



US006862596B2

(12) **United States Patent**
Thomsen

(10) **Patent No.:** **US 6,862,596 B2**
(45) **Date of Patent:** **Mar. 1, 2005**

(54) **SYSTEM AND METHOD FOR RETRIEVING AND DISPLAYING DATA, SUCH AS ECONOMIC DATA RELATING TO SALARIES, COST OF LIVING AND EMPLOYEE BENEFITS**

(75) Inventor: **David J. Thomsen**, Newport Beach, CA (US)

(73) Assignee: **ERI Economic Research Institute, Inc.**, Redmond, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 310 days.

(21) Appl. No.: **09/849,455**

(22) Filed: **May 4, 2001**

(65) **Prior Publication Data**

US 2002/0046210 A1 Apr. 18, 2002

Related U.S. Application Data

(60) Provisional application No. 60/203,086, filed on May 9, 2000.

(51) **Int. Cl.** **G06F 17/30**

(52) **U.S. Cl.** **707/10; 707/3; 707/102; 705/10; 705/11; 709/203; 709/219**

(58) **Field of Search** **707/3-5, 6, 7, 707/10, 102, 104.1; 705/10, 11; 709/203, 219**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,960,407 A * 9/1999 Vivona 705/10

2001/0032097 A1 * 10/2001 Levey 705/1
2001/0047347 A1 * 11/2001 Perell et al. 707/1
2002/0002479 A1 * 1/2002 Almog et al. 705/8
2002/0002482 A1 * 1/2002 Thomas 705/10
2002/0026452 A1 * 2/2002 Baumgarten et al. 707/104.1
2002/0046074 A1 * 4/2002 Barton 705/8
2002/0143752 A1 * 10/2002 Plunkett et al. 707/3
2002/0188542 A1 * 12/2002 Zhang et al. 705/36
2003/0145015 A1 * 7/2003 Turnasella 707/104.1
2003/0208388 A1 * 11/2003 Farkas et al. 705/7

* cited by examiner

Primary Examiner—Alford W. Kindred

Assistant Examiner—Leslie Wong

(74) *Attorney, Agent, or Firm*—Perkins Coie LLP

(57) **ABSTRACT**

A system and method for retrieving and displaying data, such as economic data. The method can include receiving over a computer network a user request for a first item of economic data, retrieving the first item of economic data from a database, and providing a display description for view by the user over the computer network with the display description including the first item of economic data. The method can further include receiving a second item of economic data from the user over the computer network and at least reducing a fee from the user for receiving the first item of economic data. In another embodiment, the method can include displaying a plurality of discrete data items to the user and receiving a selection of one of the discrete data items from the user resulting from the user at least aligning a cursor on the graphical display with the selected discrete data item. The method can further include retrieving additional data corresponding to the selected discrete data item and providing instructions for displaying the additional data to the user.

22 Claims, 51 Drawing Sheets

The screenshot shows the SalariesReview.com website interface. At the top, there are navigation links: "Our Story", "Surveys", "Decision Map", "Shopping Cart", and "Feedback". Below this is the site's logo and tagline: "SalariesReview.com The Business of Pay Information".

The main content area is titled "International Remuneration Report". It includes a description: "Request a report of 'median', 'low' and 'high' wage or salary, along with an average bonus* for up to ~4,000 positions in any of 210 different countries from this online, interactive salary survey from this on-line interactive survey." and a price of "US \$16.00".

Below the description is a form with three steps:

- Step 1: Country - Select a country (dropdown menu)
- Step 2: City in Survey/Area - Select a city (dropdown menu)
- Step 3: Position - Select a position (dropdown menu)

At the bottom of the form, it says "Description - No Position Selected" and "Alternate Titles". There is an "Add to Cart" button.

1100



An ERI Economic Research Institute E-Commerce Site
Copyright 1999 - 2000, Economic Research Institute. All Rights Reserved.
Patent Pending.
This site requires the use of Microsoft Internet Explorer 4.x or above.

1

**SYSTEM AND METHOD FOR RETRIEVING
AND DISPLAYING DATA, SUCH AS
ECONOMIC DATA RELATING TO
SALARIES, COST OF LIVING AND
EMPLOYEE BENEFITS**

**CROSS-REFERENCE TO RELATED
APPLICATIONS**

The present application claims priority to U.S. Provisional Application No. 60/203,086, filed May 9, 2000 and incorporated herein by reference.

TECHNICAL FIELD

The following relates generally to retrieving and displaying data, such as economic data related to salaries, cost of living, and employee benefits.

BACKGROUND

Databases and search engines for obtaining information related to salaries, cost of living, and employee benefits for a variety of geographical locations are known. Users can access such databases by submitting an inquiry that includes, for example, a selected industry, a selected job or position within the industry, and a geographical location. The search engine returns a range of salaries corresponding to the user's inquiry. In one conventional arrangement, the database and search engine are stored on a computer-readable medium, such as a CD, which is directly accessible to the user by loading the CD into the user's computer.

One problem with some existing databases and search engines is that the information returned by the search engine may be generic. Accordingly, it may be difficult for users to obtain specific information about the company and the job or position corresponding to the information stored in the database. Another problem is that it can be expensive to assemble the data and provide the search engine. When this expense is passed on to the user, the number of users willing to pay for the search may be limited. Still another problem is that it may be difficult and/or expensive to update the database frequently enough to keep up with rapidly changing information.

