(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
5 January 2017 (05.01.2017)

WIPO | PCT

(10) International Publication Number
WO 2017/001944 A1

(51) International Patent Classification:
G06F 7/00 (2006.01) *G06Q 30/00* (2012.01)
G06F 17/30 (2006.01)

(21) International Application Number:
PCT/IB2016/050563

(22) International Filing Date:
4 February 2016 (04.02.2016)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2015125961 30 June 2015 (30.06.2015) RU

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) Title: METHOD, SYSTEM AND COMPUTER READABLE MEMORY FOR GENERATING RANKED SEARCH RESULTS INCORPORATING SUGGESTS

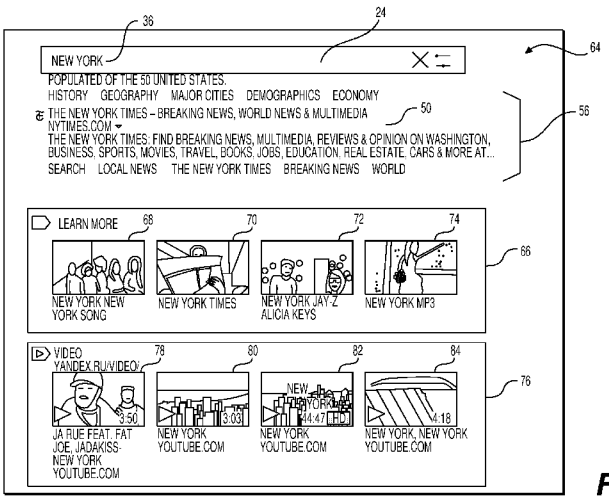


FIG. 5

(57) Abstract: A method of generating a search engine results page includes receiving, by a search server, a search query from a user device. Based on the search query, the search server determines a first search result set, where first and second general search results are ranked using a first ranking algorithm. Based on previous search sessions, the search server retrieves a related query related to the search query and generates a first suggest object that may be a clickable element. The search server then applies a second ranking algorithm to rank the first suggest object relative to the first and second general search results to generate a second search result set that includes, in a ranked order, the first suggest object, the first general search result, and the second general search result. The search server generates the search result page based on the second search result set.

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METHOD, SYSTEM, AND COMPUTER READABLE MEMORY FOR GENERATING RANKED SEARCH RESULTS INCORPORATING SUGGESTS

Cross reference

[0001] The present application claims priority to Russian Patent Application No 2015125961, filed June 30, 2015, entitled "METHOD, SYSTEM, AND COMPUTER READABLE MEMORY FOR GENERATING RANKED SEARCH RESULTS INCORPORATING SUGGESTS" the entirety of which is incorporated herein.

Field

[0002] A method, system, and computer readable memory provide, *inter alia*, for a display to a user including both general search results and suggests. More specifically, the method, system, and computer readable memory rank the suggests together with the general search results to generate the combination of the suggests and the general search results to the user in response to the user's search query.

Description of the Background and Related Art

[0003] When dealing with search engines and the presentation of results from search engines, it is common to present the results of a search in a compartmentalized manner. In particular, the results of a search are often presented such that different areas on a search engine results page ("SERP") summarize different aspects associated with a search query.

[0004] For example, in response to a search query from a user, it is customary to present general search engine results in a conspicuous location on the SERP. In particular, a search engine may organize the general search results on the SERP so that a listing of web resources (*i.e.*, uniform resource locators ("URLs")) is presented to the user in the center of the page.

[0005] At a less conspicuous location, *i.e.*, on the right hand side of the page, the search engine (*i.e.*, as executed by the search server) may organize the SERP so that related links and resources, which are also responsive to the search query, are presented to the user.

[0006] Still further, it is possible that the search engine may output one or more widgets, which are blocks of results. The widgets may present information such as links to shopping sites,

news, images, videos, etc. that may be associated with one or more terms in the user's search query.

[0007] While the prior art includes a number of layouts and formats for presenting the result of a search to a user, there remains a need for different types of search results to be ranked and mixed together on the same page in the same display location.

[0008] This need is particularly acute when one considers how "suggests" might be incorporated into search results to enhance the results presented to the user.

[0009] Suggests are word and/or phrase completion suggestions (abbreviated as "suggests") that are generated by a search engine while a user is typing a search query into a search query field. Suggests are generated using several variables, not the least of which is an assessment of the common phrases entered by other users, for previous searches, when searching for the same information.

[0010] Typically, suggests are presented to the user in connection with the search entered into the search query field.

[0011] Unlike general search results, suggests do not have any ranking associated with them. As a result, traditional methodologies preclude mixing general search results with suggests in a joint ranking.

[0012] As should be apparent to those skilled in the art, when a user clicks on a suggest that is generated in response to a partial or a whole query, the click on the suggests results in a transmission not to a web-resource but to another SERP. The system, therefore, perceives the click on the suggest as a user's return. This is a non-relevant response. Consequently, if the suggest is ranked according to traditional methodologies, the suggest carries with it no ranking criteria and, therefore, will be positioned at the bottom of the list on the SERP.

[0013] There are a number of prior art references that address one or more features associated with search engines and the results that those search engines generate.

[0014] U.S. Patent No. 8,631,030 ("the '030 Patent") describes query suggestions with high diversity. Query suggestions are suggests, as discussed above.

[0015] In connection with Fig. 3A, the '030 Patent describes that a search engine results page 300 may include a search results block 301. In the figure, the search results provided include those that a search engine has identified as being relevant to the initial query 302 (in the figure, "childztoyz"). The search engine results page also includes references 303A to 303C to each

additional query (in the figure, "childztoyz trading cards," "childztoyz pets," and "childztoyz charms," respectively). The search engine results page 300 also includes an advertising block 304 that includes an advertisement 306A that is targeted to the initial query 302, an advertising block 305A that includes reference 303A and advertisements 306B-D that are targeted to the additional query 303A, an advertising block 305B that includes reference 306B and advertisements 306E-F that are targeted to the additional query 303B, and an advertising block 305C that includes reference 303C and advertisements 306G-H that are targeted to the additional query 303C. Notably, the search engine results page 300 does not include a reference that refers to the initial query 302 directly above the advertising block 304. The additional advertising blocks may be displayed in order of, for example, relevance of each additional query to the initial query, historical click through rate for the ads in each ad block, number of ads available for each ad block, random placement, and the like.

[0016] U.S. Patent No. 8,706,750 ("the '750 Patent") describes predictive query completion and predictive search results.

[0017] In particular, the '750 Patent discusses query suggestions, which may be ranked according to an order. For example, the query suggestions may be ranked based on the probability that the user will select the respective query suggestion. The reference describes a search engine that can re-rank the query suggestions so natural query extensions are presented together in a group. For example, according to an identified re-ranking, "Italy" has the highest rank, "Italy map" (with the same first term) has the second rank, "Italian" has the third rank, and "Italian History" has the fourth rank.

[0018] U.S. Patent Application Publication No. 2013/0086024 ("the '024 Application") describes query reformulation using post-execution results analysis.

[0019] As detailed in the '024 Application, with reference to Fig. 6B, at block 614, one or more quality features are extracted based on the first and second sets of documents resulting from the searches performed at blocks 610 and 612. Such quality features generally indicate the relevance of the two sets of search results and provide an indication of the quality of each reformulation candidate as compared to the original query. These quality features may include ranking features and topic drift features.

[0020] U.S. Patent No. 8,375,049 ("the '049 Patent") describes query revision using known highly-ranked queries.

[0021] The '049 Patent discusses a reviser confidence estimator 112 operating on the assumption that certain behaviors, e.g., a long click by a user on a revised query link 302, indicates that the user is satisfied with the revision as being an accurate representation of the user's original information need. A long click can be deemed to occur when the user stays on the clicked through page for some minimum period of time, for example a minimum of 60 seconds. From the length of the clicks on the revised query links 302, the reviser confidence estimator 112 can train the predictive model to predict the likelihood of a long click given the various features of the revised query and the original query. Revised queries having high predicted likelihoods of a long click are considered to be better (i.e., more successful) revisions for their associated original queries.

[0022] At no point in the prior art, however, is there any discussion of the incorporation of suggests into general search results, where the suggests and the general search results are ranked together.

Summary

[0023] Embodiments of the method described herein address one or more of the deficiencies with respect to the prior art.

[0024] One contemplated embodiment relies on a separate machine learning formula to calculate the relevance of a suggest. It may be that the formula determines the probability or other relevant value associated with a "long" click. A long click may be a sequence of a transition due to a related query from a suggest to a SERP and a subsequent transition from this SERP to a web-resource. The obtained value is used to rank the suggest among other elements of search results. The suggest(s) may be embodied in a widget.

