DESCRIPTION

TITLE

PROGRAM, INFORMATION PROCESSING METHOD, AND INFORMATION PROCESSING APPARATUS

FIELD

The embodiment of the present invention relates generally to a program, an information processing method, and an information processing apparatus for measuring an advertisement effect.

BACKGROUND

An advertiser may present an advertisement by placing a medium such as a paper or digital sign in the open air or a facility. In order to measure the effect of such an advertisement, the advertiser needs to specify a user who has come into contact with the advertisement. Conventionally, the advertiser specifies a user who has come into contact with the advertisement by conducting a questionnaire survey or the like.

However, an analog method such as a questionnaire survey entails the problem that only users who have answered the questionnaire can serve as a base from which users who have come into contact with the advertisement can be extracted.

Therefore, a method for effectively specifying a user who has come into contact with an advertisement is desired.

CITATION LIST

PATENT LITERATURE

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SUMMARY

In order to solve the above problem, a program, an information processing method, and an information processing apparatus capable of effectively specifying a user who has come into contact with an advertisement are provided.

According to the embodiment, a program configured to cause a processor to: acquire advertisement information indicating an area for contacting an advertisement; acquire presence information indicating a facility where a user has been present; acquire position information indicating coordinates of the user; and determine whether or not the user has come into contact with the advertisement, based on the presence information, the position information, and the advertisement information.

According to the embodiment, a server apparatus specifies the user's movement route on the basis of the facility where the user was present and the user's coordinates. As a result, the server apparatus can specify the user's movement route more accurately. Moreover, the server apparatus can determine whether or not the user has come into contact with the advertisement on the basis of the users' movement route. Thus, the server apparatus can determine whether or not the user has come into contact with the advertisement more accurately.

In addition, the server apparatus specifies a user who was present in a predetermined facility, and determines whether or not the user has come into contact with the advertisement. Thus, the server apparatus can specify a user who is highly likely to have come into contact with the advertisement, and determine whether or not the user has come into contact with the advertisement. As a result, the server apparatus can efficiently generate a cluster of users who have come into contact with the advertisement.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram schematically showing a configuration example of an advertisement system according to an embodiment.

FIG. 2 is a block diagram schematically showing a configuration example of a server apparatus according to the embodiment.

FIG. 3 is a diagram showing a configuration example of advertisement information according to the embodiment.

FIG. 4 is a diagram showing a configuration example of area information according to the embodiment.

FIG. 5 is a diagram showing a configuration example of registration information according to the embodiment.

FIG. 6 is a diagram showing a configuration example of presence information according to the embodiment.

FIG. 7 is a flowchart showing an operation example of the server apparatus according to the embodiment.

FIG. 8 is a flowchart showing an operation example of

the server apparatus according to the embodiment.

DETAILED DESCRIPTION

Hereinafter, the embodiments will be described with reference to the drawings.

An advertisement system according to the embodiment generates a cluster of users who have come into contact with an advertisement placed in the open air or a facility, for example. Herein, the advertisement is placed at a predetermined location in the open air or the facility. For example, the advertisement may take the form of an advertisement poster hung in a train or digital signage in a train, or a signboard or digital signage placed on a platform of a station, or a signboard or digital signage placed on a building or the like, etc. The advertisement may take the form of a paper medium such as a poster or a sticker, or digital signage constituted by a display or the like. The location or medium for the advertisement is not limited to a specific configuration.

FIG. 1 is a block diagram showing a configuration example of an advertisement system 1 according to the embodiment. As shown in FIG. 1, the advertisement system 1 includes a server apparatus 10, a medium 20, and a terminal 30, for example. The advertisement system 1 may include a configuration as necessary in addition to the configuration shown in FIG. 1, or may exclude a specific configuration.

The server apparatus 10 (information processing apparatus) measures an effect of an advertisement. The

server apparatus 10 retains advertisement information indicating the date and time when the advertisement is displayed and the place where a user comes into contact with the advertisement. Moreover, the server apparatus 10 acquires presence information, etc. indicating a facility where the user was present and the date and time when the user was present in the facility. The server apparatus 10 specifies users who have come into contact with the advertisement based on the advertisement information and the presence information. Further, the server apparatus 10 measures an effect of the advertisement by clustering the specified users. The configuration of the server apparatus 10 will be described in detail later.

