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(54) Title: METHOD AND SYSTEM FOR GENERATING A PERSONALIZED SHOPPING LIST BASED ON THE PURCHASE HISTORY OF A CUSTOMER

(57) Abstract:

Method and System for Generating a Personalized Shopping List Based on the Purchase History of a Customer

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates generally to a method and system for generating a personalized shopping list, and more specifically to a method and system for generating a personalized shopping list based on the purchase history of a customer and delivering promotions along with the personalized shopping list. As used herein, the term "promotion" refers to any offer, advertisement, incentive, coupon, commercial, or communication for promoting one or more goods and/or services.

Discussion of the Background

As every grocery shopper knows, using a shopping list can make the task of shopping for groceries easier and results in fewer forgotten items. However, generating a shopping list is time consuming and such lists can be difficult to maintain over the period of time prior to the shopping event for which the list is intended.

In addition, it is well known to provide promotions such as purchase incentives and advertisements to consumers based on the particular consumer's purchasing history and/or purchase items in the consumer's current transaction. This form of targeted marketing has a disadvantage in that the marketer providing the promotion cannot know precisely when the consumer is in need of the product that is the object of the promotion, or precisely when the customer will partake in a shopping event. Therefore, the targeted items may be delivered to the consumer long before the consumer shops for the marketed product. Thus, current targeted advertisements have the disadvantage in that the effectiveness of the message of the advertisement may fade in the interim time between the consumer receiving the advertisement and shopping for the product associated with the advertisement. Moreover, targeted purchase incentives may be lost or discarded during this interim time.

SUMMARY OF THE INVENTION

Accordingly, one object of this invention is to provide a method, system and computer program product for generating a shopping list based on the purchase history of a consumer.

Another object of the present invention is to provide a method, system and computer readable medium for delivering targeted promotions to the consumer based on the consumer's shopping event time.

Still another object of the present invention is to provide a method and system for delivering targeted promotions to the consumer based on items on the personalized shopping list.

These and other objects are achieved by providing a novel method, system, and computer program product for generating a personalized shopping list.

According to one aspect of the invention, a system, computer program product and method for generating a personalized shopping list are provided. The method, on which the system and computer program product are based, includes receiving a purchase history associated with a customer identifier, generating a personalized shopping list based on the purchase history, associating the personalized shopping list with the customer identifier, and storing the personalized shopping list associated with the customer identifier. The purchase history may be received, via a local area network or wide area network, from a remote computer for generating the purchase history. Items on the personalized shopping list may be determined based on purchase trends identified from the purchase history in which case the frequency of purchase of items in the purchase history is determined and the items probably needed by the customer are determined based on the frequency and a date of the shopping event for which the shopping list is generated.

According to another aspect of the invention, shopping list criteria are also received, and the personalized shopping list is generated based on the purchase history and the shopping list criteria. In this aspect, purchase trends are determined from the purchase history and a preliminary shopping list is generated based on the purchase trends determined. The preliminary shopping list for items meeting a the shopping list criteria and a personalized shopping list of items on the preliminary shopping list meeting the predetermined criteria is generated.

According to still another aspect of the invention, the personalized shopping list is delivered to a desktop or hand held customer computer associated with the customer identifier, and promotions are generated and delivered with the personalized shopping list. The promotions delivered may be determined based on the purchase history associated with the customer identifier, or based on the items on the personalized shopping list which may be in the form of a product name, generic item name or any other product identification type. Where the list is a list of generic item types, groups of products corresponding to each generic item on the personalized shopping list may be identified, and promotions for each group of products corresponding to a respective generic item may be generated.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the invention and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Figure 1 is a system for generating a personalized shopping list according to an embodiment of the present invention;

Figure 2 is a block diagram of a hand held customer computer used according to an embodiment of the present invention;

Figure 3A is a product identifier table for associating product identifiers with respective products and other information according to an embodiment of the present invention;

Figure 3B is a purchase history table for associating a customer identifier (CID) with a purchase history:

Figure 3C is a shopping list table for associating CIDs with shopping list items according to an embodiment of the present invention;

Figure 3D is a predetermined promotion table for associating predetermined promotions with a CID according to an embodiment of the present invention;

Figure 3E is a trigger item table for associating trigger items with promotions according to an embodiment of the present invention;

Figure 4 is a flow chart describing a process for obtaining a personalized shopping list

and/or promotions using a customer computer according to an embodiment of the present invention;

Figure 5 is a flow chart describing a process for determining shopping list items based on a purchase history according to an embodiment of the present invention;

Figure 6 is a flow chart describing a process for revising shopping list items based on a shopping list criteria according to an embodiment of the present invention;

Figure 7 is a flow chart explaining a process for generating a personalized shopping list according to a predetermined item identification type according to an embodiment of the present invention;

Figures 8A through 8C are exemplary promotions that may be delivered with a personalized shopping list according to an embodiment of the present invention; and

Figure 9 is a schematic illustration of a computer system programmed to perform one or more of the special purpose functions of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views, and more particularly to Figure 1 thereof, there is shown a computerized system for generating a personalized shopping list based on the purchase history of a consumer. The system of Figure 1 includes a host computer 101, a global purchase database 103, one or more retail stores 105, a purchase data computer 107, a local purchase database 109, a store controller 111, a store database 113, one or more points of sale (POS) 115, each including a printer 117, a terminal 119, and a scanner 121. Also included are a shopping list server 123, a shopping list database 125, an advertisers server 127, a desktop customer computer 129, a hand held customer computer 201, and a wide area network (WAN) such as the Internet 131.

The host computer 101 is any suitable workstation, server, or other device, such as the computer system 901 of Figure 9, for communicating with the purchase data computer 107 and for storing information in and retrieving information from the global purchase database 103. The host computer 101 may also determine targeted promotions to be sent to customers in the retail store 105. The host computer 101 communicates with the purchase data computer 107 using any suitable protocol and may be implemented using the computer

system 901 of Figure 9, for example.

