuration shown in FIG. 3. As shown, the EMD registration server 3 includes a CPU 61, ROM 62 and a RAM 63. The CPU 61 actually executes a variety of application programs and OS. Generally, the ROM 62 stores programs used by the CPU 61 and basically fixed data of arithmetic parameters. The RAM 63 stores programs executed by the CPU 61 and parameters which will appropriately vary during the execution of the programs. These

components are connected to each other via a host bus 64 composed of a CPU bus, etc. The host bus 64 is connected to an external bus 66 such as a PCI bus via a bridge 65.

The EMD registration server 3 is provided also with a keyboard 68, mouse 69, display unit 70 and an HDD 71. The keyboard 68 is operated by the user to input a variety of commands to the CPU 61. The mouse 69 is also operated by the user for pointing and selection on the screen of the display unit 70. The display 70 is an LCD unit or a CRT display unit to display a variety of information as a text or image. The HDD 71 drives a hard disc or hard discs to write or read a program executed by the CPU 61 and information to or from the hard disc.

Further the EMD registration server 3 is provided with a drive 72 to read data or program recorded in a magnetic disc 91, optical disc 92, magneto-optical disc 93 or semiconductor memory 94 set in the drive 72, and supply it to the RAM 63 connected via an interface 67, external bus 66, bridge 65 and host bus 64 to the drive 72.

As shown, the above components from the keyboard 68 to drive 72 are connected to the interface 67 which is connected to the CPU 61 via the external bus 66, bridge 65 and host bus 64.

Further the EMD registration server 3 is provided with a communications unit 73 to which the network 2 is connected. The communications unit 73 outputs data stored in the received packet to the CPU 61, RAM 63 or HDD 71 (e.g., data required for registration which will further be described later, predetermined program ID (identifier) or the like), and stores data supplied from the CPU 61 or HDD 71 (e.g., a

predetermined number of authenticate keys, program or the like) in the form of a predetermined packet for sending via the network 2. The communications unit 73 is connected to the CPU 61 via the external bus 66, bridge 65 and hist bus 64.

The EMD servers 4-1 to 4-3 and WWW servers 5-1 and 5-2 are constructed similarly to the EMD registration server 3. Therefore, they will not be described any further.

Next, referring to FIG. 4, functions the personal computer 1 can perform by executing predetermined programs will be described herebelow:

FIG. 4 is a block diagram the functions of the personal computer 1, which can be performed by CPU 11 executing predetermined programs.

The CPU 11 executes a content management program 111 composed of a plurality of programs including an EMD selection program 131, check-in/checkout management program 132, encryption method conversion program 133, compression method conversion program 134, encryption program 135, usage rule conversion program 136, signature management program 137, authentication program 138, decryption program 139, PD driver 140, and purchase drivers 141 and 142.

The content management program 111 is stated with shuffled instructions, encrypted instructions or the like for example to conceal what are to be done under such instructions. Namely, it is difficult to know what is to be effected according to the content management program 111. For example, even if the content management program 111 is read directly by the user, no instructions included in the program 111

will not be identifiable.

When the content management program 111 is installed in the personal computer 1, the EMD selection program 131 will not be included in the content management program 111 but will be received from the EMD registration server 3 via the network 2 during EMD registration which will further be described later. The EMD selection program 131 is to select connection with any of the EMD servers 4-1 to 4-3 and have a purchase application program 115 or the purchase driver 141 or 142 communicate with any of the EMD servers 4-1 to 4-3 (for example, downloading of a content to be purchased or the like).

The check-in/checkout management program 132 is to set either check-in or checkout, and check out contents stored in content files 161-1 to 161-N to any of the portable devices 6-1 to 6-3 based on usage rule files 162-1 to 162-N recorded in a content data base 114 or check in contents stored in the portable devices 6-1 to 6-3.

Correspondingly to either the check-in or checkout set as in the above, the check-in/checkout management program 132 updates usage rule data stored in the usage rule files 162-1 to 162-N recorded in the content data base 114.

The encryption method conversion program 133 is to convert an encryption method having been used to encrypt a content the purchase application program 115 has received from the EMD server 4-1 via the network 2, a one having been used to encrypt a content the purchase driver 141 has received from the EMD server 4-2 via the network 2 or a one having been used to encrypt a content the purchase driver 142

has received from the EMD server 4-3 via the network 2, to the same encryption method as that having been used to encrypt contents stored in the content files 161-1 to 161-N the content data base 114 have recorded therein.

Also, when checking out a content to the portable device 6-1 or 6-3, the encryption method conversion program 133 is used to convert an encryption method by which a content to be checked out to a one the portable device 6-1 or 6-3 can use.

The compression method conversion program 134 is to convert a compression method having been used to compress a content the purchase application program 115 has received from the EMD server 4-1 via the network 2, a one having been used to compress a content the purchase driver 141 has received from the EMD server 4-2 via the network 2 or a one having been used to compress a content the purchase driver 142 has received from the EMD server 4-3 via the network 2, to the same compression method as that having been used to compress contents stored in the content files 161-1 to 161-N the content data base 114 having recorded therein.

Also, when checking out a content to the portable device 6-1 or 6-3, the compression method conversion program 134 is used to convert the compression method having been used to compress the content to be checked out to a one the portable device 6-1 or 6-3 can use.

The encryption program 135 is to encrypt a content having been read from a CD for example and supplied from a recording program 113 (not yet encrypted) by the encryption method having been used to encrypt contents stored in the content files 161-

1 to 161-N recorded in the content data base 114.

The usage rule conversion program 136 is to convert the usage rule data for content the purchase application program 115, purchase driver 141 or purchase driver 142 has received from the EMD server 4-1, 4-2 or 4-2, respectively, via the network 2, to the same format as that of the usage rule data stored in the usage rule files 161-1 to 161-N recorded in the content data base 114.

Also, when checking out a content to the portable device 6-1 or 6-3, the usage rule conversion program 136 converts the usage rule for the content to be checked out to a usage rule data the portable device 6-1 or 6-3 can use.

The signature management program 137 is to find, before check-in or checkout of a content, any falsification of the usage rule based on a signature (will further be described later) included in the usage rule data stored in the usage rule files 162-1 to 162-N recorded in the content data base 114, and updates the signature included in the usage rule data correspondingly to an update of the usage rule data stored in the usage rule files 162-1 to 162-N recorded in the content data base 114, the update having occurred after the check-in or checkout of the content.

The authentication program 138 is to provide a mutual authentication between the content management program 111 and purchase application program 115, and a mutual authentication between the content management program 111 and purchase driver 141. Also, the authentication program 138 stores authenticate keys for use in a mutual authentication between the EMD server 4-1 and purchase application program

115, a mutual authentication between the EMD server 4-1 and purchase driver 141, and a mutual authentication between the EMD server 4-3 and purchase driver 142.

The authenticate key used by authentication program 138 for the mutual authentication has not yet been stored in the authentication program 138 when the content management program 111 is installed in the personal computer 1 but it will be supplied from the EMD registration server 3 and stored in the authentication program 138 when a registration has successfully been done by a display/operation instruction program 112.

When the personal computer 1 reproduces contents stored in the content files 161-1 to 161-N recorded in the content data base 114, the decryption program 139 is to decrypt the content.

When checking out a predetermined content to the portable device 6-2 or checking in a predetermined content from the portable device 6-2, the PD driver 140 is to supply the portable device 6-2 with the content or a command to have the portable device 6-2 execute a predetermined operation. When checking out a predetermined content to the portable device 6-1 or checking in a predetermined content from the portable device 6-1, the PD driver 140 is to supply a device driver 116-1 with the content or a command to have the device driver 116-1 execute a predetermined operation. When checking out a predetermined content to the portable device 6-3 or checking in a predetermined content from the portable device 6-3, the PD driver 140 is to supply a device driver 116-2 with the content or a command to have the device

driver 116-2 execute a predetermined operation.

The purchase driver 141 is a so-called plug-in program. It is installed along with the content management program 111, and supplied from the EMD registration server 3 via the network 2 or as recorded in a predetermined CD. Installed in the personal computer 1, the purchase driver 141 is to send and receive data to and from the content management program 111 via an interface of a predetermined type the content management program 111 has. The purchase driver 141 sends to the EMD server 4-2 via the network 2 a request for sending a predetermined content, and receives the content from the EMD server 4-2. Also, the purchase driver 141 makes an accounting when receiving a content from the EMD server 4-2.

The purchase driver 142 is a program which is to be installed along with the content management program 111. It is to send to the EMD server 4-3 via the network 2 a request for sending a predetermined content, and receives the content from the EMD server 4-3. Also, the purchase driver 142 makes an accounting when receiving a content from the EMD server 4-3.

The display/operation instruction program 112 is to have the display unit 20 display a predetermined window image based on a filtering data file 181, display data file 182, image files 183-1 to 183-K or history data file 184, and instruct the content management program 111 by means of the keyboard 18 or mouse 19 to check in or out a content.

The filtering data file 181 has stored therein data for weighting each of contents

stored in the content files 161-1 to 161-N recorded in the content data base 114, and it is recorded in the HDD 21.

The display data file 182 has stored therein data corresponding to contents stored in the content files 161-1 to 161-N recorded in the content data base 114, and it is recorded in the HDD 21.

The image files 183-1 to 183-K have stored therein images corresponding to the content files 161-1 to 161-N recorded in the content data base 114 or images corresponding to packages which will further be described later, and they are recorded in the HDD 21.