The Internet is increasingly being used to conduct searches and "electronic commerce," in part, because it facilitates electronic communications between vendors and purchasers. The Internet comprises a vast number of computers and computer networks interconnected through communication channels. Electronic commerce refers generally to commercial transactions at least partially conducted using the computer systems of the parties to the transactions. For example, a purchaser can use a personal computer to connect via the Internet to a vendor's computer. The purchaser can then interact with the vendor's computer to conduct the transaction. Although many of the commercial transactions that are performed today could be performed via electronic commerce, the acceptance and wide-spread use of electronic commerce depends, in large part, upon the ease-of-use of conducting such electronic commerce and upon creating new opportunities previously unavailable. For example, if electronic commerce can be easily conducted, then even the novice computer user will choose to engage in electronic commerce. Therefore, it is important that techniques be developed to facilitate conducting electronic commerce.

The Internet facilitates conducting electronic commerce, in part, because it uses standardized techniques for exchanging information. Many standards have been established for

2

exchanging information over the Internet, such as electronic mail, Gopher, and the World Wide Web ("WWW"). The WWW service allows a server computer system (i.e., web server or web site) to send graphical web pages of information to a remote client computer system. The remote client computer system can then display the web pages. Each resource (e.g., computer or web page) of the WWW is uniquely identifiable by a Uniform Resource Locator ("URL"). To view a specific web page, a client computer system specifies the URL for that web page in a request (e.g., a HyperText Transfer Protocol ("HTTP") request). The request is forwarded to the web server that supports that web page. When that web server receives the request, it sends the requested web page to the client computer system. When the client computer system receives that web page, it typically displays the web page using a browser. A browser is typically a special-purpose application program for requesting and displaying web pages.

Currently, web pages are often defined using HyperText Markup Language ("HTML"). HTML provides a standard set of tags that defines how a web page is to be displayed. When a user makes a request to the browser to display a web page, the browser sends the request to the server computer system to transfer to the client computer system an HTML document that defines the web page. When the requested HTML document is received by the client computer system, the browser displays the web page as defined by the HTML document. The HTML document contains various tags that control the display of text, graphics, controls, and other features. The HTML document may contain URLs of other web pages available on that server computer system or on other server computer systems.

The World Wide Web portion of the Internet is especially conducive to conducting electronic commerce. Many web servers have been developed through which vendors can advertise and sell products. The products can include items (e.g., music) that are delivered electronically to the purchaser over the Internet and items (e.g., books) that are delivered through conventional distribution channels (e.g., a common carrier). A server computer system may provide an electronic version of a catalog that lists the items available. A user, who is a potential purchaser, may browse through the catalog using a browser and select various items to be purchased. When the user has finished selecting the items to be purchased, the server computer system then prompts the user for information to complete the ordering of the items. This purchaser-specific order information may include the purchaser's name, the purchaser's credit card number, and a shipping address for the order. The server computer system then typically confirms the order by sending a confirming web page to the client computer system, and schedules shipment of the items.

Although the Internet provides the features described above, these features have not addressed the foregoing problems associated with searching and accessing economic databases. Accordingly, there exists a need for a system that addresses those problems.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic block diagram illustrating components of a computer system having a client computer and a server computer for retrieving and displaying data in accordance with an embodiment of the invention.

FIG. 2 is a schematic block diagram illustrating in further detail components of the client computer shown in FIG. 1.

FIG. 3 is a flow diagram of a representative implementation of an information retrieval and display process per-

3

formed by the system of FIG. 1 in accordance with an embodiment of the invention.

FIGS. 4A–D illustrate display descriptions for displaying economic data in accordance with an embodiment of the invention.

FIGS. 5A–G illustrate display descriptions for providing additional information relating to items of data in accordance with an embodiment of the invention.

FIG. 6 is a schematic block diagram illustrating components of the server computer shown in FIG. 1 in accordance with an embodiment of the invention.

FIG. 7 is a flow diagram of a representative implementation of another retrieval and display process performed by components of the system shown in FIG. 6 in accordance with an embodiment of the invention.

FIGS. 8A–D illustrate display descriptions for presenting and receiving wage and salary data in accordance with an embodiment of the invention.

FIGS. 9A–F illustrate display descriptions for presenting and receiving cost of living data in accordance with an embodiment of the invention.

FIGS. 10A–H illustrate display descriptions for presenting and receiving employee benefit data in accordance with an embodiment of the invention.

FIGS. 11A–D illustrate display descriptions for presenting and receiving international remuneration data in accordance with an embodiment of the invention.

FIGS. 12A–F illustrate display descriptions for presenting and receiving international cost of living data in accordance with an embodiment of the invention.

FIGS. 13A–C illustrate display descriptions for presenting and receiving college graduate data in accordance with an embodiment of the invention.

FIGS. 14A–D illustrate display descriptions for accessing data derived from a plurality of populations in accordance with an embodiment of the invention.

DETAILED DESCRIPTION

The following description provides specific details for a thorough understanding of, and enabling description for, embodiments of the invention. However, one skilled in the art will understand that the invention may be practiced without these details. In other instances, well-known structures and functions have not been shown or described in detail to avoid unnecessarily obscuring the description of the embodiments of the invention. In general, alternatives and alternate embodiments described in this application are substantially similar to previously described embodiments, and common elements and acts or steps are identified by the same reference numbers. Only significant differences in construction or operation are described in detail.

