SEARCH KEYWORD CORRECTION METHOD AND APPARATUS, MEDIUM, AND COMPUTER SYSTEM

TECHNICAL FIELD

[0001] This specification relates to the field of computer technologies, and in particular, to a search keyword correction method and apparatus, a medium, and a computer system.

BACKGROUND

[0002] An information search is to find and obtain information related to user query information from a large quantity of information resources. In an existing search technology, usually, a keyword in the user query information is corrected, and then corrected user query information is searched for by using a search engine. However, correction effect is usually poor in an existing keyword correction solution.

SUMMARY

[0003] Embodiments of this specification provide a search keyword correction method and apparatus, a storage medium, and a computer system, to partially resolve the above-mentioned problems in the conventional technology.

[0004] This specification provides a search keyword correction method, including: in response to that a user enters a first search statement, and the first search statement includes a target keyword, determining a first search result corresponding to the first search statement, and determining, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, constructing a prompt indicating to correct the target keyword, and inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement includes the target keyword and the target keyword is abnormal, to obtain a third search

statement; obtaining a second search result corresponding to the third search statement; and adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, where the mark is used to determine whether to re-correct the target keyword by using a preset large model.

[0005] This specification provides a computer system, including a storage, a processor, and a computer program that is stored in the storage and that can is capable of running on the processor. When executing the program, the processor implements the following steps: in response to that a user enters a first search statement, and the first search statement includes a target keyword, determining a first search result corresponding to the first search statement, and determining, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, constructing a prompt indicating to correct the target keyword, and inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement includes the target keyword and the target keyword is abnormal, to obtain a third search statement; obtaining a second search result corresponding to the third search statement; and adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, where the mark is used to determine whether to re-correct the target keyword by using a preset large model.

[0006] This specification provides a search keyword correction apparatus. The apparatus includes: a first response module, configured to: in response to that a user enters a first search statement, and the first search statement includes a target keyword, determine a first search result corresponding to the first search statement, and determine, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, construct a prompt indicating to correct the target keyword, and input the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and a second response module, configured to: replace, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement includes the target keyword and the target keyword is abnormal, to obtain a third search

statement; obtain a second search result corresponding to the third search statement; and add a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, where the mark is used to determine whether to re-correct the target keyword by using a preset large model.

[0007] This specification provides a computer-readable nonvolatile storage medium. The storage medium stores a computer program, and when the computer program is executed by a processor, the search keyword correction method is implemented.

[0008] At least one of the following beneficial effects can be achieved by using the above-mentioned at least one technical solution in the embodiments of this specification: Search keyword correction effect can be improved.

BRIEF DESCRIPTION OF DRAWINGS

[0009] The accompanying drawings described herein are used to provide a further understanding of this specification and constitute a part of this specification. The example embodiments of this specification and descriptions thereof are used to explain this specification, and do not constitute an improper limitation on this specification. In the accompanying drawings:

[0010] FIG. 1 is a schematic diagram of correcting a keyword in a search statement;

[0011] FIG. 2 is a schematic flowchart of a search keyword correction method according to this specification;

[0012] FIG. 3 is a schematic diagram of a manner of determining that a keyword is abnormal according to this specification;

[0013] FIG. 4 is a schematic diagram of obtaining a corrected word based on a large model according to this specification;

[0014] FIG. 5 is a schematic diagram of adding a mark to a corrected word according to this specification;

[0015] FIG. 6 is a schematic diagram of determining, based on a mark of a corrected word, whether to re-determine a corrected word according to this specification;

[0016] FIG. 7 is a schematic structural diagram of a search keyword correction apparatus according to this specification; and

[0017] FIG. 8 is a schematic structural diagram of a computer system according to an

embodiment of this specification.

DESCRIPTION OF EMBODIMENTS

[0018] To make the objectives, technical solutions, and advantages of this specification clearer, the following clearly and comprehensively describes the technical solutions of this specification with reference to specific embodiments and corresponding accompanying drawings of this specification. Clearly, the described embodiments are merely some but not all of embodiments of this specification. All other embodiments obtained by a person of ordinary skill in the art based on the embodiment of this specification without creative efforts shall fall within the protection scope of this specification.