In the following, the image files 183-1 to 183-K will be referred to simply as "image file 183" where it is not necessary to identify them individually.

The history data file 184 has stored therein history data including numbers of times contents stored in the content files 161-1 to 161-N recorded in the content data base 114 have been checked out, numbers of times the contents stored in the content files 161-1 to 161-N have been checked in, dates of the check-in and checkout, etc., and it is recorded in the HDD 21.

For the registration, the display/operation instruction program 112 is to send a previously stored ID of the content management program 111 to the EMD registration server 3 via the network 2 while receiving an authenticate key and EMD selection program 131 from the EMD registration server 3, and supplies the content management program 111 with the authenticate key and EMD selection program 131.

The recording program 113 is to read out data such as a data recording time, etc. from a CD which is the optical disc 42 set in the drive 22 based on an operation made to the keyboard 18 or mouse 19, while displaying a predetermined window image.

The recording program 113 requests, via the network 2, for sending to the WWW server 5-1 or 5-2 of data corresponding to a CD (e.g., album name, artist name and the like) or data corresponding to contents recorded in the CD (e.g., content names and the like) based on the content recording time recorded in the CD while receiving, from the WWW server 5-1 or 5-2 data corresponding to a CD or data corresponding to contents recorded in the CD.

The recording program 113 is to supply received data corresponding to a CD or data corresponding to contents recorded in the CD to the display/operation instruction program 112.

When supplied with a recording instruction, the recording program 113 reads out contents from a CD being the optical disc 42 set in the drive 22 and outputs it to the content management program 111.

The content data base 114 stores in any of the content files 161-1 to 161-N contents supplied from the content management program 111, compressed by a predetermined method and encrypted by a predetermined method (namely, they are recorded in the HDD 21). The content data base 114 stores in any of the usage rule files 162-1 to 162-N corresponding to the content files 161-1 to 161-N, respectively, having contents stored therein usage rule data corresponding to the contents stored in

the content files 161-1 to 161-N, respectively (namely, they are recorded in the HDD 21).

The content data base 114 may have stored therein the content files 161-1 to 161-N or usage rule files 162-1 to 162-N as records. For example, usage rule data corresponding to a content stored in the content file 161-1 is stored in the usage rule file 162-1. Also, usage rule data corresponding to a content stored in the content file 161-N is stored in the usage file 162-N.

In the following, the content files 161-1 to 161-N will be referred to simply as "content file 161" where it is not necessary to identify them individually. Also, in the following, the usage rule files 162-1 to 162-N will be referred to simply as "usage rule file 162" where it is not necessary to identify them individually.

As the other personal computer 1-2 has a similar structure to that of the personal computer 1-1, the explanation is omitted.

Referring now to FIG. 5, there is shown an example of usage rule data stored in the usage rule files 162-1 to 162-N. For the item "Content ID", there is set data to identify a content stored in each of the content files 161-1 to 161-N. For the item "checkout Possible?", there is set either "YES" or "NO". When "YES" is set for this item, the content management program 111 can check out a content identified with the "Content ID" to any of the portable devices 6-1 to 6-3. When "NO" is set for the item "Checkout Possible?", the content management program 111 will not check out the content identified with the "Content ID" to any of the portable devices 6-1 to 6-3.

For the item "No. of Possible Checkouts", there is set a number of times the content management program 111 can effect content checkout. When the content management program 111 checks out a content once, the number for the item "No. of Possible Checkouts" is decremented correspondingly. When the content management program 111 checks in a content once, the number for the item "No. of Possible Checkouts" is incremented correspondingly.

When the number for the item "No. of Possible Checkouts" changes from "1" to "0" as the result of the checkouts done by the content management program 111, there will be set "NO" for the item "Checkout Possible?". When the number for the item "No. of Possible Checkouts" changes from "0" to "1" as the result of the check-in's done by the content management program 111, there will be set "YES" for the item "Checkout Possible?".

In the item "Move Possible?", there is set either "YES" or "NO". When "YES" is set for this item, the content management program 111 can move a content identified with the "Content ID". When "NO" is set for the item "Move Possible", the content management program 111 will not move the content identified with the "Content ID".

In the item "Copy Possible?", there is set either "YES" or "NO". When "YES" is set for this item, the content management program 111 can copy a content identified with the "Content ID". When "NO" is set for this item, the content management program 111 will not copy the content identified with the "Content ID".

In the item "Number of Possible Copies", there is set a number of times the

content management program 111 can effect content copy.

In the item "Usage Period", there is stated a period for which a content identified with the "Content ID" can be used (checkout or playback).

In the item "Content-Usable District", there is stated a district (e.g., Japan or Worldwide) where a content identified with the "Content ID" can be used (checkout or playback).

In the item "Signature", there is stored data (will be referred to as "signature data" hereinafter) the signature management program 137 generates based on data set in the items "Content ID" to "Content-Usable District". The signature data is used for detection of any falsification of usage rule data. The algorithm used by the signature management program 137 for generation of signature data is a unidirectional function. Since it is not disclosed to the public, it is difficult for any other than the supplier of the content management program 111 to generate a correct signature data based on data set in the items "Content ID" to "Content-Usable District".

The purchase application program 115 is supplied from the EMD registration server 3 via the network 2 or as recorded in a predetermined CD. The purchase application program 115 is to request the EMD server 4-1 for sending a predetermined content, receives the content from the EMD server 4-1 and supplies it to the content management program 111. Also, the purchase management program 115 makes an accounting when receiving the content from the EMD server 4-1.

Next, correspondence between data stored in the display data file 82 and the

content files 161-1 to 161-N stored in the content data base will be described:

A content stored in any of the content files 161-1 to 161-N belongs to a predetermined package. In detail, the package is an original package, My select package or a filtering package.

More than one content belong to the original package. The original package corresponds to the content classification in the EMD servers 4-1 to 4-3 (e.g., so-called album) or to a single CD. The contents belong to any original package and cannot belong to a plurality of original packages. The original package to which the contents belong cannot be modified. The user can edit (addition of information or modification of added information) a part of information corresponding to the original package.

Referring now to FIG. 6, there is shown an example of the relation between the original package display data 201 included in a display data file 182 and content files 161-1 to 161-N. The relation defines the relation between an original package and contents. The original package display data 201 includes package display data 221-1 to 221-M. The package display data 211-1 is related with the content display data 221-1-1 to 221-1-i. The content display data 221-1-1 corresponds to a content stored in the content file 161-1. Usage rule data for a content stored in the content file 161-1 is stored in the usage rule 162-1.

The content display data 221-1-2 corresponds to a content stored in the content file 161-2. Usage rule data for a content stored in the content file 161-2 is stored in the usage rule 162-2. The content display data 221-1-i corresponds to a content stored in

the content file 161-q. Usage rule data for a content stored in the content file 161-q is stored in the usage rule 162-q.

The package display data 211-2 are related with the content display data 221-2-1 to 221-2-j.

The content display data 221-2-1 corresponds to a content stored in the content file 161-(q+1). Usage rule data for a content stored in the content file 161-(q +1) is stored in the usage rule 162-(q+1).

The content display data 221-2-2 corresponds to a content stored in the content file 161-(q+2). Usage rule data for a content stored in the content file 161-(q +2) is stored in the usage rule 162-(q+2).

The content display data 221-2-j corresponds to a content stored in the content file 161-r. Usage rule data for a content stored in the content file 161-r is stored in the usage rule 162-r.

Similarly, the package display data 211-M are related with the content display data 221-M-1 to 221-M-p. The content display data 221-M-p corresponds to a content stored in the content file 161-N. Usage rule data for a content stored in the content file 161-N is stored in the usage rule 162-N.

In the following, the package display data 211-1 to 211-M will be referred to simply as "package display data 211" where it is not necessary to identify them individually. Also, the content display data 221-1-1 to 221-M-p will be referred to simply as "content display data 221" where it is not necessary to identify them

individually. Also, the content display data 161-1 to 161-N will be referred to simply as "content display data 161" where it is not necessary to identify them individually. The usage rule files 162-1 to 162-N will be referred to simple as "usage rule file 162" where it is not necessary to identify them individually.

Referring now to FIGS. 7A to 7C, there is shown an example of the composition of the display data file 182. FIG. 7A shows an example of the package display data 211. The package display data 211 includes package ID data for identification of a package, package type data for identification of either My Select package or filtering package, package name data, artist name data, genre name data, content ID data indicating name of image file in which an image corresponding to a package is stored, and content ID data corresponding to more than one content belonging to a package. Information corresponding to an original package added by the user is added to the package display data 211.

FIG. 7B shows an example of the content display data 221. The content display data 221 includes content ID data, original package ID data for identification of an original package to which a corresponding package belong, content name data, data on number of checkouts, and data for indicating name of image file in which an image corresponding to a content is stored.

Further, the display data file 182 may be made to correspond to a content ID and have data type and data recorded therein, as shown in FIG. 7C.

The My Select package has belonging thereto more than one content freely

selected by the user. The user can freely make an edition to have a content belong to a My Select package. A content may belong to more than one My Select package, and may not belong to any My Select package.

Referring now to FIG. 8, there is shown an example of the relation between the My Select package display data 241 belonging to the display data file 182 and content files 161-1 to 161-N. The relation defines the relation between a My Select package and contents. The My Select package display data 241 includes package display data 251-1 to 251-S.

