

"Systems, methods and computer program products for displaying data"**Technical Field**

[0001] Embodiments generally relate to systems, methods and computer-readable media for displaying data on a user interface display. In particular, embodiments relate to displaying output data determined based on input data provided by a user.

Background

[0002] Human machine interfaces such as graphical user interfaces (GUIs) provide a mechanism for humans to view and interact with electronic data by viewing such data on a display screen of a computing device. In particular, report data may be made viewable on a display of a computing device by appropriate user interaction with a graphical user interface configured to display some or all of the report data.

[0003] Report data may comprise information that is input by a user of the user interface, and information that is determined by a calculation application associated with the user interface. The information that is determined by the calculation application may be determined based on the information that is input by the user of the user interface. In many situations it is desirable to display, to a user, report data that comprises accurate and consistent information.

[0004] It is desired to address or ameliorate one or more shortcomings or disadvantages associated with such prior art, or to at least provide a useful alternative hereto.

[0005] Any discussion of documents, acts, materials, devices, articles or the like which has been included in the present specification is solely for the purpose of providing a context for the present invention. It is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present invention as it existed before the priority date of each claim of this application.

Summary

[0006] Provided herein are systems and methods for visually indicating to a user, who is using a user interface displaying input data and resultant output data, that the

resultant output data may be obsolete or inaccurate, in response to new input data entered by the user into the user interface.

[0007] There is provided a method, comprising displaying a financial record on a user interface. The financial record comprises an input field configured to receive, from the user, an input value, and an output field configured to display an output value, the output field comprising an acquired output field with regard to the input field. The method further comprises: displaying, in the input field, a first input value; displaying, in the output field, a first output value; and in response to determining an occurrence of a focus-off event associated with the input field: obfuscating the first output value; determining a second input value associated with the input field; providing the second input value to a calculation application; receiving, from the calculation application, a second output value, wherein the second output value is determined, by the calculation application, based on the second input value; and in response to receiving the second output value, displaying the second output value in the output field.

[0008] In some embodiments, determining the second input value associated with the input field comprises receiving, from the user interface, input defining the second input value.

[0009] In some embodiments, the focus-off event comprises one or more of: receiving, via the user interface, a mouse-click outside the input field; receiving, via the user interface, a keyboard input; receiving, via the user interface, a touch screen input; or determining a time period since receiving input from the user. In some embodiments, the focus-off event further comprises determining that the second input value differs from the first input value.

[0010] In some embodiments, obfuscating the first output value comprises one or more of: replacing the first output value with an obfuscation or partial obfuscation; or placing the obfuscation or partial obfuscation over the first output value.

[0011] In some embodiments, displaying the second output value in the output field comprises removing the obfuscation or partial obfuscation.

[0012] In some embodiments, obfuscating the first output value comprises one or more of: displaying an animation in association with the first output value; displaying

an animation in association with the output field; removing the first output value; altering the appearance of the first output value; altering the appearance of the output field; visually annotating the first output value; or visually annotating the output field.

[0013] In some embodiments, in response to receiving, from the calculation application, a second output value, the second output value being associated with the second input value, causing the second input value and the second output value to be written to memory.

[0014] In some embodiments, the calculation application comprises a remote application.

[0015] In some embodiments, providing the second input value to the calculation application comprises sending, over a network, the second input value to the calculation application. In some embodiments, providing the second input value to the calculation application comprises, determining one or more linked input fields associated with the output field, and providing the input values of the one or more linked input fields to the calculation application.

[0016] In some embodiments, the financial record comprises a second input field. In some embodiments, providing the second input value to the calculation application comprises in response to determining that a focus-off event associated with the second input field has not occurred during a delay period, providing the second input value to the calculation application. In some embodiments, providing the second input value to the calculation application further comprises, in response to determining that a focus-off event associated with the second input field has occurred during the delay period: determining a third input value associated with the second input field; and providing the second input value and the third input value to the calculation application. In some embodiments, the first output value is resultant with regard to the first input value.

[0017] In some embodiments, the method further comprises, in response to determining an occurrence of a focus-off event associated with the input field: determining one or more acquired output fields associated with the input field; and obfuscating each output value associated with each of the one or more acquired output fields.

[0018] In some embodiments, displaying the second output value in the output field comprises visually highlighting one or more of the output field and the second output value.

[0019] In some embodiments, the method further comprises: receiving, from the calculation application, a tax rate and a tax amount; determining, based on the tax rate and the tax amount, a taxability code; and displaying an indication of the taxability code in the user interface.

[0020] In some embodiments, the method further comprises: receiving, from the calculation application, tax breakdown information associated with the second output value; displaying the second output value as a clickable link; and in response to the user activating the clickable link, displaying the tax breakdown information on the user interface.

[0021] There is provided a machine-readable storage medium storing instructions which, when executed by one or more processors, cause the one or more processors to perform any one of the methods claimed herein.

[0022] There is provided a system comprising: one or more processors; and memory comprising computer executable instructions, which when executed by the one or more processors, cause the system to perform any one of the methods claimed herein.

[0023] There is provided a system comprising means to display a financial record on a user interface. The financial record comprising: an input field configured to receive, from the user, an input value; and an output field configured to display an output value, the output field comprising an acquired output field with regard to the input field. The system further comprises means to display, in the input field, a first input value; display, in the output field, a first output value; and in response to determining an occurrence of a focus-off event associated with the input field: obfuscate the first output value; determine a second input value associated with the input field; provide the second input value to a calculation application; receive, from the calculation application, a second output value, wherein the second output value is determined, by the calculation application, based on the second input value; and in response to receiving the second output value, display the second output value in the output field.

Brief Description of Drawings

[0024] The invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of system for obtaining, determining and presenting data to a user, according to an embodiment;

Figure 2 is a software architecture diagram of a system for obtaining, determining and presenting data to a user, according to an embodiment;

Figure 3 illustrates a display object displayed by the UI manager on a display of the user device, according to an embodiment;

Figure 4 illustrates the display object of Figure 3 in response to the application performing an obfuscating operation in response to user editing an input field, according to an embodiment;

Figure 5 illustrates the display object of Figure 3 in response to the application performing the autosave operation or the autocalculation operation in response to the user editing an input field, according to an embodiment;

Figure 6 is a timing diagram illustrating the process of autosaving a draft financial record, according to an embodiment;

Figure 7 is a timing diagram illustrating the process of autocalculating a draft financial record, according to an embodiment;

Figure 8 is a timing diagram illustrating the process of saving a draft financial record, according to an embodiment; and

Figure 9 illustrates a process flow diagram of a method for displaying a financial record, according to an embodiment.

[0025] Various ones of the appended drawings merely illustrate example embodiments of the present disclosure and cannot be considered as limiting its scope.

Description of Embodiments

[0026] Financial data is a specific form of report data and may comprise information representing financial records such as credit notes, quotes, invoices, receipts, receive monies and/or associated taxation information.