The medium 20 is a medium for displaying the advertisement. The medium 20 is placed in a place where an unspecified number of users can recognize the medium 20.

As described above, the medium 20 may take the form of a paper medium such as a poster or a sticker, or digital signage constituted by a display or the like.

The medium 20 is placed in the open air, or in a facility such as a building or a store. Further, the medium 20 may be placed on the roof or the wall surface of a construction such as a building. Moreover, the medium 20 may be placed in a transportation facility such as a train, a monorail, a bus, a ship, or an aircraft. The place to place the medium 20 is not limited to a specific configuration.

The terminal 30 is a terminal possessed by a user. For example, the terminal 30 is a portable electronic device. For example, the terminal 30 is a feature phone, a smartphone, a laptop PC, a tablet PC, or a wearable terminal. The terminal 30 may be a desktop PC.

The terminal 30 may be capable of performing the conversion intended by the advertisement. For example, if the conversion of the advertisement is the purchase of a product, the terminal 30 displays a website and the like for purchasing the product, and acquires the necessary information. If the advertisement is for encouraging installation or activation of an application, the terminal 30 installs or activates the application. The content of the conversion is not limited to a specific configuration.

Next, the server apparatus 10 will be described.

FIG. 2 is a block diagram showing a configuration example of the server apparatus 10.

In the configuration example shown in FIG. 2, the server apparatus 10 includes a processor 11, a ROM 12, a RAM 13, an NVM 14, a communication unit 15, an operation unit 16, a display unit 17, etc. These units are connected to each other via a data bus. The server apparatus 10 may include a configuration as necessary in addition to the configuration shown in FIG. 2, or may exclude a specific configuration.

The processor 11 (controller) has a function of controlling the overall operation of the server apparatus

10. The processor 11 may include the internal cache and various interfaces. The processor 11 implements various processing by executing programs stored in advance in the internal cache, the ROM 12, or the NVM 14.

Some of the various functions implemented by execution of the programs by the processor 11 may be implemented by a hardware circuit. In this case, the processor 11 controls the functions executed by the hardware circuit.

The ROM 12 is a nonvolatile memory in which a control program and control data, for example, are stored in advance. The control program and control data stored in the ROM 12 are incorporated in advance in accordance with the specifications of the server apparatus 10. The ROM 12 stores, for example, a program (for example, BIOS) to control the circuit board of the server apparatus 10.

The RAM 13 is a volatile memory. The RAM 13 temporarily stores, for example, data being processed by the processor 11. The RAM 13 stores various application programs based on instructions from the processor 11. The RAM 13 may store, for example, data necessary for executing the application programs, and results of executing the application programs.

The NVM 14 (storage unit) is a nonvolatile memory in which data can be written and rewritten. The NVM 14 includes, for example, an HDD (Hard Disk Drive), an SSD (Solid State Drive), an EEPROM (registered trademark), or a flash memory, etc. The NVM 14 stores a control program, an

application, and various data, etc., in accordance with the operation purpose of the server apparatus 10.

The NVM 14 includes a storage area 14a for storing advertisement information and a storage area 14b for storing registration information. The advertisement information and registration information will be described in detail later.

The communication unit 15 is an interface for transmitting and receiving data to and from an external device through a communication network such as the Internet. The communication unit 15 is, for example, an interface that supports LAN connection.

The operation unit 16 accepts the input of various operations from the operator. The operation unit 16 transmits a signal indicating the accepted operation to the processor 11. For example, the operation unit 16 is constituted by a keyboard, a numeric keypad, and a touch panel.

The display unit 17 displays various information under the control of the processor 11. For example, the display unit 17 is constituted by a liquid crystal monitor. If the operation unit 16 is constituted by a touch panel or the like, the display unit 17 may be formed integrally with the operation unit 16.

Next, advertisement information will be described.

The advertisement information is constituted by information indicating a date and time when the

advertisement displayed on the medium 20 is displayed, and a place where a user comes into contact with the advertisement.

FIG. 3 shows a configuration example of the advertisement information.

As shown in FIG. 3, the advertisement information stores "advertisement," "date and time," "area information," and "direction" in association with each other.