Certain aspects of the invention are directed to systems and methods for reducing or eliminating fees incurred by users accessing economic data over a computer network. For example, one method includes allowing the users to contribute economic data in lieu of fees. The contributed economic data can be added to a database and used to fill subsequent requests for data by the same or a different user. Another aspect of the invention is directed to providing additional information pertaining to a particular data item, such as a data point on a graphical display. For example, one method includes displaying additional information when the user aligns a cursor with a particular data point and/or clicks on the data point. Still another aspect of the invention is directed to allowing users to select from a variety of eco-

4

nomic databases over a computer network when fulfilling a request for economic data.

FIG. 1 and the following discussion provide a brief, general description of a suitable computing environment in which embodiments of the invention can be implemented. Although not required, the embodiments of the invention will be described in the general context of computer-executable instructions, for example, routines executed by a general-purpose computer, such as a personal computer. Those skilled in the relevant art will appreciate that the invention can be practiced with other computer system configurations, including Internet appliances, hand-held devices, wearable computers, set-top boxes, mobile phones, multiprocessor systems, multiprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention can be embodied in a specific-purpose computer or data processor that is specifically programmed, configured or constructed to perform one or more of the computer-executable instructions explained in detail below. The invention can also be practiced in distributed computing environments where tasks or modules are performed by remote processing devices, which are linked through a communications network. In a distributed computing environment, program modules or sub-routines may be located in both local and remote memory storage devices. In general, while hardware platforms, such as terminals and controllers are described herein, aspects of the invention are equally applicable to nodes on the network having corresponding resource locators to identify such nodes.

Unless described otherwise, the construction and operation of the various blocks shown in FIG. 1 are of conventional design. As a result, such blocks need not be described in further detail herein, as they will be readily understood by those skilled in the relevant art.

Referring to FIG. 1, a data retrieval and display system 100 includes one or more client computers 102, each of which includes a browser program module 104 that permits the computer to access and exchange data with the Internet, including web sites within a World Wide Web (“Web”) portion 106 of the Internet. The client computers 102 may include one or more central processing units or other logic processing circuitry, memory, input devices (e.g., keyboards and pointing devices), output devices (e.g., display devices and printers), and storage devices (e.g., fixed, floppy and optical disk drives, magnetic cassettes, flash memory cards, digital video disks (DVDs), Bernoulli cartridges, RAMs, ROMs, smart cards, etc.), all well known but not shown in FIG. 1. The client computers 102 may also include other program modules, such as an operating system, one or more application programs (e.g., word processing or spread sheet applications), and the like. The client computers 102 can be operated by a user such as a customer or potential customer of goods, for example, economic data related to salaries, compensation, cost of living, and/or employee benefits.

A server computer 108, coupled to the Web 106, performs some or all of the data retrieval and display processes. A database 110, coupled to the server computer 108, stores much of the data exchanged between the client computers 102 and the server computer 108 as described below. The server computer 108 includes a server engine 120, a web page management component 122, a database management component 124, a management process component 126, as well as other components not shown in FIG. 1. The server engine 120, the web page management component 122, the database management component 124, and the management process component 126 operate together to retrieve infor-

mation from the database **110** and provide the information to the client computers **102**. In one embodiment, the server computer **108** and the database **110** can form a single computing platform. Alternatively, the functions performed by the server computer **108** and/or the database **110** can be distributed over a plurality of platforms. The foregoing components can also operate together to receive information from the client computers and update the database **110** with the information, as described in greater detail below with reference to FIGS. 6–13C.

In one embodiment, the system **100** can include a first component (e.g., a first software component) installed on the client computer **102** and/or a second component (e.g., a second software component) that operates on the client computer **102**, the Web **106**, and the server computer **108**. In other embodiments, the system **100** can have other arrangements; for example, the two components of the system **100** can be coupled.

FIG. 2 is a schematic block diagram illustrating in further detail components of the computer **102** shown in FIG. 1. In one embodiment, the computer **102** can include a memory **140**, a CPU **142**, input/output devices **144** and a storage device **146**. The memory **140** can include software or other computer instructions for implementing a method in accordance with an embodiment of the invention. For example, the software can include five modules, such as a Salary Assessor **148a** for providing salary data, a Relocation Assessor **148b** for providing cost of living data, a Geographic Assessor **148c** for providing salary data in one geographic location based on a salary in another geographic location, an Executive Compensation Assessor **148d** for providing executive compensation data, and a Benefit Assessor **148e** for providing employee benefit data. The Assessors **148a–148e** are referred to collectively herein as “Assessors **148**.”

The input/output devices **144** can include devices such as a computer-readable media drive **154**. Accordingly, the input/output devices **144** can read computer-readable media having the software for the Assessors **148**. For example, the Assessors **148** can be contained on a CD and read by a CD drive. The software can also be accessible from the memory **140**, as described above. Alternatively, the Assessors **148** can be accessed over the Web **106**, and can be installed on the server computer **108** (FIG. 1). The storage device **146** can include file storage for data generated and/or accessed by the Assessors **148**.

