

information object in the neighborhood of an information object which satisfies the reference condition, also information of a different object associated therewith by grouping can be provided to a user.

[0014]

According to the invention of Claim 4, information regarding the number of versions of an individual object can be provided to a user.

Brief Description of Drawings

[0015]

[Fig. 1] Fig. 1 illustrates an example of an information processing apparatus of an embodiment.

[Fig. 2] Fig. 2 illustrates an example of contents of data registered in a database.

[Fig. 3] Fig. 3 illustrates an exemplary two-dimensional canvas (information space).

[Fig. 4] Fig. 4 illustrates an example of a viewport (display window) in which a portion of the canvas is displayed.

[Fig. 5] Fig. 5 illustrates an example of a viewport which displays a retrieval dialog box.

~~[Fig. 6] Fig. 6 illustrates an example of data processing procedure performed by a retrieval unit.~~

~~— [Fig. 7] Fig. 7 illustrates an example of a viewport which displays retrieval results, in a case where there are plural retrieval results.~~

[Fig. 8] Fig. 8 explains an exemplary viewport which displays a retrieval result when there is one single retrieval result.

[Fig. 9] Fig. 9 illustrates an exemplary retrieval dialog box in a case where a neighborhood retrieval is to be carried out.

[Fig. 10] Fig. 10 explains the neighborhood retrieval.

[Fig. 11] Fig. 11 illustrates an exemplary viewport in

CLAIMS

1. An information processing apparatus comprising:

information space storage means for storing an information object in connection with an arrangement destination coordinate at which the information object is to be positioned in an information space;

information space screen generation means for generating an information space screen which displays a state in which each information object stored in the information space storage means is positioned at a corresponding arrangement destination coordinate;

update means for receiving, on the information space screen being displayed, an instruction given by a user to change the arrangement destination coordinate of the information object displayed on the information space screen or an instruction given by the user to specify a new information object to be arranged in the information space and an arrangement destination coordinate of the new information object, the update means being configured to update information stored in the information space storage means correspondingly to a received changing instruction or a received specifying instruction;

retrieval condition receiving means for receiving an input of a retrieval condition;

retrieval means for performing a retrieval through the information space storage means to find an information object which satisfies the retrieval condition; and

control means for controlling the information space screen generation means such that, when at least one information object that satisfies the retrieval condition is found as a result of the retrieval, the information space screen generation means generates the information space screen in

which the information object found through the retrieval is displayed in a display form discriminable from objects that do not satisfy the retrieval condition, with an entire information space used as a display area.

2. The information processing apparatus according to Claim 1, wherein

the retrieval condition receiving means receives, as the retrieval condition, a reference condition to specify an information object to be used as a reference and a distance condition representing a distance which defines a neighborhood of the information object satisfying the reference condition, and

the retrieval means performs a retrieval through the information space storage means to find an information object satisfying the reference condition, and to find a neighborhood object which is an information object arranged within the distance represented by the distance condition from the information object found to satisfy the reference condition, and the information object satisfying the reference condition and the neighborhood object are output by the retrieval means as the objects satisfying the retrieval condition.

3. The information processing apparatus according to Claim 2, wherein

the information space storage means further stores information of a group constituted by two or more information objects, and

the retrieval means outputs, as one of the objects satisfying the retrieval condition, an information object belonging to the same group as the neighborhood object found.

4. The information processing apparatus according to any one of Claims 1 to 3, wherein

the information space storage means stores, for at least one of the information objects, data of a plurality of versions of the information object, and

the information space screen generation means generates, as the information space screen, a screen which displays an individual information object in a display form that enables the user to distinguish the number of the versions of the information object.

5. A program for causing a computer to function as:

information space storage means for storing an information object in association with an arrangement destination coordinate at which the information object is to be positioned in an information space;

information space screen generation means for generating an information space screen which displays a state in which each information object stored in the information space storage means is positioned at a corresponding arrangement destination coordinate;

update means for receiving, on the information space screen being displayed, an instruction given by a user to change the arrangement destination coordinate of the information object displayed on the information space screen or an instruction given by the user to specify a new information object to be arranged in the information space and an arrangement destination coordinate of the new information object, the update means being configured to update information stored in the information space storage means correspondingly to a received changing instruction or a received specifying instruction;

retrieval condition receiving means for receiving an input of a retrieval condition;

retrieval means for performing a retrieval through the information space storage means to find an information object

which satisfies the retrieval condition; and

control means for controlling the information space screen generation means such that, when at least one information object that satisfies the retrieval condition is found as a result of the retrieval, the information space screen generation means generates the information space screen in which the information object found through the retrieval are displayed in a display form discriminable from objects that do not satisfy the retrieval condition, within a display area that corresponds to the entire information space.

information object in the neighborhood of an information object which satisfies the reference condition, also information of a different object associated therewith by grouping can be provided to a user.