The "advertisement" indicates an advertisement. For example, the "advertisement" is information to identify an advertisement, such as a name or an identification number of the advertisement.

The "date and time" indicates the date and time when the advertisement is displayed. For example, the "date and time" indicates a period during which the advertisement is displayed. In the example shown in FIG. 3, "date and time" specifies a period during which an advertisement is displayed, based on a date and time. The "date and time" may specify a period during which an advertisement is displayed based on a date.

The "area information" indicates an area (place) where the user comes into contact with the advertisement. In other words, the "area information" indicates an area in which if the user stays, the user is judged to have come into contact with the advertisement. The "area information" may indicate a fixed area such as an area around a

construction. The "area information" may also indicate a moving area such as the inside of a train.

The "direction" indicates the direction of the medium 20. In other words, the "direction" indicates the direction of a surface on which the advertisement is displayed. For example, the "direction" may include a vector indicating a direction.

FIG. 4 shows a configuration example of the area information.

In FIG. 4, an area 41 indicates an area of the "area information." In other words, the area 41 is an area in which if the user stays, the user is judged to have come into contact with the advertisement. In FIG. 4, an arrow 42 indicates a "direction." In other words, the arrow 42 indicates the direction of a surface on which the advertisement is displayed.

The area 41 is set based on the position, etc. of the medium 20 which displays the advertisement. In the example shown in FIG. 4, the area 41 is set as a circular shape with a center that is a position advanced from the medium 20 in the direction indicated by the arrow 42. The radius of the area 41 is based on, for example, a distance at which an advertisement displayed on the medium 20 can be visually recognized. For example, the larger the size of the medium 20, the larger the radius of the area 41.

Further, the radius of the area 41 may be based on the height at which the medium 20 is placed. For example, the

higher the medium 20 is placed, the larger the radius of the area 41 is.

The area 41 need not be circular. The area 41 may be elliptical, rectangular, or polygonal, etc. The shape and size of the area 41 are not limited to a specific configuration.

Next, the registration information will be described.

The registration information is information related to users for which it is judged whether or not they have come into contact with an advertisement, in order to generate a sub-cluster of users who have come into contact with the advertisement. The registration information indicates a class to which users belong.

The class includes, for example, "attribute," "preference," "behavior," "funnel," and "existing position."

The "attribute" is a category relating to a user's attribute. For example, the "attribute" is a gender, an occupation, an annual income, a place of residence, or a work location.

The "preference" is a category relating to a user's preferences. For example, the "preference" is a price preference for prices of products purchased by a user (whether or not the user likes inexpensive products), interest/concern relating to the user's interest or concern, brand trends relating to brands (e.g. a predetermined brands that the user likes).

The "behavior" is a category relating to a user's behavior. For example, the "behavior" is a purchasing history, a content-contact history for a predetermined content (an EC website), a website-browsing history for a predetermined website, a travel history, and an advertisement-contact history.

The "funnel" is a category relating to a funnel to which a user belongs. For example, the "funnel" is a potential user or a good customer. For example, the users are clustered into predetermined funnels in accordance with a brochure-requesting history, a history (e.g. frequency) of coming into shops, and amount of money spent on purchases.

The "existing position" is a category relating to a position where a user acts. For example, the "existing position" is a trade area included in the user's behavior range. The "existing position" may also indicate vehicle types of vehicles registered around a user's place of residence. For example, a vehicle type registered around a user's place of residence is determined from, for example, car inspection data.

FIG. 5 shows a configuration example of the registration information. As shown in FIG. 5, the registration information stores a user ID in association with a class to which the user belongs.

The registration information stores "user ID," and "gender," "date of birth," "occupation," "annual income,"

"place of residence," "work location", etc. as classes to which the user belongs. The registration information may include a configuration as necessary in addition to the configuration shown in FIG. 5, or may exclude a specific configuration.

The "user ID" is an identifier that specifies a user. For example, the "user ID" is a character string, a numerical value, or a combination thereof. Here, the "user ID" is a numerical value.

The "gender" indicates the gender of a user.

The "date of birth" indicates the date of birth of a user. The registration information may include "age" indicating the age of a user instead of "date of birth".

The "occupation" indicates the occupation of a user.

The "annual income" indicates the annual income of a user.

The "place of residence" indicates the place of residence of a user.