[0025] Another embodiment is contemplated to allow the integration of suggests into the search results.

[0026] Interesting, related queries may be presented as links. They may be consolidated into a widget that appears as one of the elements of the search results. It is contemplated that clicking on a link initiates a search associated to a related query and brings to the user the relevant search results.

[0027] In view of one or more broad features, one or more embodiments provide a method of generating a search engine results page in a system comprising a search server, a user device, and a network connecting the search server to the user device. The method includes receiving, by

the search server, a search query from the user device. Based on the search query, the method determines, by the search server, a first search result set, where the first search result set encompasses at least a first general search result and a second general search result. In the method, the first general search result and the second general search result are ranked using at least a first ranking algorithm. Based on previous search sessions, the method includes retrieving, by the server, at least one related query, where the at least one related query is related to the search query. The method generates, by the server, a first suggest object comprising at least one clickable element, where the at least one clickable element is associated with the at least one related query. Then, the method applies, by the server, a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result. The method subsequently generates, by the server, a second search result set that comprises, in a ranked order, the first suggest object, the first general search result, and the second general search result. In addition, the method generates, by the server, the search result page based on the second search result set.

[0028] In another contemplated embodiment, the method includes sending, via the network, the search result page for display on the user device and receiving, from the user device, a selection of the at least one clickable element.

[0029] In one additional embodiment, the method also includes applying, by the server, a third raking algorithm to a plurality of related queries including the at least one related query and generating, by the server, a third search result set that comprises the plurality of related queries in ranked order.

[0030] It is contemplated that the third ranking algorithm may employ a variable dependent on a long click to generate a related long click.

[0031] It is also contemplated that the second ranking algorithm may employ the related long click to generate the second search result set.

[0032] In still another contemplated embodiment, the method may include generating, by the server, a related queries search result page based on the third search result set and sending, via the network, the related queries search result page for display on the user device.

[0033] According to another embodiment, the method includes, in response to receipt of the selection of the at least one clickable element at the user device, causing a display, on the user device, of the related queries search result page.

[0034] Still further, it is contemplated that the method includes causing a display of the related queries search result page on the user device.

[0035] It is contemplated that selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

[0036] The at least one related query may be a suggest.

[0037] The first search result set may include at least a vertical search result ranked according to a fourth ranking algorithm.

[0038] It is contemplated that the vertical search result may be ranked, as a first search result, together with other first search results via the first ranking algorithm.

[0039] The first ranking algorithm may employ a variable dependent on a long click.

[0040] The second ranking algorithm may employ a variable dependent on a related long click, where the related long click is a function of a long click associated with a related search result of the at least one related query.

[0041] The related search result may encompass a web resource.

[0042] The long click may be calculated based on an average time users dwell on at least one of the first general search result and the second general search result.

[0043] The first general search result may include a plurality of web resources.

[0044] The first general search result may include a first plurality of web resources and the second general search result comprises a second plurality of web resources.

[0045] The second general search result may include a plurality of web resources.

[0046] The vertical search result may be embodied in a widget.

[0047] Still another contemplated embodiment provides a method of generating search engine results page. The method is contemplated to be executed at a server and include acquiring a search query from a user device. Based on the search query, the method may include determining a search result set, the search result set including a first general search result and a second general search result, the first general search result and the second general search result having been ranked using a first ranking algorithm. Based on previous search sessions, the method is contemplated to include retrieving a list of related queries, the list of related queries including at least one related query, each query in the list of related queries being related with the search query and generating a first suggest object including at least one clickable element, the at least one clickable element

being associated with at least one related query from the list of related queries, the click on the least one clickable element causing a displaying of a page, on the user device, with search results for the related query associated with the at least one clickable element. The method further includes applying a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result and generating a search result page (SERP) that includes, in a ranked order, the first suggest object, the first general search result, and the second general search result.

[0048] With respect to this embodiment, the method contemplates that the selection of the at least one clickable element at the user device may cause a display of a related queries search result page comprising the at least one related query.

[0049] As before, the at least one related query is contemplated to be a suggest.

[0050] One other embodiment also provides a computer readable storage medium having executable instructions for operation of a method of generating a search engine results page in a system with a search server, a user device, and a network connecting the search server to the user device. The executable instructions, when executed, result in operations including receiving, by the search server, a search query from the user device and, based on the search query, determining, by the search server, a first search result set, where the first search result set comprises at least a first general search result and a second general search result, and where the first general search result and the second general search result are ranked using at least a first ranking algorithm. The executable instructions also are contemplated to operate such that, based on previous search sessions, the server retrieves at least one related query, where the at least one related query is related to the search query. The instructions are contemplated to operate such that the server generates a first suggest object encompassing at least one clickable element, where the at least one clickable element is associated with the at least one related query. Still further, the instructions are contemplated to operate such that the server applies a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result, such that the server generates a second search result set that includes, in a ranked order, the first suggest object, the first general search result, and the second general search result, and such that the server generates the search result page based on the second search result set.

[0051] As before, the executable instructions are contemplated to operate so that selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

[0052] Also as before, the at least one related query is contemplated to be a suggest.

[0053] A system is also provided for generating a search engine results page. The system is contemplated to include a search server, a user device, and a network connecting the search server to the user device. The system is contemplated to operate by receiving, by the search server, a search query from a user device, based on the search query, determining, by the search server, a first search result set, where the first search result set includes at least a first general search result and a second general search result, and where the first general search result and the second general search result are ranked using at least a first ranking algorithm, based on previous search sessions retrieving, by the server, at least one related query, where the at least one related query is related to the search query, generating, by the server, a first suggest object encompassing at least one clickable element, where the at least one clickable element is associated with the at least one related query, applying, by the server, a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result, generating, by the server, a second search result set that includes, in a ranked order, the first suggest object, the first general search result, and the second general search result, and generating, by the server, the search result page based on the second search result set.

[0054] In the system, it is contemplated that selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

[0055] For the system, the at least one related query is contemplated to be a suggest.

[0056] Further aspects of the method, system, and computer readable memory will be made apparent from the paragraphs that follow.

Brief Description of the Drawing(s)

[0057] The present technology will now be described in connection with the drawings appended hereto, in which:

[0058] Fig. 1 is a graphical overview of an example of a system operating according to the method of the present technology;

[0059] Fig. 2 is an example of a screenshot from a prior art search engine, illustrating various aspects of a prior art SERP;

[0060] Fig. 3 is a modified version of the screenshot of the SERP from Fig. 2, showing a drop down menu from the search query input bar with suggests;

[0061] Fig. 4 is a screenshot of a SERP according to a first embodiment of the present technology;

[0062] Fig. 5 is a screenshot of a SERP according to a second embodiment of the present technology; and

[0063] Fig. 6 is a flow chart illustrating one method according to the present technology.

Detailed Description of Embodiment(s)

[0064] Embodiments of the method, system, and computer readable memory will now be described. The discussion of any particular embodiment is not intended to be limiting. To the contrary, any discussion of embodiments is intended to exemplify the breadth and scope of the method, system, and computer readable memory described herein. As should be apparent to those skilled in the art, variations and equivalents of the embodiment(s) described herein may be employed in the alternative. Those variations and equivalents are intended to be encompassed by the scope of the present patent application.

[0065] Before referring to the various figures appended hereto, the following general definitions are provided. These definitions are not intended to be limiting of the method, system, or computer readable memory described herein. Instead, these definitions are intended to illustrate the breadth of the instant disclosure in the context of the discussion of specific embodiments that follow.

[0066] A "server" is a computer program that operates on selected, appropriate hardware and is capable of receiving requests (*e.g.*, from one or more user devices (also referred to as "client devices")) over a network, carrying out those requests, or causing those requests to be carried out.

The hardware may be one physical computer or one physical computer system, but neither is required explicitly therefor. A "server" may be embodied in software, hardware, or a combination of software and hardware.

[0067] In the context of one or more embodiments described herein, the term "server" is not intended to mean that every task (*e.g.*, received instructions or requests) or any particular task will have been received, carried out, or caused to be carried out by the same server (*i.e.*, the same software and/or hardware). The term "server" is intended to mean that any number of software elements and/or hardware devices may be involved in receiving, sending, carrying out, and/or causing to be carried out any task or request, or the consequences of any task or request. Moreover, the software and/or hardware may encompass one server or multiple servers.

[0068] The term "user device" is contemplated to encompass any computer hardware that is capable of running software appropriate to the relevant task at hand. Thus, for some non-limiting examples, a user device may be embodied in a personal computer (*i.e.*, a desktop, laptop, netbook, etc.), a smartphone, and/or a tablet. It is noted that a user device in the present context should not preclude multiple devices from being used in concert with one another. For example, a user device may encompass multiple devices that are used for sending/receiving, carrying out, or causing to be carried out any task or request, the consequences of any task or request, or the steps of any method described herein.