[0027] Accounting and financial applications may enable a user to enter input financial data into a user display, whereby the application determines output financial data associated with the input financial data entered by the user, and display that output financial data to the user via the user display. The input financial data entered by the user and the output financial data provided by the application may be saved to memory as a financial record.

[0028] In some applications, the input financial data comprises sales data associated with an itemised invoice or receipt, and the output financial data comprises taxation information associated with the sales data. In response to the user entering the sales data, the application determines taxation information associated with the sales data and displays the taxation information in association with the sales data on a graphical user interface.

[0029] In some situations, a user may edit the input financial data, for example to add another line item of the invoice, or to change the value of a sales data item. As a result of the edit made by the user, the output financial data displayed by the application may no longer be accurate or complete. In other words, the output financial data may be obsolete, or inconsistent, with regard to the edited input financial data.

[0030] In response to the user editing the input financial data, the application may determine new output financial data, that is consistent with the edited input financial data. The application may then display the new output financial data to the user. The determination and display of the new output financial data may take a period time to complete. In the time between the user editing the input financial data, and the application displaying the new output financial data, the obsolete output financial data may be displayed to the user.

[0031] Displaying the obsolete output financial data can mislead or frustrate the user, during the period before the application displays new output financial data.

Furthermore, if a financial record is stored, (e.g. by saving to memory, or capturing a screenshot) during the period before the application displays new output financial data, the financial data recorded in the financial record is internally inconsistent, as the obsolete output financial data is not consistent with the input financial data.

[0032] In many applications, it is desirable to enable the user to edit the input financial data with ease, and to provide the user with accurate output financial data quickly in response to the user editing the input financial data. It is often undesirable to display output financial data that is obsolete, inconsistent, or otherwise not in sync with the input financial data.

[0033] Provided herein is a system and method configured to obfuscate, either partially or fully, obsolete output financial data until the application determines and displays new output financial data.

Figure 1 - System block diagram

[0034] Figure 1 is a block diagram of system 100 for obtaining, determining and presenting data to a user, according to an embodiment. The system 100 of Figure 1 provides means for implementing the method illustrated in timing diagrams in Figures 6, 7 and 8, and the process flow diagram in Figure 9.

[0035] As illustrated, the system 100 may comprise one or more user device(s) 110, external database 122, data presentation server 124, one or more accounting system(s) 160 and/or one or more processing server(s) 170 in communication over a network 120.

[0036] User device 110 may comprise a mobile or handheld computing device such as a smartphone or tablet, a laptop, or a PC, and may, in some embodiments, comprise multiple computing devices. The user device 110 may comprise one or more processor(s) 112, memory 114 and/or communications interface 118. The processor(s) 112 may comprise one or more microprocessors, central processing units (CPUs), application specific instruction set processors (ASIPs), application specific integrated circuits (ASICs) or other processors capable of reading and executing instruction code.

[0037] The processor(s) 112 may be configured to receive stored instructions (i.e. program code) from memory 114, which when executed by the processor(s) 112 may cause the user device 110 to function according to the described embodiments.

[0038] User device 110 comprises a user interface (UI) 145. In embodiments, the user interface 145 comprises a means for the user to input data to the application 180. The means for the user to input data may comprise one or more of a peripheral device such as a keyboard or a mouse, a touch screen, or other means of the user providing input to the application 180.

[0039] User device 110 comprises one or more displays 140, the or each of the one or more displays 140 being configured to display a graphical user interface in implementing a method, such as that illustrated in Figure 9.

[0040] In embodiments, the user interface 145 utilises the graphical user interface displayed on the display 140 as a means for the application 180 to output data to the user.

[0041] In embodiments, the application 180 comprises a UI manager 184. The UI manager 184 comprises machine readable code, executable, at least in part, on the user device 110. The UI manager 184 is configured to obtain input data from the user, via the user interface 145, and to provide the input data to the application 180. The UI manager 184 is configured to obtain output data from the application 180 and to display the output data to the user via the graphical user interface of user interface 145. Functionality determining arrangement and content of the GUI is provided by the application 180.

[0042] The UI manager 184 may be further configured to provide a non-graphical user interface, or a combination of a graphical user interface and a non-graphical user interface.

[0043] The functionality of the system 100 may be defined by application 180. Application 180 may be executed, in part or in full, on user device 110. Application 180 may be executed, in part or in full, on data presentation server 124. Machine-readable code (e.g. software) defining application 180 may be stored, in part or in full, on user device 110. Machine-readable code (e.g. software) defining application 180

may be stored, in part or in full, on data presentation server 124. The application 180 may receive inputs (e.g. input documents) from database 122, or from other sources internal to the data presentation server 124, internal to the client 110, or accessible over the network 120. The application 180 may store the output products in database 122, in memory 130, memory 114, and/or transmit the output products over network 122.

[0044] The application 180 may be a single page application served by the data presentation server 124 to the user device 110 over the network 120 and displaying content from (for example, invoices or bills), or based on, data obtained from the accounting system 160.

[0045] The memory 114 may comprise application 180 which comprises computer executable code, which when executed by the one or more processors 112, is configured to allow user device 110 to facilitate the intuitive viewing and navigation of data displayed on a display 140 of the user device 110.

[0046] The communications interface 118 facilitates communications with components of the communications interface 118 across the network 120, such as: database 122, data presentation server 124, accounting system(s) 160 and/or third party server(s) 170. The communications interface 118 may comprise a combination of network interface hardware and network interface software suitable for establishing, maintaining and facilitating communication over a relevant communication channel.

[0047] The network 120 may include, for example, at least a portion of one or more networks having one or more nodes that transmit, receive, forward, generate, buffer, store, route, switch, process, or a combination thereof, etc. one or more messages, packets, signals, some combination thereof, or so forth. The network 120 may include, for example, one or more of: a wireless network, a wired network, an internet, an intranet, a public network, a packet-switched network, a circuit-switched network, an ad hoc network, an infrastructure network, a public-switched telephone network (PSTN), a cable network, a cellular network, a satellite network, a fibre-optic network, some combination thereof, or so forth.

[0048] The database 122 may form part of or be local to the system 100, or may be remote from and accessible to the system 100, for example, via the communications

network 120. The database 122 may be configured to store data associated with the system 100. The database 122 may be a centralised database. The database 122 may be a mutable data structure. The database 122 may be a shared data structure. The database 122 may be a data structure supported by database systems such as one or more of PostgreSQL, MongoDB, and/or ElasticSearch. The database 122 may be configured to store a current state of information or current values associated with various attributes (e.g., “current knowledge”).