The package display data 251-1 is related with the content display data 221-1-1, 221-2-2 or 221-1-i correspondingly to a setting made by the user. The package display data 251-2 is related with the content display data 221-2-j, 221-3-1 or 221-1-2 correspondingly to a setting made by the user. Similarly, the package display data 251-S is related with the content display data 221-2-2 or 221-1-i correspondingly to a setting made by the user.

In the following, the package display data 251-1 to 251-S will be referred to simply as "package display data 251" where it is not necessary to identify them individually. Since the package display data 251 has a similar composition to that of the package display data 221 having been previously described with reference to FIG. 7A, so it will not be described any further.

Thus, the user can have a desired content belong to a My Select package. One content belongs to a plurality of My Select packages as the case may be.

The filtering package has belonging thereto a content selected based on filtering data stored in the filtering data file 181. The filtering data is supplied from the EMD servers 4-1 to 4-3 or WWW server 5-1 or 5-2 via the network 2, or as recorded in a predetermined CD. The user may edit filtering data stored in the filtering file 181.

The filtering data is a reference for selection of a predetermined content or calculation of a weight corresponding to a content. For example, using the filtering data corresponding to the J-POP (Japanese pops) of the week, the personal computer 1 can identify ten contents from the best to tenth-place ones of the week.

The filtering data file 181 includes for example filtering data for selection of contents in the descending order of the periods for which they have been checked out for the past one month, filtering data for selection of contents having been checked out frequently for the past half year or filtering data for selection of contents including a letter "love" in their name.

Thus, a content in the filtering package is selected by relating the content display data 221 corresponding to the content (including data set by the user in the content display data 221) or history data 184 with a filtering data.

Referring now to FIG. 9, there is shown an example of the relation between the filtering package display data 281 belonging to the display data file 182 and content files 161-1 to 161-N. The relation defines the relation between a My Select package and contents. The filtering package display data 281 includes package display data 291-1 to 291-A.

The package display data 291-1 is related with the content display data 221-2-1, 221-1-2 or 221-M-p. The package display data 291-2 is related with the content display data 221-1-i, 221-2-j and 221-2-2. Similarly, the package display data 291-A is related with the content display data 221-1-i, 221-2-j and 221-2-2.

In the following, the package display data 291-1 to 291-A will be referred to simply as "package display data 291" where it is not necessary to identify them individually. Since the package display data 291 has a similar composition to that of the package display data 221 having been previously described with reference to FIG. 7A, so it will not be described any further.

Thus, a predetermined content selected by the user operating the personal computer 1 belongs to the filtering package, and one content belongs to a plurality of filtering packages as the case may be.

Next, EMD registration will be described with reference to FIG. 10. When the display/operation instruction program 112 is initially started with the content management program 111 and display/operation instruction program 112 installed in the personal computer 1, it references to a uniform resource locator (URL) and the like previously stored therein, and connects to the EMD registration server 3 via the network 2.

The EMD registration server 3 sends data for display of a screen intended for the registration to the display/operation instruction program 112. The display/operation instruction program 112 will display a screen having an EMD

registration button 311 disposed thereon on the display unit 20 as shown in FIG. 11 for example.

When the EMD registration button 311 is clicked, the display/operation instruction program 112 requests the EMD registration server 3 for sending an authenticate key 301 and EMD selection program 131 previously recorded in the EMD registration server 3 along with a previously stored ID for the content management program 111 and necessary data for the registration (e.g., name of the user of the personal computer 1 and credit No.).

When it is determined that the received ID for the content management program 111 is valid, the EMD registration server 3 sends the authenticate key 301 and EMD selection program 131 to the display/operation instruction program 112 via the network 2.

On the contrary, when it is determined that the received ID for the content management program 111 is invalid, the EMD registration server 3 will send a predetermined error message to the display/operation instruction program 112 via the network 2. When the ID for the content management program 111 is not invalid, the display/operation instruction program 112 cannot acquire the authenticate key 301 and EMD selection program 131.

Upon reception of the authenticate key 301 and EMD selection program 131 from the EMD registration server 3, the display/operation instruction program 112 will supply the authenticate key 301 and EMD selection program 131 to the content

management program 111.

When supplied with the authenticate key 301 and EMD selection program 131 from the display/operation instruction program 112, the content management program 111 will install and start the EMD selection program 131, and supply the authenticate key 301 to the authentication program 138. The authentication program 138 stores therein the acquired authenticate key 301.

After started, the EMD selection program 131 will display, on the display unit 20, a window having disposed therein buttons for starting the connection with any of the EMD servers 4-1 to 4-3 as shown in FIG. 12 for example.

When an EXA-SOFT AUDIO button 331 for example is clicked, the content management program 111 starts a purchase application 151 and connects the purchase application 151 to the EMD server 4-1. At this time, the authentication program 138 uses the authenticate key 301 to execute a mutual authentication with the purchase application 151 and has the purchase application 151 make a mutual authentication with the EMD server 4-1.

When the purchase application 151 has successfully made the mutual authentication with the EMD server 4-1, it will display, on the display unit 20, a screen for purchase of a content as shown in FIG. 13 for example.

When a SOLID AUDIO button 332 for example, shown in FIG. 12, is clicked, the content management program 111 will install the purchase driver 141 being a plug-in program, and connect the purchase driver 141 to the EMD server 4-2. At this time,

the authentication program 138 uses the authenticate key 301 to execute a mutual authentication with the purchase driver 141 and has the purchase driver 141 make a mutual authentication with the EMD server 4-2.

When the purchase driver 141 has succeeded in the mutual authentication with the EMD server 4-2, it will display, on the display unit 20, a screen for purchase of a content as shown in FIG. 14 for example.

Similarly, when a DMD button 333 for example, shown in FIG. 12, is clicked, the content management program 111 will connect the purchase driver 142 to the EMD server 4-3. At this time, the authentication program 138 uses the authenticate key 301 to execute a mutual authentication with the EMD server 4-3 via the purchase driver 142.

Note that when a check button 334 (DIRECT CHECKOUT) shown in FIG. 12 is checked, a content received from any of the EMD servers 4-1 to 4-3 (namely, the content is purchased) is stored into the content data base 114 and checked out to any predetermined one of the portable devices 6-1 to 6-3.

Next, reading of a content from a CD set in the drive 22 and recording of the content will be described.

Referring now to FIG. 15, there is shown an example of the display/operation instruction window the display/operation instruction program 112 displays on the display unit 20 when it is started after completion of the EMD registration.

The display/operation instruction window has disposed therein a button 341 for

starting the recording program 113, button 342 for starting the EMD selection program 131, button 343 for displaying a field in which check-in or checkout is set, and a button 344 for displaying a field for edition of a My Select package, that is, the My Select package display data 241.

When a button 345 also disposed is selected, data corresponding to an original package is displayed in a field 351. When a button 346 also disposed is selected, data corresponding to a My Select package is displayed in the field 351. When a button 347 also disposed is selected, data corresponding to a filtering package is displayed in the field 351.

Data displayed in the field 351 relates to a package, and it is for example a package name or artist name.

As shown in FIG. 15, in the field 351, there are shown, for example, a package name "FIRST" and artist name "A. TARO" stored in the package display data 221-1, a package name "SECOND" and artist name "A. TARO" stored in the package display data 221-2, etc.

In a field 352, there is shown data corresponding to contents belonging to packages selected in the field 351. Data displayed in this field 352 include content name, play time or number of possible checkouts, etc., for example.

In FIG. 15 for example, since a package corresponding to the package display data 221-2 is selected, there are displayed in the field 351 a content name "MINAMI-NO-SAKABA" and number of possible checkouts "..." (indicating three checkouts)

stored in the content display data 221-1 corresponding to contents belonging to a package corresponding to the package display data 221-2, a content name "KITA-NO-HAKABA" and number of possible checkouts ".." (indicating two checkouts" stored in the content display data 221-2, etc.

Note that the number of possible checkouts may not only be indicated with a number of predetermined figures (e.g., star, moon or the like) as shown in FIG. 15 but also with a numeral or a note or notes (e.g., one sixteenth note for one checkout, two sixteenth notes or one eighth note for two checkouts, three sixteenth notes or one dotted eighth note for three checkouts, etc.).

Also the display/operation instruction window has disposed therein a field 348 in which an image or the like corresponding to a selected package or content is displayed, and a button 349 for use to play back a selected content (output a sound corresponding to the content from the speaker 24). To play back the selected content, the button 349 is to be clicked.

By selecting a predetermined content name displayed in the field 352 and making an erasing operation while data corresponding to the original package are being displayed in the field 351 with the button 345 activated, the display/operation instruction program 112 will have the content management program 111 erase a predetermined content stored in the content data base 114 and corresponding to the selected content name.

Referring now to FIG. 16, there is shown, for explanation, a window the

recording program 113 has the display unit 20 display when it is started by clicking the button 341.

The recording program 113 reads a play time of a content from a CD set in the drive 22, and displays it in a field 383. Since the name of the content is unknown, the recording program 113 will display "UNKNOWN" in a part of the field 383 in which a content name is to be displayed.

Since both he title of the CD set in the drive 22 and artist name are unknown, the recording program 113 will display "UNKNOWN" in each of a field 381 in which a CD title is to be displayed and a field 382 in which an artist name is to be displayed.