[0019] As mentioned above, an information search is to find and obtain information related to user query information from a large quantity of information resources. In an existing information search technology, usually, a keyword in the user query information is corrected, and then corrected user query information is searched for by using a search engine. FIG. 1 is a schematic diagram of correcting a keyword in a search statement. As shown in FIG. 1, for example, word segmentation can be performed on a search statement entered by a user. If a plurality of obtained valid words include, for example, a target keyword, the target keyword is corrected to obtain a corresponding corrected word. The target keyword in the search statement is replaced with the corrected word, to obtain a rewritten search statement. Then, a search result is obtained from the search engine by using the rewritten search statement, to improve quality of the search result. Specifically, for example, in an example shown in FIG. 1, word segmentation can be performed on a search statement (query) "producing place of fuit" entered by the user, to obtain a plurality of valid words, for example, including a keyword "fuit", and the keyword is corrected, to obtain a corrected word "fruit" corresponding to the keyword. The keyword "fuit" in the search statement is replaced with "fruit", to obtain a rewritten search statement "producing place of fruits". Then, a search result is obtained from the search engine by using the rewritten search statement "producing place of fruits". Because the correct word "fruit" is used to replace the misspelling "fuit" in the rewritten search statement, a search result with higher quality can be obtained. However, in an existing keyword correction solution, correction effect is poor, or correction effect depends too much on integrity of a corpus or too high correction costs.

[0020] For example, in a correction solution, a spelling error is identified by calculating an edit distance between a keyword entered by a user and a word in a corpus, and a word with a small edit distance is selected as a corrected word of the keyword. The edit distance is a minimum quantity of edit operations required for converting one character string into another character string. For example, the edit operations can include inserting, deleting, and replacing a character. A problem of this solution is as follows: For some non-spelling errors such as homophone errors or semantic errors, correction may not be effectively performed in this method. In addition, if an edit distance between an incorrect keyword entered by the user and a correct keyword is relatively large, correction effect is not ideal. In another correction solution, a preset language model is constructed to predict a correct form of a keyword. For example, an N-gram model is used to calculate a probability that a word occurs, and a word with a high probability is selected as a corrected word of the keyword. A problem of this solution is as follows: Correction effect of this solution relatively strongly depends on a preset corpus. If the corpus does not include enough error samples, the correction effect can be relatively poor. In addition, for an unfamiliar word or a new word, correction may not be effectively performed. In still another correction solution, a dedicated neural network model is trained to correct a keyword, for example, a sequence-to-sequence (Seq2Seq) model and an attention mechanism model. Semantics of a keyword entered by a user can be determined by using these models, and a corrected word of the keyword is provided based on the semantics. However, a problem of this solution is as follows: A deep learning model usually needs to be trained by using a large amount of training data, and a relatively large quantity of computing resources are required for running the deep learning model. Therefore, relatively high costs are required in actual deployment.

[0021] To resolve the above-mentioned problems, in this application, a search statement entered by a user can be obtained. The search statement can include a target keyword. A search result of the search statement, for example, in a preset search engine is determined, and whether the target keyword is abnormal is determined based on the search result or an operation performed by the user on the search result. If the target keyword is abnormal, a prompt indicating to correct the target keyword is constructed, and the prompt is input into a preset large model, to obtain a corrected word that corresponds to the target keyword and that is provided by the large model. Subsequently, another search statement entered by the user is obtained. If the another search statement includes the target keyword and it is previously determined that the target keyword is

abnormal, the target keyword in the another search statement is replaced with the previously determined corrected word corresponding to the target keyword, to obtain a rewritten search statement. A search result of the rewritten search statement, for example, in the preset search engine is obtained. A mark is added to the corrected word based on the search result. The mark is used to determine whether to re-correct the target keyword by using the preset large model.

[0022] According to a search keyword correction method provided in this application, a keyword in a search statement can be automatically corrected based on a large model. In addition, whether to continuously adjust and optimize a corrected word corresponding to the keyword based on the large model can be determined based on a search result or an operation performed by a user on a search result, to obtain good correction effect. In addition, in this correction method, the corrected word does not need to be determined based on a preset corpus. Therefore, correction effect of the correction method does not depend on completeness of the preset expected database. In a third aspect, if the corrected word is adjusted and optimized by using a dedicated neural network, more training data needs to be introduced usually, and costs of obtaining the training data are too high. According to this method, the corrected word can be continuously adjusted and optimized, and training data does not need to be introduced, to greatly reduce data costs in an adjustment and optimization process.

[0023] The following describes in detail the technical solutions provided in the embodiments of this specification with reference to the accompanying drawings.

[0024] FIG. 2 is a schematic flowchart of a search keyword correction method according to this specification. The following steps can be specifically included.

[0025] S200: In response to that a user enters a first search statement, and the first search statement includes a target keyword, determine a first search result corresponding to the first search statement, and determine, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, construct a prompt indicating to correct the target keyword, and input the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword.