[0069] The term "database" is intended to encompass any collection of data irrespective of the structure of that data, the database management software, or the computer hardware on which the data is stored, implemented, or otherwise rendered available for use. A database may reside on the same hardware as the process that stores or makes use of the information stored in the database or it may reside on separate hardware, such as a dedicated server or plurality of servers.

[0070] The term "component" is meant to include both software (appropriate to a particular hardware context) and/or hardware that is both necessary and sufficient to achieve the specific function(s) being performed. The term "component," therefore, is intended to encompass software, hardware, and the combination of software and hardware, as appropriate.

[0071] The term "computer usable information storage medium" (or any variant thereon) is intended to include media of any nature and kind whatsoever including random access memory ("RAM"), read only memory ("ROM"), disks (such as CD-ROMs, DVDs, floppy disks, hard drivers, etc.), USB keys, solid state drives, tape drives, etc.

[0072] The term "interactive" is meant to indicate that something is responsive to a user's input or that at least portions thereof are responsive to a user's input.

[0073] With these general definitions having been set forth, embodiments of the method, system, and computer readable memory are now described in connection with the figures appended hereto.

[0074] Fig. 1 is an exemplary schematic of one non-limiting diagram of a system 10. The system 10 is constructed to receive input, in the form of a user's search query, and provide output, in the form of a SERP, among other output formats. The system 10 includes a user device 12 connected via a network 14 to a search server 16. The user device 12 is contemplated to be connected to the network 14 via a first communication link 18. The server 16 is connected to the network 14 via a second communication link 20.

[0075] In the illustrated embodiment, the first and second communication links 18, 20 are contemplated to be wireless, two-way communication links. Alternatively, one or both of the first and second communication links 18, 20 may be wired two-way communication links. Still further, a plurality of one way communication links may be employed, as required or as desired.

[0076] As described above, the user device 12 is contemplated to be any of a number of electronic devices that are capable of receiving input from a user and providing output to the user. While the user device 12 is contemplated to embody both an input element and an output element in the same device (*i.e.*, via a touch screen), the user device 12 may have separate input and output elements. For example, the user device 12 may combine a keyboard with a monitor, as would be expected for a desktop computer.

[0077] As should be apparent from the foregoing, the user device 12 may be a personal computer, cellular telephone, smart phone, personal data assistant, or any other type of electronic device capable of interfacing with the search server 16. User input may be made via keystrokes, a touch screen interface, by voice recognition, or via any other methodology suitable for receiving and transmitting a search query. It is contemplated that output to the user will be provided via a suitable visual display. However, the method, system, and/or computer readable memory of the instant description should not be understood to be limited solely to visual displays. Audio displays, among others, also are contemplated to fall within the scope of the present disclosure.

[0078] The search server 16 is contemplated to be any suitable device capable of executing the instructions for conducting a search of one or more resources available on the Internet, for

example. While the search engine 16 is contemplated to be embodied in s single electronic device with resident software, the present technology is not limited solely to such a construction. The search server 16 may be constructed from any number of electronic devices (embedding any number of different software instructions) that are connected together to execute the search instructions. Still further, the electronic devices that make up the search server 16 may not be in the same physical location. To the contrary, the electronic devices may be connected to one another via the Internet (or other suitable network) without departing from the scope of the present discussion.

[0079] The network 14 is contemplated to be the Internet. However, the embodiments described herein are not limited to a system 10 that relies on the Internet. To the contrary, the system 10 is contemplated to encompass any suitable network 14 including, but not limited to a local area network ("LAN"), wide area network ("WAN"), personal area network ("PAN"), or the like.

[0080] Figs. 2 and 3 are graphical presentations of a SERP 22 generated using the search engine available from Google Inc. As such, the SERP 22 is an example of the type of results generated by search engines in the prior art.

[0081] The SERP 22 is described in connection with Figs. 2 and 3 to identify the various elements of that are common to a SERP 22 that is generated to present results responsive to a search query from a user. While the fields in the SERP 22 are described using selected terms, it is noted that the terms are employed merely for purposes of description. To the extent that the same terms are used to describe aspects of various embodiments described herein, the terms should not be considered to be limiting thereof.

[0082] In the example provided in Figs. 2 and 3, the SERP 22 includes a query field 24, a search tool field 26, a general search results field 28, a first vertical search results field 30, a second vertical search results field 32, and an object card 34. Each of these areas presents different information relevant to a user's search query 36.

[0083] With continued reference to Fig. 2, the query field 24 is presented as a blank box into which a user may type the search query 36. In this case, the search query 36 comprises the words "new york."

[0084] In the illustrated example, immediately below the query field 24 is the search tool field 26. The search tool field presents a number of search icons 38, 40, 42, 44, 46, 48. The search

icons 38, 40, 42, 44, 46, 48 may be selected, by clicking, to present results relevant to that category of search. For example, the default search icon 38 is listed as "web," and provides a listing of web resources 50, such as URLs. The URLs are clickable and redirect the user to the website associated with the URL. The web resources 50 also are referred to as general search results 50. As indicated, the general search results 50 are listed in the general search results field 28.

[0085] The search icons 40, 42, 44, 46, 48 may be referred to as vertical search icons 40, 42, 44, 48, because these search icons direct the user to a separate SERP that presents the selected search results. For example, if the user were to select the "Images" search icon 42, the user would be directed to a SERP that presents a number of images responsive to the search query 36. If the user were to select the "Videos" search icon 46, the user would be redirected to a SERP that presents a number of videos that are responsive to the search query 36.

[0086] For the SERP 22, a first vertical search result field 30 is presented. The first vertical search result field 30 displays a number of images thumbnails 52 that are associated with the "Images" search icon 42. Clicking on one of the images thumbnails 52 causes the user to be redirected to a SERP listing various images, as discussed above. In other words, the first vertical search result field 30 presents a more visual avenue to images than the "Images" search icon 42.

[0087] On the SERP 22, a second vertical search field 32 also is presented. In the illustrated example, the second vertical search result field 32 presents one or more results associated with the "News" icon 40. As with the first vertical search result field 30, by clicking on one of the results (*e.g.*, one of the thumbnails 53) in the second vertical search result field 32, the user is taken to another SERP that presents the "news"-related results associated with the user's search query 36.The object card 34 is contemplated to present any of a number of results that are associated with the search query 36. The object card 34 may include object card thumbnails 54 that call out points of interest, upcoming events, shopping opportunities, any or all of which may be of interest to the user who entered the search query 36 into the query field 24. Generally, the content of the object card 34 is pre-populated with information about an "object" which is deemed to be a target object of the user's search query 36. For example, if the user's search query 36 comprises "New York" the target object may be determined to be "New York City". The object card 34 may present the results of related objects. Related objects include those objects processed by the search engine (and/or other search engines, as appropriate) on other occasions.

[0088] The object card 34 also is referred to as a "widget," as should be apparent to those skilled in the art. An object card 34 or widget 34 need not be presented solely on the right-hand side of the SERP 22. To the contrary, it is contemplated that the object card 34 or widget 34 may be intermixed with the general search results 50 in the general search results field 28. For example, another implementation of the widget 34 can display some or all results from a particular vertical, such as images and the like.

[0089] As should be apparent to those skilled in the art, the SERP 22 generated by a search engines ranks the general search results 50 of the search query 36 and presents the general search results 50 in a results list 56. The ranking may be established using any number of different criteria, including, for example, "long click" data. The term "long click" refers to a web resource 50 that a user dwells on (or visits) for a long period of time after clicking on that web resource 50 (or general search result 50). A "long" period of time typically refers to a period of time of 60 seconds or more. The understanding is that a person who spends 60 seconds or more on a web resource 50 typically has found information of interest on that web resource 50.

[0090] Reference is now made to Fig. 3. Fig. 3 replicates the same information presented in Fig. 2, except that a drop down box 58 has been exposed. The drop down box 58 is provided in connection with the query field 24 and provides a number of suggests 60 that are associated with the search query 36. As indicated above, suggests 60 are presented to complete a search query 36 based on other, related queries entered by users in the query field 24 on other, prior occasions.

[0091] As indicated above, prior to the development of the present technology, suggests 60 have not been ranked together with the general search results 50. One reason for this lies in the manner in which data is collected with respect to the general search results 50, particular the collection of long click data.