The global purchase database 103 is a file that includes records containing information for generating and delivering personalized shopping lists and targeted promotions, in accordance with the present invention. This information includes information of each purchase made by a customer in the retail store 105. Such information may include, but is not limited to the shelf keeping unit (SKU), brand, size, weight, price, date and time of purchase, and customer identifier (CID) of the customer making the purchase, for example. In one embodiment, portions of this information are obtained from bar codes on purchase items, which are scanned by the scanner 121 during a transaction. These bar codes may contain UPC, JAN, and EAN information. Records in the global purchase database 103 contain fields together with a set of operations for searching, sorting, recombining, and other database functions. The global purchase database 103 may be implemented as two or more databases, if desired. One or more of U.S. Pat. Nos. 5,832,457; 5,649,114; 5,430,644; and 5,592,560 describe techniques for collecting consumer purchase history information and for storing such information in databases such as the global purchase database 103 and the store database 113, for example. U.S. Pat. Nos. 5,832,457; 5,649,144; 5,430,644; and 5,592,560 are incorporated herein by reference. Additionally, techniques for collecting consumer purchase information and for storing such information in databases, such as the global purchase database 103 and the store database 113, are described in other patents owned by Catalina Marketing and/or Catalina Marketing International. Each patent owned by Catalina Marketing and/or Catalina Marketing International is incorporated herein by reference.

The retail store 105 is generically referred to as a retail location and is a place where goods are kept for retail sale to customers. As noted above, many retail stores 105 may be connected to the host computer 101.

The purchase data computer 107 may be implemented using the computer system 901 of Figure 9, for example, or any other suitable PC, work station, server, or device for communicating with the host computer 101, for storing and retrieving information in the local purchase database 109, for monitoring data transmitted between the terminal 119 and the store controller 111 (i.e., transaction data), and for controlling the printer 117.

The local purchase database 109 is a file that includes records containing information for providing a personalized shopping list and promotions in accordance with the present

invention. The records in the local purchase database 109 contain fields for associating bar codes with products in the retail store 105 (e.g., by using UPC, JAN, and/or EAN codes), associating customer identifiers with promotions, associating consumer identifiers with purchase history information of customers, and associating purchase triggers (e.g., select bar codes) with promotions. The local purchase database 109 also includes operations for searching, sorting, recombining, and other database functions. The local purchase database 109 may be implemented as two or more databases, if desired. Periodically (e.g., daily), sales transaction information stored in the local purchase database 109 is retrieved by the purchase data computer 107 and sent to the host computer 101, which uses the information to update the purchase history information stored in the global purchase database 103.

The store controller 111 is any computer or device for communicating with the terminal 119 and for using information stored in the store database 113 to carry out transactions at the point of sale (POS) 115. A description of a store controller 111 is found in U.S. Patent No. 5,173,851, for example.

The store database 113 is a file that includes records containing information for carrying out transactions at the point of sale 115 by scanning bar codes printed on purchased items. The records in the store database 113 contain fields for associating bar codes with products and their corresponding prices. The store database 113 also includes operations for searching, sorting, recombining, and other database functions, and may be implemented as two or more databases, if desired.

The retail store 105 includes one or more points of sale 115. Each point of sale 115 preferably includes a corresponding printer 117, a terminal 119, and a scanner 121. The printer 117 prints, for example, promotions in response to receiving commands from the purchase data computer 107. The terminal 119 may be implemented as a standard cash register and may include a screen, credit card reader, and numeric key pad, for example. The terminal 119 communicates with the store controller 111 and the scanner 121. The scanner 121 may be implemented as any conventional scanning device for reading product information such as an item code (e.g., UDC, EAN, or JAN) from bar codes or other indicia on the product. Information read by the scanner 121 is transmitted to the store controller 111 via the terminal 119. The store controller 111, uses the scanned information and the information stored in the store database 113 to determine information of the transaction

including SKU, product price, quantity, and product description, for example.

If there are multiple points of sale 115 within the retail store 105, then each terminal 119 is preferably arranged on a loop with the store controller 111. The purchase data computer 107 is located in front of the store controller 111 on the loop so that information transmitted from the terminals to the store controller is monitored by the purchase data computer 107.

The desktop customer computer 129, the shopping list server 123, and the advertiser's server 127, may each be implemented as a general purpose computer (e.g., the computer 901 of Figure 9) and may be appropriately programmed to communicate with one another over a wide area network (WAN) such as the Internet 131. The Internet 131 includes various networks and gateways for linking together various computer networks and computers such as host computer 101, shopping list server 123, advertiser's server 127, and customer computers 129 and 201.

The desktop customer computer 129 may be any computer that one or more consumers can access, such as home or office computers. The customer computer 129 may also be implemented as an interactive television set or other structure suitable for accessing remote computers via the Internet 131. Interactive television systems are described in U.S. Patent Nos. 4,847,700, 5,721,583, and 5,552,735. U.S. Patent Nos. 4,847,700, 5,721,583, and 5,552,735 and all references cited therein are incorporated herein by reference. The desktop customer computer 129 may be programmed with any suitable Web browser software that permits the desktop customer computer 129 to retrieve Web pages via the Internet 131 from remote computers or servers such as the shopping list server 123 and/or the advertiser's server 127. The Web browser software may also be used to transmit information provided by a consumer to a remote computer such as the shopping list server 123.

The shopping list server 123 is a Web server programmed to receive, store, and/or transmit various types of information, including, product identifiers, products, information for identifying consumers, shopping lists and promotions, although the shopping list server 123 may also be implemented using any type of computer. The advertiser's server 127 may be a Web server programmed to send and receive information relating to promotions to and from a remote computer such as the shopping list server 123 and/or host computer 101 by way of the Internet 131 or any other wide area or local area network. The shopping list server 123 and

the advertiser's server 127, may be appropriately programmed with server software for delivering Web pages to remote clients or computers such as the customer computers 129 and 201.

The shopping list database 125 may be implemented using any desired structure including any type of computer connected to any type of storage device including magnetic disks such as one or more hard disk drives, optical disks, magneto-optical disks, memory chips, or other desired storage devices. The shopping list database 125 is a file that includes records containing information for identifying consumer products, associating CIDs with a shopping list, and delivering targeted promotions. Records in the shopping list database 125 contain fields together with a set of operations for searching, sorting, recombining, and other database functions. The shopping database 125 may be implemented as two or more databases, if desired.

It is to be understood that the system in Figure 1 is for exemplary purposes only, as many variations of the specific hardware and software used to implement the present invention will be readily apparent to one having ordinary skill in the art. For example, the functionality of the shopping list server 123 and the host computer 101 may be combined in a single device. To implement these variations as well as other variations, a single computer (e.g., the computer system 1001 of Figure 10) may be programmed to perform the special purpose functions of two or more of the devices shown in Figure 1. On the other hand, two or more programmed computers may be substituted for any one of the devices shown in Figure 1. Principles and advantages of distributed processing, such as redundancy and replication, may also be implemented as desired to increase the robustness and performance of the system, for example.