[0026] In this step, after a search statement (the first search statement) entered by the user is received, the first search statement can include the target keyword. In different embodiments, both the first search statement entered by the user and the target keyword included in the first search statement can be different. In different embodiments, the target keyword can alternatively be

determined in different manners. In an embodiment, the target keyword can be preset. In another embodiment, the target keyword can be determined based on a valid word in the first search statement.

[0027] After the search statement entered by the user is received, the first search result corresponding to the first search statement can be determined. Specifically, for example, the first search statement can be input into a predetermined search engine, to obtain the corresponding first search result. In different embodiments, the predetermined search engine can be different specific engines. This is not limited in this specification. Subsequently, whether the target keyword is abnormal can be determined based on the first search result or the operation performed by the user on the first search result, as shown in FIG. 3. In different embodiments, whether the target keyword is abnormal can be determined in different manners. In an embodiment, if the first search result includes one or more search objects, and the user does not tap any one of the plurality of search objects, it is determined to correct the target keyword. In another embodiment, if the first search result includes zero search object, it is determined to correct the target keyword.

[0028] FIG. 4 is a schematic diagram of obtaining a corrected word based on a large model according to this specification. As shown in FIG. 4, if it is determined that the target keyword is abnormal, the prompt indicating to correct the target keyword can be constructed. The prompt is input into the preset large model, to obtain the corrected word corresponding to the target keyword.

[0029] The large model is a large neural network model based on a deep learning technology. The large model can usually include a neural network parameter with huge data, and is pre-trained based on massive training data. The large model described in this specification can be a large language model (LLM) unless otherwise specified. In different embodiments, the preset large model can be large language models of different specific types or with different neural network structures. This is not limited in this specification. The prompt is a prompt statement input into the large model, and is used to instruct the large model to generate content indicated by the prompt statement.

[0030] In different embodiments, the constructed prompt can be different. In an embodiment, the prompt can further indicate to sort the plurality of recommended words based on a correlation with the target keyword if a result for correcting the target keyword includes a plurality of recommended words used for correction. Further, a prompt corresponding to the target keyword is input into the preset large model, to obtain a plurality of recommended words that are sorted based

on a correlation and that correspond to the target keyword, and the corrected word corresponding to the target keyword is determined based on the plurality of recommended words. In a specific example, the prompt can be, for example, "You are an intelligent marketing assistant, experienced, and able to understand a user's intention. The following is a search keyword that may be misspelled: xxx. Please correct it and return only a corrected word. If there are a plurality of words, please connect the words with commas and rank a word with a higher correlation in front". Further, in a specific embodiment, a recommended word with a highest correlation with the target keyword in the plurality of recommended words can be used as the corrected word corresponding to the target keyword.

[0031] In an embodiment, the prompt can further include a pre-stored correction example for a keyword, and the correction example includes a correction success example and/or a correction failure example, to improve accuracy of the returned corrected word. In a specific example, the prompt can be, for example, "You are an intelligent marketing assistant, experienced, and able to understand a user's intention. The following is a search keyword that may be misspelled: xxx. Please correct it with reference to the listed examples and return only a corrected word. If there are a plurality of words, please connect the words with commas and rank a word with a higher correlation in front. Example 1: keyword: xx1, corrected word: xx2, correction result: correct. Example 2: keyword: xx3, corrected word xx3, correction result: incorrect".

[0032] To help subsequently obtain the corrected word corresponding to the target keyword, in an embodiment, after the corrected word corresponding to the target keyword is obtained, the target keyword and the corrected word corresponding to the target keyword can be stored in preset storage space in association. In different embodiments, the preset storage space can be different specific storage space, for example, can be one of files or data tables that are in different specific formats and that are used to store data.

[0033] S202: Replace, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement includes the target keyword and the target keyword is abnormal, to obtain a third search statement; obtain a second search result corresponding to the third search statement; and add a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, where the mark is used to determine whether to re-correct the target keyword by using a preset large model.

[0034] In this step, the search statement (the second search statement) entered by the user can be received. In an actual search scenario, different users perform an information search usually. Therefore, a specific user who enters a search statement in this step can be the same as or different from a specific user who enters a search statement in step S200.

[0035] If the second search statement includes the target keyword and it is previously determined that the target keyword is abnormal, the target keyword in the second search statement can be replaced with the corrected word corresponding to the target keyword, to obtain the third search statement. In the above-mentioned embodiment of storing the target keyword and the corresponding corrected word in the preset storage space in association, specifically, in response to that the user enters the second search statement, whether the second search statement includes a target keyword stored in the storage space can be determined; and if the second search statement includes the target keyword stored in the storage space, the corrected word corresponding to the target keyword is extracted from the storage space, and the target keyword in the second search statement is replaced with the corrected word corresponding to the target keyword, to obtain the third search statement.