[0092] As should be apparent, a suggest 60 redirects the user to a new SERP. Therefore, when a user clicks on the suggest 60, the amount of time the user spends on the new SERP cannot be used to rank the suggest 60. Long clicks are associated only with web resources and not with suggests 60. Accordingly, a search engine would not consider a click on a suggest 60 as a "long" one, even if the user were to spend 60 seconds or more on the SERP to which the suggest 60 directed the user. In this environment, the assessment of "long" clicks for suggests 60 leads to the value assigned being zero. With a value of "zero" any results associated with a suggest would be

placed at the bottom of any general search result field 28, rendering the entry largely inconsequential.

[0093] As may be apparent, however, certain suggests 60 may direct the user to a SERP with relevant search results 50. The present technology addresses this deficiency in the prior art, among other deficiencies.

[0094] Before describing the method forming one embodiment of the instant disclosure, Figs. 4 and 5 are provided to illustrate two possible SERPs 62, 64 that may be generated as a result of that method.

[0095] Fig. 4 is an illustration of a first embodiment of a SERP 62 generated according to the method described below. Here, suggests 60 are presented in a first widget 66. In this embodiment, the first widget 66 includes four suggest icons 68, 70, 72, 74, each of which is clickable and will redirect the user to additional web resources 50 that are associated with the search query 36 entered by the user into the query field 24.

[0096] Fig. 5 is an illustration of a second embodiment of a SERP 64 consistent with embodiments described herein. Here, suggests 60 are presented in the first widget 66 as in Fig. 4. In addition, a second widget 76 is provided, below the first widget 66. The second widget also includes four suggest icons 78, 80, 82, 84. The suggest icons 78, 80, 82, 84 are clickable and will redirect the user to additional web resources 50 that are associated with the search query 36.

[0097] In both Figs. 4 and 5, the widgets 66, 76 are ranked together with the web resources 50 within the general search results field 28. As noted above, the suggest icons 68, 70, 72, 74, 78, 80, 82, 84 in the widgets 66, 76 direct the user to new SERPs, each of which present at least general search results 50 that are responsive to the search query 36 associated with each suggest 60. As also noted, the suggests 60 lack any long click data because they do not refer to specific web resources 50 on which a user might dwell for any period of measurable time.

[0098] To address this deficiency, a "related long click" is established for the suggests 60. The related long click is a variable that associates long click data with an individual suggest 60 by analyzing, among other things, a dwell time associated with the web resources 50 presented on the SERP associated with the suggest 60.

[0099] The calculation of related long click data for a suggest 60 may be made by any number of methodologies. For example, it may be prudent to use an average of the long click data for the top web resources 50 (perhaps the top 5, 10, 20, 50, 100, etc.) associated with the SERP for

the selected suggest 60. As should be apparent, there are innumerable methodologies that may be employed. The method, system, and computer readable memory described herein are not intended to be limited to any one of them. To the contrary, any number of methodologies may be relied upon to determine the related long click data for a particular suggest 60. Web resources 50 and suggests 60 are contemplated to be ranked using the long click data and related long click data, respectively.

[00100] In addition, it is contemplated that a separate machine learning formula may calculate the position of the widget 66, 76. The formula is contemplated to allow calculation of the probability of a "long" click – in a sense of a sequence of transitions from the suggest 60, to the associated SERP, and, finally, to the web resource 50. Still further, it is contemplated that the related long click data may be obtained from a data with regard to the transition sequence (at first, to the SERP, then, to the subsequent web resource 50), which data may be obtained from logs of prior search sessions. The search engine is contemplated to receive information that the user clicked on a related query in the widget 66, 76 and save the information relating not only to the separate transitions but to the relationship between them. In one specific implementation, this information can be obtained from a search engine log (not depicted), which search engine log stores information about past user searches, as well as past user interactions with the past SERPs generated in response to the past user searches. This data may be employed in future searches, as expected. Regardless of the manner in which the related long click data is obtained and/or calculated, the obtained value for the related long click may then be used to rank the widget 66, 76 among other elements of search results, including the web resources 50.

[00101] As should be apparent from the foregoing, when the suggests 60 are presented to the user, they may be presented in any of a number of potential formats. In Figs. 4 and 5, the suggests 60 are presented in the widgets 66, 76. The suggests 60 may be presented, alternatively, as alphanumeric descriptions, similar to the web resources 50. It is preferred that the suggest 60 be presented in the form of pictures or visual images, but this is not required.

[00102] Fig. 6 is a flow chart that provides a graphical summary of one exemplary, non-limiting method 90 consistent with the instant disclosure. The method 90 is merely exemplary of the types of methods that are contemplated to fall within the scope of the present discussion. In other words, the method 90 is not intended to be limiting of the any of the described embodiments.

[00103] The method 90 starts at block 92.

[00104] From block 92, the method 90 proceeds to block 94 where the search server 16 receives a search query 36 from the user device 12.

[00105] From block 94, the method proceeds to block 96. At block 96, based on the search query 36, the search server 16 determines a first search result set or results list 56. The first search result set is contemplated to include at least a first general search result 50 and a second general search result 51. The first general search result 50 and the second general search result 51 are ranked using at least a first ranking algorithm.

[00106] From block 96, the method proceeds to block 98. At block 98, the search server 16, based on previous search sessions, retrieves at least one related query. The at least one related query is related to the search query 36.

[00107] From block 98, the method 90 proceeds to block 100. At block 100, the search server 16 generates a first suggest object, *i.e.*, a suggest 60, comprising at least one clickable element. The at least one clickable element is associated with the at least one related query.

[00108] The method then proceeds to block 102, where the search server 16 applies a second ranking algorithm to rank the first suggest object 60 relative to the first general search result 50 and the second general search result 51.

[00109] At block 104, the search server 16 generates a second search result set that includes, in a ranked order, the first suggest object 60, the first general search result 50, and the second general search result 51.

[00110] At block 106, the search server 16 generates the search result page (*i.e.*, SERP 62 or SERP 64) based on the second search result set.

[00111] The method 90 ends at block 108.

[00112] As should be apparent from the foregoing, the method 90 also may include additional steps. For example, the method 90 may include sending, via the network 14, the search result page for display on the user device 12 and receiving, from the user device 12, a selection of the at least one clickable element.

[00113] Still further, the method 90 may include applying, by the search server 16, a third raking algorithm to a plurality of related queries including the at least one related query and generating, by the search server 16, a third search result set that comprises the plurality of related queries in ranked order.

[00114] With respect to the method 90, it is contemplated that the third ranking algorithm may employ a variable dependent on a long click to generate a related long click.

[00115] Still further, with respect to the method 90, it is contemplated that the second ranking algorithm may employ the related long click to generate the second search result set.

[00116] The method 90 may include generating, by the search server 16, a related queries search result page based on the third search result set and sending, via the network 14, the related queries search result page for display on the user device 12.

[00117] In response to receipt of the selection of the at least one clickable element at the user device 12, the method 90 may cause a display, on the user device 12, of the related queries search result page. The at least one related query is contemplated to be a suggest 60.

[00118] In the method 90, it is possible that the first search result set 50 may include a vertical search result ranked according to a fourth ranking algorithm. The fourth ranking algorithm may be a ranking algorithm specifically dedicated to ranking search results from the associated vertical search result. If so, the vertical search result may be ranked, as a first search result, together with other first search results via the first ranking algorithm. Vertical search results may be embodied in a widget. Suggests 60 may be embodied in widgets 66, 76, as discussed above.

[00119] As should be apparent from the foregoing, the first ranking algorithm is contemplated to employ a variable dependent on a long click. The second ranking algorithm is contemplated to employ a variable dependent on a related long click, where the related long click is a function of a long click associated with a related search result of the at least one related query. The long click may be calculated based on an average time users dwell on at least one of the first general search result 50 and the second general search result 51.

[00120] Accordingly, some embodiments of the present technology can be summarized as follows, structured and presented as numbered clauses.

[00121] [Clause 1] A method (90) of generating a search engine results page (62, 64) in a system comprising a search server (16), a user device (12), and a network (14) connecting the search server (16) to the user device (12), the method (90) comprising:

[00122] receiving, by the search server (16), a search query (36) from the user device (12);

[00123] based on the search query (36), determining, by the search server (16), a first search result set,

[00124] wherein the first search result set comprises at least a first general search result (50) and a second general search result (51), and

[00125] wherein the first general search result (50) and the second general search result (51) are ranked using at least a first ranking algorithm;

[00126] based on previous search sessions retrieving, by the search server (16), at least one related query,

[00127] wherein the at least one related query is related to the search query (36);

[00128] generating, by the search server (16), a first suggest object (60) comprising at least one clickable element,

[00129] wherein the at least one clickable element is associated with the at least one related query;

[00130] applying, by the search server (16), a second ranking algorithm to rank the first suggest object (60) relative to the first general search result (50) and the second general search result (51);

[00131] generating, by the search server (16), a second search result set that comprises, in a ranked order, the first suggest object (60), the first general search result (50), and the second general search result (51); and

[00132] generating, by the search server (16), the search result page (62, 64) based on the second search result set.