Figure 2 is a block diagram of an exemplary hand held customer computer that may be used according to an embodiment of the present invention. Figure 2 is intended to represent any one of a variety of small screen computers such as the hand held computer sold under the trademark PalmPilot by Palm, Inc., or a hand held computer described in any one of U.S. Patent Numbers, 4,545,023, 5,133,076, and 5, 900,875, for example. U.S. Patent Numbers, 4,545,023, 5,133,076, and 5, 900,875 are incorporated herein by reference. Additionally, the hand held customer computer 201 may be a personal data assistant (PDA), cellular phone, or any other portable hand held device capable of uploading, downloading,

storing, and manipulating digital information.

Preferably, hand held customer computer includes a bus 203 or other communication mechanism for communicating information, and a processor 205 coupled with bus 203 for processing the information. Hand held customer computer 201 also includes a memory unit 207, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), flash RAM), coupled to bus 203 for storing information and instructions to be executed by processor 205. In addition, memory unit 207 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 205. Memory unit 207 may further include a read only memory (ROM) or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) for storing static information and instructions for processor 205. The ROM may be depicted as a separate memory unit. A storage device 211, such as a magnetic disk, may be provided coupled to bus 203 for storing information and instructions.

Hand held customer computer 201 also includes a display unit 213, such as a liquid crystal display (LCD), coupled to bus 203 for displaying information to a user of hand held customer computer 201. The hand held customer computer 201 includes an input device 215, such as an alpha-numeric keypad and/or cursor control, for communicating information and command selections to processor 205.

The hand held customer computer 201 also includes an interface 217 coupled to bus 203. Interface 217 provides a two-way data communication coupling 129 with the Internet 130, customer computer 129, or any other computer system such as the computer system 1001 illustrated in Figure 10. Interface 217 may be a data port for transmitting and receiving data via a wire medium or a wireless transceiver for providing two-way radio link to the Internet 131. Interface 217 is for sending and receiving electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

The present invention stores information relating to consumer identifications, product identifiers, consumer products, and promotions, for example. This information is stored in one or more memories such as a hard disk, optical disk, magneto-optical disk, and/or RAM, for example. One or more databases, such as the shopping list database 125 and global purchase database 103 may store the information used to implement the present invention.

The databases are organized using data structures (e.g., records, tables, arrays, fields, graphs, trees, and/or lists) contained in one or more memories, such as the memories listed above or any of the storage devices listed below in the discussion of Figure 10, for example.

Figures 3A-3E, depict data structures used for implementing a system for generating a personalized shopping list and delivering targeted promotions along with the shopping list according to an embodiment of the present invention. The data structures are depicted in a relational format, using tables, whereby information stored in one column (i.e., field) of a table is mapped or linked to information stored in the same row (i.e., record) across the other column(s) of the table. These data structures are used by the shopping list server 123, the advertiser's server 127, the host computer 101, the purchase data computer 107, and/or the store controller 111 to generate a personalized shopping list according to the present invention and to deliver promotions with the shopping list.

Figure 3A is a product identifier table 301 that includes a field 303 for storing product identifiers, a field 305 for storing product names associated with the product identifier in the field 303, and a field 307 for storing other information relating to the product identifier in the field 303. Information contained in the field 307 may include a generic item name, product category, the package size of the product, the price of the product, and/or any other information associated with the product identifier in field 303. Each retail product has a unique product identifier such as a product package bar code. To illustrate the use of product identifier table 301, Figure 3A includes four exemplary entries. The first entry of Figure 3A shows that field 303 may contain the number "12345" as a product identifier, and in the same record, field 305 may contain the entry "ABC Cola" as a corresponding retail product. Also, in field 307 of this record are the entries "Cola; non-perishable; 12 oz" representing the generic item name, product category, and package size of the retail product, in this order. The product identifier table 301 also includes the product identifiers "8765", "FF2081", and "XST342" and the corresponding entries (i.e. the entry in the same record) "Brand A cheese", "XYZ carrots", and "Hefty personal dinner" respectively in field 305, as well as corresponding other information in field 307. Thus, the product identifier table 301 associates each product identifier with a particular product and any other information specific to the product. The product identifier table 301 is preferably stored in the shopping list database 125 but may be stored in the global purchase database 103 or any other suitable

database.

Figure 3B is a purchase history table 311 that includes a field 313 for storing consumer identifiers (CIDs) and a field 315 for storing purchase histories of the consumers in the field 313. Each customer or consumer is provided with a CID that identifies the particular costumer. A CID is any identifier that is scanned, read, or otherwise entered into a computer system at checkout to identify a customer. Each customer may have multiple CIDs. Preferably, the CID is represented as a bar code so that it can be quickly scanned at checkout by the scanner 117, although any other type of machine readable or non-machine readable implementations for storing or displaying identifications may be used, including magnetic strips, memory chips, and smart cards. Examples of possible consumer IDs are credit card numbers, debit card numbers, social security card numbers, driver's license numbers, checking account numbers, street addresses, names, e-mail addresses, telephone numbers, frequent customer card numbers, shopper card identifications (SCIDs), or shopper loyalty card numbers issued by the retail store 105, although any other suitable form of identification may be used.

Filed 315 of purchase history table 311 includes a purchase history associated with each CID in filed 313. Preferably, the field 315 is divided into several subfields for separately storing purchase data such as the quantity and product identifier of the item purchased, and the date of the purchase. Additionally, these sub-fields may include the location of the purchase, a description of the items purchased, the price of each item purchased, the time of the transaction, and any other desired information of consumers' transactions. Thus as seen in the first entry of table 311, the customer associated with CID 071870 purchased two items having the product identifier 12345 on both May 14, 2000 and May 21, 2000. Reference to the product identifier table 301 in Figure 3A indicates that the customer purchased two ABC Colas on these dates. As seen in table 311, purchase history field 315 preferably identifies products by product identifier although any identifier unique to the product may be used. Table 311 also provides a similar exemplary purchase history for the customer corresponding to the CID 090269. The purchase history table 311 is preferably stored in the global purchase database 103, although any suitable database may be used.

