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VIEW-TABLE UPDATE REPORT

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“VIEW-TABLE UPDATE REPORT”

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TECHNICAL FIELD

[0001] The present subject matter is, in general, related to data processing, and particularly, to a method and system for updating view-table and generating a report to a user.

BACKGROUND

[0002] Business Intelligence (BI) teams across globe predominantly use view tables for reporting any changes in recorded in databases. The data in the database may be stored in several tables, with each table storing a subset of the information in the database. Each table in the database is divided into one or more rows, with each row containing related information and/or one or more pointers to information in one or more different tables (for example, 1000 tables). Star schema, which maintains one-to-many relationships between tables such as a dimension table and a fact table, is widely accepted as the most viable data representation for dimensional analysis.

[0003] Generally, ‘views’ or the view tables are built on top of fact tables. When any new column gets added or updated to tables, a user may not be aware of the updated details and/or the user may not have a monitoring mechanism in place to identify the changes made to the underlying tables. Also, the users could have forgotten to include a crucial column in the view or be unaware of a change in the column data type. Hence, the user needs to have complete knowledge of which column is added to which table in different schema, and which table is trying to update the data.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, explain the disclosed principles. In the figures, the left-most digit(s) of a reference number identifies the figure in which the reference number first appears. The same numbers are used throughout the figures to reference like features and components. Some embodiments of device or system and/or methods in accordance with embodiments of the present subject matter are now described, by way of example only, and with reference to the accompanying figures, in which:

[0005] **Fig. 1a** shows a block diagram illustrating an exemplary environment that implements embodiments consistent with the present disclosure.

[0006] **Fig. 1b** illustrates an exemplary overview of table comparison in accordance with some embodiments consistent with the present disclosure.

[0007] **Fig. 1c** represents an exemplary view table format in accordance with some embodiments consistent with the present disclosure.

[0008] **Fig. 2** shows a flowchart illustrating a method in accordance with some embodiments consistent with the present disclosure.

[0009] **Fig. 3** illustrates a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

[0010] The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

DESCRIPTION OF THE DISCLOSURE

[0011] In the present document, the word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any embodiment or implementation of the present subject matter described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments.

[0012] While the disclosure is susceptible to various modifications and alternative forms, specific embodiment thereof has been shown by way of example in the drawings and will be described in detail below. It should be understood, however that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the spirit and the scope of the disclosure.

[0013] The terms "comprises", "comprising", or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, device or method that comprises a list of components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or device or method. In other words, one or more elements in a device or system or apparatus preceded by "comprises... a"

does not, without more constraints, preclude the existence of other elements or additional elements in the device or system or apparatus.

[0014] The terms "an embodiment", "embodiment", "embodiments", "the embodiment", "the embodiments", "one or more embodiments", "some embodiments", and "one embodiment" mean "one or more (but not all) embodiments of the invention(s)" unless expressly specified otherwise.

[0015] The terms "including", "comprising", "having" and variations thereof mean "including but not limited to", unless expressly specified otherwise.

[0016] The present disclosure relates to a method and a system established for updating a view table and generating a report for a user. The proposed method suggests updating a new column detail in the view table. After updating the view-table details, the proposed method suggests comparing the updated new column details with the metadata of the previous view-table details. In an embodiment, the comparison results are used to generate a view-table report and send the view-table report via email to the user. As a result, the generated report helps the user in providing all the required new and/or updated data type updated in the dependent views.

[0017] **Fig. 1a** shows a block diagram illustrating an exemplary environment that implements embodiments consistent with the present disclosure.

[0018] On various occasions, users analyze and process the data and update the processed data on data warehouses. Data warehousing is a process of collecting and managing data from various sources. In other words, the data warehouse is a system for analyzing, processing and reporting data and is a key element of a business intelligence process. Data warehouse is often associated with a fact table, which is the core table of the data warehouse's star schema. The fact table holds quantitative data for analysis and is frequently denormalized. The star schema is an established modelling method that is commonly used in relational data warehousing. Broadly, in a star schema, data modelers may categorize the model tables into dimension tables and/or fact tables that are used to constrain and group data when performing data warehousing queries. The dimension tables are not associated with each other. Whereas the fact table is composed of the foreign key associated with the dimension table and the value of the measure of the numerical type. A view table 103 is often built on top of the fact tables and associated with a base table 109.