[0036] After the third search statement is obtained, the second search result corresponding to the third search statement can be obtained. Specifically, for example, the third search statement can be input into the predetermined search engine, to obtain the corresponding first search result. The mark is added to the corrected word based on the second search result or an operation performed by the user on the second search result, and the mark is used to determine whether to re-correct the target keyword by using the preset large model, as shown in FIG. 5. In different embodiments, a specific mark to be added to the corrected word, and a specific manner of correspondingly adding the mark can be different. In an embodiment, the mark can include a positive mark and a negative mark. If the second search result includes one to more search objects and the user taps any one of the plurality of search objects, a positive mark is added to the corrected word; or if the second search result includes one to more search objects and the user does not tap any one of the plurality of search objects, a negative mark is added to the corrected word. In another embodiment, a negative mark can be further added to the corrected word if the second search result includes zero search object.

[0037] Further, whether to re-correct the target keyword can be determined based on a quantity of positive marks and a quantity of negative marks. In an embodiment, if a total quantity of marks

reaches a predetermined quantity, and a proportion of a quantity of negative marks in the total quantity exceeds a predetermined threshold, the target keyword is re-corrected by using the preset large model. FIG. 6 is a schematic diagram of determining, based on a mark of a corrected word, whether to re-determine a corrected word according to this specification. In an example shown in FIG. 6, a corrected word corresponding to a keyword A is, for example, a corrected word B. When a quantity of negative marks of the corrected word reaches 7, and a quantity of positive marks is 3, a proportion of the quantity of negative marks in a total quantity of positive marks and negative marks exceeds a predetermined threshold (for example, 66%), the corrected word can be re-determined. For example, a corrected word C is obtained. The corrected word corresponding to the keyword A can be replaced with the corrected word C. In an embodiment, a specific manner of re-determining the corrected word can be similar to a manner of obtaining the corrected word in step S100, the prompt corresponding to the target keyword is reconstructed, and the prompt is input into the preset large model to obtain an updated corrected word of the target keyword. Details are not described herein again. In a specific example, if the re-determined corrected word is equivalent to the corrected word previously corresponding to the keyword, the corrected word can be re-determined, until different corrected words are obtained. Alternatively, when a plurality of recommended words are obtained from the preset large model in a process of re-determining the corrected word, an updated corrected word is determined in recommended words that are in the plurality of recommended words and that are different from the previous corrected word. In the above-mentioned embodiment of storing the target keyword and the corresponding corrected word in the preset storage space in association, the corrected word corresponding to the target keyword can be further replaced with the updated corrected word in the preset storage space.

[0038] It should be noted that in different embodiments, step S202 can be continuously performed for a plurality of times. When step S202 is performed for a plurality of times, a response to search statements entered by same or different specific users can be made. Therefore, in a process in which same or different specific users perform an information search for a plurality of times, a corrected word whose correction effect is poor is continuously replaced, and quality of a search result of the information search is continuously optimized.

[0039] The search keyword correction method provided in the embodiments of this specification is provided above. Based on the same idea, this specification further provides a corresponding search keyword correction apparatus. As shown in FIG. 7, the search keyword

correction apparatus includes: a first response module 702, configured to: in response to that a user enters a first search statement, and the first search statement includes a target keyword, determine a first search result corresponding to the first search statement, and determine, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, construct a prompt indicating to correct the target keyword, and input the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and a second response module 704, configured to: replace, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement includes the target keyword and the target keyword is abnormal, to obtain a third search statement; obtain a second search result corresponding to the third search statement; and add a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, where the mark is used to determine whether to re-correct the target keyword by using a preset large model.

[0040] For ease of description, the above-mentioned apparatus is described by dividing the apparatus into various modules based on functions. Certainly, during implementation of this specification, functions of all modules can be implemented in one or more pieces of software and/or hardware.

[0041] The specification also provides a computer-readable non-transitory storage medium, where the storage medium stores a computer program, which, when executed by a processor, can be used to perform one or more steps of one or more methods described or illustrated herein or provides functionality described or illustrated herein. Herein, the computer-readable non-transitory storage medium or media may include one or more semiconductor-based or other integrated circuits (ICs) (such, as for example, field-programmable gate arrays (FPGAs) or application-specific ICs (ASICs)), hard disk drives (HDDs), hybrid hard drives (HHDs), optical discs, optical disc drives (ODDs), magneto-optical discs, magneto-optical drives, floppy diskettes, floppy disk drives (FDDs), magnetic tapes, solid-state drives (SSDs), RAM-drives, SECURE DIGITAL cards or drives, any other suitable computer-readable non-transitory storage media, or any suitable combination of two or more of these, where appropriate. A computer-readable non-transitory storage medium may be volatile, non-volatile, or a combination of volatile and non-volatile, where appropriate.