The window displayed on the display unit 20 by the recording program 113 has further disposed therein a button 384 which is to be clicked for acquisition of information from a CD, and a button 385 for setting whether or not a content read from the CD should automatically be checked out to any of the portable devices 6-1 to 6-3 when the read content is recorded into the content data base 114.

When the button 385 for example is clicked, the recording program 113 will have the display unit 20 display a pulldown menu showing the list of portable devices 6-1 to 6-3. When the user selects any of the portable devices 6-1 to 6-3 from the pulldown menu, the personal computer 1 will automatically check out a content recorded from the CD for any selected one of the portable devices 6-1 to 6-3. When the user selects "NO CHECKOUT" from the pulldown menu, the personal computer 1 will not check out any content recorded from the CD.

The window the recording program 113 has the display unit 20display has also disposed therein a button 386 for instructing the start of recording of a content recorded in the CD.

Referring now to FIG. 17, there is shown a property dialog box the recording program 113 has the display unit 20 display when CD information is to be acquired from either of the WWW servers 5-1 and 5-2 and where it is set from which of the WWW servers 5-1 and 5-2 the CD information should be acquired.

The property dialog box has disposed therein a field 401 where it is set from which of the WWW servers 5-1 and 5-2 the CD information should be acquired. When "CDDB" for example is set in the field 401, the recording program 113 will request the WWW server 5-1 for sending the CD information. When "CDNEW JAPAN" (for example, the name of a company or site providing a similar service to that provided by the CDNEW (trademark)) is set in the field 401, the recording program 113 will request the WWW server 5-2 corresponding to CDDB for sending the CD information.

When "CDDB" is set in the field 401, fields 402 and 403 will be ready for such a setting. URL at the first site of CDDB is to be set in the field 402 while that at the second site of CDDB is to be set in the field 403.

When the CD information is received from either of the WWW servers 5-1 and 5-2, there will be set in a field 404 a directory in which the received information is to be recorded (any directory of the HDD 21).

When a button 405 also disposed in the property dialog box is clicked, the

recording program 113 will access, via the network 2, a predetermined one of the WWW servers based on URL previously stored in the recording program 113, acquire information on URL at the first site of CDDB and URL at the second site of CDDB, and set the information on URL at the first site of CDDB as candidate information to be set in the field 402 while setting the information on URL at the second site of CDDB as candidate information to be set in the field 403, as shown in FIG. 18.

When the button 384 shown in FIG. 16 is clicked after the user sets "CDDB" in the field 401, URL at the first site of CDDB in the field 402 and URL at the second site of CDDB in the field 403 as shown in FIG. 19, the recording program 113 will connect to the WWW server 5-1 based on URL set in the field 402 and URL set in the field 403, request the WWW server 5-1 for CD information by following a procedure corresponding to "CDDB" set in the field 401, and receive the CD information from the WWW server 5-1.

Referring now to FIG. 20, there is shown a window the recording program 113 has the display unit 20 display when it has received the CD information from the WWW server 5-1 with the button 384 clicked. Based on the CD information received from the WWW server 5-1, the recording program 113 will display a CD title such as "Asynchronized" for example in the field 381, and also an artist name such as "KUWAI" for example in the field 382.

Based on the CD information received from the WWW server 5-1, the recording program 113 will display content names such as "HEAT", "PLANET", "BLACK",

"SOUL", etc. for example in a part of the field 383 where a content name is to be displayed, and also an artist name such as "KUWAI" for example in a part of the field 383 where an artist name is to be displayed.

When having received more two pieces of CD information from the WWW server 5-1, the recording program 113 will have the display unit 20 display a dialog box as shown in FIG. 21 for selection by the user of any of the CD information pieces.

FIG. 22 shows a dialog box the recording program 113 has the display unit 20 display when the button 384 is clicked with "CDNEW JAPAN" set in the field 401 and in which a search keyword is to be set.

As shown in FIG. 22, the dialog box has disposed therein buttons 431, 432, 433 and 434. The button 431 is to be activated by clicking for searching CD information taking an album name as a search keyword. The search keyword for the album name is set in a field 441 also disposed in the dialog box.

The button 432 is to be activated by clicking for searching CD information taking an artist name as a search keyword. The search keyword for the artist name is set in a field 442 also disposed in the dialog box.

The button 433 is to be activated by clicking for searching CD information taking a content name as a search keyword. The search keyword for the content name is set in a field 443 also disposed in the dialog box.

The button 434 is to be activated by clicking for searching CD information taking a product No. as a search keyword. The search keyword for the product No. is

set in a field 444 also disposed in the dialog box.

For searching CD information, at least any one of the buttons 431 to 434 is activated.

When searching CD information taking an artist name as a search keyword as shown in FIG. 23, the button 434 is activated and a string of characters indicating the artist name such as "KUWAI" is set in the field 442.

When the search button disposed in the dialog box to set a search keyword is clicked, the recording program 113 will connect to the WWW server 5-2 based on a previously stored URL or the like, request the WWW server 5-2 for CD information following a procedure corresponding to "CDNEW JAPAN" set in the field 401 and based on the search keyword set in the dialog box, and receive the CD information from the WWW server 5-2.

The WWW server 5-2 sends the CD information along with data for displaying an image which prompts the user to purchase a CD related with the searched CD information to the personal computer 1 as shown in FIG. 24. The user of the personal computer 1 can purchase a predetermined CD via the network 2 based on the data for displaying the image which prompts the user to purchase the CD.

Referring now to FIG. 25, there is shown, for explanation, a window the recording program 113 has the display unit 20 display when it has received the CD information from the WWW server 5-2 after clicking the search button 384 disposed in the dialog box to set the search keyword. Based on the CD information received

from the WWW server 5-2, the recording program 113 displays a CD title such as "Asynchronized" for example in the field 381, and also an artist name such as "KUWAI" for example in the field 382.

Based on the CD information received from the WWW server 5-2, the recording program 113 will display content names such as "HEAT", "PLANET", "BLACK", "SOUL", etc. for example in a part of the field 383 where a content name is to be displayed, and also an artist name such as "KUWAI" for example in a part of the field 383 where an artist name is to be displayed.

After the recording program 113 receives a predetermined CD information, it will store the CD information into the directory in the HDD 21, designated in the field 404.

When instructed to acquire CD information by the user clicking the button 384 or the like, the recording program 113 will first search the directory in the HDD 21, designed in the field 404. When the CD information is stored in the directory in the HDD 21, designated in the field 404, the recording program 113 will display a dialog box 461 shown in FIG. 26 to prompt the user to select whether the CD information stored in the directory designated in the field 404 is to be used.

When the button 386 for instructing to start recording of any one of the contents displayed in the window the recording program 113 has the display unit 20 display is clicked, the recording program 113 will read the content from a CD set in the drive 22 and supply the content read from the CD along with the CD information to the content

management program 111. The compression method conversion program 134 in the content management program 111 will compress the content supplied from the recording program 113 by a predetermined compression method, and the encryption program 135 will encrypt the compressed content. The usage rule conversion program 136 generates usage rule data corresponding to the compressed and encrypted content.

The content management program 111 will thus supply the compressed and encrypted content along with the usage rule data to the content data base 114.

The content data base 114 generates the content file 161 and usage rule file 162 corresponding to a content received from the content management program 111, and stores the content into the content file 161 and the usage rule data into the usage rule file 162.

When the content and usage rule data corresponding to the content are stored in the content data base 114, the content management program 111 will supply the CD information and usage rule data received from the recording program 113 to the display/operation instruction program 112.

The display/operation instruction program 112 will generate the original package display data 201 and content display data 221 based on the usage rule data and CD information corresponding to the content stored in the content data base 114 by the recording.

As shown in FIG. 27, when the button 345 is selected, the name of the original package (CD title) corresponding to the content stored in the content data base 114 by

the recording is displayed in the field 351 in the display/operation instruction window. When the package is selected, a content name corresponding to the content read from the CD is displayed in the field 352.

When the content read from the CD is recorded in the content data base 114 and the button 385 in the window the recording program 113 has the display unit 20 display is selected (activated), the display/operation instruction program 112 displays, in the display/operation instruction window, a field 481 in which the name of a content stored in a previously designated one of the portable devices 6-1 to 6-3 is to be displayed, as shown in FIG. 28.

The display/operation instruction program 112 has the content management program 111 check out the content read from the CD and recorded in the content data base 114 to any of the portable devices 6-1 to 6-3, previously designated.

Thus, just with the button 385, in the window the recording program 113 has the display unit 20 display, being kept activated, when the content read from the CD is recorded into the content data base 114, the personal computer 1 can check out the content read from the CD to any of the portable devices 6-1 to 6-3, previously designated.

When the display/operation instruction program 112 has displayed the field 481 in the display/operation instruction window, it also displays, in the display/operation instruction window, a field 482 in which the name of a portable package to which a content stored in any of the portable devices 6-1 to 6-3, previously designated belongs

(namely, a package to which a content stored in any of the portable devices 6-1 to 6-3 belongs) is displayed, a button 483 to close the field 481, and a button 484 to execute check-in or checkout.

Further, when the display/operation instruction program 112 has displayed the field 481 in the display/operation instruction window, it displays, in the display/operation instruction window, also a button 491 to set checkout of a content corresponding to content name selected in the field 352, a button 492 to set check-in of a content corresponding to a content name selected in the field 481, a button 493 to set check-in of all contents corresponding to content names displayed in the field 481, and a button 494 to cancel the setting of check-in or checkout.