The "work location" indicates the work location of a user.

The registration information is stored in the storage area 14b in advance. For example, the processor 11 may acquire registration information from the operator through the operation unit 16. Further, the processor 11 may acquire registration information from an external device through the communication unit 15. The registration information may be updated as appropriate.

For example, the processor 11 generates and appropriately updates registration information via opt-in from the user. The processor 11 may also generate or update registration information by specifying a class from the user's behavior pattern, etc.

Next, functions implemented by the processor 11 of the server apparatus 10 will be described. The following functions are implemented by the processor 11 executing a program stored in the NVM 14, for example.

First, the processor 11 has a function of acquiring presence information indicating a facility where a user was present and the date and time when the user was present in the facility.

For example, the facility is a station, an airport, a port, a store, a house, or a building. For example, a station is a station of a train or a monorail.

For example, the presence information is a boarding history or a purchasing history of the user using an IC card (a terminal possessed by the user) or the like. The presence information may be a history of time stamps of attendance or clock-outs at the office. The presence information may be an operation history (e.g. login history) of a terminal installed in a predetermined facility. The presence information may be obtained by integrating data from a plurality of information sources.

FIG. 6 shows a configuration example of the presence information. As shown in FIG. 6, the presence information

stores "user ID," "facility," "date and time," and "activity" in association with each other.

The "user ID" is as described above.

The "facility" is a facility where the user was present. Herein, the "facility" indicates a name of the facility. The "facility" may be an ID indicating the facility.

The "date and time" indicates the date and time when the user was present in the facility. For example, the "date and time" when the user performed a predetermined activity (e.g. merchandise purchase) in the facility.

The "activity" indicates an activity performed by the user in the facility. For example, if the facility is a station, the "activity" is, for example, entering or exiting. For example, if the facility is a store, the "activity" is, for example, a merchandise purchase. For example, if the facility is an office building, the "activity" is arriving at the office or leaving the office.

The configuration of the "activity" is not limited to a specific configuration. The configuration of the presence information is not limited to a specific configuration.

Further, the processor 11 has a function of acquiring advertisement information corresponding to an advertisement of which the effect is measured.

The processor 11 sets an advertisement of which the effect is measured. For example, the processor 11 accepts an input of an operation to set the advertisement of which

the effect is measured through the operation unit 16.

After setting the advertisement of which the effect is measured, the processor 11 acquires advertisement information corresponding to the advertisement from the storage area 14a.

The processor 11 has a function to specify two facilities (route facilities) corresponding to the advertisement on the basis of the advertisement information.

A route facility is a facility where a user who may have come into contact with the advertisement is present. In other words, the route facility is a facility on a movement route of a user who has come into contact with the advertisement.

For example, if an advertisement is recognized from a train car between predetermined stations, a route facility is a station where a user can get on a train car running between the predetermined stations. For example, if the advertisement is recognized from a train car between stations A and B, the route facility is the stations A and B. The route facility is also a station where a user can get on a train car running between the stations A and B. In the above case, a route facility may be limited to a station within a predetermined distance from the advertisement.

If the advertisement is placed on an outer wall of a predetermined building, a route facility is a facility near the building. For example, a route facility is a facility

within a predetermined distance from the building.

If the advertisement is in a predetermined building, a route facility may be the building or a facility in the building.

The configuration of the route facility is not limited to a specific configuration.

The processor 11 has a function to specify a user who was present in the two specified route facilities, on the basis of the presence information.

The processor 11 specifies a user who was present in both of the two route facilities, in light of the "facility" of the presence information. The processor 11 may specify a user who was present in two route facilities at dates and times of which a difference is equal to or smaller than a predetermined threshold. For example, the processor 11 may specify a user who was present in two route facilities at dates and times of which a difference is equal to or smaller than a time period for moving between the two route facilities (or equal to or smaller than a threshold based on the times).

The processor 11 has a function to acquire position information of a user between the two route facilities.

The position information indicates coordinates of a user. For example, the position information is acquired by a terminal 30 possessed by a user. The terminal 30 specifies the coordinates of the terminal 30 itself by using the GPS (Global Positioning System), a beacon, mobile

carrier space information, or a Wi-Fi connection history, etc., and generates position information. The processor 11 acquires position information from the terminal 30.

