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(71) Applicant *(for all designated States except US)*: **NHN CORPORATION** [KR/KR]; 34th Fl., Startower Building, 737 Yoksam-dong, Kangnam-gu, Seoul 135-984 (KR).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **KIM, Dong Hoi** [KR/KR]; 34 Fl., Startower Building, 737 Yoksam-dong, Kangnam-gu, Seoul 135-984 (KR).

(74) Agent: **CHUN, Sung Jin**; Muhann patent & Law Firm, 5th Fl., Youngpoong Building, 142 Nonhyun-dong, Kangnam-gu, Seoul 135-749 (KR).

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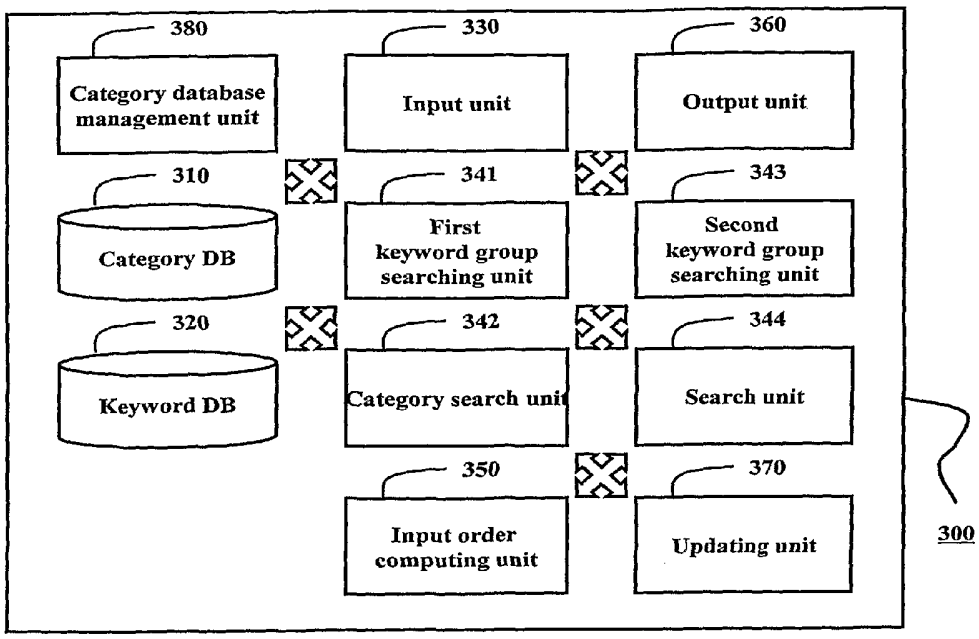

(57) Abstract: The present invention relates to a search service system and a method thereof, and more particularly, relates to a search service system capable of providing an input order of a keyword which is input into the search service system, according to a category to which the keyword belongs, and a method thereof.

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SEARCH SYSTEM FOR PROVIDING INFORMATION OF KEYWORD INPUT FREQUENCY BY CATEGORY AND METHOD THEREOF

Technical Field

The present invention relates to a search service system and a method thereof, and more particularly, relates to a search service system capable of providing an input order of a keyword which is input into the search service system, according to a category to which the keyword belongs, and a method thereof.

Background Art

The most general search service method provided by a search service system is a keyword search service. In case that a keyword is input from a user, the search service system, which provides the keyword search service, provides the user with search results including the keyword (e.g., a web site including the keyword, an article including the keyword, an image with a file name including the keyword, etc).

At this time, the search service system according to the prior art further provides a service of notifying a user of 'a popular search word'. A drawing symbol 101 of FIG. 1 illustrates one example of popular search words provided for the user, in the search service system according to the prior art.

However, the service of providing popular search words according to the prior art is configured to display several popular search words whose frequency ranks high, on a web page or the like, by using the number of keywords input by users per certain period. Thus, there is a problem that it is impossible to provide users with popular search words in real time.

Furthermore, the service of providing popular search words according to the prior art is configured to determine and provide popular search words by using only the number of input keywords, without classifying keywords by categories. Thus, there is a problem that what kind of keyword a user inputs, the user has no choice but to be provided with the same popular keywords such as a singer (Kyoo-chan Cho), a drama (Lady Han), a movie (Ocean's twelve) and the like, as illustrated in FIG. 1.

Furthermore, the service of providing popular search words according to the prior art neither compute how popular each of popular search words is, nor provide the

computed results. Thus, there is a limit that users cannot know which popular search word among popular search words is more popular.

Furthermore, in the service of providing popular search words according to the prior art, in case that the keyword input by a user is not a popular search word, there is a problem that the user cannot know how much interest other users have in an issue related to the keyword input by oneself.

Disclosure of the Invention

Technical Questions

The present invention is conceived to solve the aforementioned problems in the prior art, and one object of the present invention is to provide search service system and method which can provide input orders of keywords, by categories of keywords input in the search service system.

Furthermore, other object of the present invention is to provide search service system and method which can further provide other keywords belonging to a category related to a keyword input in the search service system, and an input order of each of the keywords.

Furthermore, another object of the present invention is to provide search service system and method which can include keywords having similar or same meaning in one group of keywords, and in case that an input keyword is included in the keyword group, compute and provide an input order of keyword compatible with a user's intention by increasing the number of input keywords related to the keyword group.

Furthermore, another object of the present invention is to provide search service system and method which can compute and provide an input order of keyword in a selected category according to the latest issue of users who input the keyword, by enabling at least one keyword (or a keyword group) related to a category to be maintained and a keyword (or a keyword group) related to the category to be changeable.

Technical Solutions

In order to achieve the above objects and solve the aforementioned problems in the prior art, a search service system according to the present invention comprises: a

category database including a category and at least one keyword group identifier associated therewith, wherein the keyword group identifier is for identifying a predetermined keyword group and the keyword group includes a representative keyword, or a similar keyword having the same or similar meaning thereto; a keyword database including data of the number of input keywords corresponding to a keyword group; an input unit for receiving a keyword from a user through a communication network; a first keyword group searching unit for searching for a first keyword group including the received keyword by referring to the keyword database; a category search unit for searching for a first category associated with the first keyword group by referring to the category database; a second keyword group searching unit for searching for a second keyword group associated with the first category by referring to the category database; a search unit for searching for data of the number of input keywords corresponding to the second keyword group by referring to the keyword database; an input order computing unit for computing an input order of the first keyword group within the first category by using the searched data of the number of input keywords; an output unit for providing the user with the computed input order through the communication network, in association with the first category and a representative category included in the first keyword group; and an updating unit for updating data of the number of input keywords corresponding to the first keyword group, thereby recording the same in the keyword database.

The search service system according to one aspect of the present invention comprises a category database management unit for: receiving a selection of a category, a selection of a keyword group and a request for deletion, from a manager; and deleting a keyword group identifier with respect to the selected keyword group from at least one keyword group identifier associated with the selected category, in the category database.

Furthermore, the search service system according to another aspect of the present invention further comprises a category database management unit for: receiving a selection of a category, a selection of a keyword group and a request for an addition, from a manager; and adding a keyword group identifier with respect to the selected keyword group in association with the selected category, thereby recording the same in the category database.

Furthermore, according to another aspect of the present invention, the input

order computing unit respectively computes a second input order of the second keyword group within the first category, based on the second keyword group and data of the number of input keywords corresponding thereto; and the output unit provides the user with the second input order through the communication network, in association with the first category and a representative keyword included in the second keyword group.

Furthermore, according to another aspect of the present invention, the output unit selects the predetermined number of second keyword groups of which the second input orders rank high; and provides the user with a second input order corresponding to the selected second keyword group through the communication network, in association with the first category and a representative keyword included in the selected second keyword group.

Brief Description of the Drawings

FIG. 1 is a drawing illustrating one example of popular search words provided for a user by a search service system according to the prior art.

FIG. 2 is a drawing illustrating a network connection of a search service system according to one embodiment of the present invention.

FIG. 3 is an internal block diagram illustrating configuration of a search service system according to one embodiment of the present invention.

FIG. 4 is a drawing illustrating one example of data maintained in a category database, in one embodiment of the present invention.

FIG. 5 is a drawing illustrating one example of data maintained in the category database after the keyword group identifier 'seven (Korean)' related to the 'movie' category is deleted from the category database illustrated in FIG. 4 by a category database management unit.

FIG. 6 is a drawing illustrating one example of predetermined keyword groups and data of the number of input keywords corresponding thereto.

FIGS. 7 to 10 are drawings illustrating examples of input orders provided for a user terminal by a search service system according to each embodiment of the present invention.

FIG. 11 is a block diagram illustrating a search service system according to another embodiment of the present invention.

FIGS. 12 and 13 are flowcharts illustrating a search service method according to another embodiment of the present invention.

FIG. 14 is an internal block diagram of a genera-purpose computer which may be adopted in implementing a search service method according to the present invention.

Best Mode for Carrying Out the Invention

Hereinafter, the present invention will be in detail described with reference to the accompanying drawings.

FIG. 2 is a drawing illustrating a network connection of a search service system according to one embodiment of the present invention. Users get access to a search service system 200 through a wired/wireless communication network by using a user terminal 210a or 210b, and input a keyword. The search service system 200 transmits a keyword search result corresponding to the keyword, to the user terminal 210a or 210b. Moreover, the search service system 200 according to the present invention further transmits an input order of the input keyword by category, to the user terminal 210a or 210b.