[0042] The specification also provides a computer system. FIG. 8 illustrates an example computer system 1000. In particular embodiments, one or more computer systems 1000 perform one or more steps of one or more methods described or illustrated herein. In particular embodiments, one or more computer systems 1000 provide functionality described or illustrated herein. In particular embodiments, software running on one or more computer systems 1000 performs one or more steps of one or more methods described or illustrated herein or provides functionality described or illustrated herein. Particular embodiments include one or more portions of one or more computer systems 1000. Herein, reference to a computer system may encompass a computing device, and vice versa, where appropriate. Moreover, reference to a computer system may encompass one or more computer systems, where appropriate.

[0043] This disclosure contemplates any suitable number of computer systems 1000. This disclosure contemplates computer system 1000 taking any suitable physical form. As example and not by way of limitation, computer system 1000 may be an embedded computer system, a system-on-chip (SOC), a single-board computer system (SBC) (such as, for example, a computer-on-module (COM) or system-on-module (SOM)), a desktop computer system, a laptop or notebook computer system, an interactive kiosk, a mainframe, a mesh of computer systems, a mobile telephone, a personal digital assistant (PDA), a server, a tablet computer system, or a combination of two or more of these. Where appropriate, computer system 1000 may include one or more computer systems 1000; be unitary or distributed; span multiple locations; span multiple machines; span multiple data centers; or reside in a cloud, which may include one or more cloud components in one or more networks. Where appropriate, one or more computer systems 1000 may perform without substantial spatial or temporal limitation one or more steps of one or more methods described or illustrated herein. As an example and not by way of limitation, one or more computer systems 1000 may perform in real time or in batch mode one or more steps of one or more methods described or illustrated herein. One or more computer systems 1000 may perform at different times or at different locations one or more steps of one or more methods described or illustrated herein, where appropriate.

[0044] In particular embodiments, computer system 1000 includes a processor 1002, memory 1004, storage 1006, an input/output (I/O) interface 1008, a communication interface 1010, and a bus 1012. Although this disclosure describes and illustrates a particular computer system having a particular number of particular components in a particular arrangement, this disclosure

contemplates any suitable computer system having any suitable number of any suitable components in any suitable arrangement.

[0045] In particular embodiments, processor 1002 includes hardware for executing instructions, such as those making up a computer program. As an example and not by way of limitation, to execute instructions, processor 1002 may retrieve (or fetch) the instructions from an internal register, an internal cache, memory 1004, or storage 1006; decode and execute them; and then write one or more results to an internal register, an internal cache, memory 1004, or storage 1006. In particular embodiments, processor 1002 may include one or more internal caches for data, instructions, or addresses. This disclosure contemplates processor 1002 including any suitable number of any suitable internal caches, where appropriate. As an example and not by way of limitation, processor 1002 may include one or more instruction caches, one or more data caches, and one or more translation lookaside buffers (TLB s). Instructions in the instruction caches may be copies of instructions in memory 1004 or storage 1006, and the instruction caches may speed up retrieval of those instructions by processor 1002. Data in the data caches may be copies of data of 80 in memory 1004 or storage 1006 for instructions executing at processor 1002 to operate on; the results of previous instructions executed at processor 1002 for access by subsequent instructions executing at processor 1002 or for writing to memory 1004 or storage 1006; or other suitable data. The data caches may speed up read or write operations by processor 1002. The TLBs may speed up virtual-address translation for processor 1002. In particular embodiments, processor 1002 may include one or more internal registers for data, instructions, or addresses. This disclosure contemplates processor 1002 including any suitable number of any suitable internal registers, where appropriate. Where appropriate, processor 1002 may include one or more arithmetic logic units (ALUs); be a multi-core processor; or include one or more processors 1002. Although this disclosure describes and illustrates a particular processor, this disclosure contemplates any suitable processor.