In one embodiment, the Salary Assessor **148a** can receive input data or criteria, such as a selected industry, a selected geographical location and a selected job or position, and can output a range of salaries corresponding to the input criteria. The Relocation Assessor **148b** can receive input data such as an income level at a first geographical location, and a living standard (e.g., size of home, number of cars) and can output data reflecting the corresponding salary and living standard in a second geographical location, based on the difference in cost of labor between the two locations. The Geographic Assessor **148c** can receive input data, such as a salary and a first Geographical location, and can output the corresponding salary in a second geographical location, based on the difference in the cost of labor between the two locations. The Executive Compensation Assessor **148d** can receive input data, such as a geographical location, an industry type and company size (based on annual revenue), and can output a range of compensation levels for executives of companies corresponding to the input data. The Benefit Assessor **148e** can similarly provide benefit data and analyses. The statistical engines and processes used to extract the output data

based on an input request are conventional and available from Economic Research Institute of Redmond, Washington (www.eri.com).

FIG. 3 is a flow diagram of a representative retrieval and display process **300** performed generally by the system **100** (FIG. 1) and more particularly by one or more of the Assessors **148** described above with reference to FIG. 2. Display pages corresponding to a specific embodiment of the process **300** as performed by an embodiment of the Executive Compensation Assessor **148d** are provided in FIGS. 4A–5G. Accordingly, the following discussion refers both to the process steps shown in FIG. 3 and the display pages shown in FIGS. 4A–5G.

Beginning with step **302**, the process **300** can include receiving input information or criteria at the client computer **102**. For example, when the process **300** is performed by the Executive Compensation Assessor **148d**, the user can initiate operation of the executive compensation assessor **148d** and the system **100** can display an introductory page **400** (FIG. 4A). If the user provides no further inputs, the system **100** can retrieve default output data (step **304**). In one aspect of this embodiment, the data can be retrieved from a CD or other computer-readable medium coupled directly to the computer **102**. In other embodiments, the data can be retrieved from other sources, for example, the database **110** coupled to the server computer **108**, via the Web **106**. In either embodiment, the retrieved data is displayed to the user in step **306**, on an output page **402** (FIG. 4B). The output page **402** can include a graph **404** of executive compensation or salary (along the y-axis) as a function of company revenue (along the x-axis). When the graph **404** is based on a large number of data points (for example, 5,437, as shown in FIG. 4B), the data can be presented in line graph form. Accordingly, the graph **404** can include a mean data line **406a**, a high range line **406b**, and a low range line **406c**. The graph **404** can be enlarged by clicking on a Big Graph button **407a**. When the graph **404** includes dots or points (described below with reference to FIG. 5A), these can be hidden by clicking on a Hide Dots button **407b**.

The output page **402** can also include a table **408** displaying salary, bonus, and total compensation data for a variety of executive positions. In one embodiment, the table **408** can be ordered by position and/or year. Alternatively, the table can be ordered by salary, bonus, overall compensation or other variables.

In step **307**, the user can filter or adjust the default data to be more specific. In one embodiment, the system **100** can display an adjustment input page **410** (FIG. 4C) and the user can adjust the input parameters on which the output data is based. For example, the user can enter one or more geographic locations in a location field **412**, one or more industry types in industry fields **414**, and/or midpoint company revenue value in revenue field **416**. This information can be saved by clicking on a save button **413a** and assigning the information to a dataset. The user can then create another set of filter parameters. Saved information can be retrieved by clicking on a load button **413b**. The information can be submitted as a data request by clicking on an OK button **413c**, at which point the system **100** can return an output page **402a** (FIG. 4D) generally similar to the output page **402** described above but displaying a graph **404a** and table **408a** based on the adjusted input parameters received from the adjustment input page **410**.

FIG. 5A is an enlarged illustration of the graph **404a** shown in FIG. 4D. The graph **404a** can include data points **500** (four of which are identified as data points **500a–d**), as

well as the lines 406a-c described above with reference to FIG. 4B. The size of the data points can correspond to the SIC (Standard Industrial Classification) code of the company, as indicated in FIG. 5A. In a further aspect of this embodiment, the user can elect to receive additional information pertaining to a particular one of the data points 500 shown in FIG. 5A. In step 308, the system 100 can receive the user's selection of one of the data points 500. For example, referring now to FIG. 5B, the system 100 can receive a signal when the user aligns a computer cursor 502 with a selected data point 500d. In step 310, the system 100 retrieves additional data specific to the selected data point 500d from either the client computer 102 or the server computer 108. The system then displays the additional data in step 312. For example, when the data point selected by the user corresponds to a point on the salary/company revenue graph shown in FIG. 5B, the additional data can include particulars about the company and the salary corresponding to the data point. In one embodiment, the additional data can include the precise value of the salary corresponding to the selected data point as shown in display field 504. Alternatively, the additional data shown in display field 504 can include the title of the executive position, the name of the executive in that position, the identity and location of the company or firm that pays the salary for that position or other related information.

In a further aspect of this embodiment, some or all of the foregoing additional data can be displayed on a separate field that is not superimposed on the graph 404a. For example, as shown in FIG. 5C, the system 100 can display a summary compensation field 506 that includes a standard summary compensation table 508 (the heading of which is visible in FIG. 5C) extracted from a standard proxy statement provided by the company corresponding to selected data point 500d. In one aspect of this embodiment, the additional data (for example, the data shown in the summary compensation table 508) can be presented when the user takes an additional input step beyond aligning the cursor 502 (FIG. 5B) with the selected datapoint 500d. For example, in one embodiment, the user can click or double-click on the cursor 502 when the cursor 502 is aligned with the selected data point 500d. The action of double-clicking can bring up the summary compensation field 506. In another aspect of this embodiment, the page 506 can include a link 513 to the company's web site.