[0019] In an embodiment, as indicated in the exemplary architecture of in Fig. 1a, a user may update the changes made in a column level associated with tables and dependent views. Consider a scenario where the user updates details of a new column 101 in the view table 103 and/or if any new column level details have been updated from the backend with respect to the base table 109. In such a scenario, the new column details may include, without limiting to, a column name, data type, and length of data, which can be obtained from a fact table. For example, in a large set up like a university, a number of students may enroll for one or more disciplines during a single academic year. For example, a ‘Student 1’ may enroll for Physics, English and Chemistry subjects, and a ‘Student 2’ may enroll for Chemistry, Biology, and Computer science subjects. Suppose if the ‘Student 1’ decides to enroll in Biology in addition to other courses or in exchange with an existing course, such information may be updated, for example, in the new column 101. Accordingly, the view table 103 stores the details after obtaining updated column details and/or modifying the new column details related to the existing data. Thereafter, the column details associated with unaltered column details and revised column information may be updated in the view table 103. For example, only the subject details may be updated in the view table 103 with respect to a base table 109, wherein the base table 109 contains detailed information related to the student profile.

[0020] In an embodiment, once the data has been updated in the view table 103, a comparison module 105 may compares the new column 101 details with the metadata of the previous run, that is, with respect to the dependent-view and/or dependent schema. As shown in **Fig. 1b**, a primary data source 111₁ contains the details related to the original metadata or the previously updated metadata. The data source 111₁ comprises a view table A 103₁ and the base tables 109 (for example, base table 1 109₁₁, base table 2 109₁₂, ..., base table N 109_{1N}). Similarly, the primary data source 111₂ contains the details related to the currently updated metadata details. Similarly, the data source 111₂ comprises a view table A 103₂ and the base tables 109 (for example, base table 1 109₂₁, base table 2 109₂₂, ..., base table N 109_{2N}). For example, the primary data source 111₁ contains ‘Student 1’ enrollment details (that is, enrolled in Physics, English and Chemistry), whereas the primary data source 111₂ may store updated enrollment details of the ‘Student 1’ (that is, enrolled in Physics, English and Biology). When the new information is received from the backend, the compare module 105 may compare the metadata or it may only run once every month. Further, a report module 107 may be used to generate a view table report based on the comparison results and the generated report may be sent via an

email to the user. The generated report includes, without limiting to, a base schema, the base table, the dependent schema, the dependent view, a new column name, a data type, the length of the data, and a link as shown in **Fig. 1c**.

[0021] Thus, as discussed above, the proposed solution provides efficient ways of explaining/presenting to users the details related to changes in the tables and notifying the users to consider adding new columns in the dependent views for further processing.

[0022] **Fig. 2** shows a flowchart illustrating the proposed update process in accordance with some embodiments consistent with the present disclosure. **At block 201**, the method comprises updating new column details in a view table. Subsequently, as indicated in **block 203**, the method comprises comparing the new column details with the metadata of the previous run. Finally, as indicated in **block 205**, a view table report is generated based on the results of comparison and the report is sent to the user, for example as an email notification. The view table report may include, without limiting to, details of a name of the new column, data type, length, and so on.

Advantages of the present invention:

[0023] In an embodiment, the solution proposed in the present disclosure aids developers by providing updated view table data and maintaining a track of all the table updates.

[0024] In an embodiment, the solution proposed in the present disclosure allows users to update the new and/or modified data information as dependent views to the view table.

General computer system:

[0025] Fig. 3 illustrates a block diagram of an exemplary computer system for implementing embodiments consistent with the present disclosure.