[0046] In particular embodiments, memory 1004 includes main memory for storing instructions for processor 1002 to execute or data for processor 1002 to operate on. As an example and not by way of limitation, computer system 1000 may load instructions from storage 1006 or another source (such as, for example, another computer system 1000) to memory 1004. Processor 1002 may then load the instructions from memory 1004 to an internal register or internal cache. To execute the instructions, processor 1002 may retrieve the instructions from the internal register

or internal cache and decode them. During or after execution of the instructions, processor 1002 may write one or more results (which may be intermediate or final results) to the internal register or internal cache. Processor 1002 may then write one or more of those results to memory 1004. In particular embodiments, processor 1002 executes only instructions in one or more internal registers or internal caches or in memory 1004 (as opposed to storage 1006 or elsewhere) and operates only on data in one or more internal registers or internal caches or in memory 1004 (as opposed to storage 1006 or elsewhere). One or more memory buses (which may each include an address bus and a data bus) may couple processor 1002 to memory 1004. Bus 1012 may include one or more memory buses, as described below. In particular embodiments, one or more memory management units (MMUs) reside between processor 1002 and memory 1004 and facilitate accesses to memory 1004 requested by processor 1002. In particular embodiments, memory 1004 includes random access memory (RAM). This RAM may be volatile memory, where appropriate. Where appropriate, this RAM may be dynamic RAM (DRAM) or static RAM (SRAM). Moreover, where appropriate, this RAM may be single-ported or multi-ported RAM. This disclosure contemplates any suitable RAM. Memory 1004 may include one or more memories 1004, where appropriate. Although this disclosure describes and illustrates particular memory, this disclosure contemplates any suitable memory.

[0047] In particular embodiments, storage 1006 includes mass storage for data or instructions. As an example and not by way of limitation, storage 1006 may include a hard disk drive (HDD), a floppy disk drive, flash memory, an optical disc, a magneto-optical disc, magnetic tape, or a Universal Serial Bus (USB) drive or a combination of two or more of these. Storage 1006 may include removable or non-removable (or fixed) media, where appropriate. Storage 1006 may be internal or external to computer system 1000, where appropriate. In particular embodiments, storage 1006 is non-volatile, solid-state memory. In particular embodiments, storage 1006 includes read-only memory (ROM). Where appropriate, this ROM may be mask-programmed ROM, programmable ROM (PROM), erasable PROM (EPROM), electrically erasable PROM (EEPROM), electrically alterable ROM (EAROM), or flash memory or a combination of two or more of these. This disclosure contemplates mass storage 1006 taking any suitable physical form. Storage 1006 may include one or more storage control units facilitating communication between processor 1002 and storage 1006, where appropriate. Where appropriate, storage 1006 may include one or more storages 1006. Although this disclosure describes and illustrates particular storage,

this disclosure contemplates any suitable storage.

[0048] In particular embodiments, I/O interface 1008 includes hardware, software, or both, providing one or more interfaces for communication between computer system 1000 and one or more I/O devices. Computer system 1000 may include one or more of these I/O devices, where appropriate. One or more of these I/O devices may enable communication between a person and computer system 1000. As an example and not by way of limitation, an I/O device may include a keyboard, keypad, microphone, monitor, mouse, printer, scanner, speaker, still camera, stylus, tablet, touch screen, trackball, video camera, another suitable I/O device or a combination of two or more of these. An I/O device may include one or more sensors. This disclosure contemplates any suitable I/O devices and any suitable I/O interfaces 1008 for them. Where appropriate, I/O interface 1008 may include one or more device or software drivers enabling processor 1002 to drive one or more of these I/O devices. I/O interface 1008 may include one or more I/O interfaces 1008, where appropriate. Although this disclosure describes and illustrates a particular I/O interface, this disclosure contemplates any suitable I/O interface.

[0049] In particular embodiments, communication interface 1010 includes hardware, software, or both providing one or more interfaces for communication (such as, for example, packet-based communication) between computer system 1000 and one or more other computer systems 1000 or one or more networks. As an example and not by way of limitation, communication interface 1010 may include a network interface controller (NIC) or network adapter for communicating with an Ethernet or other wire-based network or a wireless NIC (WNIC) or wireless adapter for communicating with a wireless network, such as a WI-FI network. This disclosure contemplates any suitable network and any suitable communication interface 1010 for it. As an example and not by way of limitation, computer system 1000 may communicate with an ad hoc network, a personal area network (PAN), a local area network (LAN), a wide area network (WAN), a metropolitan area network (MAN), or one or more portions of the Internet or a combination of two or more of these. One or more portions of one or more of these networks may be wired or wireless. As an example, computer system 1000 may communicate with a wireless PAN (WPAN) (such as, for example, a BLUETOOTH WPAN), a WI-FI network, a WI-MAX network, a cellular telephone network (such as, for example, a Global System for Mobile Communications (GSM) network), or other suitable wireless network or a combination of two or more of these. Computer system 1000 may include any suitable communication interface 1010 for any of these networks, where appropriate.