The user can also access still further detailed financial information pertaining to the company corresponding to the selected data point 500d. For example, by clicking on a "Load Full 10-K" input button 510 on the summary compensation field 506, the user can obtain information provided the selected company in a standard 10-K statement as described in greater detail below with reference to FIG. 5D. By clicking on a "Load Full Proxy" input button 512, the user can access the company's proxy information, as described in greater detail below with reference to FIGS. 5E-F. As used herein, the term "clicking" can refer specifically to striking an input button on a computer mouse, or generally to any input signal provided by the user to the computer.

FIG. 5D illustrates an input window 514 that can appear when the user clicks on the Load Full 10-K input button 510 described above. The user can enter a year in a date field 516, then click on a download button 518 to receive the company's 10-K statement. As shown in FIG. 5E, the system 100 can present the user with a proxy input window 520 when the user clicks on the Load Full Proxy input button 512 (FIG. 5C). The user can select a proxy year in date field 522,

and click on a download button 524 to receive a proxy statement 526, the header of which is shown in FIG. 5F. The proxy data, 10-K data and other SEC data are generally available, for example from sources such as freeEdgar.com. Accordingly, the data can be retrieved over the Internet, or from a local source, such as the database 110.

The system 100 can also display a comparable company page 530, shown in FIG. 5G. The comparable company page 530 can include a comparable company field 532 that includes a list of companies similar to the company corresponding to the selected data point 500d, based for example, on company revenue. The user can filter the information in the list 532 to narrow the number of selected comparable companies. For example, the user can click on field 534 to select the five closest companies based on company revenue, and indicated in list 532 with checkmarks. The list 532 can also highlight (for example, with a different color) the comparable company paying the highest executive compensation (indicated by numeral 536 in FIG. 5G). Alternatively, the user can narrow the list of comparable companies on the basis of revenue by entering information in revenue fields 538, or on the basis of business type by entering information in SIC fields 540, and/or by geographical location by entering information in fields 542. In other embodiments, the user can filter the data according to other parameters. In any of these embodiments, the user can then retrieve full proxy information and/or full 10-K information by clicking on the appropriate buttons 544 and 546, respectively. The user can also receive summary compensation information for the comparable companies, which is generally similar to that shown in FIG. 5C.

The process 300 can have other arrangements in other embodiments. For example, steps generally similar to steps 302-312 can be performed by any or all of the other Assessors 148a-148c and 148e. In other embodiments, the data can be displayed in forms other than the graph described above with reference to FIGS. 5B and 5D (for example, a histogram, bar graph, pie chart, or other graphical display), so long as the user can identify to the system 100 specific discrete elements of data, and the system 100 can provide additional information corresponding to those discrete elements.

FIG. 6 is a schematic block diagram illustrating components of the server computer 108 described above with reference to FIG. 1 in accordance with an embodiment of the invention. In one aspect of this embodiment, the server computer 108 can include a memory 158, a CPU 162, input/output devices 164, and a storage device 166. The memory 158 can include software or other computer instructions for implementing a method in accordance with an embodiment of the invention. For example, the software can include a plurality of survey modules 160, including a wage and salary survey module 160a for providing wage and salary data for a particular position in a particular geographical area, a cost of living survey module 160b for providing cost of living data for a particular area, and an employee benefit survey module 160c for providing employee benefit data for a particular geographical area. The software can also include an international remuneration survey module 160d for providing international incentive and salary data, an international cost of living survey module 160e for providing international cost of living data, and a college graduate offer survey module 160f for providing starting salary information in a particular geographical area for college graduates having a degree from a particular institution in a particular discipline.

In one embodiment, the survey modules 160 not specifically identified above as "international" provide data for the

U.S. and Canada and the remaining survey modules **160** provide data for other countries. Alternatively, the survey modules **160** can have other geographically based arrangements. In any of these embodiments, the survey modules **160** can be configured to both provide and receive economic data, and can provide an incentive for users to supply economic data, as described in greater detail below with reference to FIGS. 7–13C.

FIG. 7 is a flow diagram of a representative information search, retrieval, and update process **700** performed by the system **100** (FIG. 1) and one or more of the assessors **160**. FIGS. 8A–D are display pages provided by the wage and salary survey module **160a** running on the server computer **108** and provided to the client computers **102** in accordance with an embodiment of the invention. Accordingly, the following discussion refers both to the process steps shown in FIG. 7 and the corresponding display pages shown in FIGS. 8A–D.

In step **702**, the system **100** can present a variety of survey module options to a user, for example, over a network such as the Web **106**. FIG. 8A illustrates an input selection page **800** with available survey module options displayed in an option field **802**. In step **704**, the system **100** receives the user's module selection (such as "U.S./Canada Wage & Salary") and displays an appropriate input request field **804**.

In step **706**, the system **100** receives the user's input request information. For example, when the user selects the wage and salary survey module **160a**, the input information can include a geographical location. The user can enter the desired country, state, and city in the appropriate input fields **806**, or simply enter a postal code in field **808**. The user can also select a position title in field **810**, for example, from a pop-up list provided by the system **100**. If desired, the user can click on a methodology icon **811** to receive information on how the output data is computed. The system **100** then retrieves data (step **708**) corresponding to the input information. In step **709**, the system **100** can present the retrieved data to the user. For example, when the user selects the wage and salary survey module **160a**, the system **100** can retrieve salary data corresponding to the position, title and geographical data received in step **706**. Sample data are shown in display pages **812** and **814** of FIGS. 8B and 8C, respectively.