[0026] In an embodiment, the computer system 300 may be used to implement the system. The computer system 300 may include a central processing unit (“CPU” or “processor”) 302. The processor 302 may include at least one data processor developing a common transaction database based on inputs related to column details received from a view table 103 via a network interface 303 and communication network 309. The processor 302 may include specialized processing units such as, integrated system (bus) controllers, memory management control units, floating point units, graphics processing units, digital signal processing units, etc.

[0027] The processor 302 may be disposed in communication with one or more Input/Output (I/O) devices (312 and 313) via I/O interface 301. The I/O interface 301 employ communication protocols/methods such as, without limitation, audio, analog, digital, monoaural, Radio Corporation of America (RCA) connector, stereo, IEEE-1394 high speed serial bus, serial bus, Universal Serial Bus (USB), infrared, Personal System/2 (PS/2) port, Bbayonet Neill-Concelman (BNC) connector, coaxial, component, composite, Digital Visual Interface (DVI), High-Definition Multimedia Interface (HDMI), Radio Frequency (RF) antennas, S-Video, Video Graphics Array (VGA), IEEE 802.11b/g/n/x, Bluetooth, cellular e.g., Code-Division Multiple Access (CDMA), High-Speed Packet Access (HSPA+), Global System for Mobile communications (GSM), Long-Term Evolution (LTE), Worldwide Interoperability for Microwave access (WiMax), or the like, etc.

[0028] Using the I/O interface 301, the computer system 300 may communicate with one or more I/O devices such as input devices 312 and output devices 313. For example, the input devices 312 may be an antenna, keyboard, mouse, joystick, (infrared) remote control, camera, card reader, fax machine, dongle, biometric reader, microphone, touch screen, touchpad, trackball, stylus, scanner, storage device, transceiver, video device/source, etc. The output devices 313 may be a printer, fax machine, video display (e.g., Cathode Ray Tube (CRT), Liquid Crystal Display (LCD), Light-Emitting Diode (LED), plasma, Plasma Display Panel (PDP), Organic Light-Emitting Diode display (OLED) or the like), audio speaker, etc.

[0029] In some embodiments, the processor 302 may be disposed in communication with a communication network 309 via a network interface 303. The network interface 303 may communicate with the communication network 309. The network interface 303 may employ connection protocols including, without limitation, direct connect, ethernet (e.g., twisted pair 10/100/1000 Base T), Transmission Control Protocol/Internet Protocol (TCP/IP), token ring, IEEE 802.11a/b/g/n/x, etc. The communication network 309 may include, without limitation, a direct interconnection, Local Area Network (LAN), Wide Area Network (WAN), wireless network (e.g., using Wireless Application Protocol), the Internet, etc. Using the network interface 303 and the communication network 309, the computer system 300 may communicate with a database 314, which may be the enrolled templates database 313. The network interface 303 may employ connection protocols include, but not limited to, direct connect, ethernet (e.g., twisted pair 10/100/1000 Base T), Transmission Control Protocol/Internet Protocol (TCP/IP), token ring, IEEE 802.11a/b/g/n/x, etc.

[0030] The communication network 309 includes, but is not limited to, a direct interconnection, a Peer-to-Peer (P2P) network, Local Area Network (LAN), Wide Area Network (WAN), wireless network (e.g., using Wireless Application Protocol), the Internet, Wi-Fi and such. The communication network 309 may either be a dedicated network or a shared network, which represents an association of the different types of networks that use a variety of protocols, for example, Hypertext Transfer Protocol (HTTP), Transmission Control Protocol/Internet Protocol (TCP/IP), Wireless Application Protocol (WAP), etc., to communicate with each other. Further, the communication network 309 may include a variety of network devices, including routers, bridges, servers, computing devices, storage devices, etc.

[0031] In some embodiments, the processor 302 may be disposed in communication with a memory 305 (e.g., RAM, ROM, etc. not shown in Fig. 3) via a storage interface 304. The storage interface 304 may connect to memory 305 including, without limitation, memory drives, removable disc drives, etc., employing connection protocols such as, Serial Advanced Technology Attachment (SATA), Integrated Drive Electronics (IDE), IEEE-1394, Universal Serial Bus (USB), fiber channel, Small Computer Systems Interface (SCSI), etc. The memory drives may further include a drum, magnetic disc drive, magneto-optical drive, optical drive, Redundant Array of Independent Discs (RAID), solid-state memory devices, solid-state drives, etc.