[0049] The data presentation server 124 may be configured to serve single page applications to the user device 110. Single page applications may comprise GUIs such as the display object 300 illustrated in Figure 3. The GUIs of single page applications provide a mechanism for a user of a user device to view, navigate, manipulate, and/or interact with data stored by the accounting system 160. The data stored by the accounting system 160 may comprise, *inter alia*, representations of transaction data, such as digital or softcopy versions of account statements or transaction statements. The data stored by the accounting system 160 may comprise representations of financial records, such as bank account statements, invoices, bills, receipts, credit notes issued to or by the user (or a business or other legal entity on behalf of which the accounting system 160 is providing an online bookkeeping service).

[0050] In some embodiments, the data presentation server 124 may comprise one or more processors 126 and memory 130 storing instructions (e.g. program code) which when executed by the processor(s) 126 causes the system 100 to function according to the described methods. The processor(s) 126 may comprise one or more microprocessors, central processing units (CPUs), application specific instruction set processors (ASIPs), application specific integrated circuits (ASICs) or other processors capable of reading and executing instruction code.

[0051] In some embodiments, the data presentation server 124 may operate in conjunction with or support one or more external devices, such as the user device 110, the database 122, the accounting system(s) 160 and/or the third party server(s) 170, to manage the provision of an intuitive GUI for stored data.

[0052] The memory 130 may comprise one or more volatile or non-volatile memory types. For example, memory 130 may comprise one or more of random access memory (RAM), read-only memory (ROM), electrically erasable programmable read-only memory (EEPROM) or flash memory. Memory 130 is configured to store program code accessible by the processor(s) 126. The program code comprises executable program code modules. In other words, memory 130 is configured to store executable code modules configured to be executable by the processor(s) 126. The executable code modules, when executed by the processor(s) 126 cause the system 100 to perform the functionality according to the described embodiments, as described in more detail below. Memory 130 may comprise a single page applications (SPA) module 132, which stores and serves single page applications (SPAs) to user devices such as user devices. Memory 130 may comprise an authentication module 134, which may, for example, check credentials to enable users to login to the service.

Tax calculation module

[0053] The system 100 may comprise, or be communicatively coupled to, one or more servers acting as a processing servers 170. In one embodiment, the processing server 170 comprises a third-party server, remote to the system 100.

[0054] In one embodiment, the processing server 170 comprises machine-readable code defining a tax calculation module (TCM) 175. The TCM comprises an application configured to receive calculation input data from application 180, determine calculation output data based on the calculation input data, and provide the calculation output data to the application 180. The TCM application may be referred to as a calculation application.

[0055] In embodiments, the calculation input data comprises financial data, such as, but not limited to: line item unit price, line item quantity, discounts, total sale amount, purchaser attributes, seller attributes, issuer attributes, source entity address, destination entity address, location of purchase address, issue date, sales tax code, tax exemption status, and/or tax exemption information

[0056] In embodiments, the calculation output data comprises financial data, such as, but not limited to: total invoice amount, total sales amount, tax rates, taxable amounts,

taxable percentages, tax exemption status, tax calculation information and/or taxability codes. The TCM 175 is configured to perform calculations to determine the calculation output data based upon the calculation input data provided to the TCM by the application 180.

[0057] In one embodiment, the TCM comprises a software application for automated tax compliance calculations. In one embodiment the TCM comprises a software application provided by Avalara ®.

[0058] In one embodiment, the calculation input data comprises data defining line items of a sales invoice or receipt. The TCM determines a taxation amount for each line item, in accordance with the applicable taxation laws. In some embodiments, the TCM 175 determines, based on the input values, the applicable taxation law from a plurality of taxation laws. For example, taxation laws may vary from state to state within a country. Accordingly, to determine the applicable taxation law, the TCM 175 may consider details pertaining to the seller or the purchaser of the items described in the sales invoice.

Financial record

[0059] The application 180 is configured to compile and record a plurality of financial records. A financial record comprises a set of data comprising financial information. The financial information comprises input information, and output information which is determined based on the input information. A financial record may be used by a user for accounting, bookkeeping, taxation, invoicing, financial planning, or other purposes.

[0060] In one example, a financial record comprises data defining an itemised sales invoice and taxation information associated with each of the sale items itemised on the sales invoice. In one example, a financial record comprises a bank statement defining transaction activity performed on a bank account. In one example, a financial record comprises a tax statement, return, filing or form defining taxation information associated with an entity.

[0061] A financial record may comprise information regarding the selling entity and/or the purchasing entity. A financial record may comprise information regarding

the address of the selling entity, the address of the purchasing entity, place of purchase, a date of purchase. A financial record may comprise information about the sales items, the tax status (e.g. tax exemption status) of the purchaser or seller, the issue date of an invoice, or other information that the user or the application considers is relevant to the financial record.

[0062] A financial record may comprise a file, part of a file, one or more database entries, or other form of data storage. The application 180 may be configured to store one or more financial records in memory 114, 122 and/or 130.

[0063] The contents of the financial record may be displayed to a user via the user interface, as illustrated in example display object 300 in Figure 3. In some embodiments, only a subset of the financial record is displayed in the GUI.

[0064] A financial record may be incomplete, such that there are fields of the financial record that have not been assigned a value. In some embodiments, a financial record comprises a draft financial record and is associated with a draft state. A draft financial record may comprise data that has not been approved by a user. A draft financial record may comprise a financial record that is not stored as an approved financial record in data store 122. In some embodiments, a financial record comprises an approved financial record and is associated with an approved state. An approved financial record may be stored as an approved financial record in data store 122.

Figure 2 – Software architecture

[0065] Figure 2 is a software architecture diagram of a system for obtaining, determining and presenting data to a user, according to an embodiment. In accordance with the embodiment illustrated in Figure 2, application 180 comprises a plurality of functions. More specifically, application 180 comprises a user interface (UI) management function 184, a data management (DM) function 186 and a back-end for front-end (BFF) function 182.

[0066] The UI manager 184 is configured to manage the user interface 145 of the user device 110. The UI manager is configured to identify user interaction with the user interface and to convey information regarding the user interaction to the application

180. The UI manager is configured to receive display information from the application 180 and to display the display information on the user interface.

[0067] The data management (DM) function 186 is configured to receive from the application 180, data to be stored in memory 210, and provide that data to memory 210. The DM function is further configured to read data from memory 210. The data stored in memory 210 may comprise financial records in the form of files, documents, images, tables, and/or database records. Memory 210 may comprise one or more of database 122, memory 114, memory 130, or any part or combination thereof.

[0068] The BFF function 182 is configured to provide a means for the application 180 to communicate with the TCM 175, which is executing on the process server 170. The TCM comprises an application programming interface (API) 177. The application 180 is configured to provide calculation input data to the BFF function 182. The BFF function is configured to provide the calculation input data 202 to the TCM, via the API 177, in accordance with the data communication format specified by the API. In some embodiments, the BFF function may be configured to collate, package, form, or otherwise manipulate the calculation input data before providing the calculation input data to the API.