In step **710**, the system **100** can present to the user the option of paying for the retrieved data (represented by an "Add to Cart" icon **816** in FIG. 8A) or inputting supplemental data to receive the retrieved data for free or at a discount in exchange for input data, an option represented by a "Reduce Cost-Input Data" icon **818**. In other embodiments, the icons **816** and **818** can have other forms. In either embodiment, the system **100** receives the option selected by the user in step **712** and determine whether or not the user has elected to pay in step **713**. For example, if the user clicks on the "Add to Cart" icon, the user will be prompted for payment instructions (step **714**). The system **100** then receives payment information (such as a credit card number and expiration date) in step **716**.

If the user elects to input supplemental data, the system **100** presents supplemental input data fields to the user (step **718**). For example, if the user is accessing the wage and salary survey module **160a**, the system can display an input page **820**, shown in FIG. 8D. The input page **820** can include input data fields **822** for the user's location, an input field **824** for the user's position, an input field **826** for the user's e-mail address, an input field **828** for the user's years of experience in the position, an input field **830** for the user's

annual salary, and an input field **832** for the user's current bonus or incentive payment. The user enters this supplemental input data, and the supplemental data is received in step **720** by the system **100** when the user clicks on a "submit data" button **834**.

In step **722**, the system **100** can validate the supplemental input data, for example, by determining whether the input data is within two standard deviations of the mean for similar data already in the database **110** for the same position and geographical area identified by the user. Accordingly, the system **100** can select from the database **110** data that is averagable with the supplemental input data, calculate a mean and standard deviation for the data, and then determine whether the supplemental input data is within two standard deviations of the mean. In other embodiments, the system **100** can determine data validity by other methods, or the validation step can be eliminated. In step **823**, the system **100** can update the database **110** to include the supplemental data input by the user in step **520**.

In step **724**, the system **100** can reduce or eliminate any fee due from the user for receiving the data presented in step **710**. For example, in one embodiment, the system **100** can automatically eliminate the fee due from the user once the supplemental input data received in step **720** has been determined to be valid in step **722**. In an alternate embodiment, the system **100** can assign a first value to the data presented to the user in step **709**, assign a second value to the data received from the user in step **720**, and subtract the second value from the first value to determine an amount due from the user. In a further aspect of this embodiment, the data received from the user in step **720** can be similar to the data presented to the user in step **709**. For example, both types of data can pertain to salary data handled by the wage and salary survey module **160a**. In an alternative embodiment, the user can receive data from one survey module **160** and provide data handled by another survey module **160**.

In any of the foregoing embodiments, data originally requested by the user in step **706** can be automatically updated (to include the supplemental data input by the user in step **720**) and presented to the user in step **726**. Alternatively, if the same user or a different user subsequently requests data from the database **110** in a separate request, the data retrieved from the database **110** can be based in part on the supplemental data received by the server **108** from the user in step **720**. In either embodiment, the addition of the supplemental data can be reflected by updating a population field **813**, shown in FIG. 8B.

An advantage of an embodiment of the arrangement described above with reference to FIGS. 4–5 is that the user can avoid paying for economic data by providing supplemental economic data in return. A further advantage is that the database accessed by the user can be immediately updated to include the supplemental data. Accordingly, the data subsequently retrieved by the same user or a different user can be based in part on the user's own economic data.

In another embodiment, the process **700** described above with reference to FIGS. 6 and 7 can be used by data collectors (as opposed to clients) to update the database **110**. For example, a data collector in the field can use the process **700** to input additional data collected in the field, and can immediately access data that includes the supplemental input data he just provided.

In other embodiments, the process **700** can be used in other contexts, and can be used in connection with the survey modules **160b–160f** (or other modules), as described

below with reference to FIGS. 9A–13C. Each display description shown in these Figures includes self-explanatory text describing aspects of the input and output fields shown thereon. For example, FIG. 9A illustrates an input request field 900 corresponding to an embodiment of the cost of living survey module 160b. FIGS. 9B–D illustrate a single output display page having sample output data fields 902, 904 and 906, respectively, corresponding to the cost of living survey module 160b. FIGS. 9E and 9F illustrate a single page having sample supplemental input data request fields 908 and 910 for receiving supplemental input cost of living data in accordance with an embodiment of the invention. FIG. 10A illustrates a sample input request page 1000 for an embodiment of the employee benefit survey module 160c. FIGS. 10B and 10C illustrate a single display page having corresponding output data fields 1002 and 1004 for the employee benefit survey module 160c. FIGS. 10D–H illustrate corresponding supplemental input data request fields 1006–1020, for receiving supplemental input employee benefit data. A “% complete” indicator 1007 (FIG. 10D) can be periodically updated by the system 100 to indicate to the user how much of the required input data has been entered.

The international remuneration survey module 160d, the international cost of living survey module 160e, and college graduate offer survey module 160f can have arrangements generally similar to those of the survey modules described above with reference to FIGS. 8A–10H. For example, as shown in FIGS. 1A–D, the international remuneration survey module 160d can display an input field 1100 (FIG. 1A) for receiving an input request, output fields 1102 and 1104 (FIGS. 11B and 11C) for displaying output international remuneration data, and a supplemental data input field 1106 (FIG. 11D) for receiving supplemental input international remuneration data. The international cost of living survey module 160e can display an input request field 1200 (FIG. 12A) for receiving an input request, data output fields 1202–1206 (FIGS. 12B–12D) for displaying output international cost of living data, and supplemental input data fields 1208–1210 (FIGS. 12E and 12F) for receiving supplemental input international cost of living data. The college graduate offer survey module 160f can display an input data request field 1300 (FIG. 13A) for receiving an input request, data output fields 1302–1304 (FIGS. 13B and 13C) for displaying output graduate data and a supplemental input data field (not shown).