[0032] The memory 305 may store a collection of program or database components, including, without limitation, user interface 306, an operating system 307, etc. In some embodiments, computer system 300 may store user/application data, such as, the data, variables, records, etc., as described in this disclosure. Such databases may be implemented as fault-tolerant, relational, scalable, secure databases such as Oracle or Sybase.

[0033] The operating system 307 may facilitate resource management and operation of the computer system 300. Examples of operating systems include, without limitation, AppleTM MacintoshTM OS XTM, UNIXTM, Unix-like system distributions (e.g., Berkeley Software Distribution (BSD), FreeBSDTM, Net BSDTM, Open BSDTM, etc.), Linux distributions (e.g., Red HatTM, UbuntuTM, K-UbuntuTM, etc.), International Business Machines (IBMTM) OS/2TM, Microsoft WindowsTM (XPTM, Vista/7/8, etc.), Apple iOSTM, Google AndroidTM, BlackberryTM operating system (OS), or the like.

[0034] In some embodiments, the computer system 300 may implement web browser 308 stored program components. Web browser 308 may be a hypertext viewing application, such as Microsoft™ Internet Explorer™, Google Chrome™, Mozilla Firefox™, Apple™ Safari™, etc. Secure web browsing may be provided using secure hypertext transport protocol (HTTPS), Secure Sockets Layer (SSL), Transport Layer Security (TLS), etc. Web browsers 308 may utilize facilities such as AJAX, DHTML, Adobe™ Flash, Javascript, Application Programming Interfaces (APIs), etc. In some embodiments, the computer system 300 may implement a mail server stored program component. The mail server may be an Internet mail server such as Microsoft Exchange, or the like. The mail server may utilize facilities such as ASP, ActiveX, ANSI C++/C#, Microsoft .NET, Common Gateway Interface (CGI) scripts, Java, JavaScript, PERL, PHP, Python, WebObjects, etc. The mail server may utilize communication protocols such as Internet Message Access Protocol (IMAP), Messaging Application Programming Interface (MAPI), Microsoft Exchange, Post Office Protocol (POP), Simple Mail Transfer Protocol (SMTP), or the like.

[0035] Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer-readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer-readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term “computer-readable medium” should be understood to include tangible items and exclude carrier waves and transient signals, i.e., be non-transitory. Examples include Random Access Memory (RAM), Read-Only Memory (ROM), volatile memory, non-volatile memory, hard drives, Compact Disc (CD) ROMs, DVDs, flash drives, disks, and any other known physical storage media.

[0036] The described operations may be implemented as a method, system or article of manufacture using standard programming and/or engineering techniques to produce software, firmware, hardware, or any combination thereof. The described operations may be implemented as code maintained in a “non-transitory computer readable medium”, where a processor may read and execute the code from the computer readable medium. The processor is at least one of a microprocessor and a processor capable of processing and executing the queries. A non-transitory computer readable medium may include media such as magnetic

storage medium (e.g., hard disk drives, floppy disks, tape, etc.), optical storage (CD-ROMs, DVDs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, Flash Memory, firmware, programmable logic, etc.), etc. Further, non-transitory computer-readable media may include all computer-readable media except for a transitory. The code implementing the described operations may further be implemented in hardware logic (e.g., an integrated circuit chip, Programmable Gate Array (PGA), Application Specific Integrated Circuit (ASIC), etc.).

[0037] The illustrated steps are set out to explain the exemplary embodiments shown, and it should be anticipated that ongoing technological development will change the manner in which particular functions are performed. These examples are presented herein for purposes of illustration, and not limitation. Further, the boundaries of the functional building blocks have been arbitrarily defined herein for the convenience of the description. Alternative boundaries can be defined so long as the specified functions and relationships thereof are appropriately performed. Alternatives (including equivalents, extensions, variations, deviations, etc., of those described herein) will be apparent to persons skilled in the relevant art(s) based on the teachings contained herein. Such alternatives fall within the scope and spirit of the disclosed embodiments. Also, the words "comprising," "having," "containing," and "including," and other similar forms are intended to be equivalent in meaning and be open ended in that an item or items following any one of these words is not meant to be an exhaustive listing of such item or items or meant to be limited to only the listed item or items. It must also be noted that as used herein, the singular forms "a," "an," and "the" include plural references unless the context clearly dictates otherwise.