Figure 3C is a shopping list table 321 that includes a field 323 for storing CIDs and a field 325 for storing shopping list items associated with the CID. Shopping list table 321

stores CIDs of many different customers and shopping lists associated with each CID. The shopping list items in table 321 may be in the form of form of products, generic items, or product identifiers. Thus, as seen in the exemplary entries of Figure 3C, the first entry in table 321 associates a generic item list of Cheddar cheese, Frozen carrots, and Cola as well as other products that make up the consumer's shopping list, with the customer identifier 071870. The second entry of table 321 associates a product shopping list including ABC cola and XYZ toothpaste with a different customer having CID 090269. Shopping list items table 321 is stored in the shopping list database 125 according to one embodiment, but may be stored in any suitable database.

Figure 3D is a predetermined promotions table 331 that includes a field 333 for storing CIDs and a field 335 for storing predetermined promotions associated with the CID. The predetermined promotions table 331 stores CIDs of many different customers associated with promotions. Thus, as seen in the exemplary entries of Figure 3D, the first entry in table 331 associates predetermined promotions with the CID 071870 referred to in Figure 3A, while the second entry of table 331 associates a predetermined promotion with a different customer having the CID MMM765. The promotions in field 335 may be determined based on purchase history of the customer obtained by analysis of, for example, purchase data such as the location of the purchase, a description of the items purchased, the price of each item purchased, date and time of the transaction, and any other desired information of customers' transactions. In one embodiment, the advertiser's server 127 works in conjunction with the host computer to provide the predetermined promotions table 331 which is stored in the global purchase database 109 according to one embodiment.

Figure 3E is a trigger item table 341 including a field 343 for storing trigger items and a field 345 for storing promotions. The trigger items in field 343 may be bar codes or other product identifiers. Once a personalized shopping list is generated by the shopping list server 123, the product identifiers on the shopping list are analyzed by the shopping list server 123. If a product identifier on the personalized shopping list matches a product identifier of a trigger item in field 343, then the corresponding promotions in the field 345 are delivered to the customer computer along with a personalized shopping list. Thus, the trigger item table 341 associates trigger items with purchase incentives and advertisements to be delivered to a customer whose shopping list includes one or more of the trigger items in the field 343.

In a preferred embodiment, the trigger items in filed 343 are product identifiers or other identifiers of a specific product brand, and the promotions stored in field 345 are for products that are complements of, in competition with, or in some way related to the purchase trigger items stored in field 343. The first entry of Figure 3E illustrates an example of a purchase incentive for a product in competition with a trigger product. In this example, "brand A cola" in field 343 is a potential shopping list item that provides a trigger for a purchase incentive of "50 cents off brand B cola" in field 343, brand B cola being in competition with brand A cola. Similarly, trigger item "brand T tea" in field 343 triggers an advertisement for "brand X sweetener" in field 345, sweetener being ordinarily used with tea and therefore a complement item of tea. Thus, if a customer's shopping list includes both brand A cola and brand T tea, a purchase incentive for 50 cents off brand B cola and an advertisement for brand X sweetener will be delivered to the customer computer along with the shopping list.

In another embodiment, the trigger items in field 343 are generic items and the promotions stored in field 345 are for products that are species of the generic item. The third entry of Figure 3E illustrates an example of promotions for species of products that correspond to a generic item. In this example, "Cola" in field 343 is a generic shopping list item that provides a trigger for promotions for "50 cents off brand A cola" and "60 cents off brand B cola", brand A and B colas each being a species of the generic item cola. Similarly, the fourth entry in field 341, the generic item "cheddar cheese" is associated with promotions for cheddar cheese. In this way, the consumer may be provided with a variety of promotions corresponding to a generic item on the personalized shopping list. How the promotions in fields 335 and 345 are provided in response to the CIDs and a trigger items in field 333 and 343 respectively will be further described below.

The data structures embodied by the present invention include the data structures shown in Figures 3A through 3E, as described above. Alternatively, any other desired manner of implementing the data structures embodied by the present invention may be equivalently implemented so that the desired functionality and corresponding practical application are achieved.

According to one embodiment of the present invention, a consumer delivers his or her CID to a remote server and receives a promotions along with a personalized shopping list

based on a purchase history associated with the CID. Figure 4 is a flowchart explaining the process for obtaining a personalized shopping list and promotions according to one embodiment of the present invention.

In step 401, the shopping list server is 123 is accessed from the desktop customer computer 129 for example. This is done by using the web browser on the desktop customer computer 129 to locate the URL of the shopping list server 123. Once the shopping list server 123 has been accessed, the customer inputs a CID into the customer computer 129. The CID may be input manually, by scanning a card or other medium having the customer's CID printed thereon in bar code format, or by swiping a magnetic identification card in a magnetic card reader connected to the customer computer. A shopping list criteria, a request for promotions, and an item description type may also be entered into the desktop customer computer 129 at this time. The shopping list criteria allows the customer to limit the items placed on the personalized shopping list, obtain promotions, and otherwise customize the personalized shopping list as will be discussed. For example, the shopping list criteria may allow the customer to obtain a personalized shopping list that includes only perishable, non-perishable, dairy, and/or frozen items.

In step 403, the CID and shopping list information are electronically transmitted to the shopping list server 123 via the Internet 131. In a preferred embodiment, the customer computer provides access to the shopping list server 123 which includes software for collecting the necessary information for generating a personalized shopping list. For example, the shopping list server 123 may deliver to the customer computer 129 a web page which includes a field for entry of the customer's CID and menu selections for the customer to select shopping list criteria, promotions options, and other shopping list information. Alternatively, the desktop customer computer 129 may be provided with software to collect the customer's CID and shopping list information which is then transmitted to the shopping list server 123. Moreover, it is to be understood that the customer may input and transmit a CID and shopping list information each time a shopping list is requested, or the customer may transmit such data to the shopping list server 123 only once as part of a registration process. According to this embodiment, the shopping list server 123 stores the registration data and accesses the data for every shopping list request made by the customer.

Once the CID has been transmitted to the shopping list server 123, the shopping list

server retrieves a purchase history associated with the CID from the host computer 101 in step 405. In doing so, the shopping list server 123 accesses the host computer 101 via the Internet 131 in a manner similar to that described above, and transmits the CID over the Internet 131 to the host computer 101. The host computer 101 then references the purchase history table 311 stored in the global purchase database 103 and retrieves the purchase history associated with the CID transmitted in step 403. The purchase history associated with the CID is then electronically transmitted to the shopping list server 123 via Internet 131. It is to be understood that the shopping list server 123 may receive CIDs from customers and immediately access the host computer 101 to retrieve the purchase history associated with the CID, or the shopping list server 123 may retrieve and store many CIDs over a predetermined period of time, send these CIDs in bulk to the host computer 101 and host computer may accordingly send many purchase histories in the form of purchase history table 311 to the shopping list server 123.