Next, setting of check-in or checkout and execution of the check-in or checkout will be described below:

When the button 343 for displaying a filed in which check-in or checkout is to be set is clicked, the display/operation instruction program 112 displays, in the display/operation instruction window, the field 481 in which the name of a content stored in any of the portable devices 6-1 to 6-3, previously designated is to be displayed.

For example, when content names "MINAMI-NO-SAKABA", "KITA-NO-HAKABA" and "SHICHINARABE" displayed in the field 352 are selected as shown in FIG. 29 and the button 491 is clicked, the display/operation instruction program 112 sets checkout of contents corresponding to the content names "MINAMI-NO-

SAKABA", "KITA-NO-HAKABA" and "SHICHINARABE", respectively, and displays the content names "MINAMI-NO-SAKABA", "KITA-NO-HAKABA" and "SHICHINARABE" in the field 481, as shown in FIG. 30.

At this time, the display/operation instruction program 112 changes a number of possible checkouts "..." (indicating three checkouts) for the content name "MINAMI-NO-SAKABA", in the field 352, to ".." (indicating two checkouts), a number of possible checkouts ".." for the content name "KITA-NO-HAKABA", also in the field 352, to "." (indicating one checkout), and a number of possible checkouts "..." for the content name "SHICHINARABE", also in the field 352, to "..", and displays the changed numbers of possible checkouts in the field 352.

For example, when in the status shown in FIG. 30, the content name "KITA-NO-HAKABA" is selected in the field 481 and the button 492 is clicked, the display/operation instruction program 112 will set check-in of the content corresponding to the content name "KITA-NO-HAKABA" and erase this content name in the field 481 as shown in FIG. 31.

At this time, the display/operation instruction program 112 will change the number of possible checkouts for the content name "KITA-NO-HAKABA" "." (indicating one checkout) displayed in the field 352 to ".."(indicating two checkouts), and display the changed number of possible checkouts. Also, by dragging and dropping a package name displayed in the field 351 to the field 481, checkout of all contents belonging to a package corresponding to the dragged and dropped package name is set.

With setting of check-in or checkout only by operating the buttons 491 to 494, the personal computer 1 will not execute any check-in or checkout.

When the button 484 is clicked after check-in or checkout is set by operating the buttons 491 to 494, the display/operation instruction program will have the content management program 111 execute the check-in or checkout. That is, with the button 484 clicked, the display/operation instruction program 112 will have the content management program 111 send either a content to any of the portable batteries 6-1 to 6-3 or a predetermined command corresponding to check-in (for example, a command for erasing a predetermined content stored in any of the portable devices 6-1 to 6-3), based on the check-in or checkout setting, and erase usage rule data stored in the usage rule file 162 corresponding to the sent content or command.

When check-in or checkout is done, the display/operation instruction program 112 updates a history data stored in the history data file correspondingly to the sent content or command. The history data includes information for identification of the checked-in or checked-out content or data at which the content has been checked in or out, and the name of any of the portable devices 6-1 to 6-3 to which the content has been checked out.

Since check-in or checkout can be set in a short time, the user can quickly know the status after execution of check-in or checkout. Thus, the number of check-in's or checkouts which takes time can be reduced to shorten the entire time necessary for check-in or checkout (including the time for setting and execution of check-in or

checkout).

Next, edition of My Select package such as addition of a desired content o a predetermined My Select package will be described.

As shown in FIG. 32, when the button 344 for displaying a field in which a My Select package is edited is clicked, the display/operation instruction program 112 displays, in the display/operation instruction window, a field 501 in which a content name corresponding to a content belonging to a predetermined My Select package is to be indicated.

At this time, the display/operation instruction program 112 displays, in the display/operation instruction window, a field 502 in which the name of a selected My Select package (stored in any of the package display data 251-1 to 251-S) is to be displayed. When the name of a My Select Package to be edited is set in the field 502, the display/operation instruction program 112 displays, in the field 501, a content name corresponding to the My Select package having the package name (stored in a content display data 221 related with any of the package display data 252-1 to 252-S).

Further, when the display/operation instruction program 112 displays the field 501 in the display/operation instruction window, it will display, in the display/operation instruction window, a button 521 for an operation to have a content corresponding to a content name selected in the field 352 also belong to a My Select package whose name is displayed in the field 502 (to store a content ID of the selected content display data 221 into any of the package display data 251-1 to 251-S), a button 522 for an

operation to erase the content corresponding to the content name selected in the field 501 from the My Select package whose name is displayed in the field 502 (to erase the content ID of the selected content display data 221 from any of the package display data 251-1 to 251-S), and a button 523 for an operation to cancel an preceding operation (to have the content also belong to the My Select Package or erase the content from the My Select package).

For example, by displaying the field 501 in the display/operation instruction window, the user can have, belong to the My Select package whose package name "My Best 1" is displayed in the field 502, a content named "North Star", content named "Shooting Star", content named "South-Alps", content named "Multimillionaire" and a content named " Slot 1".

That is to say, in response to a predetermined operation, the display/operation instruction program 112 stores into the package display data 251 in which the package name "My Best 1" is stored the IDs for the content named "North Star", content named "Shooting Star", content named "South-Alps", content "Multimillionaire", and the content named "Slot 1", respectively.

Also, when the package name displayed in the field 351 is dragged and dropped to the field 501, all contents belonging to a package corresponding to the dragged and dropped package can be made to belong to the My Select package whose name is displayed in the field 502.

When the button 346 disposed in the display/operation instruction window to

display, in the field 351, data corresponding to a My Select package is activated, the display/operation instruction program 112 will display, in the field 351, package names corresponding to the My Select package (e.g., "My Best 1", "My Best 2", "Snow Drive", "MINAMI-NO-SHIMA-Select", "Traveling Abroad", etc.), and in the field 352 names of contents belonging to a My Select package corresponding to a selected package name, as shown in FIG. 33.

When the name of a predetermined content displayed in the field 352 is selected and the erasing operation is made while data corresponding to a My Select package has been displayed in the field 351 with the button 346 activated, the display/operation instruction program 112 will erase only data of a content ID corresponding to a content belonging to the package included in the package display data 251 but not any predetermined content stored in the contend data base 114.

Next, display corresponding to a filtering package, and relating the filtering package with a desired content will be described:

When the button 347 disposed in the display/operation instruction window to display, in the field 351, data corresponding to a filtering package is activated, the display/operation instruction program 112 displays, in the field 351, package names corresponding to the filtering package (e.g., "Ten best pops", "Ten Best rock 'n' roll's", "Ten best ENKA's", "Standard love songs", "Recommendable '80 pops", etc.), and, in the field 352, names of contents belonging to the filtering package corresponding to the selected package name, as shown in FIG. 34.

Referring now to FIG. 35, there is explained the generation of a filtering package. The display/operation instruction program 112 generates package display data 291-1 based on the content display data 221-1-1 to 221-M-p stored in the display data file 182 and history data stored in the history data file 184 or any of them and filtering data 551-1 stored in the filtering data filter 181.

The package display data 291-1 has stored therein ID for a content belonging to a filtering package corresponding to thereto.

For example, the package display data 291-1 stores IDs for predetermined 10 contents (e.g., ones corresponding to ten best pops) designated with the filtering data 551-1.

The display/operation instruction program 112 generates package display data 291-2 based on the content display data 221-1-1 to 221-M-p stored in the display data file 182 and history data stored in the history data file 184 or any of them and filtering data 551-1-2 stored in the filtering data filter 181.

The package display data 291-2 has stored therein ID for a content belonging to a filtering package corresponding to thereto.

For example, the package display data 291-2 stores IDs for contents whose names contain a predetermined string of characters (e.g., names of contents including characters "love") designated with the filtering data 551-2.

Similarly, the display/operation instruction program 112 generates package display data 291-3 to 291-A. Each of the package display data 291-3 to 291-A has

stored therein ID for a content belonging to a filtering package corresponding thereto.

For example, the package display data 291-4 stores IDs for 10 contents selected based on the history data stored in the history data file 184 and which have been checked out most frequency for the last week.

Also the package display data 291-3, for example, stores IDs for 10 contents selected at random and whose total of play times counts 60 minutes.

In this way, the display/operation instruction program 112 generates package display data 291-2 based on the content display data 221-1-1 to 221-M-p stored in the display data file 182 and history data stored in the history data file 184 or any of them and filtering data 551-1-1 to 551-1-A stored in the filter data file 181.

The filtering data 551-1 to 551-A are down-loaded from a predetermine server via the network 2, or supplied as recorded in a predetermined CD from the drive 22. Also, the user himself can generate the filtering data 551-1 to 551-A. For example, operating the personal computer 1 to generate a new filtering package by down-loading and updating the filtering data 551-1 to 551-A from more than one server via the network 2 at a predetermined time every day without modification of contents recorded in the content data base 114, the user can use the new generated filtering package for enjoying different combinations of contents.

Next, an image displayed in the field 348 will be described below. As shown in FIG. 36, when a package name displayed in the field 351 is selected while a content name displayed in the field 352 has not been selected (therefore, no content has not

been played back), the display/operation instruction program 112 displays, in the field 348, an image related with a package corresponding to the selected package name. That is, referring to data indicating the image file name stored in the package display data 211, 251 or 291, the display/operation instruction program 112 selects any one of the image files 183-1 to 183-K, reads image data stored in the selected one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data. For example, when the package name "Second" of the original package is selected while the content name displayed in the field 352 is not selected, he display/operation instruction program 112 refers to data indicating an image file name stored in the package display data 211, reads image data stored in a predetermined one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data.