[00133] [Clause 2] The method of clause 1, further comprising:

[00134] sending, via the network (14), the search result page (62, 64) for display on the user device (12); and

[00135] receiving, from the user device (12), a selection of the at least one clickable element.

[00136] [Clause 3] The method of clause 1 or 2, further comprising:

[00137] applying, by the search server (16), a third raking algorithm to a plurality of related queries including the at least one related query; and

[00138] generating, by the search server (16), a third search result set that comprises the plurality of related queries in ranked order.

[00139] [Clause 4] The method of clause 3, wherein the third ranking algorithm employs a variable dependent on a long click to generate a related long click.

[00140] [Clause 5] The method of clause 4, wherein the second ranking algorithm employs the related long click to generate the second search result set.

[00141] [Clause 6] The method of clause 3, further comprising:

[00142] generating, by the search server (16), a related queries search result page based on the third search result set; and

[00143] sending, via the network (14), the related queries search result page for display on the user device.

[00144] [Clause 7] The method of clause 6, further comprising:

[00145] in response to receipt of the selection of the at least one clickable element at the user device (12), causing a display, on the user device (12), of the related queries search result page.

[00146] [Clause 8] The method of clause 6, further comprising:

[00147] causing a display of the related queries search result page on the user device (12).

[00148] [Clause 9] The method of clause 2, wherein selection of the at least one clickable element at the user device (12) causes a display of a related queries search result page comprising the at least one related query.

[00149] [Clause 10] The method of clause 9, wherein the at least one related query is a suggest (60).

[00150] [Clause 11] The method of any preceding clause, wherein the first search result set (30, 32) comprises at least a vertical search result (52, 53) ranked according to a fourth ranking algorithm.

[00151] [Clause 12] The method of clause 11, wherein the vertical search result (52, 53) is ranked, as a first search result (50), together with other first search results (50) via the first ranking algorithm.

[00152] [Clause 13] The method of any preceding clause, wherein the first ranking algorithm employs a variable dependent on a long click.

[00153] [Clause 14] The method of any preceding clause, wherein the second ranking algorithm employs a variable dependent on a related long click, wherein the related long click is a function of a long click associated with a related search result of the at least one related query.

[00154] [Clause 15] The method of clause 14, wherein the related search result comprises a web resource.

[00155] [Clause 16] The method of clause 13, wherein the long click is calculated based on an average time users dwell on at least one of the first general search result and the second general search result.

[00156] [Clause 17] The method of any preceding clauase, wherein the first general search result comprises a plurality of web resources.

[00157] [Clause 18] The method of any preceding clause, wherein the first general search result (50) comprises a first plurality of web resources and the second general search result (51) comprises a second plurality of web resources.

[00158] [Clause 19] The method of clause 17, wherein the second general search result (51) comprises a plurality of web resources.

[00159] [Clause 20] The method of clause 11, wherein the vertical search result is embodied in a widget (30, 32).

[00160] [Clause 21] A method (90) of generating search engine results page (62, 64), the method executing at a search server (16), the method (90) comprising:

[00161] acquiring a search query (36) from a user device (12);

[00162] based on the search query (36), determining a search result set, the search result set including a first general search result (50) and a second general search result (51), the first general search result (50) and the second general search result (51) having been ranked using a first ranking algorithm;

[00163] based on previous search sessions, retrieving a list of related queries, the list of related queries including at least one related query, each query in the list of related queries being related with the search query (36);

[00164] generating a first suggest object (60) including at least one clickable element, the at least one clickable element being associated with at least one related query from the list of related queries, the click on the least one clickable element causing a displaying of a page, on the user device (12), with search results for the related query associated with the at least one clickable element;

[00165] applying a second ranking algorithm to rank the first suggest object (60) relative to the first general search result (50) and the second general search result (51); and

[00166] generating a search result page (SERP) (62, 64) that includes, in a ranked order, the first suggest object (60), the first general search result (50), and the second general search result (51).

[00167] [Clause 22] The method of clause 21, wherein selection of the at least one clickable element at the user device (12) causes a display of a related queries search result page comprising the at least one related query.

[00168] [Clause 23] The method of clause 22, wherein the at least one related query is a suggest (60).

[00169] [Clause 24] A computer readable storage medium comprising executable instructions for operation of a method (90) of generating a search engine results page in a system (10) comprising a search server (16), a user device (12), and a network (14) connecting the search server (16) to the user device (12), where the executable instructions, when executed, result in operations comprising:

[00170] receiving, by the search server (16), a search query (36) from the user device (12);

[00171] based on the search query (36), determining, by the search server (16), a first search result set (50),

[00172] wherein the first search result set comprises at least a first general search result (50) and a second general search result (51), and

[00173] wherein the first general search result (50) and the second general search result (51) are ranked using at least a first ranking algorithm;

[00174] based on previous search sessions retrieving, by the search server (16), at least one related query,

[00175] wherein the at least one related query is related to the search query (36);

[00176] generating, by the search server (16), a first suggest object (60) comprising at least one clickable element,

[00177] wherein the at least one clickable element is associated with the at least one related query;

[00178] applying, by the search server (16), a second ranking algorithm to rank the first suggest object (60) relative to the first general search result (50) and the second general search result (51);

[00179] generating, by the search server (16), a second search result set that comprises, in a ranked order, the first suggest object (60), the first general search result (50), and the second general search result (51); and

[00180] generating, by the search server (16), the search result page (62, 64) based on the second search result set.

[00181] [Clause 25] The computer readable storage medium of clause 24, wherein selection of the at least one clickable element at the user device (12) causes a display of a related queries search result page comprising the at least one related query.

[00182] [Clause 26] The computer readable storage medium of clause 25, wherein the at least one related query is a suggest (60).

[00183] [Clause 27] A system 10 for generating a search engine results page (62, 64), comprising:

[00184] a search server (16);

[00185] a user device (12); and

[00186] a network (14) connecting the search server (16) to the user device (12), wherein the system (10) operates by

[00187] receiving, by the search server (16), a search query (36) from a user device (12),

[00188] based on the search query (36), determining, by the search server (16), a first search result set,

[00189] wherein the first search result set comprises at least a first general search result (50) and a second general search result (51), and

[00190] wherein the first general search result (50) and the second general search result (51) are ranked using at least a first ranking algorithm,

[00191] based on previous search sessions retrieving, by the search server (16), at least one related query,

[00192] wherein the at least one related query is related to the search query (36),

[00193] generating, by the search server (16), a first suggest object (60) comprising at least one clickable element,

[00194] wherein the at least one clickable element is associated with the at least one related query,

[00195] applying, by the search server (16), a second ranking algorithm to rank the first suggest object (60) relative to the first general search result (50) and the second general search result (51),

[00196] generating, by the search server (16), a second search result set that comprises, in a ranked order, the first suggest object (60), the first general search result (50), and the second general search result (51), and

[00197] generating, by the search server (16), the search result page (62, 64) based on the second search result set.

[00198] [Clause 28] The system (10) of clause 27, wherein selection of the at least one clickable element at the user device (12) causes a display of a related queries search result page comprising the at least one related query.

[00199] [Clause 29] The system of clause 28, wherein the at least one related query is a suggest (60).

[00200] As noted above, the embodiment(s) described herein are intended to be exemplary of the wide breadth of the present technology. Variations and equivalents of the described embodiment(s) are intended to be encompassed by the present technology, as if described herein.

CLAIMS

1. A method of generating a search engine results page in a system comprising a search server, a user device, and a network connecting the search server to the user device, the method comprising:

receiving, by the search server, a search query from the user device;

based on the search query, determining, by the search server, a first search result set,

wherein the first search result set comprises at least a first general search result and a second general search result, and

wherein the first general search result and the second general search result are ranked using at least a first ranking algorithm;

based on previous search sessions retrieving, by the search server, at least one related query,

wherein the at least one related query is related to the search query;

generating, by the search server, a first suggest object comprising at least one clickable element,

wherein the at least one clickable element is associated with the at least one related query;

applying, by the search server, a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result;

generating, by the search server, a second search result set that comprises, in a ranked order, the first suggest object, the first general search result, and the second general search result; and

generating, by the search server, the search result page based on the second search result set.

2. The method of claim 1, further comprising:

sending, via the network, the search result page for display on the user device; and

receiving, from the user device, a selection of the at least one clickable element.

3. The method of claim 1, further comprising:

applying, by the search server, a third raking algorithm to a plurality of related queries including the at least one related query; and

generating, by the search server, a third search result set that comprises the plurality of related queries in ranked order.