[0069] The BFF function is further configured to receive calculation output data 204 from the TCM 175, via the API 177. The BFF function is configured to provide the calculation output data to the application 180. In some embodiments, the BFF function may be configured to unpack, reform, or otherwise manipulate the calculation output data before providing the calculation output data to the application 180.

Figure 3 – Financial data input interface

[0070] Figure 3 illustrates a display object 300, displayed by a graphical user interface (GUI) on a display 140 as controlled by the UI manager 184 of the user device 110, according to an embodiment.

[0071] The display object 300 comprises a plurality of input fields, into which a user may enter input values pertaining to an invoice. The display object further comprises a plurality of labels, wherein each label is associated with one or more input fields, and

each label indicates a type of data that the user is requested to input into the one or more input fields associated with the label.

[0072] For example, display object 300 comprises input fields associated with the entity to which the invoice is issued (e.g. the destination entity), and input fields associated with the entity from which the invoice is issued (e.g. the origin entity). In particular, the display object 300 comprises a destination name input field 332 and an associated destination address input field 330, into which a user has entered the name and address of the entity to which the invoice is issued (i.e. Cathy Burgess, at 1 High Street, Mainton 52104). The display object 300 further comprises an origin name input field 342 and an associated origin address input field 340, into which a user has entered the name and address of the entity from which the invoice is issued (i.e. ABC Corporation Pty Ltd, 50 Mint Street, Payton, 65424).

[0073] The display object 300 further comprises an issue date input field 390, into which the user may enter the issue date of the invoice.

[0074] In embodiments, a display object may comprise input fields for the user to enter information pertaining to: a sales tax exemption code; a sales tax exemption reason; discount information associated with one or more line items; or other information that may affect the value of the calculated output data determined by the TCM.

[0075] The display object 300 further comprises a display table 350, which includes a combination of input fields, (in columns 301, 307, 303, 302 and 305), into which the user may enter data. The display table 350 comprises output fields (in columns 318, 310, 320 and 340) in which the UI manager 184 is configured to display output data that is determined by the application 180. Table 350 is configured to display tabulated information, wherein each row comprises information associated with a line item described in column 301.

[0076] The heading of column 302 indicates that the input fields 304, 306 and 308 are configured to receive price values associated with line items 314-316. The heading of column 303 indicates that the input fields in column 303 are configured to receive an indication of the quantity of the respective line item 314-316. The heading of column

305 indicates that the input fields in column 305 are configured receive an indication of a sales tax code associated with the respective line item 314-316.

[0077] Column 310, labelled 'Tax rate', comprises three output fields indicating tax rates associated with each of the three line items 314-316. In one embodiment, the values of the output fields in column 310 are determined by the TCM application 175 based at least on the input values of 'Sales tax code' and 'Address'.

[0078] The TCM application 175 determines the 'Tax rate' output values, in column 310, based on the relevant tax laws. The relevant tax laws may depend on the jurisdiction in which the purchase was made, the jurisdiction in which the purchaser is located, the jurisdiction in which the seller is located, the location at which the transfer of ownership of the purchased item(s) takes place, the destination location of the goods/services, the type of items purchased, a purpose of the purchase, the nature of the business of the purchaser of the items, the date, the price of item(s) purchased, the quantity of items purchased, or other factors.

[0079] In some embodiments, the display object displayed by the GUI comprises input fields that are not arranged in tabular form. Similarly, in some embodiments, the display object displayed by the GUI comprises output fields that are not arranged in tabular form.

Resultant output fields

[0080] In one embodiment, an output field is a resultant output field, with regard to an input field (e.g. a resultant output field associated with an input field), if the value of the output field is determinable based on the value of the input field. For example, an output field that comprises a total amount is a resultant output field with respect to the input fields for each amount comprising the total amount. In another example, an output field that comprises a tax rate for a purchase is a resultant output field with respect to the input field indicating the location (e.g. jurisdiction) in which the associated purchase was made.

[0081] An output field can be a resultant output field with regard to another output field. For example, an output field that is configured to display a tax amount is resultant

on an input field configured to hold a sales price, and an output field configured to display a tax rate, such that (tax amount = sales price x tax rate).

[0082] In an embodiment, a resultant output field with regard to an input field is an acquired output field with regard to an input field if the value of the output field is acquired by the application 180 from the TCM 175 as a result of calculations or determinations made by the TCM 175 based on the value in the input field. An output field whose value may be determined by the application 180, without being acquired from the TCM may be considered to be a resultant output field with regard to the input field, but not an acquired output field with regard to the input field.

[0083] With reference to display object 300, an output field in the Amount column 340 comprises a resultant output field with regard to both the respective input field in Quantity column 303, and the respective input field in the Price column 302. As the value of the output fields in the Amount column 340 maybe determined by the application 180 via a multiplication of the respective price and quantity values, without acquiring an output value from the TCM, the output fields in the Amount column 340 comprise non-acquired output fields.

[0084] In embodiments, output fields displayed on a display object may comprise values which are determined by the TCM 175, as a result of the application 180 requesting that the TCM determine the output value. These output fields may be referred to as acquired output fields, comprising acquired output values.

[0085] With reference to display object 300, the output fields of columns Taxability code 318, Tax rate 310 and Tax amount 320 comprise acquired output fields, with the values in these fields comprising acquired output values determined by the TCM in response to a calculation request by the application 180.

[0086] In embodiments, the output fields of columns Taxability code 318, Tax rate 310 and Tax amount 320 may comprise acquired output fields with regard to one or more of: origin address input field 340; destination address input field 330; issue date input field 390; one or more of the quantity input fields in column 303; one or more of the price input fields in column 302; and one or more of the tax code input fields in column 305.

Linked input fields

[0087] In one embodiment, an input field is a linked input field, with regard to an output field, if the value of the input field would affect the value of the acquired output field, as determined by the TCM 175.

[0088] A linked input field may be a field that is displayed in the display object 300, or may be data otherwise known to the application 180.

[0089] In some embodiments, the application 180 is configured to determine which input fields are linked to an acquired output field, and to provide the values of the linked input fields to the TCM 175. In some embodiments, the application 180 is configured to provide the values of all input fields to the TCM. In some embodiments, the application 180 is configured to provide the TCM 175 with data, in addition to the values of the linked input fields.

Obfuscating acquired output fields

[0090] The output value displayed in an acquired output field depends upon the values of the one or more linked input fields associated with the acquired output field. Accordingly, if the value of a linked input field is changed (for example, by a user editing the input field via the user interface 145), the value displayed in the acquired output field may no longer represent an accurate value. In other words, the value displayed in the acquired output field may be obsolete. The value displayed in the acquired output field may be re-determined by the TCM application 175, based on the new value of the edited linked input field.

[0091] In many situations, it is undesirable for the GUI to display the new value of the edited linked input field in conjunction with the obsolete output value. Accordingly, it may be desirable to obfuscate (either partially or fully) the value displayed in the acquired output field until the application 180 obtains the newly determined value from the TCM application 175 and can display a newly determined value for the acquired output field.