FIG. 3 is an internal block diagram illustrating configuration of the search service system 200 according to one embodiment of the present invention. A search service system 300 comprises a category database 310, a keyword database 320, an input unit 330, a first keyword group searching unit 341, a category search unit 342, a second keyword searching unit 343, a search unit 344, an input order computing unit 350, an output unit 360, an updating unit 370 and a category database management unit 380.

In the meantime, the term of "a keyword group" used in the present specification means a group comprising one representative keyword and a keyword having the same/similar meaning thereto, wherein the term of "the representative keyword" means a keyword provided for a user from keywords comprised in the keyword group, together with an input order.

Furthermore, the term of "a first keyword group" used in the present specification means a keyword group including a keyword input from a user, among keyword groups. The term of "a second keyword group" means a keyword group whose category is same to that of the first keyword group, among keyword groups.

Therefore, the second keyword group includes the first keyword group.

In addition, the term of "a second input order" used in the present specification means an input order of the second keyword group within the category.

The category database 310 includes a category and at least one keyword group identifier associated therewith. FIG. 4 is a drawing illustrating one example of data recorded in the category database 310.

The keyword group identifier is for identifying a predetermined keyword group and as illustrated in FIG. 4, the present embodiment adopts a representative keyword of the keyword group as the keyword group identifier for general understanding. Moreover, generally there exists a plurality of keyword group identifiers associated with one category.

According to one embodiment of the present invention, the search service system 300 includes the category database management unit 380 for managing the category database 310. In case that a selection of a category, a selection of a keyword group and a request for deletion is received from a manager, the category database management unit 380 deletes a keyword group identifier with respect to the selected keyword group from at least one keyword group identifier associated with the selected category, in the category database 310.

In addition, in case that a selection of a category, a selection of a keyword group and a request for an addition is received from a manager, the category database management unit 380 adds a keyword group identifier with respect to the selected keyword group in association with the selected category, thereby recording the same in the category database 310.

According to the configuration like above, the search service system 300 is enabled to compute an input order in correspondence with a user's intention. For example, in association with a keyword 'seven', users used to input the keyword into the search service system 300 in order to search for the movie 'seven'. However, in case that it is determined that users input the keyword 'seven' in order to search for the singer 'seven', not the movie titled by 'seven', the manager inputs a selection of a keyword group including the category 'movie' and the keyword 'seven' in the category database management unit 380, and asks for a deletion. At this time, in case that a keyword group identifier of the keyword group including the keyword 'seven' is also 'seven', the

category database management unit 380 deletes the keyword group identifier 'seven' associated with the 'movie' category from the category database 310, as illustrated in FIG. 4.

FIG. 5 is a drawing illustrating one example in which the keyword group identifier 'seven' is deleted from keyword group identifiers in the category database, as aforementioned.

In the same manner, in case that users requests a search for a new keyword in association with a predetermined category, for example, in case that users input the drama titled 'great cook' as a keyword with the drama on T.V, the category database management unit 380 adds a keyword group identifier with respect to a keyword group including 'great cook' in association with the category 'drama', thereby recording the same in the category database 310.

Like above, the manger continuously manages the category database 310 by using the category database management unit 380. Thus, although users input the keyword 'seven' to search for the singer 'seven', the manager may prevent the unexpected movie 'seven' of the movie category from ranking high in input orders of keywords.

Therefore, the keyword 'seven' to search for the singer 'seven' is currently input, however, the social issue changes, for example, into the drama 'seven' and users' interests thereon go up, and it is determined that users input the keyword 'seven' to search for the drama 'seven'. In this case, the category database management unit 380 deletes a keyword group identifier with respect to a keyword group including 'seven' from keyword group identifiers associated with the category 'singer' in the category database 310 according to the manager's command, and adds the keyword group identifier in association with the category 'drama', thereby storing the same in the category database 310. Thus, the category database management unit 310 enables an input order of a keyword corresponding to a user's intention to be computed.

The keyword database 320 maintains data of the number of input keywords corresponding to a keyword group, as illustrated in FIG. 6. The keyword group includes a representative keyword and at least one keyword having the same/similar meaning thereto. For example, as indicated by a drawing symbol 601, the representative keyword is 'seven (Korean) ', the keyword having the same/similar

meaning to 'seven (Korean)' is 'seven', and 'seven (Korean)' and 'seven' are included in one keyword group.

The search service system 300 according to the present embodiment is intended to compute an input order of a keyword corresponding to a user's intention by using a concept of a keyword group including at least one keyword. For example, in case that users want to search for the singer 'seven', they often input 'seven (in Korean)' or 'seven' as a keyword. At this time, the keyword 'seven (Korean)' and 'seven' are used for the same target. Therefore, in case that an input order is computed based on the number of inputs corresponding to each of keywords 'seven (Korean)' and 'seven', unlike users' intention, there may be an event that their interests with respect to the singer 'seven' might be depreciated. For example, in case that the input number of keyword 'leehyori' is 300, that of keyword 'seven (Korean)' is 280 and that of keyword 'seven' is 50, the total number of input keywords with respect to the signer 'seven' is "280 (seven (Korean)) + 50 (seven) = 330". However, since an input order with respect to the keyword 'leehyori' is computed higher, there is a concern that an input order not corresponding to a user's intention, might be computed, such that users might think that people are more interested in the singer 'leehyori' rather than the singer 'seven'. Therefore, in case that the keyword 'seven (Korean)' is input and in case that the keyword 'seven' is input, in order to compute the number of inputs by adding up the two cases, the search service system according to the present invention is configured to comprise a representative keyword (seven (Korean)) and a keyword (seven) having the same/similar meaning thereto, as one keyword group.

The input unit 330 receives a keyword from the user terminal 210a or 210b, through the communication network. For example, the received keyword is 'seven'.

The first keyword group searching unit 341 searches for a first keyword group including the received keyword, by referring to the keyword database 320. Referring to FIG. 6, the first keyword group including the received keyword 'seven' is a keyword group whose representative keyword is 'seven (Korean)'.

The category search unit 342 searches for a first category associated with the first keyword group, by referring to the category database 310. Referring to FIG. 5, the first category is the category 'singer'.

The second keyword group searching unit 343 searches for a second keyword

group associated with the first category, by referring to the category database 310. Referring to FIG. 5, the second groups associated with the first category are keyword groups whose keyword group identifiers are 'rain (Korean)', 'leehyori (Korean)', 'boa (Korean)', 'changnara (Korean)', 'seven (Korean)' and the like.

The search unit 344 searches for data of the number of input keywords corresponding to the second keyword groups, by referring to the keyword database 320. Referring to FIG. 6, data of the number of input keywords corresponding to the second keyword groups are respectively 321 for the second keyword group 'rain', 358 for the second keyword group 'leehyori', 256 for the second keyword group 'boa', 115 for the second keyword group 'changnara', 234 for the second keyword group 'seven',....

The input order computing unit 350 computes an input order of the first keyword group within the first category, by using the searched data of the number of input keywords. In case that it is assumed that there are searched only five keyword groups of which keyword group identifiers are respectively 'rain (Korean)', 'leehyori (Korean)', 'boa (Korean)', 'changnara (Korean)', and 'seven (Korean)', the sizes of the searched data of the number of input keywords are in order of the second keyword group 'leehyori', the second keyword group 'rain', the second keyword group 'boa', the second keyword group 'seven' and the second keyword group 'changnara'. Therefore, an input order of the first keyword group 'seven' is 4th.

As aforementioned, the search service system 300 according to the present embodiment determines a category to which a keyword group including a keyword input by a user belongs, and computes an input order of a first keyword group among second keyword groups belonging to the category. Therefore, the input order may be computed according to a category.

The output unit 360 provides the user terminal 210a or 210b with the computed input order, in association with the first category 'singer' and the representative keyword 'seven (Korean)' of the first keyword group. FIG. 7 is a drawing illustrating one example of an input order provided for the user terminal 210a or 210b, according to the configuration like above. As indicated by a drawing symbol 701 in FIG. 7, in case that a user inputs 'seven' in the search service system 300, the search service system 300, with respect to the keyword 'seven', further provides an input order in association with the representative category 'singer' and the representative keyword 'seven (Korean)' of

the first keyword group, as indicated by a drawing symbol 702, together with keyword search results. In the meantime, according to the present embodiment, the input order is provided with search results. Therefore, the user may be provided with an input order associated with the keyword in real time.

In addition, according to another embodiment of the present invention, the input order computing unit 350 respectively computes second input orders of second keyword groups, based on the second keyword groups and data of the number of input keywords corresponding thereto. In the present embodiment, second input orders are respectively computed in such a way that the second keyword group 'leehyori' is 1st, the second keyword group 'rain' is 2nd, the second keyword group 'boa' is 3rd, the second keyword group 'seven (Korean)' (the keyword group 'seven (Korean)' is also a first keyword group) is 4th and the second keyword group 'changnara' is 5th.