4. The method of claim 3, wherein the third ranking algorithm employs a variable dependent on a long click to generate a related long click.

5. The method of claim 4, wherein the second ranking algorithm employs the related long click to generate the second search result set.

6. The method of claim 3, further comprising:

generating, by the search server, a related queries search result page based on the third search result set; and

sending, via the network, the related queries search result page for display on the user device.

7. The method of claim 6, further comprising:

in response to receipt of the selection of the at least one clickable element at the user device, causing a display, on the user device, of the related queries search result page.

8. The method of claim 6, further comprising:

causing a display of the related queries search result page on the user device.

9. The method of claim 2, wherein selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

10. The method of claim 9, wherein the at least one related query is a suggest.

11. The method of claim 1, wherein the first search result set comprises at least a vertical search result ranked according to a fourth ranking algorithm.

12. The method of claim 11, wherein the vertical search result is ranked, as a first search result, together with other first search results via the first ranking algorithm.

13. The method of claim 1, wherein the first ranking algorithm employs a variable dependent on a long click.

14. The method of claim 1, wherein the second ranking algorithm employs a variable dependent on a related long click, wherein the related long click is a function of a long click associated with a related search result of the at least one related query.

15. The method of claim 14, wherein the related search result comprises a web resource.

16. The method of claim 13, wherein the long click is calculated based on an average time users dwell on at least one of the first general search result and the second general search result.

17. The method of claim 1, wherein the first general search result comprises a plurality of web resources.

18. The method of claim 1, wherein the first general search result comprises a first plurality of web resources and the second general search result comprises a second plurality of web resources.

19. The method of claim 17, wherein the second general search result comprises a plurality of web resources.

20. The method of claim 11, wherein the vertical search result is embodied in a widget.

21. A method of generating search engine results page, the method executing at a search server, the method comprising:

acquiring a search query from a user device;

based on the search query, determining a search result set, the search result set including a first general search result and a second general search result, the first general search result and the second general search result having been ranked using a first ranking algorithm;

based on previous search sessions, retrieving a list of related queries, the list of related queries including at least one related query, each query in the list of related queries being related with the search query;

generating a first suggest object including at least one clickable element, the at least one clickable element being associated with at least one related query from the list of related queries, the click on the least one clickable element causing a displaying of a page, on the user device, with search results for the related query associated with the at least one clickable element;

applying a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result; and

generating a search result page (SERP) that includes, in a ranked order, the first suggest object, the first general search result, and the second general search result.

22. The method of claim 21, wherein selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

23. The method of claim 22, wherein the at least one related query is a suggest.

24. A computer readable storage medium comprising executable instructions for operation of a method of generating a search engine results page in a system comprising a search server, a user device, and a network connecting the search server to the user device, where the executable instructions, when executed, result in operations comprising:

receiving, by the search server, a search query from the user device;

based on the search query, determining, by the search server, a first search result set,

wherein the first search result set comprises at least a first general search result and a second general search result, and

wherein the first general search result and the second general search result are ranked using at least a first ranking algorithm;

based on previous search sessions retrieving, by the search server, at least one related query,

wherein the at least one related query is related to the search query;

generating, by the search server, a first suggest object comprising at least one clickable element,

wherein the at least one clickable element is associated with the at least one related query;

applying, by the search server, a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result;

generating, by the search server, a second search result set that comprises, in a ranked order, the first suggest object, the first general search result, and the second general search result; and

generating, by the search server, the search result page based on the second search result set.

25. The computer readable storage medium of claim 24, wherein selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

26. The computer readable storage medium of claim 25, wherein the at least one related query is a suggest.

27. A system for generating a search engine results page, comprising:

a search server;

a user device; and

a network connecting the search server to the user device, wherein the system operates by

receiving, by the search server, a search query from a user device,

based on the search query, determining, by the search server, a first search result set,

wherein the first search result set comprises at least a first general search result and a second general search result, and

wherein the first general search result and the second general search result are ranked using at least a first ranking algorithm,

based on previous search sessions retrieving, by the search server, at least one related query,

wherein the at least one related query is related to the search query,

generating, by the search server, a first suggest object comprising at least one clickable element,

wherein the at least one clickable element is associated with the at least one related query,

applying, by the search server, a second ranking algorithm to rank the first suggest object relative to the first general search result and the second general search result,

generating, by the search server, a second search result set that comprises, in a ranked order, the first suggest object, the first general search result, and the second general search result, and

generating, by the search server, the search result page based on the second search result set.

28. The system of claim 27, wherein selection of the at least one clickable element at the user device causes a display of a related queries search result page comprising the at least one related query.