[0038] Furthermore, one or more computer-readable storage media may be utilized in implementing embodiments consistent with the present disclosure. A computer readable storage medium refers to any type of physical memory on which information or data readable by a processor may be stored. Thus, a computer readable storage medium may store instructions for execution by one or more processors, including instructions for causing the processor(s) to perform steps or stages consistent with the embodiments described herein. The term "computer readable medium" should be understood to include tangible items and exclude carrier waves and transient signals, i.e., are non-transitory. Examples include Random Access Memory (RAM), Read-Only Memory (ROM), volatile memory, non-volatile memory, hard drives, CD ROMs, DVDs, flash drives, disks, and any other known physical storage media.

[0039] Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments of the disclosure is intended to be illustrative, but not limiting, of the scope of the disclosure.

[0040] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

VIEW-TABLE UPDATE REPORT

ABSTRACT

The present disclosure relates to a method and system for updating a view-table and generating a report for users. The present disclosure suggests updating details of a new column in the view table and comparing the updated column details with the metadata of a previous view-table. Further, the present disclosure suggests generating a view table report based on the comparison and notifying the view table report to the users. The generated view table report helps users in accessing updated view table data and maintaining a track of all the table updates.

100

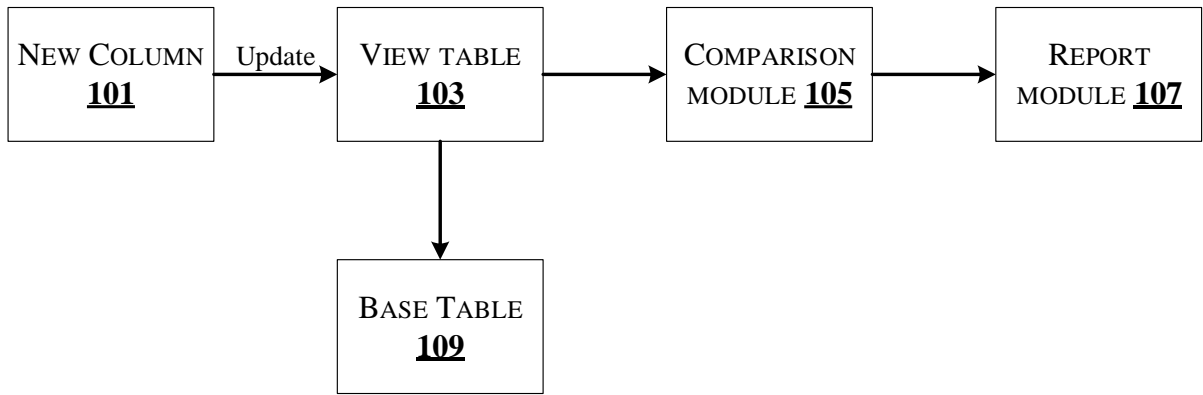


Fig. 1a

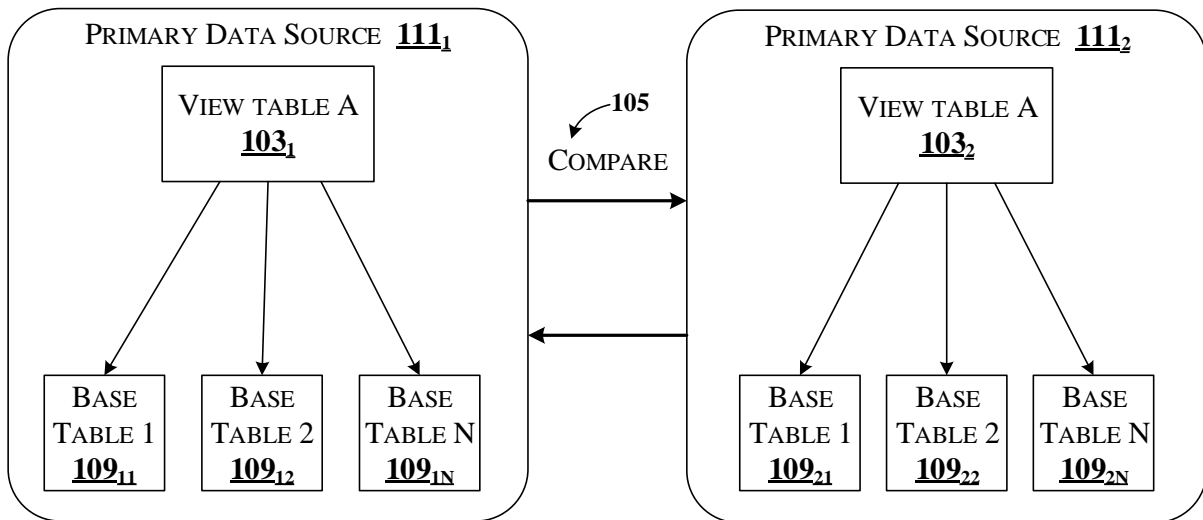


Fig. 1b

REPORT 107

SL. NO.	BASE SCHEMA	BASE TABLE	DEPENDENT SCHEMA	DEPENDENT VIEW	NEW COLUMN NAME	DATA TYPE	LENGTH	LINK
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Fig. 1c