Once the shopping list server has retrieved the purchase history corresponding to the customer's CID, in step 409 the shopping list server 123 determines the shopping list items based on a purchase history associated with the CID. Shopping list items are determined by detecting purchase trends of the customer associated with the CID as will be discussed with respect to Figure 5.

After the shopping list items are determined, as shown by decision block 411, the shopping list server 123 then determines whether shopping list criteria was transmitted along with the CID transmitted in step 403. If a list criteria was not transmitted in step 413, the shopping list server 123 generates a personalized shopping list according to the items determined in step 409. However, if a shopping list criteria was entered and transmitted by the customer in step 403, in step 415 the shopping list items are revised to include only those items meeting the shopping list criteria as will be discussed with respect to Figure 6.

In step 413, the shopping list server 123 generates a personalized shopping list by associating the list items determined in step 409 or the list items revised in step 415 with the CID transmitted in step 403. According to one embodiment, the personalized shopping list generated in step 413 may include items of a predetermined item identification type as will be further discussed with respect to Figure 7.

Once the personalized shopping list is generated, the shopping list server 123

determines whether promotions are to be delivered to the customer along with the personalized shopping list as shown by decision block 417. Whether promotions are delivered to the customer along with the personalized shopping list may be determined based on shopping list information transmitted by the customer in step 403, or by the shopping list server 123 depending on business policies. If promotions are to be delivered, the shopping list server 123 determines the promotions in step 419 and subsequently delivers the personalized shopping list and promotions to the desktop customer computer 129 as seen in step 420. Promotions may be based on purchase history alone or based on actual items on the personalized shopping list generated in step 413. Moreover, how promotions are generated depends on the item identification type used in the generation of the personalized shopping list. If promotions are not to be delivered in step 421, the shopping list server 123 delivers the personalized shopping list to the customer as generated in step 413.

Once the shopping list server 123 generates the personalized shopping list and determines whether and what promotions will be delivered to the customer, the personalized shopping list, or the personalized shopping list and promotions are delivered to the desktop customer computer 129 as seen in steps 420 and 421. According to one embodiment, the personalized shopping list and promotions are delivered to the desktop customer computer 129 in near real time when the customer transmits the customer request. Alternatively, the personalized shopping list and promotions are delivered to the customer at a later time. In this latter embodiment, the customer transmits his or her CID and shopping list information to the shopping list server 123 in a first access session. Preferably, the customer would also indicate a time of the shopping event during this session. The shopping list server 123 would then generate a personalized shopping list and promotions and store the list and promotions in the shopping list database 125 where the customer can retrieve them in a second access session. Thus, the shopping list server 123 generates a shopping list table 321, of Figure 3B stores it in shopping list database 113 or any other suitable storage space.

Moreover, it is to be understood that the shopping list server 123 may automatically generate a personalized shopping list and store the shopping list in advance of the customer request. For example, after the shopping list server 123 obtains registration data for the customer as discussed above, a list may be generated on a weekly or bi-weekly basis, for example, and stored in the shopping list database 125. The customer may then access the

shopping list server 123 and retrieve the stored shopping list upon request.

In one embodiment of the present invention, Figure 4's step 409 of determining the shopping list items is accomplished according to a purchase trend determined from analysis of the purchase history of the customer. Figure 5 explains how the shopping list items are determined. In step 501, the shopping list server 123 accesses the purchase history table 311 retrieved from host computer 101 in step 405 of Figure 4. The shopping list server 123 then analyzes the purchase history associated with the CID for purchase trends in step 503. In one embodiment, purchase trends are timing trends that indicate the frequency at which the customer purchases a particular product or item. For example, reference to product identifier table 301 and purchase history table 311 indicates that the customer associated with CID 071870 purchased two 12 oz colas on both May 14 and May 21, 2000. Therefore, the customer has established a trend for purchasing cola each week. Similarly, table 311 also indicates that the customer associated with CID 090269 purchases cola roughly every week, but cheddar cheese roughly every two weeks. The shopping list server's analysis of the trends may involve consideration of the quantity of a particular item purchased, the expiration time of an item purchased, or any other information important in determining the frequency at which a particular item may be purchased. This information is preferably contained in subfields of purchase history field 315 of purchase history table 311, and/or in the other information field 307 of the product identifier table 301. Thus, in analyzing the purchase history for trends, the shopping list server 123 may access purchase history table 311 and product identifier table 301 when necessary.

Once the shopping list server 123 has identified purchase trends of the customer associated with the CID, the shopping list server 123 then determines the shopping event date in step 505. This date is preferably provided by the customer with the shopping list information as discussed above, but may be estimated based on the date the customer accesses the shopping list server 123 or the customer's purchase history. For example, in analysis step 505, shopping list server 123 may determine that a particular customer shops on a weekly basis. The shopping list server 123 therefore would estimate that the shopping event for which the personalized shopping list is generated is 7 days after the previous shopping event.

Once the shopping list server 123 has identified purchase trends of the customer

associated with the CID and determined the shopping event date, the shopping list server 123 then determines the items probably needed by the customer in step 507. Specifically, the shopping list server 123 performs an analysis of the trends identified and extrapolates whether each trend would result in the customer having a need for the item on the date of the shopping event determined in step 505. For example, if a shopping event date of May 28, 2000 was determined for the each of the CIDs in table 311 in Figure 3B, the shopping list server 123 would determine that on this date the customer 071870 probably would need to purchase cola because the customer purchases cola on a weekly basis and it has been one week since the customer's last purchase. Similarly, the shopping list server 123 may determine that the customer associated with CID 090269 would probably need to purchase hefty personal dinners; however, this customer probably will not need to purchase cheddar cheese since this item was purchase one week prior to the event day and the customer has shown a trend of purchasing cheddar cheese every two weeks. Thus, as seen in shopping list table 321 in Figure 3C, the personalized shopping list associated with 071870 includes cola, and the shopping list associated with 090269 includes hefty personal dinner, but does not include cheddar cheese.

Finally, as seen in step 509, the shopping list server 123 associates the probably needed items determined in step 507 with the CID originally transmitted by the customer. In this way, the shopping list server 123 performs Figure 4's step 409 of determining shopping list items based on purchase history.