The output unit 360 provides the user terminal 210a or 210b with the second input order, in association with the first category 'singer' and a representative keyword of the second keyword group. FIG. 8 is a drawing illustrating one example of the second input order provided for the user terminal 210a or 210b according to the present embodiment. According to the present embodiment, in case that the keyword 'seven' input by a user belongs to the category 'singer', input orders of other keyword groups belonging to the category 'singer' are also provided as indicated by drawing symbol 820. A drawing symbol 821 means each second input order and a drawing symbol 822 means a representative keyword of each second keyword group.

In addition, according to another embodiment of the present invention, the output unit 360 selects the predetermined number of second keyword groups whose second input orders rank high, and provides a user with only second input order related to the selected second keyword group. In the aforementioned embodiment, there is described that second keyword groups are only five. However, generally, there exists a plurality of second keyword groups related to one representative category. At this time, in case that all the input orders related to second keyword groups are provided for a user, too much information is unnecessarily provided, which might offend the user. Accordingly, the search service system 300 according to the present embodiment provides the predetermined number of second keyword groups whose second input orders rank high, from second keyword groups related to a representative category.

For example, the search service system 300 selects 10 groups of second keyword groups whose input orders are within top ten, and provides the second input orders thereof.

FIG. 9 is a drawing illustrating one example of providing second input orders of second keyword groups whose second input orders are within top ten, in case that there are a plurality of second keyword groups related to the representative category. Like the aforementioned embodiment, the second input order may be provided in association with the first category and the representative keyword of the second keyword.

In the meantime, in case that an input order of the first keyword group is out of top ten among the second input orders, the search service system 300 provides the user with second input orders of second keyword groups to top ten, separately from the input order of the first keyword group. FIG. 10 is a drawing illustrating one example of input orders provided for the user terminal 210a or 210b, in case that an input order of a first keyword group is out of top ten. Namely, in case that the input order of the first keyword group related to the keyword 'seven' input by a user ranks 53rd among second keyword groups related to the first category 'singer', the input order related to the first keyword group and second input orders of second keyword groups which are within top ten among the second keyword groups are respectively provided for the user.

The updating unit 370 updates data of the number of input keywords related to the first keyword group of the keyword database 320, in response to input of the keyword 'seven'. Namely, the updating unit 370 updates '234', data of the number of input keywords related to the first keyword group including the keyword 'seven', to '235'. Based on setting of the search service system 300, the updating unit 370 may update data of the number of input keywords before or after computing the input order.

Furthermore, according to another embodiment of the present invention, the search service system 300 provides input orders by period with respect to keywords. The keyword database 320 maintains data of the number of input keywords by period corresponding to a predetermined keyword group. The updating unit 370 updates the data of the number of input keywords by period, to 0 periodically. The cycle may be a period set by a manager.

Like above, since the updating unit 370 updates data of the number of input keywords to 0, according to the period, the input orders computed by the input order computing unit 350 are ones by period. According to the present embodiment, the

user provided with input orders by period can know the latest main issue in a field related to the first category.

Furthermore, according to another embodiment of the present invention, the keyword database 320 may maintain both the whole data of the number of input keywords and data of the number of input keywords by period. At this time, the input order computing unit 350 may compute the whole input orders and input orders by period by respectively using the whole data of the number of input keywords and the data of the number of input keywords by period. The output unit 380 may provide a user with the computed whole input orders and input orders by period.

Furthermore, according to another embodiment of the present invention, the search service system 300 further provides information on a fluctuation band of input order. The search service system 300 according to the present embodiment further comprises a storage unit, an input order searching unit, an input order band computing unit and an input order updating unit.

The storage unit stores an input order of a keyword group related to a predetermined category. The input order stored in the storage unit is an input order computed by the input order computing unit 350, according to input of a keyword just before the user inputs the keyword.

The input order searching unit searches the storage unit for an input order of a keyword group which corresponds to the second keyword group and is related to the representative category. The input order band computing unit computes a fluctuation band of input orders of the second keyword group, by comparing the searched input order with the second input order of the second keyword group in the first category. For example, in case that the input order of the keyword group 'changnara', which is stored in the storage unit in association with the category 'singer', ranks 1st, and the second input order, which is newly computed in such a way that a user inputs the keyword 'changnara', ranks 2nd, the input order-band computing unit computes '-1', the fluctuation band.

The output unit 360 provides the computed fluctuation band for the user terminal 210a or 210b in association with the second input order, as indicated by a drawing symbol 923 in FIG. 9. The input order updating unit updates an input order of a keyword group that corresponds to the second keyword group and is related to the first

category 'singer', to the second input order in the storage unit. At this time, this is used as data for computing a fluctuation of a second input order which is newly computed by input of a new keyword. Among the fluctuation band indicated by a drawing symbol 923 in FIG. 9, in comparison with the last time , '+1' is used to show that the input order is up by one place, , '-1' is used to show that the input order is down by one place, and '0' is used to show that the input order has no change.

Based on the configuration like above, according to the present embodiment, a user can know an input order of one's input keyword in a predetermined (first) category and input orders of other keywords belonging to the (first) category. Together with this, the user can know whether of change in the input order/the fluctuation band thereof. Therefore, the user can know ordinary people's interests and any change thereof.

Hereinafter, a search service system according to another embodiment of the present invention will be described with reference to FIG. 11. A search service system 1100 according to the present embodiment comprises a category database 1100, a keyword database 1120, an input unit 1130, a category search unit 1141, a keyword search unit 1142, a search unit 1143, an input order computing unit 1150, an output unit 1160 and an updating unit 1170.

The category database 1110 includes a category and at least one keyword associated therewith.

The keyword database 1120 includes data of the number of input keywords corresponding to a keyword.

The input unit 1130 receives a first keyword from a user through a communication network, and the category search unit 1141 searches for a first category associated with the first keyword by referring to the category database 1110.

The keyword search unit 1141 searches for a second keyword associated with the first category by referring to the category database 1110. The search unit 1143 searches for data of the number of input keywords corresponding to the second keyword by referring to the keyword database 1120.

The input order computing unit 1150 computes an input order of the first keyword within the first category by using the searched data of the number of input keywords, and the output unit 1160 provides the user with the computed input order, in association with the first category and the first keyword, through the communication

network.

Furthermore, according to another embodiment of the present invention, the input order computing unit 1150 may compute an input order of the second keyword within the first category by using the searched data of the number of input keywords, and the output unit 1160 may further provide the user with the input order of the second keyword together with the input order of the first keyword. Moreover, the input order of the second keyword may be provided only with respect to the predetermined number of second keywords of which input orders rank high.

The updating unit 1160 updates data of the number of input keywords corresponding to the first keyword, thereby records the same in the keyword database 1120.

According to the present embodiment, in a category to which a keyword input by a user belongs, it may be possible to provide the user with an input order of the keyword or input orders of keywords belonging to the category. Since the search service system 1100 according to the present embodiment does not adopt a concept of a keyword group, with respect to the keyword 'seven (Korean)' and the keyword 'seven', data of the number of input keywords are respectively maintained and input orders thereof are also respectively computed. Otherwise, in case that data only with respect to the keyword 'seven (Korean) is maintained in the keyword database 1120 and data with respect to the keyword 'seven' is not maintained therein, the input order with respect to the keyword 'seven' is not computed. Accordingly, in case that an input order is computed according to the present embodiment and provided for a user, a keyword most adopted by users (i.e. the keyword 'seven (Korean) rather than the keyword 'seven') is used to indicate the same target.

Hereinafter, the method for providing a search service according to another embodiment of the present invention will be described. FIGS. 12 and 13 are flowcharts illustrating the search service method according to the present embodiment. The search service method according to the present embodiment may be implemented by the search service system 200 as illustrated in FIG. 2.

In the step 1201, the search service system 200 maintains a category database including a category and at least one keyword identifier associated therewith. The keyword group identifier is for identifying a predetermined keyword group and a

representative keyword of the keyword group may be used.

In the step 1202, the search service system 200 maintains a keyword database including data of the number of input keywords corresponding to a keyword group. The keyword group includes a representative keyword or a keyword having the same/similar meaning thereto. For example, the search service system 200 includes 'mcthemax (Korean)' and 'M.C The Max' in the same keyword group, and enables one keyword group to be formed by setting 'mcthemax (Korean)' as a representative keyword.

In the step 1203, the search service system 200 receives a keyword from the user terminal 210a or 210b. At this time, in case that 'mc the max (Korean)' is received, there may be adopted variety of algorithms such as algorithm enabling 'mc the max (Korean)' to be regarded as same to 'mcthemax(Korean)' by deleting space words therebetween.

The search service system 200 searches for a second keyword group associated with the first category by referring to the category database in the step 1206, and searches for data of the number of input keywords corresponding to the second keyword group by referring to the keyword database.

Therefore, a keyword group belonging to a category associated with the keyword that is input by the user and data of the number of input keywords corresponding to the keyword group are searched.

In the step 1208, the search service system 200 respectively computes input orders of second keyword groups by using data of the number of input keywords thereof. Since at least one second keyword group includes the first keyword group, according to definition of terms used in the present specification, an input order of the first keyword group is also automatically computed in the step 1208.

In the step 1209, the search service system 200 selects the predetermined number of second keyword groups based on the input order. For example, the search service system 200 selects only second keyword groups whose input orders are within top ten.