29. The system of claim 28, wherein the at least one related query is a suggest.

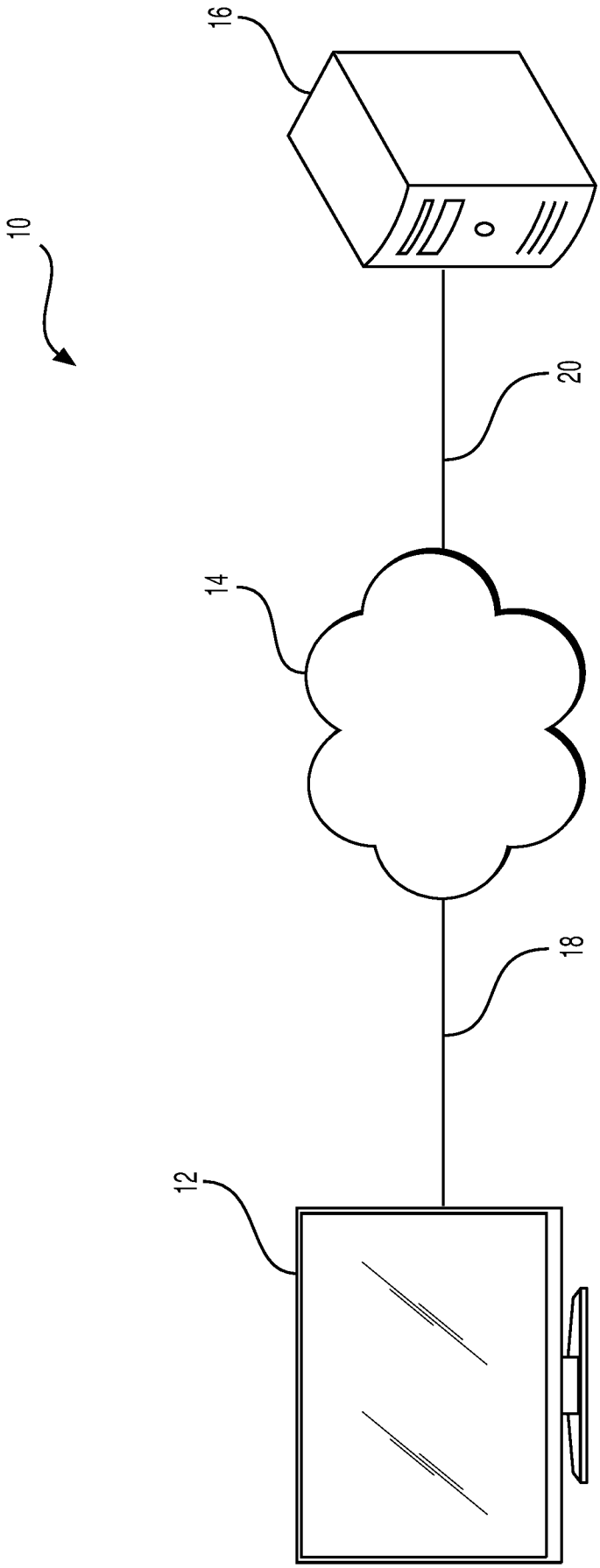


FIG. 1

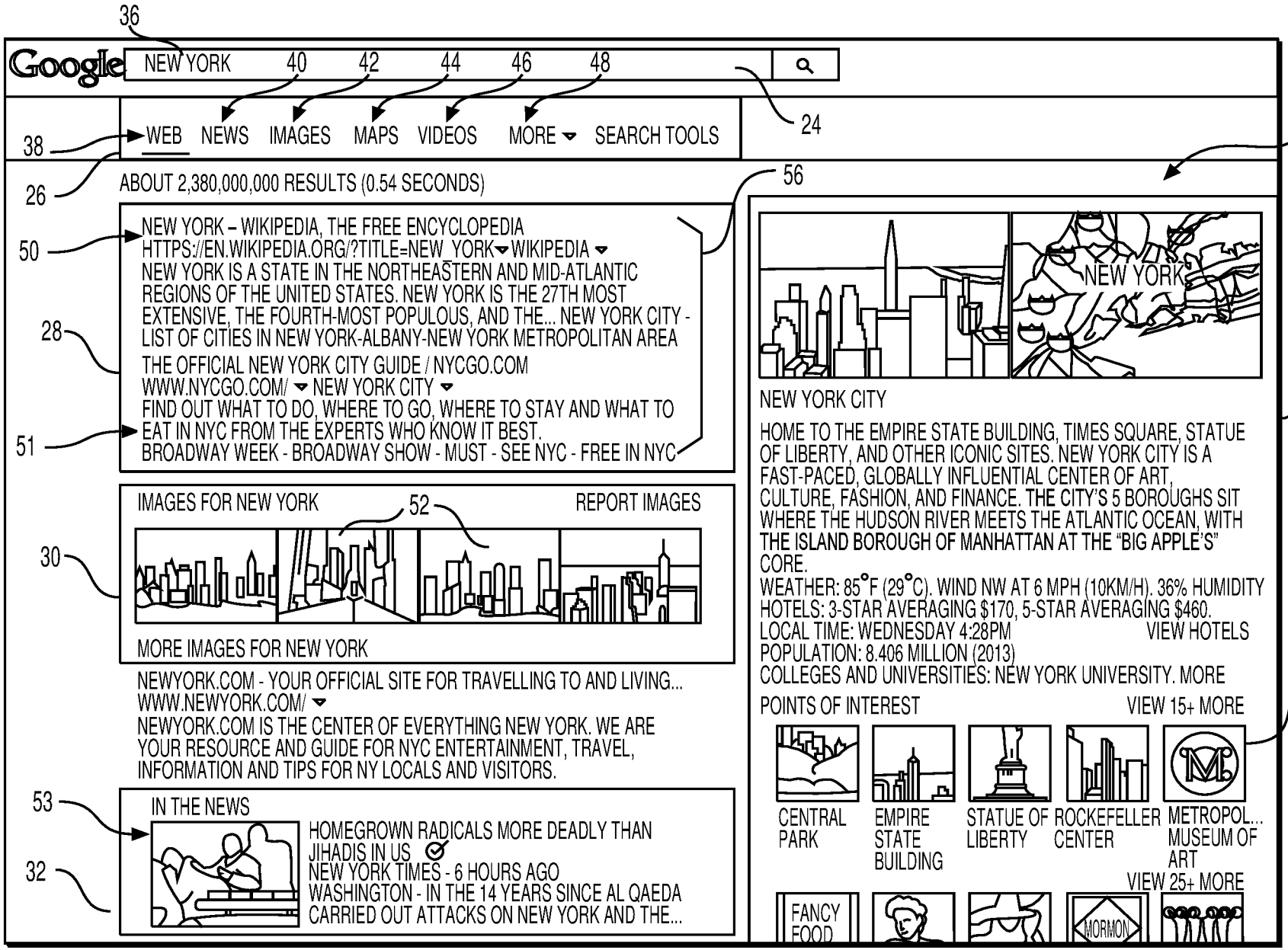


FIG. 2
(PRIOR ART)

FIG. 3
(PRIOR ART)