Communication interface 1010 may include one or more communication interfaces 1010, where appropriate. Although this disclosure describes and illustrates a particular communication interface, this disclosure contemplates any suitable communication interface.

[0050] In particular embodiments, bus 1012 includes hardware, software, or both coupling components of computer system 1000 to each other. As an example and not by way of limitation, bus 1012 may include an Accelerated Graphics Port (AGP) or other graphics bus, an Enhanced Industry Standard Architecture (EISA) bus, a front-side bus (FSB), a HYPERTRANSPORT (HT) interconnect, an Industry Standard Architecture (ISA) bus, an INFINIBAND interconnect, a low-pin-count (LPC) bus, a memory bus, a Micro Channel Architecture (MCA) bus, a Peripheral Component Interconnect (PCI) bus, a PCI-Express (PCIe) bus, a serial advanced technology attachment (SATA) bus, a Video Electronics Standards Association local (VLB) bus, or another suitable bus or a combination of two or more of these. Bus 1012 may include one or more buses 1012, where appropriate. Although this disclosure describes and illustrates a particular bus, this disclosure contemplates any suitable bus or interconnect.

[0051] The embodiments of this specification are described in a progressive way. For same or similar parts in the embodiments, references can be made to each other. Each embodiment focuses on a difference from another embodiment. Particularly, some system embodiments are briefly described because they are basically similar to some method embodiments. For related parts, references can be made to related descriptions in some method embodiments.

[0052] The above-mentioned descriptions are merely embodiments of this specification, and are not intended to limit this specification. A person skilled in the art can make various changes and changes to this specification. Any modification, equivalent replacement, improvement, etc. made without departing from the spirit and principle of this specification shall fall within the scope of the claims in this application.

CLAIMS

What is claimed is:

1. A search keyword correction method, comprising:

in response to that a user enters a first search statement, and the first search statement comprises a target keyword, determining a first search result corresponding to the first search statement, and determining, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, constructing a prompt indicating to correct the target keyword, and inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and

replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement comprises the target keyword and the target keyword is abnormal, to obtain a third search statement; obtaining a second search result corresponding to the third search statement; and adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, wherein the mark is used to determine whether to re-correct the target keyword by using a preset large model.

2. The method according to claim 1, wherein the prompt further indicates to sort the plurality of recommended words based on a correlation with the target keyword if a result for correcting the target keyword comprises a plurality of recommended words used for correction; and

the inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword comprises:

inputting a prompt corresponding to the target keyword into the preset large model, to obtain a plurality of recommended words that are sorted based on a correlation and that correspond to the target keyword, and determining the corrected word corresponding to the target keyword based on the plurality of recommended words.

3. The method according to claim 2, wherein the determining the corrected word corresponding to the target keyword based on the plurality of recommended words comprises:

using a recommended word with a highest correlation with the target keyword in the plurality of recommended words as the corrected word corresponding to the target keyword.

4. The method according to claim 1, wherein the prompt further comprises a pre-stored correction example for a keyword, and the correction example comprises a correction success example and/or a correction failure example.

5. The method according to claim 1, wherein determining, based on the first search result or the operation performed by the user on the first search result, whether to correct the target keyword comprises:

if the first search result comprises one or more search objects, and the user does not tap any one of the one or more search objects, determining to correct the target keyword.

6. The method according to claim 1, wherein determining, based on the first search result or the operation performed by the user on the first search result, whether to correct the target keyword comprises:

if the first search result comprises zero search object, determining to correct the target keyword.

7. The method according to claim 1, wherein the mark comprises a positive mark and a negative mark;

the adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, wherein the mark is used to determine whether to re-correct the target keyword by using a preset large model comprises:

if the second search result comprises one or more search objects and the user taps any one of the one or more search objects, adding a positive mark to the corrected word; or

if the second search result comprises one or more search objects and the user does not tap any one of the one or more search objects, adding a negative mark to the corrected word; and

the method further comprises:

if a total quantity of marks reaches a predetermined quantity, and a proportion of a quantity of negative marks in the total quantity exceeds a predetermined threshold, re-correcting the target keyword by using the preset large model.

8. The method according to claim 7, wherein the adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result comprises:

adding a negative mark to the corrected word if the second search result comprises zero search object.

9. The method according to claim 1, further comprising:

after the corrected word corresponding to the target keyword is obtained, storing the target keyword and the corrected word corresponding to the target keyword in preset storage space in association; and

the replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement comprises the target keyword and the target keyword is abnormal, to obtain a third search statement comprises:

in response to that the user enters the second search statement, determining whether the second search statement comprises a target keyword stored in the storage space; and if the second search statement comprises the target keyword stored in the storage space, extracting the corrected word corresponding to the target keyword from the storage space, and replacing the target keyword in the second search statement with the corrected word corresponding to the target keyword, to obtain the third search statement.