In case that the selected second keyword group includes the first keyword group, i.e. in case that the input order of the first keyword group is within top ten, the search service system 200 provides the second input order for the user terminal 210a or

210b, in association with the first category and a representative keyword included in the second keyword group, in the step 1212. A user is provided with input orders by category as illustrated in FIG. 9, by configuration like above.

In the meantime, in case that the selected second keyword group does not include the first keyword group, i.e. in case that an input order of the first keyword group is out of top ten, the search service system 200 provides the user terminal 210a or 210b with the second input order of the selected second keyword group and the input order of the first keyword respectively, in the step 1211. The input order of the first keyword group is provided in association with the first category and a representative keyword included in the first keyword group, and the second input order is provided in association with the first category and a representative keyword included in the second keyword group. A user is provided with input orders by category, as illustrated in FIG. 10, by configuration like above.

According to another embodiment of the present invention, the search service system 200 may provide a user with only input order corresponding to a first keyword group, in association with a first category. In addition, according to another embodiment of the present invention, the search service system 200 may provide only input order related to the second keyword group whose input order is within the predetermined number. At this time, in case that the first keyword group is not included in the second keyword group, an input order related to the first keyword group is not provided.

The search service system 200 receives a selection of a category, a selection of a keyword group, and a request for deletion in the step 1213, and deletes a keyword group identifier with respect to the selected keyword group from at least one keyword group identifier associated with the selected category, in the category database in the step 1214.

In the meantime, in case that a request for an addition, not a request for deletion, is received from the manager in the step 1213, the search service system 200 adds a keyword group identifier with respect to the selected keyword group in association with the selected category, thereby recording the same in the category database in the step 1214.

By performing the steps 1213 and 1214, the search service system 200 may

appropriately change a category to which a predetermined keyword belongs in correspondence with change in users' interests. Accordingly, an input order of a keyword in a category of a field for a user's intention may be computed.

Furthermore, according to another embodiment of the present invention, an input order by category may be computed in association with a keyword, by maintaining data of the number of input keywords by keywords, without adopting a concept of a keyword group.

The embodiments of the present invention include computer readable media including program instructions to implement various operations embodied by a computer. The media may also include, alone or in combination with the program instructions, data files, data structures, tables, and the like. The media and program instructions may be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts.

FIG. 14 is an internal block diagram of a general-purpose computer which can be more adopted in implementing the search service method according to the present invention.

The computer system 1400 includes any number of processors 1410 (also referred to as central processing units, or CPUs) that are coupled to storage devices including primary storage (typically a random access memory, or "RAM 1420 "), primary storage (typically a read only memory, or "ROM 1430"). As is well known in the art, ROM 1430 acts to transfer data and instructions uni-directionally to the CPU, and RAM 1420 is used typically to transfer data and instructions in a bi-directional manner. Both of these primary storage devices may include any suitable type of the computer-readable media described above. A mass storage device 1440 is also coupled bi-directionally to CPU and provides additional data storage capacity and may include any of the computer-readable media described above. The mass storage device 1440 may be used to store programs, data and the like and is typically a secondary storage medium such as a hard disk that is slower than primary storage. A specific mass storage device such as a CD-ROM 1460 may also pass data uni-directionally to the CPU. Processor 1410 is also coupled to an interface 1450 that includes one or more input/output devices such as such as video monitors, track balls, mice, keyboards,

microphones, touch-sensitive displays, transducer card readers, magnetic or paper tape readers, tablets, styluses, voice or handwriting recognizers, or other well-known input devices such as, of course, other computers. Finally, processor 1410 optionally may be coupled to a computer or telecommunications network using a network connection as shown generally at network interface 1470. With such a network connection, it is contemplated that the CPU might receive information from the network, or might output information to the network in the course of performing the above-described method steps. The above-described devices and materials will be familiar to those of skill in the computer hardware and software arts.

The hardware elements above may be configured to act as one or more software modules for implementing the operations of this invention.

The foregoing descriptions of specific embodiments of the present invention have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching.

Therefore, it is intended that the scope of the invention be defined by the claims appended thereto and their equivalents.

Although the present invention has been described in connection with the embodiment of the present invention illustrated in the accompanying drawings, it is not limited thereto since it will be apparent to those skilled in the art that various substitutions, modifications and changes may be made thereto without departing from the scope and spirit of the invention.

Industrial Applicability

According to the present invention, there is provided search service system and method which can provide a user with an input order of a keyword, by category of the keyword input into the search service system. The input order of the keyword by category may be provided for the user in real time, together with search results with respect to the keyword.

Furthermore, according to the present invention, there is provided search service system and method which can further provide other keywords belonging to a category related to a keyword input in the search service system, and an input order of

each of the keywords.

Furthermore, according to the present invention, there is provided search service system and method which can include keywords having similar or same meaning in one group of keywords, and in case that an input keyword is included in the keyword group, compute and provide an input order of keyword compatible with a user's intention by increasing the number of input keywords related to the keyword group.

Furthermore, according to the present invention, there is provided search service system and method which can compute and provide an input order of keyword in a selected category according to the latest issue of users who input the keyword, by enabling at least one keyword (or a keyword group) related to a category to be maintained and a keyword (or a keyword group) related to the category to be changeable.

CLAIMS

1. A search service system comprising:

a category database including a category and at least one keyword group identifier associated therewith, wherein the keyword group identifier is for identifying a predetermined keyword group and the keyword group includes a representative keyword, or a similar keyword having the same or similar meaning thereto;

a keyword database including data of the number of input keywords corresponding to a keyword group;

an input unit for receiving a keyword from a user through a communication network;

a first keyword group searching unit for searching for a first keyword group including the received keyword by referring to the keyword database;

a category search unit for searching for a first category associated with the first keyword group by referring to the category database;

a second keyword group searching unit for searching for a second keyword group associated with the first category by referring to the category database;

a search unit for searching for data of the number of input keywords corresponding to the second keyword group by referring to the keyword database;

an input order computing unit for computing an input order of the first keyword group within the first category by using the searched data of the number of input keywords;

an output unit for providing the user with the computed input order through the communication network, in association with the first category and a representative category included in the first keyword group; and

an updating unit for updating data of the number of input keywords corresponding to the first keyword group, thereby recording the same in the keyword database.

2. The system of claim 1, further comprising a category database management unit for:

receiving a selection of a category, a selection of a keyword group and a request for deletion, from a manager; and

deleting a keyword group identifier with respect to the selected keyword group from at least one keyword group identifier associated with the selected category, in the category database.

3. The system of claim 1, further comprising a category database management unit for:

receiving a selection of a category, a selection of a keyword group and a request for an addition, from a manager; and

adding a keyword group identifier with respect to the selected keyword group in association with the selected category, thereby recording the same in the category database.

4. The system of claim 1, wherein the input order computing unit respectively computes a second input order of the second keyword group within the first category, based on the second keyword group and data of the number of input keywords corresponding thereto; and

the output unit provides the user with the second input order through the communication network, in association with the first category and a representative keyword included in the second keyword group.

5. The system of claim 4, wherein the output unit selects the predetermined number of second keyword groups of which the second input orders rank high; and

provides the user with a second input order corresponding to the selected second keyword group through the communication network, in association with the first category and a representative keyword included in the selected second keyword group.

6. The system of claim 4, the system further comprising:

a storage unit for storing an input order of a keyword group related to a predetermined category;

an input order search unit for searching the storage unit for an input order of a keyword group that is related to the first category and corresponds to the second keyword group;

an input order-band computing unit for computing a fluctuation band of input orders of the second keyword group by comparing the searched input order with the second input order; and

an input order updating unit for updating an input order of a keyword group that is related to the searched representative category and corresponds to the second keyword group, to the second input order, thereby storing the same in the storage unit; and

wherein the output unit further provides the computed fluctuation band in association with the second input order.

7. The system of claim 1, wherein the data of the number of input keywords maintained in the keyword database further includes data of the number of input keywords by period; and

the updating unit periodically updates the data of the number of input keywords by period to 0.

8. A search service system comprising:

a category database including a category and at least one keyword associated therewith;

a keyword database including data of the number of input keywords corresponding to a keyword;

an input unit for receiving a first keyword from a user through a communication network;

a category search unit for searching for a first category associated with the first keyword by referring to the category database;

a keyword search unit for searching for a second keyword associated with the first category by referring to the category database;

a search unit for searching for data of the number of input keywords corresponding to the second keyword by referring to the keyword database;

an input order computing unit for computing an input order of the first keyword within the first category by using the searched data of the number of input keywords;

an output unit for providing the user with the computed input order through the

communication network, in association with the first category and the first keyword; and

an updating unit for updating data of the number of input keywords corresponding to the first keyword, thereby recording the same in the keyword database.

9. A search service method comprising the steps of:

maintaining a category database including a category and at least one keyword group identifier associated therewith, wherein the keyword group identifier is for identifying a predetermined keyword group and the keyword group includes a representative keyword or a keyword having the same or similar meaning thereto;

maintaining a keyword database including data of the number of input keywords that correspond to a keyword group;

receiving a keyword from a user through a communication network;

searching for a first keyword group including the received keyword by referring to the keyword database;

determining a first category associated with the first keyword group, by referring to the category database;

searching for a second keyword group associated with first category, by referring to the category database;

searching for data of the number of input keywords corresponding to the second keyword group, by referring to the keyword database;

computing an input order of the first keyword group within the first category, by using the searched data of the number of input keywords;

providing the user with the computed input order through the communication network, in association with the first category and a representative keyword included in the first keyword group; and

updating data of the number of input keywords corresponding to the first keyword group, thereby storing the same in the keyword database.