In still another embodiment, the Assessors 148 described above with reference to FIGS. 2–5G can be installed on the client computer 102 and can access the survey modules 160 over a network such as the Web 106. For example, the Geographic Assessor 148c (which requires a salary and the city corresponding to the salary as input) can retrieve survey data over the Web 106 indicating what the corresponding salary would be in another city (based on, for example, the difference in the cost of labor between the two cities). In one aspect of this embodiment, the data can be based on a plurality of salary surveys. In another embodiment, the user can request that the data be based on a single survey, for example, to comply with General Accounting guidelines, such as GA Letter 2–98. The single survey can be accessed by the Geographic Assessor 148c locally, for example via a CD, or externally via the Web 106, as described below with reference to FIGS. 14A–C.

FIG. 14A illustrates an output data field 1400 displayed by the Geographic Assessor 148c to the user in accordance with an embodiment of the invention. The data shown in FIG. 14A are obtained from a U.S. Government Occupational

Employment Statistics (OES) in response to a request for salary information for a dental hygienist position in the Seattle area. The data show OES Level I, Level II and mean values for the dental hygienist position selected by the user.

As indicated by the tabs 1402a–c along the top of the output data field 1400, the user can select to have the output data based on OES data or sources other than OES data. The user can also click on description tabs 1403a and 1403b to obtain an OES description for a job (the SOC description tab 1403a) or a Dictionary of Occupational Titles description (the DOT description tab 1403b). Each source may have different data obtained from different populations. The surveys can include the OES data described above, census data, data obtained from users over the Internet (indicated by tab 1402c, labeled survey comparison) and/or other sources, such as data available from Watson Wyatt of Washington D.C. or other service providers. If the user selects the survey comparison tab 1402c, the Geographic Assessor 148c displays an input field 1404, shown in FIG. 14B. FIG. 14C illustrates an output data field 1406 based on the survey comparison.

An advantage of the features described above with reference to FIGS. 14A–C is that the user can access multiple databases to obtain a broad data sampling (when appropriate), or can elect to access a single database (when appropriate). The user can also select which database is accessed. One particular advantage of the foregoing features is that employers can readily access data other than OES data. For example, employers may be required by government regulations to pay at levels corresponding to Level I or Level II (depending on the employee’s skill level) as shown in FIG. 14A, unless the employer can provide survey results indicating a mean compensation level less than Level I and Level II. The results shown in FIG. 14C indicate that the employer can easily access such data. For example, the value indicated in a salary survey median field 1406 of FIG. 14C is less than both the Level I and Level II values shown in FIG. 14A, for the selected geographic area. Accordingly, the employer may be able to reduce labor costs by having ready access to data such as are shown in FIG. 14C. The employer can obtain further information about the survey by clicking on a “Review Summary Report Page” icon, which links the employer to a survey report page 1408 (FIG. 14D), generally similar to the display page 812 described above with reference to FIG. 8B.

In other embodiments, any of the Assessors 148 described above can have access to a number of surveys and/or populations, which can be selected by the user in a manner generally similar to that described above. In any of these embodiments, the Assessors 148 can access selected databases over the Web 106 or other networks.

From the foregoing, it will be appreciated that although specific embodiments of the invention have been disclosed herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, many of the features described above can be incorporated into an educational platform for training compensation and benefits personnel, such as is disclosed in co-pending U.S. application Ser. No. 09/849,454, titled System and Method for Remote Learning. Such as for Costs and Benefits Personnel and Professionals filed concurrently herewith, assigned to the assignee of the present application, and incorporated herein by reference. Accordingly, the invention is not limited except as by the appended claims.

What is claimed is:

1. A method in a computer system for exchanging economic data with a user, comprising:

13

receiving a request from a user for a first item of economic data, the first item including at least one of wage data, cost of living data, cost of labor data, and employee benefit data based on a first sample size;

retrieving the first item of economic data from a database;

providing over the Internet a web page for view by the user, the web page displaying the first item of economic data and an indication of the first sample size;

receiving a second item of economic data from the user over the Internet in exchange for the first item of economic data, the second item of economic data including at least one of wage data, cost of living data, cost of labor data and employee benefit data;

checking the second item of economic data for validity or acceptability by determining whether the second item of economic data is consistent with economic data in the database of the same type as the second item of data; and

updating the database to include the second item of data if the second item of data is determined to be valid or acceptable; and

updating the first sample size to be a second sample size greater than the first sample size.

2. The method of claim 1 wherein determining whether the second item of economic data is consistent with the economic data in the database includes determining whether the second item falls within two standard deviations of a mean for data in the database averagable with the second item of data.

3. The method of claim 1 wherein receiving the second item of economic data includes receiving at least one of the user's geographic location, position, year of experience in the position, annual salary and annual bonus or incentive payment.