10. A computer system, comprising a storage, a processor, and a computer program that is stored in the storage and that is capable of running on the processor, wherein when executing the program, the processor implements the following steps:

in response to that a user enters a first search statement, and the first search statement comprises a target keyword, determining a first search result corresponding to the first search statement, and determining, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, constructing a prompt indicating to correct the target keyword, and inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and

replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement comprises the target keyword and the target keyword is abnormal, to obtain a third search statement; obtaining a second search result corresponding to the third search statement; and adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, wherein the mark is used to determine whether to re-correct the target keyword by using a preset large model.

11. The computer system according to claim 10, wherein the prompt further indicates to sort the plurality of recommended words based on a correlation with the target keyword if a result for correcting the target keyword comprises a plurality of recommended words used for correction; and

the inputting the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword comprises:

inputting a prompt corresponding to the target keyword into the preset large model, to obtain a plurality of recommended words that are sorted based on a correlation and that correspond to the target keyword, and determining the corrected word corresponding to the target keyword based on the plurality of recommended words.

12. The computer system according to claim 11, wherein the determining the corrected word corresponding to the target keyword based on the plurality of recommended words comprises:

using a recommended word with a highest correlation with the target keyword in the plurality of recommended words as the corrected word corresponding to the target keyword.

13. The computer system according to claim 10, wherein the prompt further comprises a pre-stored correction example for a keyword, and the correction example comprises a correction success example and/or a correction failure example.

14. The computer system according to claim 10, wherein determining, based on the first search result or the operation performed by the user on the first search result, whether to correct the target keyword comprises:

if the first search result comprises one or more search objects, and the user does not tap any one of the one or more search objects, determining to correct the target keyword.

15. The computer system according to claim 10, wherein determining, based on the first search result or the operation performed by the user on the first search result, whether to correct the target keyword comprises:

if the first search result comprises zero search object, determining to correct the target keyword.

16. The computer system according to claim 10, wherein the mark comprises a positive mark and a negative mark;

the adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, wherein the mark is used to determine whether

to re-correct the target keyword by using a preset large model comprises:

if the second search result comprises one or more search objects and the user taps any one of the one or more search objects, adding a positive mark to the corrected word; or

if the second search result comprises one or more search objects and the user does not tap any one of the one or more search objects, adding a negative mark to the corrected word; and

the steps further comprise:

if a total quantity of marks reaches a predetermined quantity, and a proportion of a quantity of negative marks in the total quantity exceeds a predetermined threshold, re-correcting the target keyword by using the preset large model.

17. The computer system according to claim 16, wherein the adding a mark to the corrected word based on the second search result or an operation performed by the user on the second search result comprises:

adding a negative mark to the corrected word if the second search result comprises zero search object.

18. The computer system according to claim 10, wherein the steps further comprise:

after the corrected word corresponding to the target keyword is obtained, storing the target keyword and the corrected word corresponding to the target keyword in preset storage space in association; and

the replacing, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement comprises the target keyword and the target keyword is abnormal, to obtain a third search statement comprises:

in response to that the user enters the second search statement, determining whether the second search statement comprises a target keyword stored in the storage space; and if the second search statement comprises the target keyword stored in the storage space, extracting the corrected word corresponding to the target keyword from the storage space, and replacing the target keyword in the second search statement with the corrected word corresponding to the target keyword, to obtain the third search statement.

19. A search keyword correction apparatus, wherein the apparatus comprises:

a first response module, configured to: in response to that a user enters a first search statement, and the first search statement comprises a target keyword, determine a first search result

corresponding to the first search statement, and determine, based on the first search result or an operation performed by the user on the first search result, whether the target keyword is abnormal; and if it is determined that the target keyword is abnormal, construct a prompt indicating to correct the target keyword, and input the prompt into a preset large model, to obtain a corrected word corresponding to the target keyword; and

a second response module, configured to: replace, in response to that the user enters a second search statement, the target keyword in the second search statement with the corrected word corresponding to the target keyword if the second search statement comprises the target keyword and the target keyword is abnormal, to obtain a third search statement; obtain a second search result corresponding to the third search statement; and add a mark to the corrected word based on the second search result or an operation performed by the user on the second search result, wherein the mark is used to determine whether to re-correct the target keyword by using a preset large model.

20. A computer-readable non-volatile storage medium, wherein the storage medium stores a computer program, and when the computer program is executed by a processor, the method according to any one of claims 1 to 9 is implemented.