Figure 4 – Obfuscated fields

[0092] Figure 4 illustrates the display object of Figure 3 in response to the application 180 performing an obfuscating operation in response to user editing an input field, according to an embodiment.

[0093] In accordance with the embodiment illustrated in Figure 4, the user has selected input field 308 (labelled 402 in Figure 4) and has changed the price of the 'Safety lab coat' from \$80.00 to \$85.00. Accordingly, input field 402 is determined by the application 180 to be an edited input field.

[0094] In response to the user interface 145 determining a focus-off event associated with input field 402, the application 180 obfuscates the values in at least the acquired output fields resultant from the input field 402. In particular, in the example of Figure 4, the application 180 determines that the output fields 420, 422, 424, 426, and 428 are acquired output fields, resultant from input field 402, because the output values in these output fields are determined by the TCM application 175 based, at least, on the input value in input field 402. As the value in input field 402 has now changed (from \$80.00 to \$85.00), the values in output fields 420, 422, 424, 426, and 428 are to be re-determined by the TCM application 175 in light of the input value 402 provided by the application 180.

[0095] Accordingly, in response to the user editing input field 402, the application 180 causes the UI manager 184 to visually obfuscate the output values in output fields 420, 422, 424, 426, and 428.

[0096] In some embodiments, the values of a plurality of output fields are determined based on the value of an input field. For example, output value 440 indicates the total amount, excluding tax, for the items in line item 316. The value in output field 440 is determined based on the price indicated in input field 402. Output value 440 may be determined by application 180, without input from the TCM application 175. Accordingly, output field 440 is not an acquired output field with regard to input field 402. In embodiments, the application 180 does not obfuscate the value in output field 440 in response to the user determining a focus-off event associated with the input field 402.

[0097] In embodiments, an input field defining an attribute of the entity from to which the invoice is to be issued is a linked input field with regard to one or more acquired output fields. For example, with reference to display object 300, output fields in columns 318, 310 and 320, as well as output fields 426 and 428, are acquired output fields, resultant from the destination address input field 330.

[0098] In embodiments, an input field defining an attribute of the entity to which the invoice is to be issued is a linked input field with regard to one or more acquired output fields. For example, with reference to display object 300, output fields in columns 318, 310 and 320, as well as output fields 426 and 428, are acquired output fields, resultant from the origin address input field 340.

[0099] In embodiments, an input field defining a date associated with the display object is a linked input field with regard to one or more acquired output fields. For example, with reference to display object 300, output fields in columns 318, 310 and 320, as well as output fields 426 and 428, are acquired output fields, resultant from the issue date input field 390.

[0100] In some embodiments, the application 180 causes the UI manager to visually obfuscate acquired output fields that are not resultant from the edited input field. For example, in response to the user editing input field 402, the application 180 may obfuscate all acquired output fields in columns 318, 310 and 320.

[0101] In some embodiments, the application 180 causes the UI manager to visually obfuscate one or more non-acquired output fields, as well as one or more acquired output fields, in response to a user editing an input field.

Figure 5 – Updated fields

[0102] Figure 5 illustrates the display object of Figure 3 in response to the application 180 performing the autosave operation 608 or the autocalculation operation 708 in response to the user editing an input field, according to an embodiment.

[0103] In accordance with the embodiment illustrated in Figure 4, the user has selected input field 308 (labelled 402 in Figure 4) and has changed the price of the

‘Safety lab coat’ from \$80.00 to \$85.00. Accordingly, input field 402 is determined by the application 180 to be an edited input field.

[0104] In response to the user interface 145 determining a focus-off event occurring with regard to input field 402, the application 180 causes the TCM application 175 to calculate an updated output value for each of the acquired output fields 420, 422, 424, 426 and 428. The TCM application provides an updated output value for each of the acquired output fields to the application.

[0105] The application 180 causes the UI manager 184 to display the updated output values. Accordingly, the updated taxability code, output field 502, for line item 316 is ‘Fully taxable’, the updated tax rate, in output field 504, for line item 316 is 6.0% and the updated tax amount 506 for line item 316 is \$20.40 (i.e. $4 \times \$85 \times 6.0\%$). The updated Total Sales Tax 508 for table 350 is \$24.89 (i.e. $\$4.00 + \$0.49 + \$20.40$) and the updated Total 510 for table 350 is \$589.39 (i.e. $\$564.50 + \24.89).

[0106] In some embodiments, the application 180 is configured to cause the UI Manager 184 to visually highlight the updated acquired output fields and/or the updated acquired output values. For example, as illustrated in Figure 5, the updated output fields 502, 504, 506, 508 and 510 are visually highlighted by thicker bounding lines.

Visually obfuscating

[0107] The UI manager 184 may visually obfuscate the value in an output field via one or more methods to suit the visual style of the GUI, or other factors.

[0108] In one embodiment, the UI manager 184 obfuscates the value in an output field by replacing the value with an obfuscation, or placing an obfuscation over the value. The obfuscation may fully obscure the value in the output field, such that a user cannot determine the value. The obfuscation may partially obscure the value in the output field, such that a user cannot fully determine the value. The obfuscation may alter the visual appearance of the value, such that a user may be able to determine the value, but the visual appearance of the value indicates that the value is obsolete, invalid, or potentially incorrect.

[0109] The obfuscation may comprise: hash lines, as illustrated by output field 420; an animation, as illustrated by output field 428; an empty field, as illustrated by output field 426; or another means to prevent the user from determining a value associated with the output field.

[0110] In some embodiments, the obfuscation may comprise a visual alteration of the output value, such as a change of colour or shade or background, that does not completely prevent the user from determining the value associated with the output field.

Focus-off

[0111] A focus-off event may vary from embodiment to embodiment. In some embodiments, a focus-off event may comprise one or more of: an input from a computer mouse (e.g. a mouse-click outside the input field, a scroll of the scroll wheel, a movement of the mouse cursor away from the input field); a press of a keyboard key or combination of keyboard keys (e.g. the tab key, the spacebar, the enter key, a cursor key, or another keyboard key); a touch of the touch screen (e.g. a touch outside the input field); a voice command; or other input received by the UI manager 184.

[0112] In some embodiments, the UI manager 184 is configured to determine the occurrence of a focus-off event based on a time since receiving an input from the user. In other words, the focus-off event may comprise a time-out.

Operations of the application

[0113] In embodiments, the application 180 may be configured to, in response to a focus-off event, perform one or more of: an autosave operation, an embodiment of which is described in relation to Figure 6; an autocalculation, an embodiment of which is described in relation to Figure 7; and a save operation, an embodiment of which is described in relation to Figure 8.