Also, when a predetermined image is dragged and dropped to the field 348 with the package name displayed in the field 351 being selected and the content name displayed in the field 352 being not selected, the display/operation instruction program 112 makes the dragged and dropped image correspond to a package corresponding to the selected package name. That is, the display/operation instruction program 112 converts the coding method by which the dragged and dropped image has been coded to a predetermined method (e.g., JPEG (Joint Photographic Experts Group) or the like), adjusts the size of the image (e.g., to 30 pixels by 30 pixels or the like), subtracts the colors (e.g., 256 colors or the like), records the image into the image file 183, and

records the name of the image file 183 in which the image has been recorded as data indicating any image file name in the package display data 211, 251 or 291 corresponding to the package name.

As shown in FIG. 37, when the content name displayed in the field 352 is selected while no content has been played back, the display/operation instruction program 112 displays, in the field 348, an image related with a content corresponding to the selected content name. That is to say, the display/operation instruction program 112 refers to data indicating an image file name stored in the content display data 221 corresponding to the content corresponding to the selected content name, reads image data stored in a predetermined one of the image files 183-1 to 183-K, and displays, in the filed 348, an image corresponding to the image data. For example, when the package name "Second" of the original package is selected and the content name "South-Alps" displayed in the field 352 is selected while the content "South-Alps" has not been played back, the display/operation instruction program 112 refers to a corresponding image file stored in the content display data 221 corresponding to a content corresponding to the content name "South-Alps", reads image data stored in a predetermine one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data.

At this time, when the button 345 is activated while data indicating an image file name is not set in the content display data 221 corresponding to a content corresponding to a selected content name, the display/operation instruction program

112 refers to data indicating an image file name stored in the content display data 221 to which the content belongs, reads image data stored in a predetermine one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data.

Similarly, when the button 346 is activated while no corresponding image file is set in the content display image 221 corresponding to a content corresponding to a selected content name, the display/operation instruction program 112 refers to data indicating an image file name stored in the package display data 251 to which the content belongs, reads image data stored in a predetermine one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data.

Similarly, when the button 347 is activated while no corresponding image file is set in the content display data 221 corresponding to a content corresponding to a selected content name, the display/operation instruction program 112 refers to data indicating an image file name stored in the package display data 291 to which the content belongs, reads image data stored in a predetermine one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data.

Also, when a predetermined image is dragged and dropped to the field 348 while the content name displayed in the field 352 is selected, the display/operation instruction program 112 relates the dragged and dropped image with a content corresponding to the selected content name. Namely, the display/operation instruction program 112 converts the coding method by which the dragged and dropped image has

been coded to a predetermined one, adjusts the size of the image, subtracts the colors, records the image into the image file 183, and records the d name of the recorded image file 183 in which the image has been stored as data indicating any image file name in the package display data 221corresponding to the content name.

As shown in FIG. 38, when a content corresponding to a content name displayed in the field 352 has been played back (when a sound has been outputted from the speaker 24), the display/operation instruction program 112 displays, in the field 348, an image indicating a signal level in each frequency band (e.g., in each octave) of the output sound (that is a so-called image on a spectrum analyzer).

Also as shown in FIG. 39, when a content corresponding to a content name displayed in the field 352 has been played back according to a user's setting, the display/operation instruction program 112 displays, in the field 348, an image indicating a signal level corresponding to the time lapse of the output sound during a predetermined period.

Also, when the display/operation instruction program 112 does not display the fields 351 and 352 according to a user's setting, the display/operation instruction program 112 will display, in the field 348, an image indicating a signal level in each frequency band of the output sound when a content has been played back, and an image corresponding to a selected package or content when no content has been played back, as shown in FIGS. 40 and 41.

Next, operations for a registration, effected when the display/operation

instruction program 112 is initially started with the content management program 111 and display/operation instruction program 112 installed in the personal computer 1, will be described with reference to the flow chart shown in FIG. 42:

At step S11, the display/operation instruction program 112 installed in the personal computer 1 refers to predetermined URL and the like network 2 and connects to the EMD registration server 3.

At step S12, the display/operation instruction program 112 sends, to the EMD registration server 3, the ID of the content management program 111, previously stored in the content management program 111, along with necessary data for the registration (such as the name of a user of the personal computer 1 and credit No.). Note that at step S12, the display/operation instruction program 112 may send, to the EMD registration server 3, the ID of the display/operation instruction program 112, previously stored in the display/operation instruction program 112, along with the necessary data for the registration.

At step S13, the EMD registration server 3 receives the content management program 111. At step S14, the EMD registration server 3 judges whether the ID of the content management program 111 is valid. When the ID of the content management program 111 is determined to be valid, the operation goes to step S15 where the EMD registration server 3 will register the user of the personal computer 1 based on the name of the user and credit No., and sends a predetermined number of authenticate keys (for use for mutual authentication with the EMD servers 4-1 to 4-3, for example)

to the personal computer 1.

At step S16, the display/operation instruction program 112 receives the predetermined number of authenticate keys sent from the EMD registration server 3. At step S17, the EMD registration server 3 sends the EMD selection program 131 to the personal computer 1. At step S18, the display/operation instruction program 112 receives the EMD selection program 131 sent from the EMD registration server 3.

At step S19, the display/operation instruction program 112 supplies the received EMD selection program 131 to the content management program 111. At step S20, the content management program 111 starts the EMD selection program 131. Thus, the procedure for the registration is complete.

If at step S14, the ID of the content management program 111 is determined to be invalid, the operation goes to step S21 where the EMD registration server 3 will send a predetermined error message to the personal computer 1 without effecting any registration. At step S22, the display/operation instruction program 112 receives the error message sent from the EMD registration server 3.

At step S23, the display/operation instruction program 112 displays the received error message. Thus, the procedure for the registration is complete.

When the display/operation instruction program 112 is started, the personal computer 1 acquires the authenticate keys used for the mutual authentication with the EMD servers 4-1 to 4-3 and the EMD selection program 131, for example.

Next, recording from a CD according to the recording program 113 will be

described with reference to the flow chart in FIG. 43.

At step S41, the recording program 113 puts the drive 22 into action, reads data corresponding to a content recorded in the CD set in the drive 22 (number of contents or play time), and displays a contents list recorded in the CD in a predetermined window.

At step S42, the recording program 113 judges whether the button 348 for acquisition of information corresponding to the CD has been clicked. When it is determined that the button 384 has been clicked, the operation goes to step S43 where the recording program 113 will acquire the information corresponding to the CD. The acquisition of the information corresponding to the CD will further be described later with reference to the flow chart in FIG. 44.

At step S44, the recording program 113 displays, in a predetermined window, the information corresponding to the CD, having been acquired by the operation at step S43.

If at step S42, it is determined that the button 384 for acquisition of information corresponding to a CD has been clicked, it is not necessary to acquire the information corresponding to the CD, so the operation slips over steps S43 and S44 and goes to step S45.

At step S45, the recording program 113 judges whether the button 386 for instruction to start recording of a content recorded in the CD has been clicked. If it is determined that the button 386 has not been clicked, the operation goes back to step

S45 where it will be repeatedly judged whether the button 386 has been clicked, until it is determined that the button 386 has been clicked.

When it is determined, at step S45, that the button 386 has been clicked, the operation goes to step S46 where the recording program 113 will acquire, based on a check set correspondingly to a content name in the field 383, content selection information indicating which of contents recorded in the CD is to be recorded. At step S47, the recording program 113 reads a selected content from the CD based on the content selection information.

At step S48, the recording program 113 has the compression method conversion program 134 in the content management program 111 compress the content read from the CD by a predetermined conversion method such as ATRAC3, for example. At step S49, the recording program 113 has the encryption method conversion program 135 in the content management program 111 encrypt the compressed content by a predetermined encryption method such as DES, for example.

At step S50, the recording program 113 has the content data base 114 store the compressed and encrypted content. At step S51, the recording program 113 generates usage rule data corresponding to the content stored in the content data base 114, and has the content data base 114 store the generated usage rule data into the usage rule file 162 (related with the content stored in the content data base 114). At step S52, the recording program 113 updates the display data file 182 based on the generated usage rule data or information corresponding to the CD.

At step S53, the recording program 113 judges whether the button 385 for setting checkout, or no checkout, of the content read from the CD to any of the portable devices 6-1 to 6-3 (automatic checkout) is activated. When it is determined that the button 385 is active, the operation goes to step S54 where the display/operation instruction program 112 is started.

At step S55, the recording program 113 has the display/operation instruction program 112 check out the content stored in the content data base 114 to any of the portable devices 6-1 to 6-3. Thus, the procedure is complete.

If it is determined, at step S53, that the button 385 is not active, it is not necessary to check out the content, the operation is complete with a skip over steps S54 and S55.

When the recording from the CD is effected with the button 385 being active, the personal computer 1 will store the content read from the CD into the content data base 114 and automatically check it out to any of the portable devices 6-1 to 6-3.

Similarly, when the display/operation instruction program 112 receives a content from any of the EMD servers 4-1 to 4-3 while check is made with the check button 334, it will store the received content into the content data base 114 and have the content management program 111 check out the content to any of the portable devices 6-1 to 6-3.