10. The method of claim 9, further comprising the steps of:

receiving a selection of a category, a selection of a keyword, and a request for deletion, from a manager; and

deleting a keyword group identifier with respect to the selected keyword group from at least one keyword group identifier associated with the selected category, in the category database.

11. The method of claim 9, further comprising the steps of:

receiving a selection of a category, a selection of a keyword, and a request for an addition, from a manager; and

adding a keyword group identifier with respect to the selected keyword group in association with the selected category, thereby storing the same in the category database.

12. The method of claim 9, further comprising the steps of:

respectively computing a second input order of the second keyword group within the first category, based on the second keyword group and data of the number of input keywords corresponding thereto; and

providing the user with the second input order through the communication network, in association with the first category and a representative keyword included in the second keyword group.

13. The method of claim 12, wherein said step of providing the user with the second input order through the communication network in association with the first category and a representative keyword included in the second keyword group comprises the steps of:

selecting the predetermined number of second keyword groups of which the second input orders rank high; and

providing the user with a second input order corresponding to the selected second keyword group through the communication network, in association with the first category and a representative keyword included in the selected second keyword group.

14. A computer readable record medium recording a program for implementing any one of claims 9 to 13.

FIG. 1

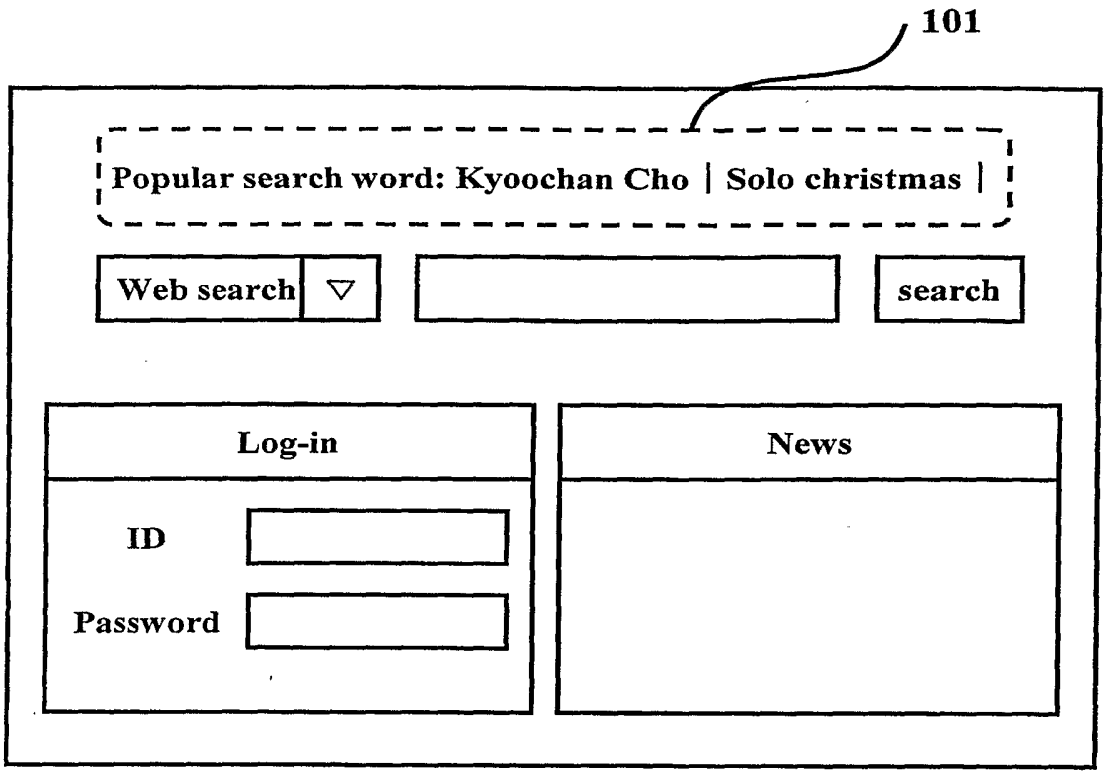

101
Popular search word: Kyoochan Cho | Solo christmas |
Web search
search
Log-in
News
ID
Password

FIG. 2

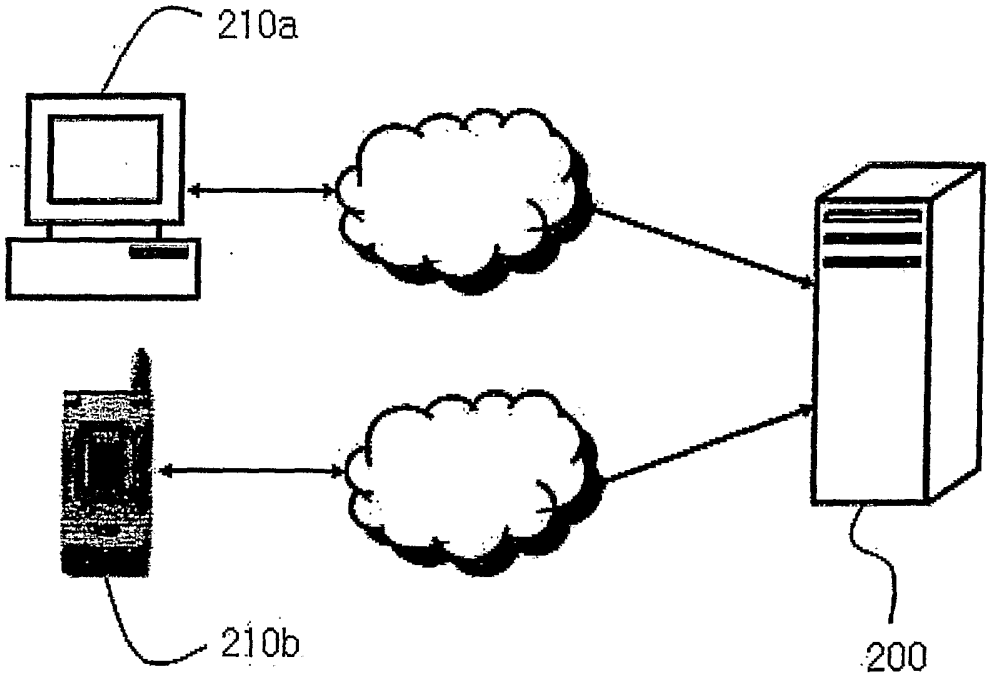

210a
210b
200

FIG. 3

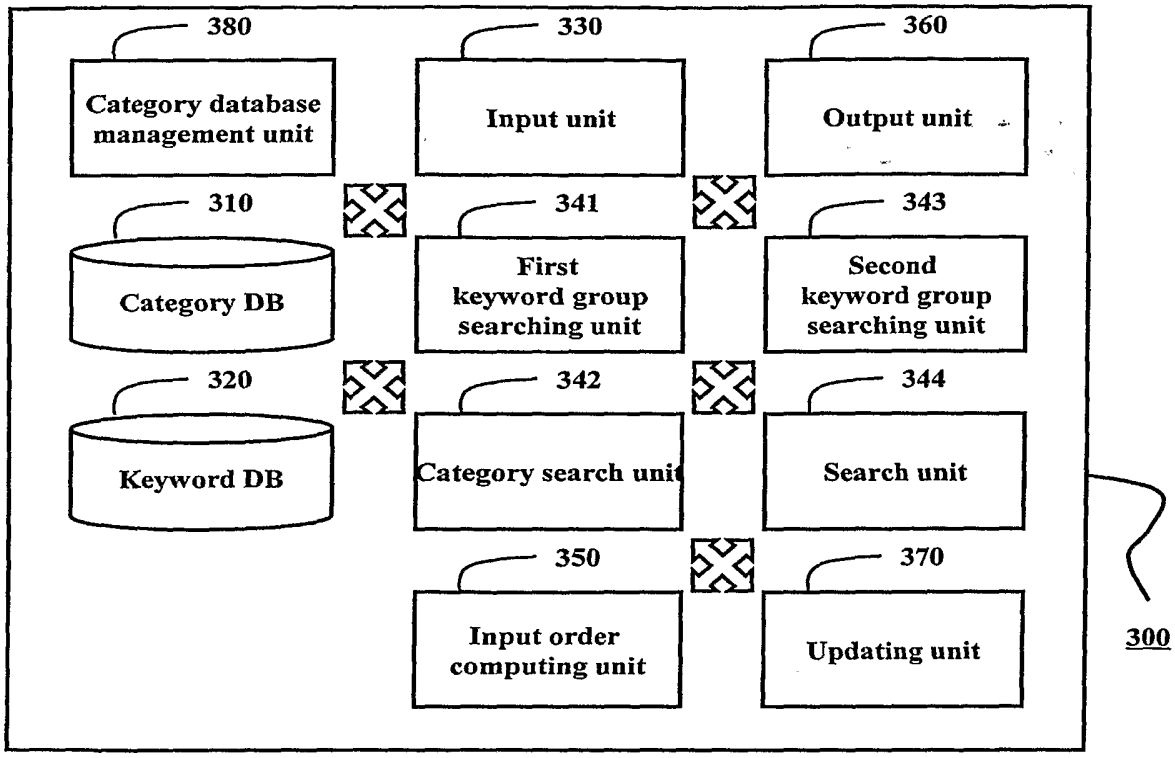


FIG. 4

Categories	Keyword group identifiers
Singers	Rain; Leehyori; Brown eyes; Changnara; Boa; Seven; ... ; ...
Movies	Island; The lord of the ring; ...; Seven; ...; ...
Dramas	Road to the heaven; Great cook; Destiny;...;...
Category 4	Keyword group identifier 3; keyword group identifier 13; ...; ...
Category 5	Keyword group identifier 1;keyword group identifier 23; keyword group identifier 35; ...; ...
...	...