The processor 11 may also acquire position information by referring to the IP address of the terminal 30. For example, the processor 11 may acquire position information from the IP address by using an external service.

The processor 11 may extract the user's position information between the two route facilities from position information acquired preliminarily.

The method by which the processor 11 acquires the position information is not limited to a specific method.

The processor 11 acquires position information of a user while the user moves from one route facility to the other route facility. For example, the processor 11 acquires position information at a time between a date and time when the user was present at one route facility and a date and time when the user was present at the other route facility.

The processor 11 has a function to generate a cluster of users who have come into contact with the advertisement from the specified users, on the basis of two route facilities and the acquired position information.

The processor 11 specifies a movement route between the two route facilities. For example, the processor 11 specifies a movement route of the user moving from one route facility to the other route facility, on the basis of

the two route facilities and the acquired position information. For example, if the two route facilities are stations, the processor 11 specifies a line used by the user as a movement route on the basis of the position information.

If the two route facilities are stores, the processor 11 specifies, for example, roads through which the user passed between the two route facilities, as a movement route.

After specifying the user's movement route, processor 11 determines whether or not the user has come into contact with the medium 20 on the basis of the specified movement route.

In other words, the processor 11 determines whether or not the movement route (at least part of the movement route) is included in the area indicated by the "area information" of the advertisement information. If it is determined that the movement route is included in the area, the processor 11 determines whether or not the medium 20 was displaying the advertisement at the date and time when the user was present in the area. In other words, the processor 11 determines whether or not the date and time when the user was present in the area overlaps the "date and time" of the advertisement information. If it is determined that the date and time when the user was present in the area overlaps the "date and time" of the advertisement information, the processor 11 determines that

the user has come into contact with the advertisement. In other words, the processor 11 classifies the user into a cluster of users who have come into contact with the advertisement.

The processor 11 performs the above operations for the specified user, so as to generate a cluster of users who have come into contact with the advertisement.

The processor 11 has a function to determine a perception of each user in the cluster.

The perception indicates awareness of the advertisement. In other words, the perception indicates the extent to which the user is aware of the advertisement. For example, the perception is constituted by a value indicating awareness, etc.

For example, the processor 11 determines the perception on the basis of a period of time during which a user stayed in the area of the "area information." For example, the processor 11 calculates a period of time during which a user stayed in the area on the basis of the position information. For example, the longer the period of time during which a user stayed is, the higher the processor 11 determines the awareness to be.

Furthermore, the processor 11 may determine perception on the basis of a user's moving speed in the area. For example, the processor 11 calculates the moving speed in the area on the basis of the position information. For example, the slower the moving speed is, the higher the

processor 11 determines the awareness to be.

Furthermore, the processor 11 may determine perception on the basis of the direction the user faces in the area. For example, the processor 11 acquires, from the terminal 30, direction information indicating the direction the user faces. For example, the terminal 30 generates the direction information indicating the direction the user faces by using, for example, a gyro sensor or a compass, and transmits the direction information to the server apparatus 10.

The processor 11 determines perception on the basis of the direction the user faces and the "direction" of the advertisement information. For example, the more the user's direction is opposed to the "direction" of the advertisement information (the closer the angle difference between these directions is to 180°), the higher the processor 11 determines the awareness to be.

The processor 11 may determine perception based on a plurality of elements. The method by which the processor 11 determines perception is not limited to a specific method.

Furthermore, the processor 11 has a function of generating a sub-cluster on the basis of classes of the users who have come into contact with the advertisement.

In other words, the processor 11 sets a class of a user upon whom the advertisement effect is intended to be measured, and generates a sub-cluster of users belonging to this class.

The processor 11 sets a class of a user upon whom an advertisement effect is intended to be measured. For example, the processor 11 accepts, through the operation unit 16, an input of an operation to set a class of a user upon whom an advertisement effect is intended to be measured. For example, the processor 11 accepts an input of "female" as a class.

After setting the user's class, the processor 11 generates a sub-cluster of users belonging to the class from the cluster with reference to the registration information. For example, the processor 11 acquires a class of a user classified into a cluster with reference to the registration information. After acquiring the class of the user, the processor 11 determines whether or not the user's class matches the class for generating the sub-cluster. If it is determined that they match, the processor 11 classifies the user into the sub-cluster. For example, the processor 11 classifies a user whose "gender" is "female" into a sub-cluster.