Next, acquisition of information corresponding to a CD, effected under the recording program 113 and at step S43 in FIG. 43, will be described with reference to

the flow chart in FIG. 44:

At step S71, the recording program 113 searches information recorded in a predetermined directory (e.g., directory in the HDD 21, designated in the field 404 in the dialog box 461).

At step S72, the recording program 113 judges, based on data corresponding to a content recorded in a CD set in the drive 22 (e.g., number of contents or play time), whether information corresponding to the CD is recorded in the predetermined directory. If it is determined that the information corresponding to the CD is not recorded in the predetermined directory, the operation goes to step S73 where it is judged, based on a character string set in the field 401, whether CDNEW has been selected.

When it is determined, at step S73, that CDNEW has been selected, the operation goes to step S74 where the recording program 113 will connect to a server corresponding to CDNEW (e.g., WWW server 5-2) via the network 2. At step S75, the recording program 113 has the display unit 20 display a screen for input of a search keyword (e.g., dialog box shown in FIG. 22). At step S76, the recording program 113 sends, to a server corresponding to CDNEW, a search keyword inputted based on the screen such as album name, artist name, content name, product No. or the like.

At step S77, the recording program 113 receives information corresponding to the CD from a server corresponding to CDNEW.

At step S78, the recording program 113 relates the information corresponding

to the CD with the content, and terminates the procedure.

If it is determined, at step S73, that CDNEW has not been selected, the operation goes to step S79 since CDDB has been selected. At step S79, the recording program 113 will connect to a server corresponding to CDDB (e.g., WWW server 5-1) via the network 2 based on URL of the first site of CDDB set in the field 402 and URL of the second site of CDDB set in the field 403. At step S80, the recording program 113 sends, to a server corresponding to CDDB, data corresponding to a play time of a content recorded in the CD.

At step S81, the recording program 113 receives information corresponding to the CD from the server corresponding to CDDB.

At step S82, the recording program 113 judges whether data corresponding to the CD, received from the server corresponding to CDDB, include more than two candidates. When it is determined that there are available more than two candidates, the operation goes to step S83 where a dialog box will be displayed for allowing the user to select use or no use of information corresponding to any CD.

At step S84, the recording program 113 selects any one of the candidates based on an input to the dialog box, and the operation goes to step S78 where the recording program 113 will relate information corresponding to the CD with the content. Thus the procedure is complete.

If it is determined, at step S82, that there are not available more than two candidates, the operation goes to step S78 where the recording program 113 will relate

the information corresponding to the CD, having been received from the server corresponding to CDDB, and thus the procedure is complete.

When it is determined, at step S72, that the information corresponding to the CD is recorded in the predetermined directory, the operation goes to step S85 where the recording program 113 will read the recorded information corresponding to the CD, and goes to step S78 where it will relate the read information corresponding to the CD with the content, and thus the procedure is complete.

As in the above, the recording program 113 acquires information corresponding to the CD from any of two or ore servers different in searching procedure from each other. Also, when information corresponding to the CD has been acquired and recorded, the recording program 113 will use the recorded information.

Next, generation of a filter package, performed by the display/operation instruction program 112 when the button 437 is clicked, will be described with reference to the flow chart in FIG. 45. At step S101, the display/operation instruction program 112 selects a first filtering data 551, for example, the filtering data 551-1, stored in the filtering data file 181.

At step S102, the display/operation instruction program 112 computes a weight for the content based on data stored in the display data file 182 and history data stored in the history data file 184 or any of them and the selected filtering data 551.

At step S103, the display/operation instruction program 112 selects a content belonging to a filtering package corresponding to the selected filtering data 551 based

on the weight for the content, computed at step S102.

At step S104, the display/operation instruction program 112 registers the content having been selected at step S103 into a filtering package corresponding to the selected filtering data 551. That is to say, the display/operation instruction program 112 stores an ID for the selected content into the package display data 291 corresponding to the filtering package corresponding to the selected filtering data 551.

At step S105, the display/operation instruction program 112 judges whether the content has been registered in the filtering package corresponding to all the filter data 551 stored in the filtering data file 181. If it is determined that the content has not been registered in the filtering package corresponding to all the filtering data 551, the operation goes to step S107 where a next filtering data 551 stored in the filtering data file 181 is selected, and then goes back to step S102 where the content registration will be repeated.

If at step S105 it is determined that the content has been registered in the filtering package corresponding to all the filtering data 551, the procedure is complete.

As in the above, the display/operation instruction program 112 will select a content based on data stored in the display data tile 182 and history data stored in the history data file 184 or any of them and the selected filtering data 551, and register the selected content into the filtering package.

Next, content checkout or check-in effected by the display/operation instruction program 112 and content management program 111 when the field 481 is displayed in

the display/operation instruction window, for example, will be described with reference to the flow chart in FIG. 46:

At step S121, the display/operation instruction program 112 reads a number of possible checkouts corresponding to the content from the display data file 182. At step S122, the display/operation instruction program 112 displays the number of possible checkouts having been read at step S121.

At step S123, the display/operation instruction program 112 judges whether the checkout setting button 491 or check-in setting button 492 has been clicked. When it is determined that the button 491 or 492 has been clicked, the operation goes to step S124 where checkout of a content corresponding to a content name selected in the field 352 or check-in of a content corresponding to a content name selected in the field 481 will be set.

At step S125, the display/operation instruction program 112 updates the number of possible checkouts in the content display data 221 in the display data file 182 correspondingly to the setting of checkout of the content corresponding to the content name selected in the field 352 or to the setting of check-in of the content corresponding to the content name selected in the field 481, having been effected at step S124, and returns to step S121 where the same procedure will be repeated.

If it is determined, at step S123, that neither the checkout setting button 491 nor check-in setting button 492 has bee clicked, the operation goes to step S126 where the display/operation instruction program 112 will judge whether the button 484 for

effecting the check-in or checkout has been clicked.

When it is determined at step S126 that the button 484 has been clicked, the operation goes to step S127 where the display/operation instruction program 112 will have the check-in/checkout management program 132 in the content management program 111 effect the checkout or check-in correspondingly to the setting of content checkout or check-in. The check-in/checkout management program 132 judges, based on the usage rule data stored in the usage rule file 162, whether each content can be checked out or in. When the program 132 determines that such a content checkout or check-in is possible, it will effect it.

When it is determined that the checkout or check-in is not possible, the check-in/checkout management program 132 will not effect it.

At step S128, the display/operation instruction program 112 has the check-in/checkout management program 132 in the content management program 111 update the number of possible checkouts for the usage rule data stored in the usage rule file 162 in the content data base 114 (corresponding to a checked-out or checked-in content) correspondingly to the execution of the content checkout or check-in.

At step S129, the display/operation instruction program 112 has the check-in/checkout management program 132 reads the number of possible checkouts from the usage rule data stored in the usage rule file 162, corresponding to the checked-out or checked-in content.

At step S130, the display/operation instruction program 112 updates the number

of possible checkouts stored in the history data file 184, and updates the content display data 221 in the display data file 182 based on the number of possible checkouts having been read at step S129. Then it goes back to step S121 where the same procedure will be repeated.

When it is determined, at step S126, that the button 484 has not been clicked, no checkout or check-in will be done. So the operation goes back to step S121 where the same procedure will be repeated.

As in the above, the display/operation instruction program 112 will change the display correspondingly to the setting of checkout or check-in, and have the content management program 111 execute checkout or check-in based on the setting of checkout or check-in.

Next, image paste, effected by the display/operation instruction program 112 when a predetermined image has been dragged and dropped to the field 348, will be described with reference to the flow chart in FIG. 47. At step S151, the display/operation instruction program 112 judges whether a package has been selected. When it is determined that a package has been selected, the operation goes to step S152 where the dragged and dropped image will be changed to a predetermined size, and subjected to a coding method conversion and color subtraction.

At step S153, the display/operation instruction program 112 stores the image subject to the coding method conversion and color subtraction at step S152 into the image file 183.

At step S154, the display/operation instruction program 112 judges whether a content has been selected. When it is determined that no content has been selected, the operation goes to step S155 where the image file 183 and selected package will be related with each other (that is, the name of the image file 183 in which the content is recorded is recorded as data indicating an image file name in any of the package display data 211, 251 or 291 corresponding to the selected package), and thus the procedure is complete.

If it is determined, at step S154, that a content has been selected, the operation goes to step S156 where the display/operation instruction program 112 will relate the image file 183 with the selected content (that is, the name of the image file 183 in which the content is recorded is recorded as data indicating an image file name in the content display data 221 corresponding to the selected content), and thus the procedure is complete.

If it is determined, at step S151, that no package has been selected, there is no object with which the image is related, so the operation goes to step S157 where the display/operation instruction program 112 will display a predetermined error message and thus the procedure be complete.

As in the above, the display/operation instruction program 112 can paste the dragged and dropped image on a package or content (image and package or content are related with each other).

Next, image display effected by the display/operation instruction program 112

will be described with reference to the flow chart in FIG. 48.

At step S181, the display/operation instruction program 112 judges whether a content has been played back. If it is determined that no content has been played back, the operation goes to step S182 where it will be judged whether a package has been selected.

If it is determined, at step S182, that no package has been selected, the operation goes to step S183 where the display/operation instruction program 112 will display, in the field 348, a predetermined image (e.g., an image showing the supplier of the display/operation instruction program 112) and the operation will go back to step S181 where the same procedure will be repeated.