[0114] In some embodiments, the application 180 is configured to perform the autosave operation in response to a user editing an input field of a draft financial record. In some embodiments, the application 180 is configured to perform the autocalculation operation in response to a user editing an input field of an approved or a

draft financial record. In some embodiments, the application 180 is configured to perform the save operation in response to the user selecting, via the GUI, to save the financial record. The input field may comprise a linked input field with regard to an acquired output field of the financial record, or the input field may not comprise a linked input field with regard to any acquired output fields of the financial record.

Timing diagrams

[0115] Figures 6, 7 and 8 each illustrate timing diagrams which represent a sequence of operations performed by components of system 100, to perform the functions of autosaving, autocalculation and saving, respectively. For each of timing diagrams 600, 700 and 800, the passage of time is represented by the arrow 602. It is not intended that timing arrow 602 strictly represent a linear, continuous passage of time for all embodiments of the present technology. In other words, the depicted length of the operations in the figures is not intended to be a representation of the time taken to perform the operation. Furthermore, in embodiments, there may be delay periods of time between the performance of operations illustrated in timing diagrams 600, 700 and 800.

Figure 6 – Autosave timing diagram

[0116] Figure 6 is a timing diagram illustrating the process of autosaving a draft financial record, according to an embodiment.

[0117] In operation 604, the UI manager 184 identifies that the user is editing an input field of the display object 300. In response to the UI manager 184 determining the occurrence of a focus-off event 606 associated with an input field (hereafter, 'the edited input field'), the application 180 performs the autosave operation 608 to save a draft financial record 690 to memory 210.

[0118] In one embodiment, the financial record 690 comprises the input values of the input fields displayed in the display object 300, the output values of the output fields displayed in the display object 300, and other information associated with the input or output fields.

[0119] The autosave operation 608 determines whether the display object 300 comprises an output field associated with the edited input field. In response to the autosave operation determining at least one output field associated with the edited input field, the autosave operation instructs 610 the UI manager 184 to visually obfuscate 612 the at least one acquired output field.

[0120] Furthermore, in response to the autosave operation determining at least one output field associated with the edited input field, the autosave operation instructs 614 the BFF function 182 to acquire an updated output value for the acquired output field.

[0121] The BFF function 182, determines one or more linked input fields, linked to the edited output field. The BFF function 182 packages 616 the values of the linked input fields in accordance with the TCM API 177. The BFF function 182 provides 618 at least the packaged information to the TCM application 175. The packaged information comprises the calculation input data 204.

[0122] In some embodiments, the BFF function 182 may provide 618 additional information, not displayed in an output field, but relevant to the calculations of the TCM application 175, to the TCM application. For example, in an embodiment, the display object 300 may not display the annual revenue of the company for which the tax calculations are being performed, but the annual revenue information may be relevant to the determination of tax rates for the line items in table 350. Accordingly, in such an embodiment, the BFF function 182 provides the annual revenue information to the TCM application in step 618 as part of the packaged information.

[0123] In operation 620, the TCM application 175 performs one or more calculations, based on the packaged information, to determine an updated value of the acquired output field.

[0124] The TCM application provides 622 calculation output data 202 to the BFF function 182. The calculation data comprises an updated value of the acquired output field. In operation 624, the BFF function unpacks the calculation output data received from the TCM application, and provides 626 the updated value of the acquired output field to the autosave operation 608.

[0125] In response to receiving the updated value of the acquired output field, the autosave operation 608 causes the DM function 186 to save 634 the updated value of the acquired output field in memory 210. The updated value of the acquired output field may be saved to memory as part of a financial record.

[0126] Advantageously, autosaving the draft financial record 690 to memory after the value of an acquired output field has been recalculated, ensures that the memory only stores financial records comprising accurate financial data. Accordingly, edits made to the input value during the autosave feature do not result in obsolete tax calculation being shown.

[0127] In response to receiving, from the DM function, an indication 636 that the updated value of the acquired output field has been saved, the autosave operation 608 causes 628 the UI manager 184 to perform an update operation 630 to display the updated value of the acquired output field in the acquired output field.

Figure 7 – Autocalculation timing diagram

[0128] Figure 7 is a timing diagram illustrating the process of autocalculating a draft financial record, according to an embodiment. The timing diagram 700 of Figure 7 is similar to the timing diagram 600 of Figure 6, except that, unlike the autosave operation 608, the autocalculation operation 708 does not cause the DM function to save the updated value of the acquired output field in memory 210.

[0129] In response to the UI manager 184 determining the occurrence of a focus-off event 606 associated with an input field (hereafter, 'the edited input field'), the application 180 performs the autocalculation operation 708 to save a draft financial record 690 to memory 210.

[0130] The autocalculation operation 708 determines whether the display object 300 comprises an output field associated with the edited input field. In response to the autocalculation operation determining at least one output field associated with the edited input field, the autocalculation operation instructs 710 the UI manager 184 to visually obfuscate 612 the at least one acquired output field.

[0131] Furthermore, in response to the autocalculation operation determining at least one output field associated with the edited input field, the autocalculation operation instructs 714 the BFF function 182 to obtain an updated output value for the acquired output field.

[0132] The BFF function 182 and the TCM application 175 perform operations 616, 620 and 624, as described in relation to Figure 6.

[0133] In response to the BFF function providing 626 the updated value of the acquired output field to the autocalculation operation 708, the autocalculation operation causes 728 the UI manager 184 to display the updated value in the acquired output field.

[0134] Advantageously, as the acquired output field is obfuscated during the autocalculation operation 708, the display object 300 only displays internally consistent output data. e.g. the output calculations displayed in columns 318, 310, 320 and 340 correctly correlate with the input values shown in the input columns of table 350.

[0135] Advantageously, output calculations for which an updated value has not yet been calculated show the output calculations as obfuscated, so that incorrect or out-of-date calculations are not shown to the user in connection to the input data.

[0136] Accordingly, the application only displays internally consistent financial data. (e.g. the tax calculations correctly correlate with the input values shown).

Delay after a focus-off event

[0137] A user may edit a plurality of input fields one after another, possibly in quick succession. Accordingly, to reduce the calculation and communication overhead associated with performing multiple autosave or autocalculation operations in quick succession, in some embodiments, the application 180 may be configured to delay performing the autosave operation 608 and/or the autocalculation operation 702 for a period of time (e.g. a delay period) after determining the occurrence of a focus-off event, in case a second focus-off event occurs within that time period.

[0138] For example, the delay period may be configured to 5 seconds. Accordingly, application 180 may be configured to wait for 5 seconds after determining the

occurrence of a focus-off event. In response to the user interface not detecting a second focus-off event associated with an input field within that 5 second period, the application may be configured to perform either the autosave operation 608 or the autocalculation operation 702. However, in response to the user interface detecting a second focus-off event associated with an input field linked to an output field within that 5 second period, the application may be configured to wait for a further delay period of time before performing the autosave operation 608 and/or the autocalculation operation 702.