As discussed with respect to Figure 4, the shopping list items may be revised based on shopping list criteria entered by the customer. Figure 6 explains how the shopping list server 123 revises the shopping list items according to a list criteria entered by the customer. In step 601, the shopping list server 123 determines a product category based on the list criteria. In one embodiment of the present invention, the customer may input several list criteria in which case the product category may include several criteria. For example, the customer may indicate a list criteria that requests dairy products and frozen foods so that cold items can be purchased together in one shopping event. In this situation, the product category is those products that are either dairy or frozen food items.

Once the product category has been determined, in step 603 the shopping list server 123 accesses the product identifier table 301 from the shopping list database 125. As

discussed, the product identifier table 301 includes product identifiers as well as products and other information relating to the product identifier in relational database format. The other information in field 307 of table 301 includes information necessary to revise the shopping list items based on the shopping list criteria input by the customer. The shopping list server 123 analyzes the other information in the product identifier table 301 for each shopping list item determined in step 409 of Figure 4. If the other information indicates that the shopping list item does not meet the product category determined in step 601, the shopping list server 123 eliminates this item from the shopping list items. For example, and referring again to the above hypothetical customer wanting to generate a list of cold items, if the shopping list server 123 determines in step 409 that the customer probably needs product identifiers 12345, 8765, and FF2081, the shopping list server analyzes the other information field 307 of table 301 for each of these items. In doing so, it is determined that 12345 is the non-perishable items ABC cola while item 8765 is the dairy item Brand A cheese and item FF2081 is frozen item XYZ carrots. Thus, only the dairy item and frozen item meet the product category and are associated with the CID in step 607. In this way, the shopping list server 123 revises the shopping list items.

According to an embodiment of the present invention, the list of items generated in step 413 of Figure 4 may be in the form of different item identification types. Examples of item identification types are generic item names, product names, and product identifiers. Figure 7 explains how the shopping list server 123 provides a personalized shopping list including different item identifications. In step 701, the item identification type is determined. The item identification may be included in the other information transmitted by the customer or mandated by the shopping list server 123. For example, the shopping list server 123 may provide only shopping lists including generic items which can be the basis of several promotions from several manufacturers or brand providers. Once the item identification type is determined, the shopping list server 123 accesses the product identifier table in the shopping list database 125. The other information field 307 of the product identifier table 301 preferably includes an identifier type for each product identifier in field 303. For example, the first item in each entry of the other information field in Figure 3A identifies a generic item name for a respective product identifier. Then, in step 705, for each item on the shopping list, the shopping list server 123 locates the product identifier in the

product identifier table 301 and obtains the associated identifier type in step 705. The shopping list server 123 then associates the obtained item identifiers with the CID transmitted in step 707. In this way, the shopping list server 123 generates a personalized shopping list of any identifier type.

As mentioned in the description of Figure 4 above, in addition to providing a personalized shopping list, targeted promotions may be delivered to the consumer along with the personalized shopping list. Thus, the present invention in one embodiment, delivers targeted purchase incentives and advertisements to the desktop customer computer 129 just prior to the consumer's shopping event. The actual promotions are preferably provided to the shopping list server 123 and/or host computer 101 from advertiser's server 127 for delivery to the consumer.

According to an embodiment, Figure 4's step 419 of determining promotions to be delivered to the desktop customer computer 129 is accomplished according to predetermined promotions obtained based on the customer's purchase history. In this embodiment the host computer 101 polls the purchase data computer 107 in each of the retail stores 105 for purchase history information to update the purchase history information stored in the global purchase database 103. The host computer 101 generates behavioral information from the purchase history information stored in the global purchase database 103. This behavioral information may be any information that a market researcher (i.e., surveyor) wishes to use to determine whether a targeted purchase incentive should be delivered to a customer. Examples of behavioral information are whether a customer has purchased at least five pounds of dog food per month for the last year, whether the customer has purchased cold medicine in the last week, and whether the customer consistently purchases lactose-free milk.

The host computer 101 compares the behavioral information generated to purchase criteria stored in global purchase database 103 and associated with a promotion. If the behavioral information of any customer meets the purchase criteria, then the customer's CID is stored in field 333 and the corresponding promotion is stored in the field 335 of the predetermined promotion table 331. In this manner, the predetermined promotion table 331 is populated with CIDs and associated promotions to be delivered to the corresponding customers.

When a customer generates a personalized shopping list, the shopping list server 123

receives the customer's CID and transmits the CID to the host computer 101 as discussed above. The host computer 101 uses the CID to determine whether the same CID exists in field 331 of the predetermined promotions table 331. If the CID is found in field 333, then the corresponding predetermined promotions in field 335 are delivered to the shopping list server 123 for delivery to the desktop customer computer 129. In this manner, the promotions targeted to the customer whose CID was transmitted to shopping list server 123 are delivered to the desktop customer computer 129 just prior to the shopping event. Moreover, it is to be understood that, while the above description identifies the host computer 101 as determining the predetermined promotions, this function may be performed by the shopping list server 123.

In another embodiment, Figure 4's step 419 of determining promotions is accomplished according to trigger items on the personalized shopping list generated by the customer. In this embodiment, the host computer 101 receives trigger items and promotions, which are stored in the global purchase database 101. The trigger items and promotions may be downloaded from the advertiser's server 127, input by hand, or transferred by any other suitable means to the host computer 101 (e.g., by floppy disk or via a connection to another computer). The trigger items and promotions are stored in the purchase trigger table 341 in fields 343 and 345 respectively. The trigger items correspond to items of a current shopping list. Thus, the trigger items may be bar code information, UPC information, and/or generic item information associated with the corresponding promotions in field 345. Moreover, each trigger item may be associated with any number of promotions.

As discussed, the shopping list server 123 generates a personalized shopping list. According to a preferred embodiment, the shopping list server 123 transmits the personalized shopping list to the host computer 101 via Internet 131. The host computer 101 then compares the product identifying information of the personalized shopping list with the trigger item stored in the field 343. If there is a match between any of the trigger items in the field 343 and the information of the personalized shopping list generated by the shopping list server 123 (e.g., if a product identified by the trigger item is on the shopping list), then the host computer 101 electronically transmits the corresponding promotion in the field 345 to the shopping list server 123 for delivery to the desktop customer computer 129. According to the embodiment described wherein the personalized shopping list includes a list of generic

items, the trigger item field 343 in table 341 also includes generic items. Preferably, the promotions associated with the generic trigger items are for products that are species of the generic item as discussed with respect to Figure 3E. Similarly, where the personalized shopping list is a list of product brands, the promotions in field 345 are for competitor and complementary items as also discussed with respect to Figure 3E. In this manner, the promotions corresponding to trigger items of a personalized shopping list are delivered to the desktop customer computer 129. Notwithstanding the above description, it is to be understood that where a personalized shopping list of generic items is generated by the shopping list server 123, the shopping list server 123 may first identify a number of products which are species of the generic item by reference to the product identifier table 301. The shopping list server 123 may then determine promotions for each of the species products by, for example, downloading the promotions from an advertiser's server 127 that offers promotions for each species product.