When it is determined, at step S182, that a package has been selected, the operation goes to step S184 where the display/operation instruction program 112 will judge whether a content has been selected.

If it is determined, at step S184, that no content has been selected, the operation goes to step S185 where the display/operation instruction program 112 will display, in the field 348, an image related with the selected package (the display/operation instruction program 112 refers to data indicating an image file name stored in the package display data 211, reads image data stored in a predetermined one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data), and go back to step S181 where it will repeat the same procedure.

If it is determined, at step S184, that a content has been selected, the operation

goes to step S186 where the display/operation instruction program 112 will judge whether there is available an image related with the selected content.

If it is determined, at step S186, that there is an image related with the selected content, the operation goes to step S187 where the display/operation instruction program 112 will display, in the field 348, the image related with the selected content (the display/operation instruction program 112 refers to data indicating an image file name stored in the content display data 221 corresponding to the selected content, reads image data stored in a predetermined one of the image files 183-1 to 183-K, and displays, in the field 348, an image corresponding to the image data), and go back to step S181 where it will repeat the same procedure.

If it is determined , at step S186, that there is no image related with the selected content, the operation goes to step S188 where the display/operation instruction program 112 will display, in the field 348, an image related with the selected content. Then the operation goes back to step S181 where the same procedure will be repeated.

If it is determined, at step S181, that a content has been played back, the operation goes to step S189 where the display/operation instruction program 112 will judge whether display of a signal level of a sound corresponding to each frequency band has been set. If it is determined that the display has been set, the operation goes to step S190 where the signal level of a sound corresponding to each frequency band will be displayed in the field 348. The operation goes back to step S181 where the same procedure will be repeated.

If it is determined, at step S189, that display of a signal level of a sound corresponding to each frequency band has not been set, the operation goes to step S191 where the display/operation instruction program 112 will display, in the field 348, a waveform of an output sound (signal level corresponding to a time lapse of the output sound), and go back to step S181 where it will repeat the same procedure.

As in the above, correspondingly to the selection of a package or content or the playback of a content, the display/operation instruction program 112 will display, in the field 348, any of an image related with the package, image related with the content, signal level of a sound corresponding to each frequency band and a waveform of the output sound.

Note that according to a setting made by the user, the display/operation instruction program 112 may display, in the field 348, an image indicating the level of a sound currently being outputted when a content has been played back.

Also, it should be noted that although it has previously been described that the content compression method adopted by the personal computer 1 is ATRAC3 by way of example, the method is not limited to ATRAC3 but may be any of MP3 (Moving Picture Experts Group 2 Audio Layer 3), TwinQV (trademark) , AAC (MPEG2 Advance Audio Coding), etc.

Note that although it has previously been described that the content encryption method adopted by the personal computer 1 is DES for example, the method is not limited to DES but may be any of IDEA (International Data Encryption Algorithm),

RAS which is a public key encryption method, elliptical encryption, etc.

Also, the content management program 111 may be executed on a hardware provided independently inside the personal computer 1 and which cannot read directly the content management program 111, for example. Also, the hardware to execute the content management program 111 may be designed to have a tamping resistance.

The aforementioned series of operations may be executable by a hardware, but it may be executable by a software. In case the series of operations is to be executed by a software, programs composing the software is installed, from a program storage medium, into a computer incorporated in a dedicated hardware or a general-purpose personal computer, for example, whose various functions can be performed with a variety of programs installed therein.

The program storage medium to store programs installed in a computer and executable by the computer may be formed from the magnetic disc 41 or 91 (including floppy disc), optical disc 42 or 92 (including CD-ROM (compact disc read-only memory), DVD (digital versatile disc)), magneto-optical disc 43 or 93 (including MD (mini disc)), package medium such as semiconductor memory 44 or 94, ROM 12 or 62 in which the programs will be stored provisionally or permanently, or HDD 21 or 71, as shown in FIGS. 2 and 3. The programs are stored into the program storage medium via an interface such as communications unit 25 or 73 using a cable or radio communications medium such as network 2 including a local area network or Internet, or digital satellite broadcasting.

Note that the steps of operation concerning a program stored in the program storage medium, described herein, include operations which are effected time-serially in the described sequence as well as operations not effected time-serially but in parallel or individually.

Also note that the "system" referred to herein covers an entire assembly of a plurality of apparatuses.

Industrial Applicability

According to the present invention, a weight is computed for each content based on either first information indicative of a history of content usage or second information about the contents, and third information intended for computation of a weight corresponding to a content, a content is selected based on the computed weight, and a selected content is related with a combination of contents corresponding to the third information. Therefore, it is possible to easily combine many contents to provide various content combinations.

Claims:

1. An information processing method performed by an information processor, comprising the steps of:

managing a plurality of content files and corresponding content file identification data;

selecting a package of content files from said plurality of content files on the basis of filtering data;

registering the content file identification data corresponding to the content files selected for said package; and

displaying package identification data corresponding to said package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

2. The information processing method according to claim 1, wherein said selecting step selects content files containing a predetermined string of characters.

3. The information processing method according to any one of claims 1 to 2, further comprising a step of recording history data indicating a usage history for said plurality of content files and said package of content files is selected on the basis of said history data.

4. The information processing method according to any one of claims 1 to 3, wherein said package of content files is selected on the basis of the number of times each of the content files has been played.

5. The information processing method according to claim 4, wherein said package of content files is further selected at random.

6. The information processing method according to any one of claims 1 to 5, wherein said first display field displays package identification data corresponding to plural selectable packages and said second display field displays content display data corresponding to a selected package from said first display field.

7. The information processing method according to any one of claims 1 to 6, further comprising a step of displaying an image corresponding to said package.

8. The information processing method according to any one of claims 1 to 7, wherein said filtering data is downloaded across a network from a server or supplied from a storage medium in the information processor.

9. An information processing program recordable on a computer readable medium and executable by an information processor to perform the steps of:

managing a plurality of content files and corresponding content file identification data;

selecting a package of content files from said plurality of content files on the basis of filtering data;

registering the content file identification data corresponding to the content files selected for said package; and

displaying package identification data corresponding to said package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

10. The information processing program according to claim 9, wherein said selecting step selects content files containing a predetermined string of characters.

11. The information processing program according to any one of claims 9 to 10, further performing a step of recording history data indicating a usage history for said plurality of content files and said package of content files is selected on the basis of said history data.

12. The information processing program according to any one of claims 9 to 11, wherein said package of content files is selected on the basis of the number of times each of the content files has been played.

13. The information processing program according to claim 12, wherein said package of content files is further selected at random.

14. The information processing program according to any one of claims 9 to 13, wherein said first display field displays package identification data corresponding to plural selectable packages and said second display field displays content display data corresponding to a selected package from said first display field.

15. The information processing program according to any one of claims 9 to 14, further performing a step of displaying an image corresponding to said package.

16. The information processing program according to any one of claims 9 to 15, wherein said filtering data is downloaded across a network from a server or supplied from a storage medium in the information processor.

17. An information processor, comprising:

a storage unit for storing a plurality of content files and corresponding content file identification data;

a processing unit for managing said plurality of content files and corresponding content file identification data; selecting a package of content files from said plurality of content files on the basis of filtering data; and registering the content file identification data corresponding to the content files selected for said package; and

a display unit for displaying package identification data corresponding to said package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

18. The information processor according to claim 17, wherein said processing unit selects content files containing a predetermined string of characters.

19. The information processor according to any one of claims 17 to 18, wherein said processing unit records history data indicating a usage history for said plurality

of content files in said storage unit and said package of content files is selected on the basis of said history data.

20. The information processor according to any one of claims 17 to 19, wherein said package of content files is selected on the basis of the number of times each of the content files has been played.

21. The information processor according to claim 20, wherein said package of content files is further selected at random.

22. The information processor according to any one of claims 17 to 21, wherein said first display field displays package identification data corresponding to plural selectable packages and said second display field displays content display data corresponding to a selected package from said first display field.

23. The information processor according to any one of claims 17 to 22, wherein said display unit displays an image corresponding to said package.

24. The information processor according to any one of claims 17 to 23, wherein said filtering data is downloaded across a network from a server or supplied from the storage unit in the information processor.

25. An information processor, comprising:

managing means for managing a plurality of content files and corresponding content file identification data;

selecting means for selecting a package of content files from said plurality of content files on the basis of filtering data;

registering means for registering the content file identification data corresponding to the content files selected for said package; and

display means for displaying package identification data corresponding to said package in a first display field and content display data corresponding to the registered content file identification data in a second display field.

26. The information processor according to claim 25, wherein said selecting means selects content files containing a predetermined string of characters.

27. The information processor according to any one of claims 25 to 26, further comprising history data recording means for recording history data indicating a usage history for said plurality of content files; and said selecting means selects said package of content files on the basis of said history data.

28. The information processor according to any one of claims 25 to 27, wherein said selecting means selects said package of content files on the basis of the number of times each of the content files has been played.

29. The information processor according to claim 28, wherein said selecting means further selects said package of content files at random.

30. The information processor according to any one of claims 25 to 29, wherein said first display field displays package identification data corresponding to plural selectable packages and said second display field displays content display data corresponding to a selected package from said first display field.

31. The information processor according to any one of claims 25 to 30, wherein said display means displays an image corresponding to said package.

32. The information processor according to any one of claims 25 to 31, wherein said filtering data is downloaded across a network from a server or supplied from a storage means in the information processor.