The processor 11 performs similar operations for each user classified into the cluster, so as to generate a sub-cluster. In other words, a sub-cluster is a cluster of users who have come into contact with the advertisement and belong to a predetermined class.

The sub-cluster may be a cluster of users having any one or every one of a plurality of classes. The condition for generating a sub-cluster is not limited to a specific

configuration.

Furthermore, the processor 11 has a function to generate reporting information based on, for example, the generated sub-cluster.

The reporting information indicates a contact status of a user to the advertisement. For example, the reporting information includes a number of users who have come into contact with the advertisement, perception of the users who have come into contact with the advertisement, and a number of users belonging to each sub-cluster.

The configuration of the reporting information is not limited to a specific configuration.

The processor 11 may display the reporting information on the display unit 17. Furthermore, the processor 11 may transmit reporting information to another device through the communication unit 15.

The processor 11 has a function to specify an advertisement with which the user, who has completed a predetermined conversion, has come into contact.

For example, the processor 11 sets a predetermined conversion (a conversion to be tracked). For example, the processor 11 accepts input of an operation to set a conversion through the operation unit 16.

After a conversion is set, the processor 11 specifies an advertisement corresponding to the conversion. In other words, the processor 11 specifies an advertisement for the conversion. The processor 11 may specify an advertisement

related to the conversion (for example, an institutional advertisement related to the conversion).

After specifying the advertisement, the processor 11 specifies users who have completed the conversion. For example, the processor 11 specifies users who have completed the conversion on the basis of a behavior log of each user (e.g. a Viewing log on the Web).

After determining users who have completed the conversion, the processor 11 generates, from the users who have done the conversion, a cluster of users who have come into contact with the advertisement. For example, the processor 11 specifies two route facilities corresponding to the advertisement. After specifying the two route facilities, the processor 11 specifies users who were present at the two route facilities from the users who have completed the conversion. After specifying the users who were present at the two route facilities, the processor 11 specifies a movement route between the two route facilities on the basis of position information of each user. After specifying the moving time, the processor 11 generates a cluster of users who have come into contact with the advertisement on the basis of the movement route of each user.

The processor 11 has a function to generate tracking information on the basis of the generated cluster.

The tracking information is information on the advertisement with which the users who have completed the

conversion have come into contact. In other words, the tracking information is information on the advertisement which has contributed to the conversion. For example, the tracking information indicates a number of users who have completed the conversion and have come into contact with the specified advertisement (a number of users belonging to the generated cluster) for each advertisement. Furthermore, the tracking information may indicate a number of users who have completed the conversion but have not come into contact with the specified advertisement.

The tracking information may indicate a number of users who have come into contact with the advertisement but have not completed the conversion. The tracking information may indicate a rate (conversion rate) of conversion made by a user who has come into contact with an advertisement for each advertisement.

The configuration of the tracking information is not limited to a specific configuration.

The processor 11 may display the tracking information on the display unit 17. Further, the processor 11 may transmit the tracking information to another device through the communication unit 15.

Next, an operation example of the server apparatus 10 will be described.

First, an operation example of generating the reporting information by the server apparatus 10 will be described.

FIG. 7 is a flowchart for explaining the operation example of generating the reporting information by the server apparatus 10.

First, the processor 11 of the server apparatus 10 acquires a presence information of each user (S11). After acquiring the presence information of each user, the processor 11 sets an advertisement for measuring an effect thereof (S12).

After setting the advertisement for measuring an effect thereof, the processor 11 specifies two route facilities corresponding to the advertisement (S13). After specifying the two route facilities, the processor 11 specifies a user who was present in the two route facilities on the basis of presence information of each user (S14).

After specifying a user who was present in the two route facilities, the processor 11 acquires position information of the specified user (S15). After acquiring the position information of the specified user, the processor 11 specifies a movement route between the two route facilities on the basis of the two route facilities and the acquired position information (S16).

After specifying the movement route between the two route facilities, the processor 11 generates a cluster of users who have come into contact with the advertisement on the basis of the movement route of each user and advertisement information of the advertisement (S17).

After generating a cluster of users who have come into contact with the advertisement, the processor 11 determines a perception of each user belonging to the cluster (S18).