FIG. 5

Categories	Keyword group identifiers
Singers	Rain; Leehyori; Boa; Changnara; Seven; ... ; ...
Movies	Island; The lord of the ring; ...; ...
Dramas	Road to the heaven; Great cook; Destiny;...;...
Category 4	Keyword group identifier 1; keyword group identifier 2; ...; ...
Category 5	Keyword group identifier 4; keyword group identifier 5; keyword group identifier 6; ...; ...
...	...

FIG. 6

Keyword group		Data of the number of input keywords
Representative keywords	Same/similar keywords	
Rain (Korean)		321 601
Seven (Korean)	seven	234
Boa (Korean)	boa	256
Changnara (Korean)		115
Leehyori (Korean)	Hyori (Korean)	358
...	...	...

FIG. 7

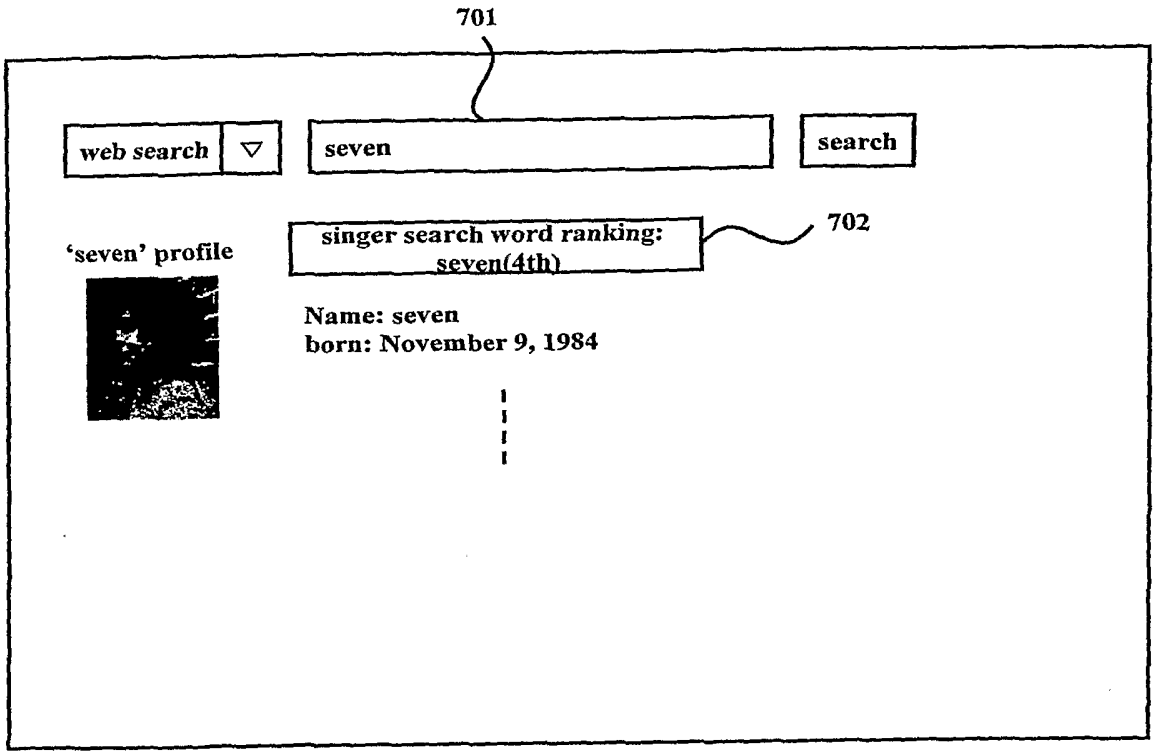

701
web search
seven
search
'seven' profile
singer search word ranking: seven(4th)
702
Name: seven
born: November 9, 1984

FIG. 8

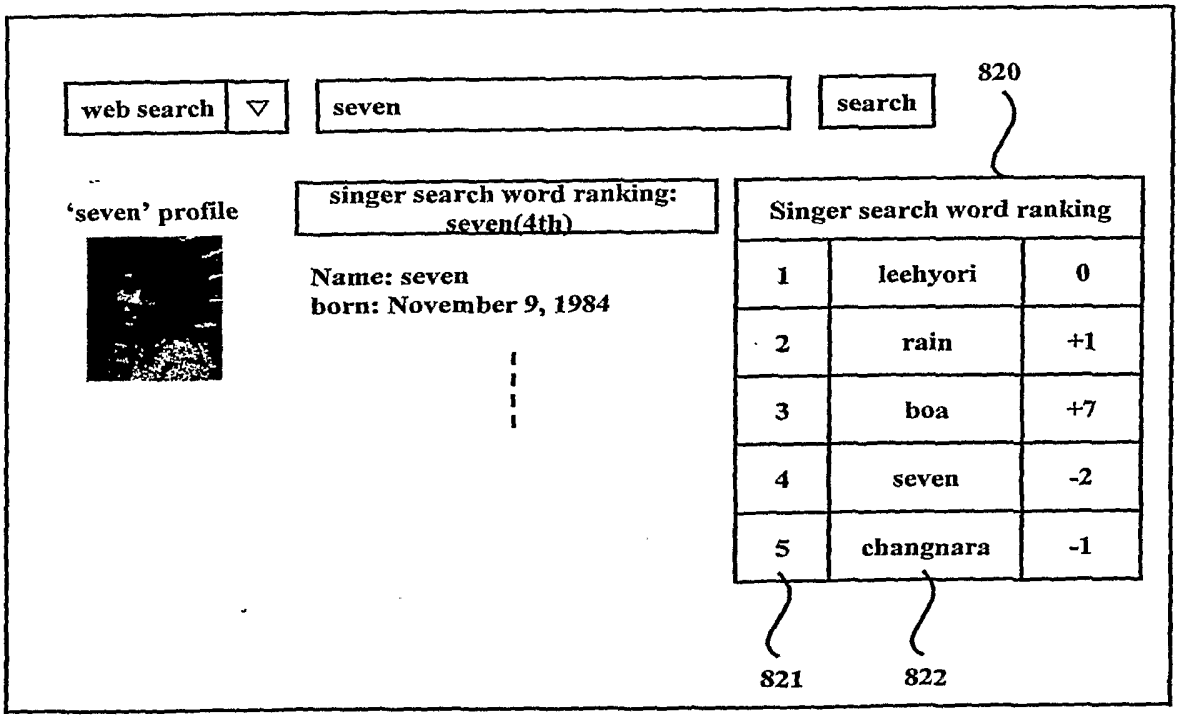

web search
seven
search
820
'seven' profile
singer search word ranking: seven(4th)
Name: seven
born: November 9, 1984
Singer search word ranking
1 leehyori 0
2 rain +1
3 boa +7
4 seven -2
5 changnara -1
821
822