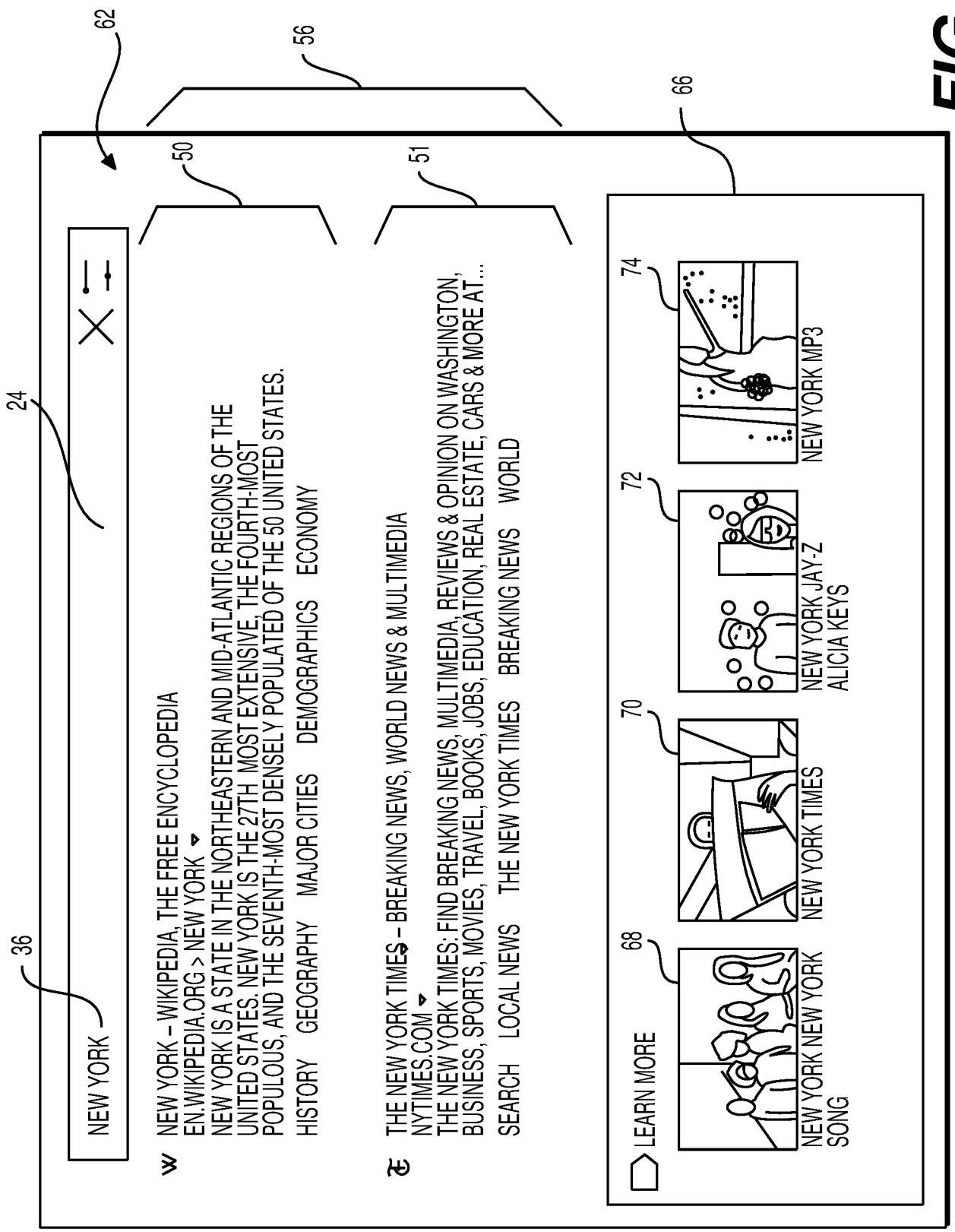

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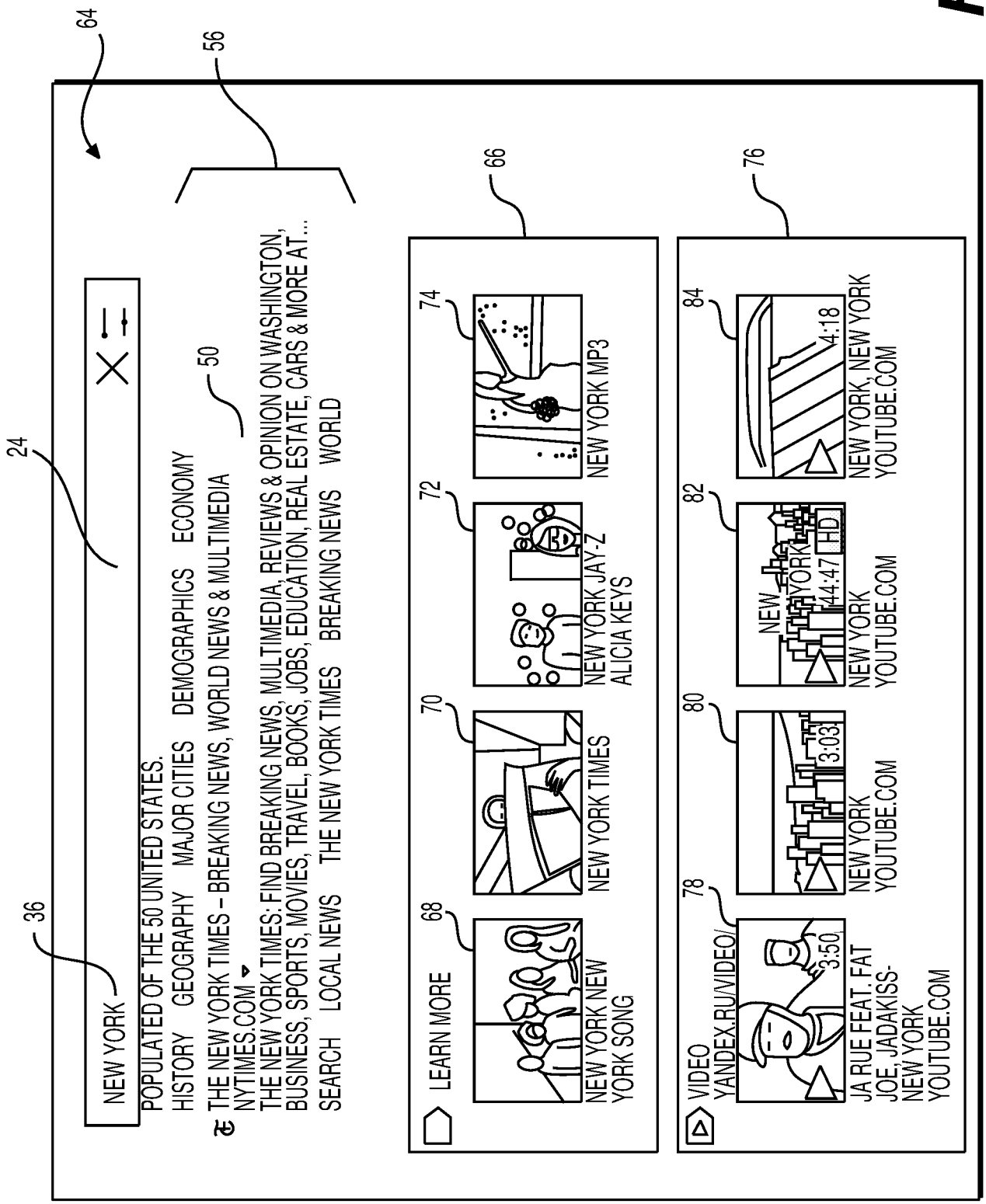

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FIG. 5

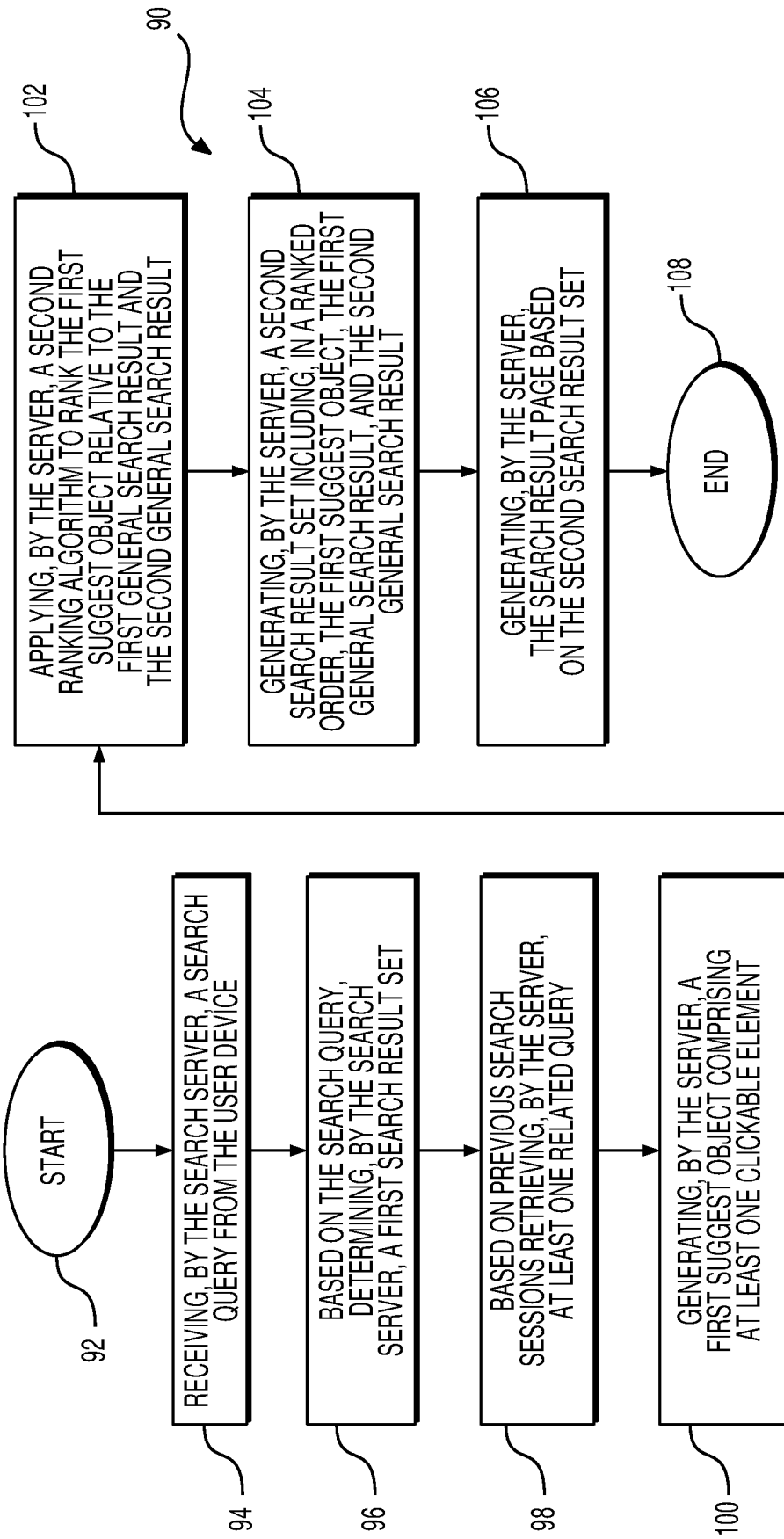

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START
92
RECEIVING, BY THE SEARCH SERVER, A SEARCH QUERY FROM THE USER DEVICE
94
BASED ON THE SEARCH QUERY, DETERMINING, BY THE SEARCH SERVER, A FIRST SEARCH RESULT SET
96
BASED ON PREVIOUS SEARCH SESSIONS RETRIEVING, BY THE SERVER, AT LEAST ONE RELATED QUERY
98
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100
102
APPLYING, BY THE SERVER, A SECOND RANKING ALGORITHM TO RANK THE FIRST SUGGEST OBJECT RELATIVE TO THE FIRST GENERAL SEARCH RESULT AND THE SECOND GENERAL SEARCH RESULT
104
GENERATING, BY THE SERVER, A SECOND SEARCH RESULT SET INCLUDING, IN A RANKED ORDER, THE FIRST SUGGEST OBJECT, THE FIRST GENERAL SEARCH RESULT, AND THE SECOND GENERAL SEARCH RESULT
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GENERATING, BY THE SERVER, THE SEARCH RESULT PAGE BASED ON THE SECOND SEARCH RESULT SET
108
END

FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ID2016/050003

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06F 7/00, G06F 17/30, G06Q 30/00 (2016.01)
CPC - G06F 17/277, G06F 17/30648, G06F 17/30672 (2016.01)
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)
IPC(8) - G06F 7/00, G06F 17/30, G06Q 30/00 (2016.01)
CPC - G06F 17/277, G06F 17/30648, G06F 17/30672 (2016.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 707/721, 707/723, 707/999.006, 707/E17.014, 707/E17.017, 707/E17.082 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Orbit, Google Patents, Google Scholar, Google
Search terms used: generate search engine results page, search server, user device, network,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2013/0091116 A1 (YAHOO! INC.) 11 April 2013 (11.04.2013), entire document	1-29
Y	US 2005/0149504 A1 (RATNAPARKHI) 07 July 2005 (07.07.2005), entire document	1-29
Y	US 2010/0228710 A1 (IMIG et al) 09 September 2010 (09.09.2010), entire document	1-29
Y	US 2015/0161255 A1 (BATTLE et al) 11 June 2015 (11.06.2015), entire document	3-8, 13-16
Y	WO 2015/028898 A1 (YANDEX EUROPE AG) 05 March 2015 (05.03.2015), entire document	11, 12, 20
A	US 2007/0124301 A1 (ELBAZ et al) 31 May 2007 (31.05.2007), entire document	1-29
A	US 2014/0379689 A1 (GOOGLE INC.) 25 December 2014 (25.12.2014), entire document	1-29
A	US 2010/0082604 A1 (GUTT et al) 01 April 2010 (01.04.2010), entire document	1-29
A	US 2013/0226913 A1 (RAJPUT et al) 29 August 2013 (29.08.2013), entire document	1-29

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 May 2016	11 MAY 2016
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