After determining the perception, the processor 11 generates a sub-cluster from the cluster of users who have come into contact with the advertisement (S19). After generating the sub-cluster, the processor 11 generates reporting information on the basis of, for example, the sub-cluster (S20). After generating the reporting information, the processor 11 ends the operation.

Next, an operation example of generating the tracking information by the server apparatus 10 will be described.

FIG. 8 is a flowchart for explaining an operation example of generating the tracking information by the server apparatus 10.

First, the processor 11 of the server apparatus 10 acquires the presence information of each user (S21). After acquiring the presence information of each user, the processor 11 sets a conversion to be tracked (S22).

After setting the conversion, the processor 11 specifies an advertisement corresponding to the conversion (S23). After specifying the advertisement, the processor 11 specifies a user who has completed the conversion (S24).

After specifying a user who has completed the conversion, the processor 11 specifies a route facility corresponding to the specified advertisement (S25). After specifying the route facility, the processor 11 specifies a

user who was present in the two route facilities from users who have completed the conversion (S26).

After specifying the user who was present in the two route facilities, the processor 11 acquires position information of the user (S27). After acquiring the position information of the user, the processor 11 specifies a movement route between the two route facilities on the basis of the two route facilities and the acquired position information (S28).

After specifying a movement route between the two route facilities, the processor 11 generates a cluster of users who have come into contact with the advertisement on the basis of the movement route of each user and the advertisement information of the advertisement (S29).

After generating the cluster, the processor 11 generates tracking information on the basis of the generated cluster (S30).

After generating the tracking information, the processor 11 ends the operation.

The processor 11 may specify one route facility corresponding to the advertisement. For example, the processor 11 may specify a movement route around the route facility on the basis of position information of a user who was present in the route facility. The processor 11 may determine whether or not the user has come into contact with the advertisement on the basis of the movement route.

The processor 11 may determine perception of a user

who has completed the conversion and has come into contact with the advertisement. The processor 11 may generate tracking information including the determined perception.

The present invention is not limited to the above embodiments, and can be modified in various manners in practice when implementing the invention without departing from the gist of the invention. Further, the embodiments may be implemented in combination as appropriate, and in that case, the combined effect can be obtained. Furthermore, the above embodiments include various inventions, and various inventions can be extracted by combinations selected from a plurality of disclosed constituent elements. For example, if the problem can be solved and the advantages of the invention are attained even after some of the structural elements are deleted from all of the structural elements indicated in the embodiments, the structure made up of the resultant structural elements can be extracted as an invention.

CLAIMS

1. A program configured to cause a processor to:

acquire advertisement information indicating an area for contacting an advertisement;

acquire presence information indicating a facility where a user has been present;

acquire position information indicating coordinates of the user; and

determine whether or not the user has come into contact with the advertisement, based on the presence information, the position information, and the advertisement information.

2. The program according to claim 1, configured to cause a processor to:

specify a movement route between two facilities where the user has been present, based on the position information; and

if at least a part of the movement route is included in the area, determine that the user has come into contact with the advertisement.

3. The program according to claim 2, wherein the movement route is a movement route between two route facilities corresponding to the advertisement.

4. The program according to any one of claims 1 to 3, configured to cause the processor to:

generate a cluster of users each corresponding to the user who is judged to have come into contact with the

advertisement; and

generate a sub-cluster of the cluster.

5. The program according to any one of claims 1 to 4, wherein the user is a user who has completed conversion corresponding to the advertisement.

6. The program according to any one of claims 1 to 5, wherein the facility is a station.

7. An information processing method performed by a processor, comprising:

acquiring advertisement information indicating an area for coming into contact with an advertisement;

acquiring presence information indicating a facility where a user has been present;

acquiring position information indicating coordinates of the user; and

determining whether or not the user has come into contact with the advertisement, based on the presence information, the position information, and the advertisement information.

8. An information processing apparatus comprising:

a storage unit configured to store advertisement information indicating an area for coming into contact with an advertisement; and

a controller configured to:

acquire presence information indicating a facility where a user has been present;

acquire position information indicating

coordinates of the user; and

determine whether or not the user has come into contact with the advertisement, based on the presence information, the position information, and the advertisement information.