FIG. 9

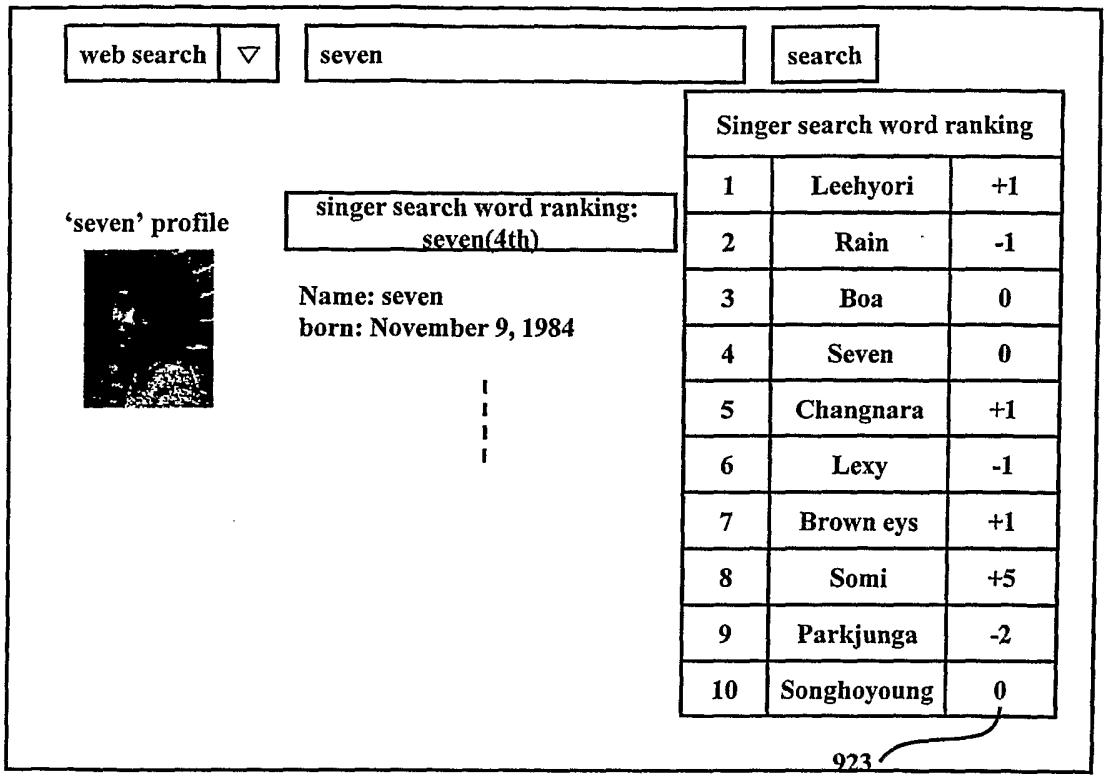

web search
seven
search
Singer search word ranking
1 Leehyori +1
2 Rain -1
3 Boa 0
4 Seven 0
5 Changnara +1
6 Lexy -1
7 Brown eys +1
8 Somi +5
9 Parkjunga -2
10 Songhoyoung 0
'seven' profile
singer search word ranking: seven(4th)
Name: seven
born: November 9, 1984
923

FIG. 10

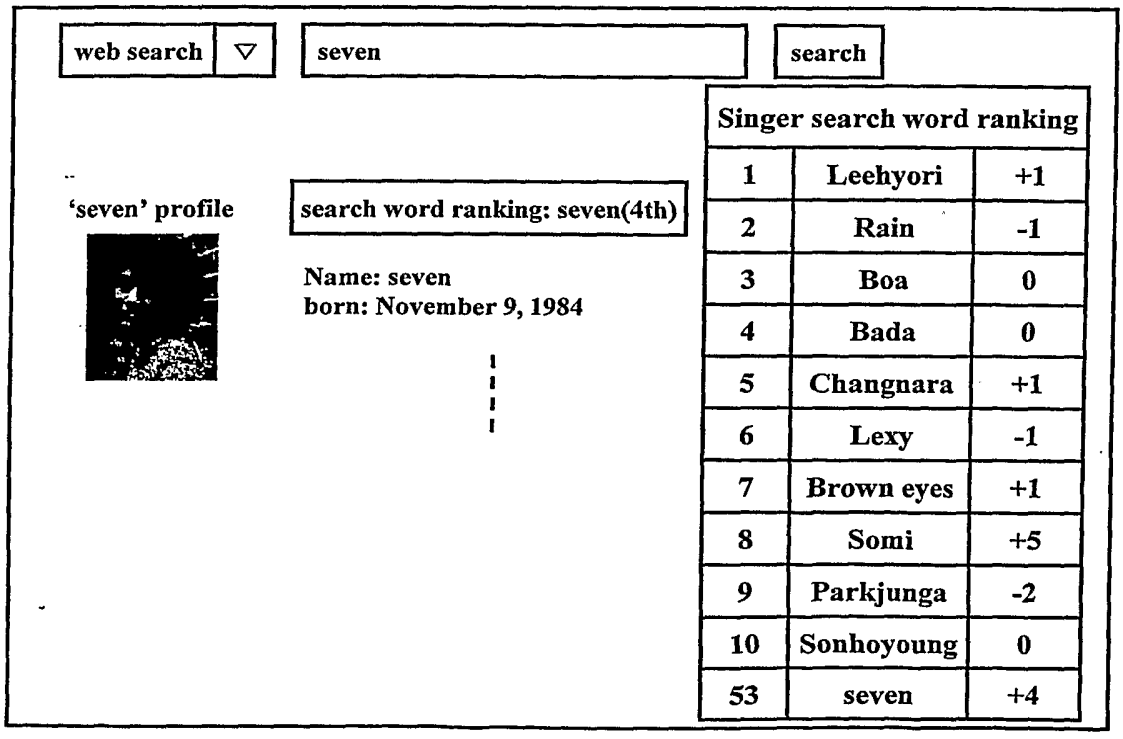

web search
seven
search
Singer search word ranking
1 Leehyori +1
2 Rain -1
3 Boa 0
4 Bada 0
5 Changnara +1
6 Lexy -1
7 Brown eyes +1
8 Somi +5
9 Parkjunga -2
10 Sonhoyoung 0
53 seven +4
'seven' profile
search word ranking: seven(4th)
Name: seven
born: November 9, 1984

FIG. 11

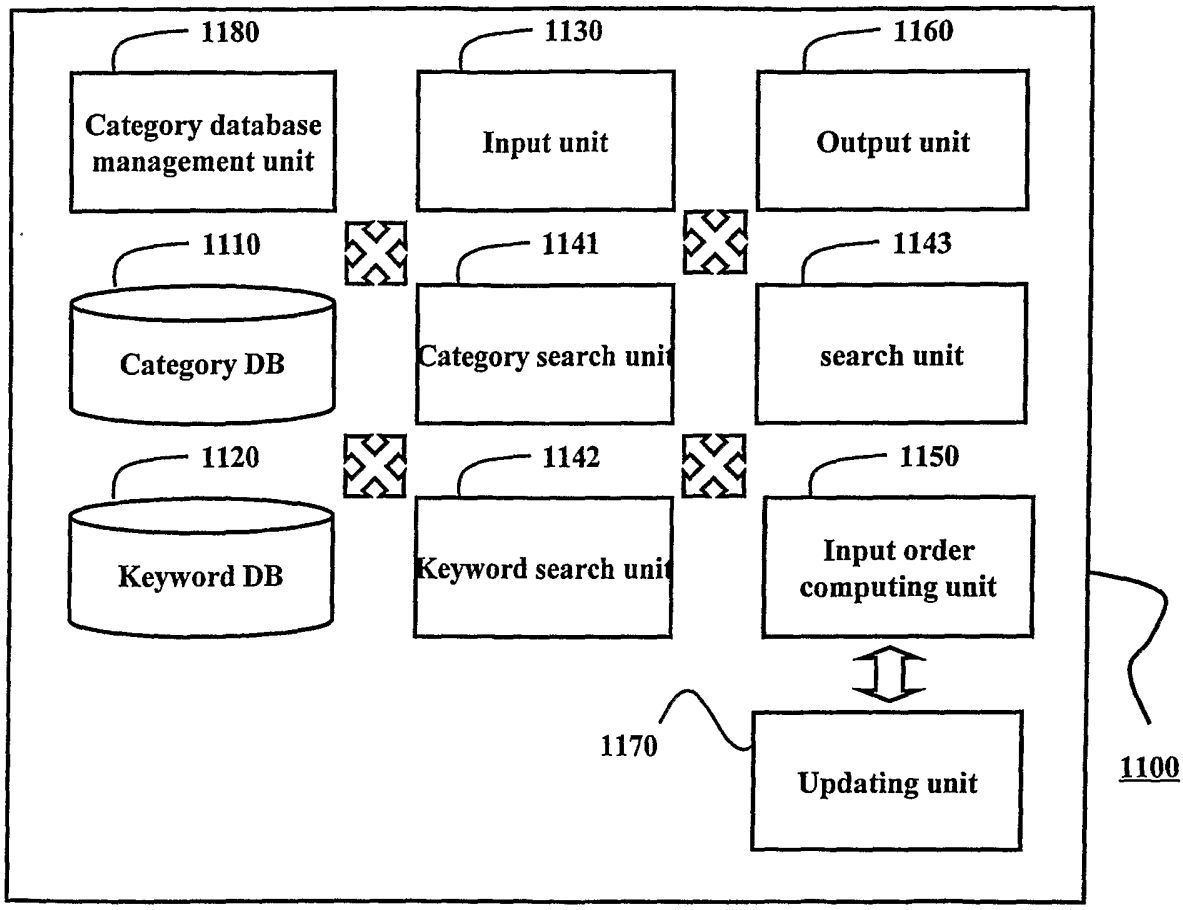

1180
Category database management unit
1130
Input unit
1160
Output unit
1110
Category DB
1141
Category search unit
1143
search unit
1120
Keyword DB
1142
Keyword search unit
1150
Input order computing unit
1170
Updating unit
1100