4. A computer-readable medium storing or transmitting instructions which, when implemented by a computer perform a method for exchanging economic data with a user, comprising:

receiving over a computer network a user request for a first item of economic data, the first item including at least one of wage data, cost of living data, cost of labor data, and employee benefit data based on a first sample size;

retrieving the first item of economic data from a database;

providing a display description for view by the user over the computer network, the display description including the first item of economic data and an indication of the first sample size;

receiving a second item of economic data from the user over the computer network, the second item of economic data including at least one of wage data, cost of living data, cost of labor data, and employee benefit data;

checking the second item of economic data for validity or acceptability by determining whether the second item of economic data is consistent with economic data in the database of the same type as the second item of data; and

updating the database to include the second item of data if the second item of data is determined to be valid and updating the first sample size to be a second sample size greater than the first sample size.

5. The computer-readable medium of claim 4, further comprising reducing a fee from the user for receiving the first item of economic data, wherein at least reducing a fee

14

due from the user includes eliminating any fee due from the user for the first item of economic data.

6. The computer-readable medium of claim 4 wherein providing the first item of economic data includes providing domestic and/or international wage data, cost of living data, cost of labor data and/or employee benefit data.

7. The computer-readable medium of claim 4 wherein receiving the second item of economic data from the user includes receiving economic data specific to the user.

8. The computer-readable medium of claim 4, further comprising providing the first item of economic data to the user free of charge.

9. The computer-readable medium of claim 4, further comprising checking the second item of economic data for validity by determining whether a numerical value of the second item is within two standard deviations of a mean for data in the database of the same type as the second item of economic data and averagable with the second item of economic data.

10. The computer-readable medium of claim 4 wherein the request is a first request and wherein the method further comprises:

receiving over the computer network a second user request for economic data;

retrieving the economic data from the database in response to a second request from the user after the database has been updated to include the second item of economic data; and

displaying the economic data to the user over the computer network, the economic data being based at least in part on the second item of economic data in the database.

11. The computer-readable medium of claim 4 wherein the first item of economic data can be averaged from a plurality of data sources, and wherein the method further includes receiving, a request that the data be based on a selected subset of the plurality of data sources.

12. A method in a computer system for updating a database with economic data provided by a user over the Internet, the method comprising:

providing a database accessible to users over the Internet, the database having economic data including wage data, cost of living data, end/or employee benefit data based on a first sample size;

responding to a first request for economic data by retrieving first output data from the database, providing the first output data over, the Internet and indicating over the Internet the first sample size;

receiving input data over the internet, the input data including wage data, coat of living data, end/or employee benefit data;

updating the database to include the input data received over the Internet and updating the first sample size to be a second sample size greater than the first sample size;

receiving a second request for economic data over the Internet;

retrieving second output data from the database and providing the second output data over the Internet in response to the second request, the second output data being based at least in part on the input data received over the internet; and

indicating over the Internet that the sample size on which the second output data is based is the second sample size.

13. The method of claim 12 further comprising at least reducing a fee for the first output data in response to receiving input data.

15

14. The method of claim 12, further comprising determining whether the input data are consistent with data in the database by determining whether the input data are within two standard deviations of a mean for data in the database averagable with the input data.

15. The method of claim 12 wherein the database includes data gathered by a governmental entity.

16. The method of claim 12 wherein the first and second requests are received from a single user.

17. The method of claim 12 wherein the first request is received from a first user and the second request is received from a second user.

18. The method of claim 12, further comprising checking the input data for validity by determining whether the input data are consistent with economic data in the database of the same type as the input data.

19. The method of claim 12, wherein a single user receives the first output data and provides the input data over the Internet, and wherein the method further comprises:

assigning a first value to the economic data provided in response to the first request;

assigning a second value to the input data received over the Internet; and

calculating a fee due for the first output data by subtracting the second value from the first value.

20. The method of claim 12 wherein a single user receives the first output data and provides the input data over the Internet, and wherein the method further comprises at least reducing a fee due from the single user for receiving the first output data.

21. A computer system for exchanging economic data with a user, comprising

means for receiving over a computer network a user request for a first item of economic data, the first item including at least one of wage data, cost of living data, cost of labor data, and employee benefit data, based on a first sample size;

means for retrieving the first item of economic data from a database;

means for providing a display description for view by the user over the computer network, the display description including the first item of economic data and an indication of the first sample size;

means for receiving a second item of economic data over the computer network, the second item of economic

16

data including at least one of wage data; cost of living data, cost of labor data, and employee benefit data;

means for checking the second item of economic data for validity or acceptability by determining whether the second item of economic data is consistent with economic data in the database of the same type as the second item of data;

means for updating the database to include the second item of data if the second item of data is determined to be valid; and

means for updating the first sample size to be a second sample size greater than the first sample size.

22. A computer system for updating a database with economic data provided by a user over a computer network, the method comprising;

means for providing a database accessible to users over the computer network, the database having economic data including wage data, cost of living data, and/or employee benefit data based on a first sample size;

means for responding to a first request for economic data by retrieving first output data from the database, providing the first output data over the Internet and indicating over the Internet the first sample size;

means for receiving input data over the Internet, the input data including wage data, cost of living data, and/or employee benefit data;

means for updating the database to include the input data received over the Internet and updating the first sample size to be a second sample size greater than the first sample size;

means for receiving a second request for economic data over the internet;

means for retrieving second output data from the database and providing the second output data over the Internet in response to the second request, the second output data being based at least in part on the input data received over the Internet; and

means for indicating over the Internet that the sample size, on which the second output data is based, is the second sample size.

* * * * *