Figures 8A-8C are examples of promotions that may be delivered to a consumer. As shown in Figures 8A and 8B, the promotions may be each purchase incentives which include a reward to be received by the customer, and may or may not include a loyalty condition to be satisfied by the customer in order to receive the reward. The loyalty condition indicates what a person must do to receive the reward. The reward may be a check, coupon, discount, certificate, redeemable medium, and/or other positive benefit to a person who meets the condition. For example, purchase incentive 901 of Figure 9A includes reward 803 (60¢ off brand B cola) which has no loyalty condition associated with it. A customer that makes a purchase of brand B cola at a retail store 105 that accepts the purchase incentive will receive a 60¢ discount without any further action. Figure 8B shows a purchase incentive 805 having a reward 807 and a loyalty condition 809. The reward of "one free hefty dinner" is given to the customer only if the condition of spending "buy 2 hefty dinners" is satisfied.

The purchase incentives 801 and 805 are preferably a remarkable offers designed cause a customer to switch to a particular brand of product or to promote brand loyalty for a product. In the case of causing a customer to switch brands, the purchase incentive is preferably triggered by the purchase of a competitor brand or as a species of a generic list item as discussed with respect to Figures 4 and 7 above. However, it is to be understood that each purchase incentive may be tailored to suit different purposes, as desired.

Figure 8C is an exemplary advertisement 811 that may be delivered to the customer according to an embodiment of the present invention. The advertisement includes a message 913 designated to promote a particular brand and product. Thus, as seen in Figure 8C, brand X sweetener is promoted to the consumer as being just one calorie.

The promotions shown in Figures 8A, 8B, and 8C may involve subject matter other than groceries and retail stores. Moreover, the promotions may include other information not shown in Figures 8A, 8B, and 8C and the other information may include information related or unrelated to the customer's purchase history or shopping list items.

According to an embodiment of the present invention, the shopping list and promotions may be obtained by use of hand held customer computer 201. According to this embodiment, the consumer may obtain the personalized shopping list as discussed with respect to Figure 4 above; however, rather that printing out the shopping list, the customer may download the shopping list to the hand held customer computer 201 where the lists can be displayed and manipulated. Alternatively, the hand held customer computer may be provided with a web browser software and wireless Internet connection that allows the user of the hand held customer computer to access the shopping list server 123 and retrieve a personalized shopping list without the use of the desktop customer computer 129. Upon receiving the personalized shopping list and promotions, the product identifiers and promotions are stored in memory unit 207 and/or storage device 211 via the interface 217 and bus 203 of the hand held customer computer 201. The shopping list stored within the memory of the hand held customer computer 201 preferably includes a list of products (i.e., product names) so that the consumer can easily identify the products when reviewing the shopping list on the hand held customer computer 201. Therefore, hand held customer computer 201 may access product identifier table 301 located on an external storage space, such as shopping list database 125, in order to convert product identifiers such as bar codes input into the hand held customer computer 201 by scanning, into products. Alternatively, product identifier table 301 may be stored in the memory unit 207 or storage device 211.

After the personalized shopping list and promotions are stored in the hand held customer computer 201, the customer may view the shopping list and promotions on the display 213 of hand held customer computer 201. The product identifiers and promotions may be viewed on display 213 individually or in tabular format as seen in Figures 3C and 3D

respectively, for example, allowing a user of the hand held customer computer 201 to view several product identifiers and/or promotions at one time. Input device 215 of hand held customer computer 201 allows a user of the hand held customer computer 201 to communicate command selections to the processor 205 via the bus 203, for selecting, deleting, grouping and otherwise modifying the shopping list items and promotions stored in memory of hand held customer computer 201. For example, a customer using hand held customer computer 201 may view all shopping list items and promotions, group the items to be deleted, and retain the remaining items.

Portions of the invention may be conveniently implemented using conventional general purpose computers or microprocessors programmed according to the teachings of the present invention, as will be apparent to those skilled in the computer art. Appropriate software can be readily prepared by programmers of ordinary skill based on the teachings of the present disclosure, as will be apparent to those skilled in the software art.

Figure 9 illustrates a computer system 901 upon which an embodiment according to the present invention may be implemented. Computer system 901 includes a bus 903 or other communication mechanism for communicating information, and a processor 905 coupled with bus 903 for processing the information. Computer system 901 also includes a main memory 907, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), coupled to bus 903 for storing information and instructions to be executed by processor 905. In addition, main memory 907 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 905. Computer system 901 further includes a read only memory (ROM) 909 or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM) flash ROM) coupled to bus 903 for storing static information and instructions for processor 905. A storage device 911, such as a magnetic disk or optical disc, is provided and coupled to bus 903 for storing information and instructions.

The computer system 901 may also include special purpose logic devices (e.g., application specific integrated circuits (ASICs)) or configurable logic devices (e.g., generic array of logic (GAL) or reprogrammable field programmable gate arrays (FPGAs)). Other removable media devices (e.g., a compact disc, a tape, and a removable magneto-optical

media) or fixed, high density media drives, may be added to the computer system 901 using an appropriate device bus (e.g., a small computer system interface (SCSI) bus, an enhanced integrated device electronics (IDE) bus, or an ultra-direct memory access (DMA) bus). The computer system 901 may additionally include a compact disc reader, a compact disc reader-writer unit, or a compact disc juke box, each of which may be connected to the same device bus or another device bus.

Computer system 901 may be coupled via bus 903 to a display 913, such as a cathode ray tube (CRT), for displaying information to a computer user. The display 913 may be controlled by a display or graphics card. The computer system includes input devices, such as a keyboard 915 and a cursor control 917, for communicating information and command selections to processor 905. The cursor control 917, for example, is a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor 905 and for controlling cursor movement on the display 913. In addition, a printer may provide printed listings of the data structures shown in Figures 3A through 3F, or any other data stored and/or generated by the computer system 901.