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[Fig. 10] Fig. 10 explains the neighborhood retrieval.

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[Claim 1]

An information processing apparatus comprising:

information space storage means for storing an information object in connection with an arrangement destination coordinate at which the information object is to be positioned in an information space;

information space screen generation means for generating an information space screen which displays a state in which each information object stored in the information space storage means is positioned at a corresponding arrangement destination coordinate;

update means for receiving, on the information space screen being displayed, an instruction given by a user to change the arrangement destination coordinate of the information object displayed on the information space screen or an instruction given by the user to specify a new information object to be arranged in the information space and an arrangement destination coordinate of the new information object, the update means being configured to update information stored in the information space storage means correspondingly to a received changing instruction or a received specifying instruction;

retrieval condition receiving means for receiving an input of a retrieval condition;

retrieval means for performing a retrieval through the information space storage means to find an information object which satisfies the retrieval condition; and

control means for controlling the information space screen generation means such that, when at least one information object that satisfies the retrieval condition is found as a result of the retrieval, the information space screen generation means generates the information space screen in which the information object found through the retrieval is displayed in a display form discriminable from objects that do not satisfy the retrieval condition, with an entire information space used as a display area.

[Claim 2]

The information processing apparatus according to Claim 1, wherein

the retrieval condition receiving means receives, as the retrieval condition, a reference condition to specify an information object to be used as a reference and a distance condition representing a distance which defines a neighborhood of the information object satisfying the reference condition, and

the retrieval means performs a retrieval through the information space storage means to find an information object satisfying the reference condition, and to find a neighborhood object which is an information object arranged within the distance represented by the distance condition from the information object found to satisfy the reference condition, and the information object satisfying the reference condition and the neighborhood object are output by the retrieval means as the objects satisfying the retrieval condition.

[Claim 3]

The information processing apparatus according to Claim 2, wherein

the information space storage means further stores information of a group constituted by two or more information objects, and

the retrieval means outputs, as one of the objects satisfying the retrieval condition, an information object belonging to the same group as the neighborhood object found.

[Claim 4]

The information processing apparatus according to any one of Claims 1 to 3, wherein

the information space storage means stores, for at least one of the information objects, data of a plurality of versions of the information object, and

the information space screen generation means generates, as the information space screen, a screen which displays an individual information object in a display form that enables the user to distinguish the number of the versions of the information object.

[Claim 5]

A program for causing a computer to function as:

information space storage means for storing an information object in association with an arrangement destination coordinate at which the information object is to be positioned in an information space;

information space screen generation means for generating an information space screen which displays a

state in which each information object stored in the information space storage means is positioned at a corresponding arrangement destination coordinate;

update means for receiving, on the information space screen being displayed, an instruction given by a user to change the arrangement destination coordinate of the information object displayed on the information space screen or an instruction given by the user to specify a new information object to be arranged in the information space and an arrangement destination coordinate of the new information object, the update means being configured to update information stored in the information space storage means correspondingly to a received changing instruction or a received specifying instruction;

retrieval condition receiving means for receiving an input of a retrieval condition;

retrieval means for performing a retrieval through the information space storage means to find an information object which satisfies the retrieval condition; and

control means for controlling the information space screen generation means such that, when at least one information object that satisfies the retrieval condition is found as a result of the retrieval, the information space screen generation means generates the information space screen in which the information object found through the retrieval are displayed in a display form discriminable from objects that do not satisfy the retrieval condition, within a display area that corresponds to the entire information

space.

[Claim 6]

The information processing apparatus according to claim 1, wherein

the information space storage means is capable of storing the information object correspondingly to the arrangement destination coordinate in each of a plurality of information spaces in which a plurality of access right information corresponding to a plurality of identity information different from each other is individually registered.

[Claim 7]

The information processing apparatus according to claim 1, wherein

the information space storage means is capable of storing the information object correspondingly to the arrangement destination coordinate in a information space in which an access right information corresponding to a plurality of users is registered.

[Claim 8]

The information processing apparatus according to claim 1, wherein

the control means is capable of controlling the information space screen generation section so that when the number of the information objects retrieved is one, the supplemental screen is parallel shifted in order for the information object retrieved to be positioned at a middle of the supplemental screen.