FIG. 12

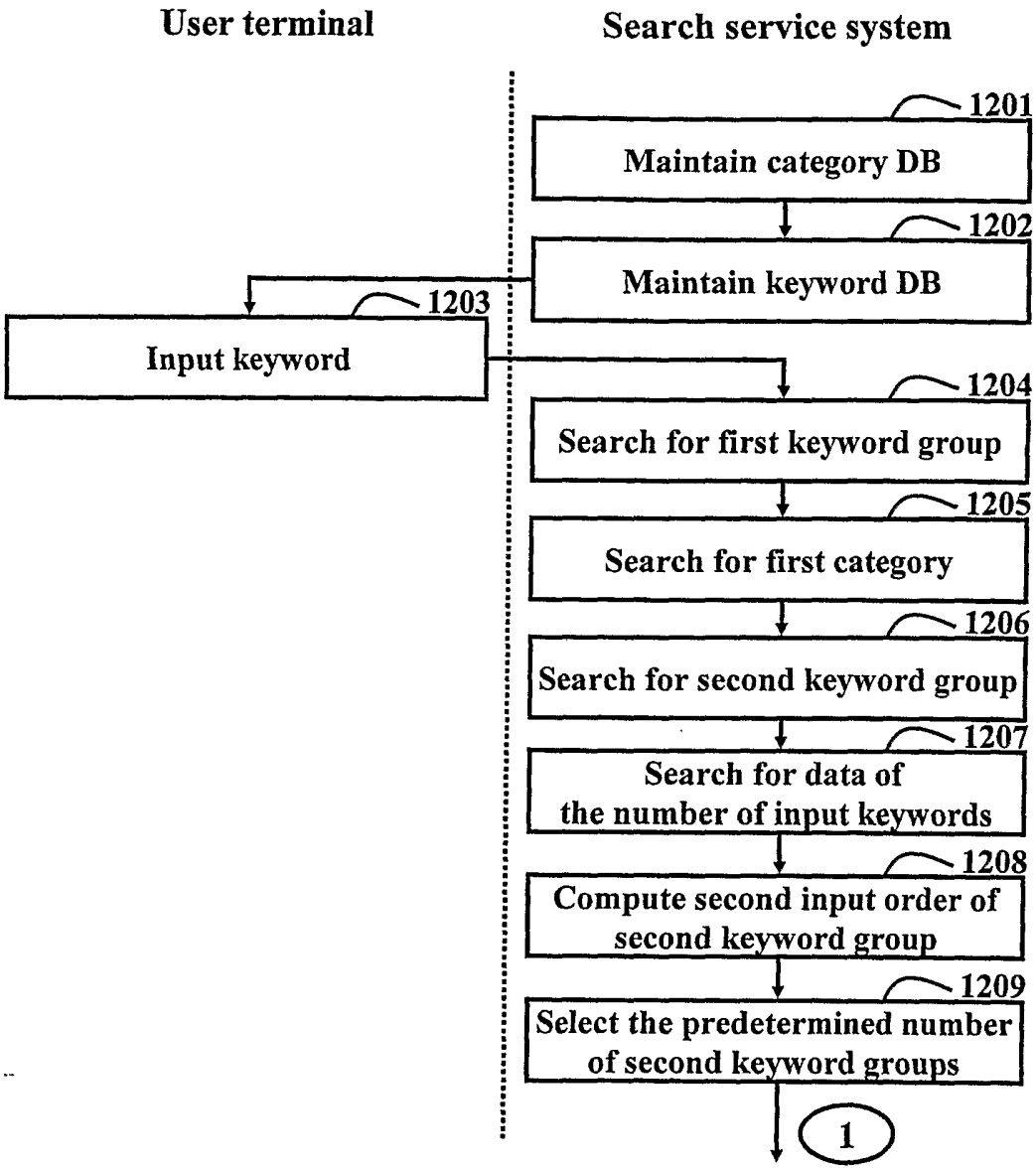

User terminal
Search service system
1201
Maintain category DB
1202
Maintain keyword DB
1203
Input keyword
1204
Search for first keyword group
1205
Search for first category
1206
Search for second keyword group
1207
Search for data of the number of input keywords
1208
Compute second input order of second keyword group
1209
Select the predetermined number of second keyword groups
1

FIG. 13

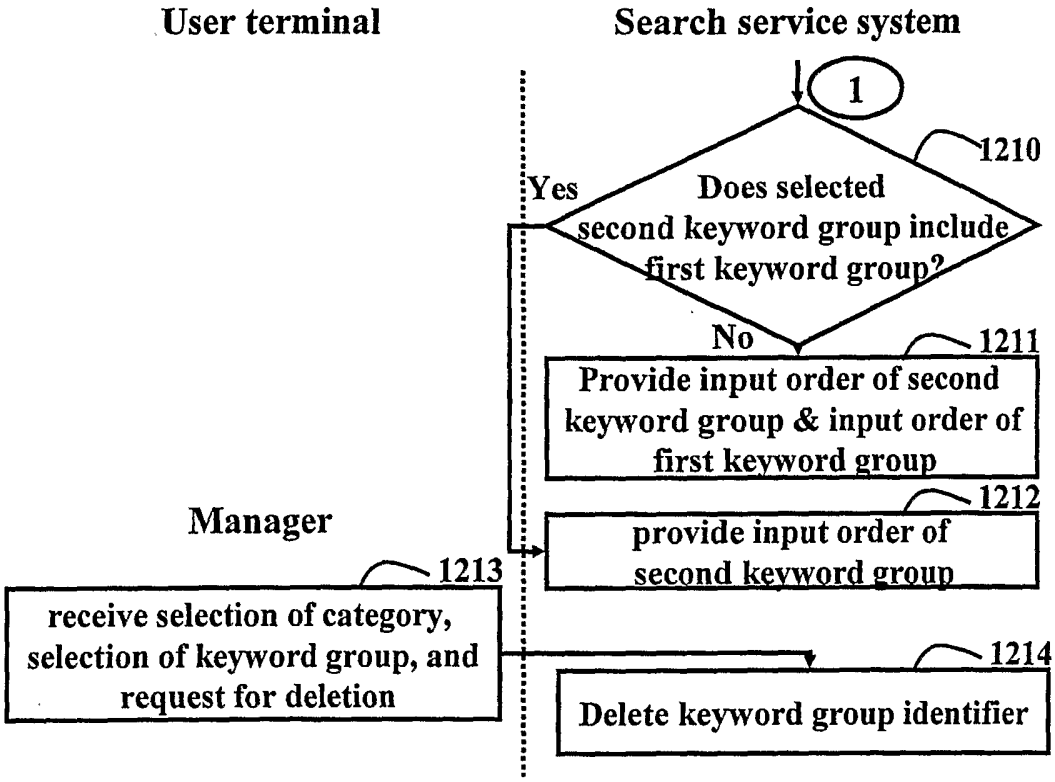
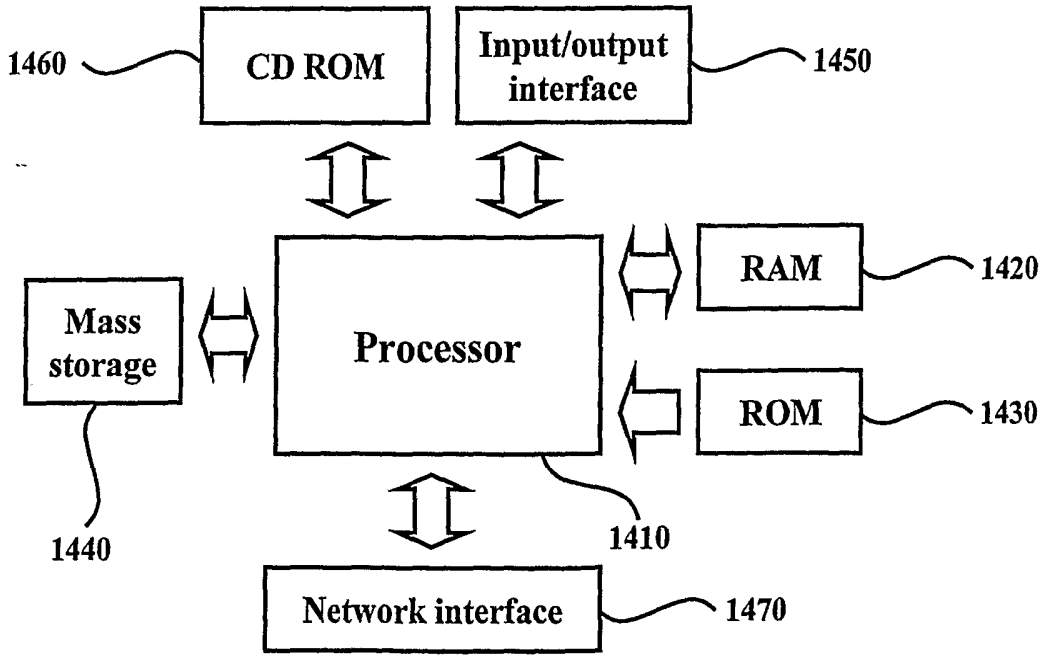

User terminal
Search service system
1
1210
Yes
Does selected second keyword group include first keyword group?
No
1211
Provide input order of second keyword group & input order of first keyword group
1212
provide input order of second keyword group
Manager
1213
receive selection of category, selection of keyword group, and request for deletion
1214
Delete keyword group identifier

FIG. 14


1460
CD ROM
Input/output interface
1450
RAM
1420
Mass storage
Processor
ROM
1430
1440
1410
Network interface
1470

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2005/000121

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F17/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean patents and applications for inventions since 1975

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 2000-6814 A (KIM CHANG-SEOP) 7 FEB. 2000 SEE THE WHOLE DOCUMENTS	1-14
A	KR 2000-36454 A (LEE JOONG-HO) 5 JUL. 2000 SEE THE WHOLE DOCUMENTS	1-14
A	KR 2002-25142 A (KIM-IL) 3 APR. 2002 SEE THE WHOLE DOCUMENTS	1-14

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 MAY 2005 (11.05.2005)	**13 MAY 2005 (13.05.2005)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JEONG, Jae Hoon

Telephone No. 82-42-481-5787