Calculation error

[0139] In some embodiments, the TCM application 175 is configured to provide the application 180 with an error message if the TCM application 175 is unable to determine the calculation output data, due to an inconsistency or insufficiency of the calculation input data, or due to another reason.

[0140] In some embodiments, in response to receiving an error message, the application 180 instructs the UI manager 184 to visually obfuscate the at least one acquired output field.

Figure 8 – Save timing diagram

[0141] Figure 8 is a timing diagram illustrating the process of saving a draft financial record, according to an embodiment. The timing diagram 800 of Figure 8 is similar to the timing diagram 600 of Figure 6, except that the application 180 is configured to cause a calculation operation 620 and a save operation 634 in response to the occurrence of a save event 806, rather than in response to a focus-off event 606 as in timing diagram 600.

[0142] In embodiments, a save event may comprise one or more of: an input from a computer mouse (e.g. a mouse-click on a save button); a press of a keyboard key or combination of keyboard keys (e.g. Ctrl-s); a touch of the touch screen (e.g. a touch on a save button); a voice command; or other input received by the UI manager 184.

[0143] In operation 604, the UI manager 184 identifies that the user is editing an input field of the display object 300. In response to the UI manager 184 determining the

occurrence of a save event 806 associated with an input field (hereafter, 'the edited input field'), the application 180 performs the save operation 808 to save a draft financial record 690 to memory 210.

[0144] In response to receiving, from the DM function 186, an indication 636 that the updated value of the acquired output field has been saved, the save operation 808 causes 828 the UI manager 184 to perform an update operation 830 to display the updated value of the acquired output field in the acquired output field.

[0145] The update operation 830 may also cause the GUI to display a save indication which visually indicates to the user that the financial record 690 has been saved in memory 210.

[0146] Advantageously, saving the draft financial record 690 to memory after the value of an acquired output field has been recalculated, ensures that the memory only stores financial records comprising accurate financial data.

[0147] In response to performing the autosave operation 608, or the autocalculation operation 708, the application 180 causes the UI manager 184 to visually obfuscate 612 at least one acquired output field, as illustrated in Figure 4.

[0148] As shown in Figure 4, in response to input field 402 changing from the value \$80.00 to \$85.00, the values of the acquired output fields 420, 422 and 424 are visually obfuscated.

Taxability code

[0149] In some embodiments, the application 180 is configured to determine and visually indicate a taxability code associated with one or more line items. The taxability code may indicate whether a line item is: tax exempt; fully taxable; partially taxable; or non-taxable, in accordance with an applicable taxation law.

[0150] In one embodiment, the application is configured to infer the taxability code based on calculation output data 204 provided by the TCM application 175.

[0151] For example, the calculation output data 204 indicates that the tax amount associated with a line item is zero, then the application 180 infers that the line item is

non-taxable. Accordingly, the application 180 determines that the taxability code associated with the line item is 'non-taxable'.

[0152] In accordance with a further example, the TCM application 175 provides a tax rate and a tax amount associated with a line item. In response to the application 180 determining that the tax amount is equal to the tax rate multiplied by the price of the line item, the application infers that the taxability code associated with the line item is 'fully taxable'.

[0153] Under some tax laws, a line item may be only partially taxable, that is tax is applied to only part of the price of the line item. In response to the application 180 determining that the tax amount, provided by the TCM application 175, is less than the tax rate multiplied by the price of the line item, the application infers that the taxability code associated with the line item is 'partially taxable'.

Tax breakdown

[0154] In some situations, a tax rate is determined as a composite of a plurality of tax rates. For example, a tax rate may be comprised of the sum of two tax rates. The composition of a tax rate may be of interest to a user of the application 180.

[0155] In some embodiments, the application 180 is configured to provide the user with tax breakdown information, accessible from the display object 300. Tax breakdown information may comprise information indicating the composite parts of a tax rate. Tax breakdown information may comprise information regarding the tax laws or requirements relating to the tax rate.

[0156] In an embodiment, the application 180 incorporates a clickable link, or hyperlink, in the display object 300 from which the user may access the tax breakdown information.

[0157] With reference to Figure 5, the tax rate values in column 310 are provided as hyperlinks. In response to the user clicking on a tax rate value in column 310, the application 180 provides the tax breakdown information to the user. The application may provide the tax breakdown information in a pop-up window, in another tab, as overlaid over the table 350 or otherwise visible to the user.

[0158] The application 180 may receive tax breakdown information from the TCM 175 in response to performing the autosave 608, autocalculate 708 or save 808 operations.

Figure 9 - Process overview

[0159] Figure 9 illustrates a process flow diagram of a method 900 for displaying a financial record, according to an embodiment. In particular, Figure 9 illustrates obfuscating an obsolete output value (e.g. a 'first output value') and displaying a second output value. The method 900 may be performed by application 180.

[0160] The method is described herein in relation to the autosave 608, autocalculate 708 or save 808 operations, of Figures 6, 7 and 8, respectively, and the GUI diagrams of Figures 3, 4 and 5.

[0161] In operation 902, the application 180 displays a graphical user interface, such as display object 300 on the display of a user device 110. In operation 904, the application 180 displays a financial record. The financial record comprises a first input value in an input field. For example, the application displays the value \$80.00 in input field 308.

[0162] The financial record further comprises an output field. In operation 906, the application 180 displays a first output value in an output field. For example, the application displays the value 5.0% in output field 355.

[0163] In operation 908, the application 180 determines the occurrence of a focus-off event associated with input field 308. For example, the application may determine that the value in the input field 308 has been edited from a first input value of \$80.00 to a second input value of \$85.00.

[0164] The application 180 may be configured to determine one or more output fields whose value is resultant from the value of the input field. The application 180 may be further configured to determine whether a resultant output field is an acquired output field. For example, the application determines that the output field 355 comprises an acquired output field, whose value is resultant from the value of input field 308.

[0165] In operation 910, the application 180 obfuscates the first output value in the output field. For example, the application replaces the first output value of 5.0% with a hashed box 422.

[0166] In operation 911, the application 180 determines a second input value associated with the input field. For example, the application determines that the user has entered the value of \$85.00 in the input field 308.

[0167] In operation 912, the application 180 provides the second input value to a calculation application. For example, the application provides the value \$85.00 to the TCM 175, via the BFF function, in the autosave 608, autocalculate 708 or save 808 operations. The application may provide more data, than just the second input value to the calculation application.

[0168] In operation 950, the calculation application, which may be an entity logically or physically remote from the embodiment of the present technology, determines a second output value based on the second input value. For example, the TCM 175 performs one or more calculations 620, based on the second input value \$85.00, to determine an updated value, 6.0%, of the acquired output field 504.

[0169] In operation 914, the application 180 receives a second output value from the calculation application. For example, the application receives 626, the output value 6.0% from the TCM.