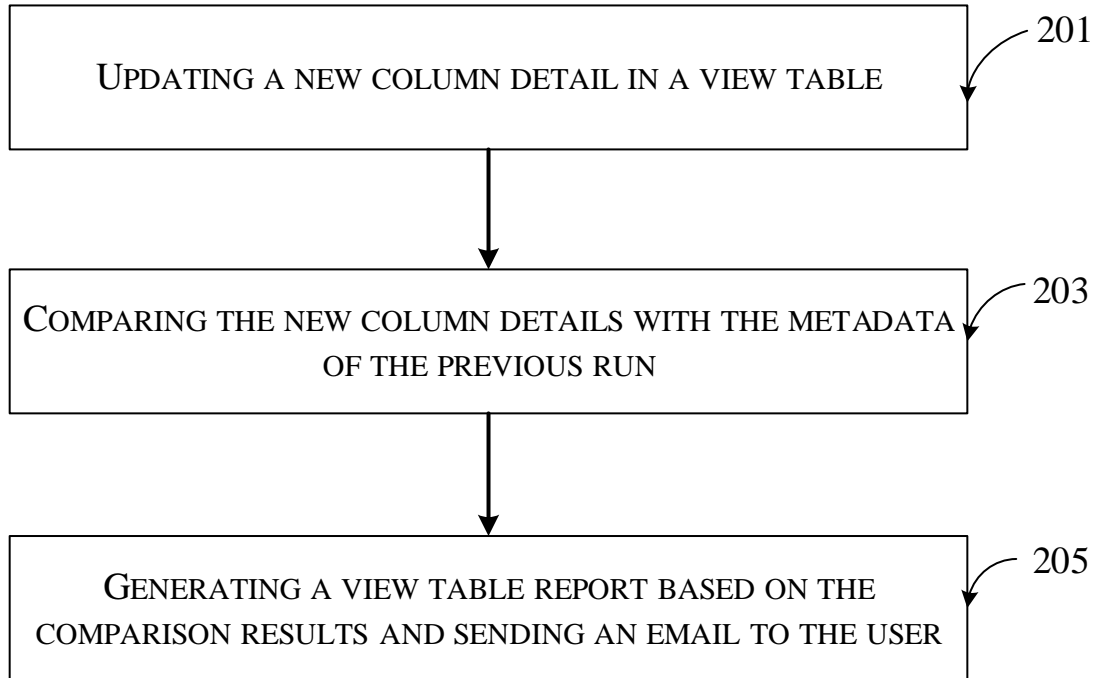


Fig. 2