[0170] In operation 916, the application displays the second output value in the output field. For example, the application displays the value 6.0% in output field 504. In one embodiment, the application replaces the hashed box 422 with the value 6.0% in output field 504, such that the value 6.0% is displayed to the user.

[0171] It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the above-described embodiments, without departing from the broad general scope of the present disclosure. Furthermore, it will be appreciated by persons skilled in the art that embodiments disclosed herein can be combined with one or more other embodiment disclosed herein, without departing from the broad general scope of the present disclosure. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

[0172] It will be appreciated by persons skilled in the art that any suitable distribution of functionality between different functional units may be used without detracting from the invention. For example, functionality illustrated to be performed by separate computing devices may be performed by the same computing device. Likewise, functionality illustrated to be performed by a single computing device may be distributed amongst several computing devices. Hence, references to specific functional units are only to be seen as references to suitable means for providing the described functionality, rather than indicative of a strict logical or physical structure or organization.

[0173] It will be appreciated by persons skilled in the art that, for processes and methods disclosed herein, the operations performed in the processes and methods may be implemented in differing order. Furthermore, the outlined steps and operations are only provided as examples, and some of the steps and operations can be optional, combined into fewer steps and operations, or expanded into additional steps and operations without detracting from the essence of the disclosed embodiments.

[0174] References herein to software or executable instructions are to be understood as referring to executable instructions stored in volatile or non-volatile memory. The memory can include any data storage device that can store data which can thereafter be read by a processor. Examples of memory include read-only memory (ROM), random-access memory (RAM), magnetic tape, optical data storage device, flash storage devices, or any other suitable storage devices.

[0175] Throughout this specification the word ‘comprise’, or variations such as ‘comprises’ or ‘comprising’, will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

[0176] As used herein, any reference to “one embodiment” or “an embodiment” means that a particular element, feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment. The appearances of the phrase “in one embodiment” in various places in the specification are not necessarily all referring to the same embodiment. Similarly, use of “a” or “an”

preceding an element or component is done merely for convenience. This description should be understood to mean that one or more of the element or component is present unless it is obvious that it is meant otherwise.

[0177] Unless expressly stated to the contrary, “or” refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by any one of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

CLAIMS:

1. A method, comprising:

displaying a financial record on a user interface, the financial record comprising:

an input field configured to receive, from the user, an input value; and

an output field configured to display an output value, the output field comprising an acquired output field with regard to the input field;

displaying, in the input field, a first input value;

displaying, in the output field, a first output value; and

in response to determining an occurrence of a focus-off event associated with the input field:

obfuscating the first output value;

determining a second input value associated with the input field;

providing the second input value to a calculation application;

receiving, from the calculation application, a second output value, wherein the second output value is determined, by the calculation application, based on the second input value; and

in response to receiving the second output value, displaying the second output value in the output field.
2. The method of claim 1, wherein, determining the second input value associated with the input field comprises,

receiving, from the user interface, input defining the second input value.
3. The method of any one of claims 1 to 2, wherein the focus-off event comprises one or more of:

receiving, via the user interface, a mouse-click outside the input field;

receiving, via the user interface, a keyboard input;

receiving, via the user interface, a touch screen input; and

determining a time period since receiving input from the user.

4. The method of any one of claims 1 to 3, wherein the focus-off event further comprises determining that the second input value differs from the first input value.

5. The method of any one of claims 1 to 4, wherein obfuscating the first output value comprises one or more of:

replacing the first output value with an obfuscation or partial obfuscation; or

placing the obfuscation or partial obfuscation over the first output value.

6. The method of any one of claims 1 to 5, wherein displaying the second output value in the output field comprises removing the obfuscation or partial obfuscation.

7. The method of any one of claims 1 to 6, wherein obfuscating the first output value comprises one or more of:

displaying an animation in association with the first output value;

displaying an animation in association with the output field;

removing the first output value;

altering the appearance of the first output value;

altering the appearance of the output field;

visually annotating the first output value; or

visually annotating the output field.

8. The method of any one of claims 1 to 7, further comprising:

in response to receiving, from the calculation application, a second output value, the second output value being associated with the second input value,

causing the second input value and the second output value to be written to memory.

9. The method of any one of claims 1 to 8, wherein the calculation application comprises a remote application.

10. The method of any one of claims 1 to 9, wherein providing the second input value to the calculation application comprises:
 - sending, over a network, the second input value to the calculation application.
11. The method of any one of claims 1 to 10, wherein providing the second input value to the calculation application comprises:
 - determining one or more linked input fields associated with the output field; and
 - providing the input values of the one or more linked input fields to the calculation application.
12. The method of any one of claims 1 to 11,
 - wherein the financial record comprises a second input field, and
 - wherein providing the second input value to the calculation application comprises,
 - in response to determining that a focus-off event associated with the second input field has not occurred during a delay period, providing the second input value to the calculation application.
13. The method of claim 12, wherein providing the second input value to the calculation application further comprises,
 - in response to determining that a focus-off event associated with the second input field has occurred during the delay period:
 - determining a third input value associated with the second input field; and
 - providing the second input value and the third input value to the calculation application.
14. The method of any one of claims 1 to 13, wherein the first output value is resultant with regard to the first input value.
15. The method of any one of claims 1 to 14, further comprising,
 - in response to determining an occurrence of a focus-off event associated with the input field:

determining one or more acquired output fields associated with the input field;
and

obfuscating each output value associated with each of the one or more
acquired output fields.

16. The method of any one of claims 1 to 15, wherein displaying the second output value in the output field comprises visually highlighting one or more of the output field and the second output value.
17. The method of any one of claims 1 to 16, further comprising:
receiving, from the calculation application, a tax rate and a tax amount;
determining, based on the tax rate and the tax amount, a taxability code; and
displaying an indication of the taxability code in the user interface.
18. The method of any one of claims 1 to 17, further comprising:
receiving, from the calculation application, tax breakdown information
associated with the second output value;
displaying the second output value as a clickable link; and
in response to the user activating the clickable link, displaying the tax
breakdown information on the user interface.
19. A machine-readable storage medium storing instructions which, when executed
by one or more processors, cause the one or more processors to perform the method of
any one of claims 1 to 18.
20. A system comprising:
one or more processors; and
memory comprising computer executable instructions, which when executed
by the one or more processors, cause the system to perform the method of any one of
claims 1 to 18.
21. A system comprising means to:
display a financial record on a user interface, the financial record comprising:

an input field configured to receive, from the user, an input value; and

an output field configured to display an output value, the output field comprising an acquired output field with regard to the input field;

display, in the input field, a first input value;

display, in the output field, a first output value; and

in response to determining an occurrence of a focus-off event associated with the input field:

obfuscate the first output value;

determine a second input value associated with the input field;

provide the second input value to a calculation application;

receive, from the calculation application, a second output value, wherein the second output value is determined, by the calculation application, based on the second input value; and

in response to receiving the second output value, display the second output value in the output field.