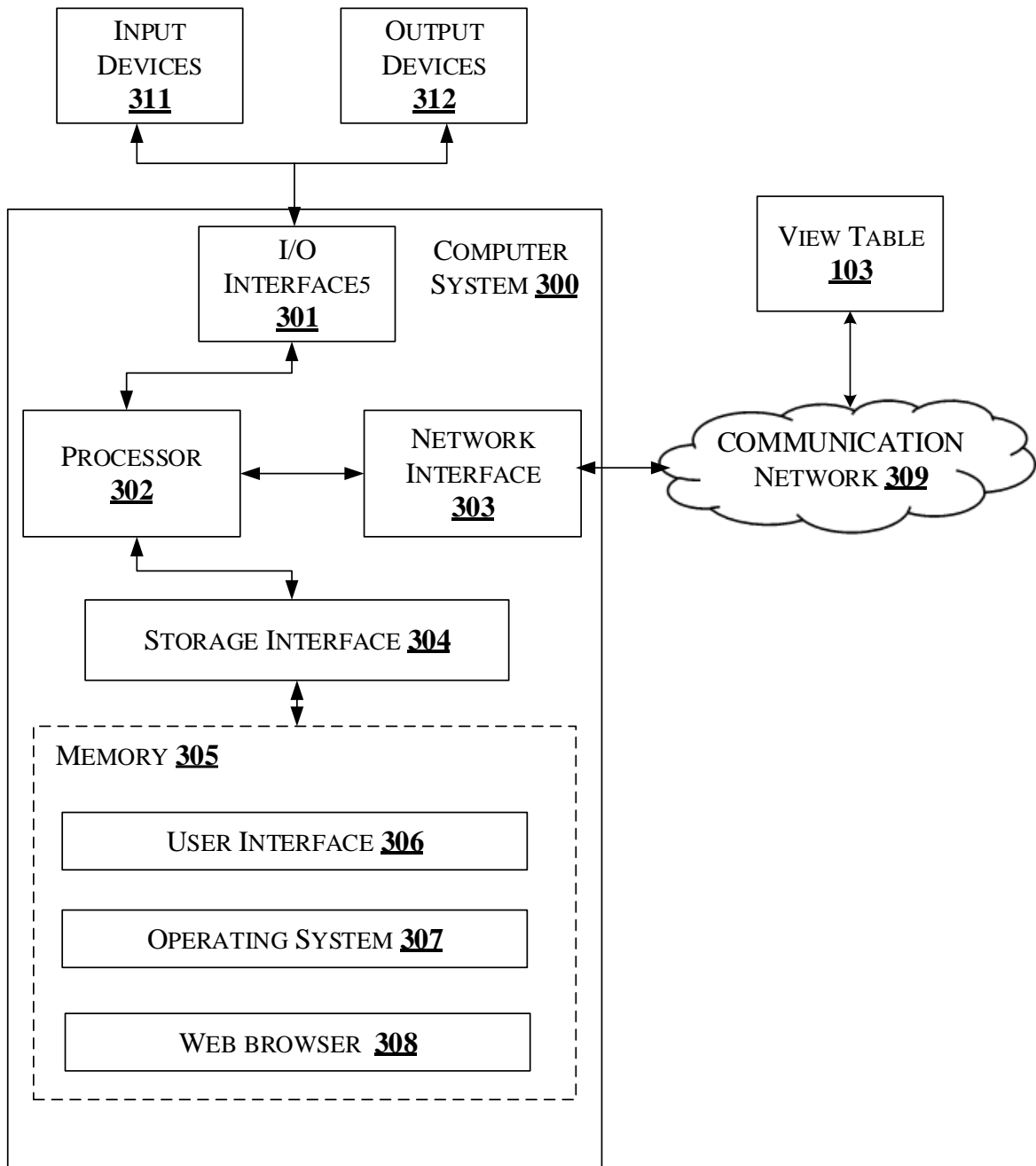


Fig. 3