The computer system 901 performs a portion or all of the processing steps of the invention in response to processor 905 executing one or more sequences of one or more instructions contained in a memory, such as the main memory 907. Such instructions may be read into the main memory 907 from another computer-readable medium, such as storage device 911. One or more processors in a multi-processing arrangement may also be employed to execute the sequences of instructions contained in main memory 907. In alternative embodiments, hard-wired circuitry may be used in place of or in combination with software instructions. Thus, embodiments are not limited to any specific combination of hardware circuitry and software.

As stated above, the system 901 includes at least one computer readable medium or memory programmed according to the teachings of the invention and for containing data structures, tables, records, or other data described herein. Stored on any one or on a combination of computer readable media, the present invention includes software for controlling the computer system 901, for driving a device or devices for implementing the invention, and for enabling the computer system 901 to interact with a human user, e.g., a customer. Such software may include, but is not limited to, device drivers, operating

systems, development tools, and applications software. Such computer readable media further includes the computer program product of the present invention for performing all or a portion (if processing is distributed) of the processing performed in implementing the invention.

The computer code devices of the present invention may be any interpreted or executable code mechanism, including but not limited to scripts, interpreters, dynamic link libraries, Java classes, and complete executable programs. Moreover, parts of the processing of the present invention may be distributed for better performance, reliability, and/or cost.

The term "computer readable medium" as used herein refers to any medium that participates in providing instructions to processor 905 for execution. A computer readable medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media includes, for example, optical, magnetic disks, and magneto-optical disks, such as storage device 911. Volatile media includes dynamic memory, such as main memory 907. Transmission media includes coaxial cables, copper wire and fiber optics, including the wires that comprise bus 903. Transmission media also may also take the form of acoustic or light waves, such as those generated during radio wave and infrared data communications.

Common forms of computer readable media include, for example, hard disks, floppy disks, tape, magneto-optical disks, PROMs (EPROM, EEPROM, Flash EPROM), DRAM, SRAM, SDRAM, or any other magnetic medium, compact disks (e.g., CD-ROM), or any other optical medium, punch cards, paper tape, or other physical medium with patterns of holes, a carrier wave (described below), or any other medium from which a computer can read.

Various forms of computer readable media may be involved in carrying out one or more sequences of one or more instructions to processor 905 for execution. For example, the instructions may initially be carried on a magnetic disk of a remote computer. The remote computer can load the instructions for implementing all or a portion of the present invention remotely into a dynamic memory and send the instructions over a telephone line using a modem. A modem local to computer system 901 may receive the data on the telephone line and use an infrared transmitter to convert the data to an infrared signal. An infrared detector coupled to bus 903 can receive the data carried in the infrared signal and place the data on bus

903. Bus 903 carries the data to main memory 907, from which processor 905 retrieves and executes the instructions. The instructions received by main memory 907 may optionally be stored on storage device 911 either before or after execution by processor 905.

Computer system 901 also includes a communication interface 919 coupled to bus 903. Communication interface 919 provides a two-way data communication coupling to a network link 921 that is connected to a local network (e.g., LAN 923). For example, communication interface 919 may be a network interface card to attach to any packet switched local area network (LAN). As another example, communication interface 919 may be an asymmetrical digital subscriber line (ADSL) card, an integrated services digital network (ISDN) card or a modem to provide a data communication connection to a corresponding type of telephone line. Wireless links may also be implemented. In any such implementation, communication interface 919 sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

Network link 921 typically provides data communication through one or more networks to other data devices. For example, network link 921 may provide a connection through LAN 923 to a host computer 925 or to data equipment operated by a service provider, which provides data communication services through an IP (Internet Protocol) network 927 (e.g., the Internet 131). LAN 923 and IP network 927 both use electrical, electromagnetic or optical signals that carry digital data streams. The signals through the various networks and the signals on network link 921 and through communication interface 919, which carry the digital data to and from computer system 901, are exemplary forms of carrier waves transporting the information. Computer system 901 can transmit notifications and receive data, including program code, through the network(s), network link 921 and communication interface 919.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

CLAIMS:

1. A method comprising:

receiving a purchase history associated with a customer identifier for identifying a customer;

generating a personalized shopping list based on said purchase history;

associating said personalized shopping list with said customer identifier; and

storing said personalized shopping list associated with said customer identifier.

2. The method of Claim 1, wherein said step of receiving a purchase history comprises:

receiving a customer identifier from a first remote computer associated with a customer;

transmitting said customer identifier to a second remote computer associated with an entity for generating customer purchase histories; and

receiving from said second remote computer, a purchase history associated with said customer identifier.

3. The method of Claim 1, wherein said step of receiving comprises receiving said purchase history via one of a wide area network and a local area network.

4. The method of Claim 1, wherein said step of generating a personalized shopping list comprises:

determining purchase trends from said purchase history; and

generating a personalized list based on said purchase trends determined.

5. The method of Claim 4, wherein said step of determining purchase trends comprises determining the frequency of purchase of each item in said purchase history, and

said step of generating a personalized shopping list comprises,

determining the period of time between the customer's past shopping event and a shopping event for which the personalized shopping list is generated, and

generating a personalized shopping list based on said determined frequency

and period of time.

6. The method of Claim 5, further comprising:

estimating a date of the shopping event for which the personalized shopping list is generated.

7. The method of Claim 1, further comprising:

receiving shopping list criteria, wherein said step of generating a personalized shopping list comprises generating a personalized shopping list based on said purchase history and said shopping list criteria.

8. The method of Claim 7, wherein said step of generating a personalized shopping list based on said purchase history and said shopping list criteria comprises:

determining purchase trends from said purchase history;

generating a preliminary shopping list based on said purchase trends determined;

searching said preliminary shopping list for items meeting a said shopping list criteria; and

generating a personalized shopping list of items on the preliminary shopping list meeting said predetermined criteria.

9. The method as claimed in Claim 1, further comprising:

delivering said personalized shopping list to a customer computer associated with said customer identifier.

10. The method as claimed in Claim 9, wherein said step of delivering said personalized shopping list comprises delivering said personalized shopping list to one of a desktop customer computer and a hand held customer computer associated with said customer identifier.

11. The method as claimed in Claim 9, wherein said step of delivering said personalized shopping list comprises:

receiving a customer request from said customer;

retrieving said personalized shopping list stored;

and delivering said personalized shopping list to said customer.

12. The method of Claim 9, further comprising:

generating a promotion based on said customer identifier;

delivering said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

13. The method of Claim 12, wherein said step of generating a promotion based on said customer identifier comprises generating a promotion based on said purchase history associated with said customer identifier.

14. The method of Claim 9, further comprising:

generating a promotion based on said personalized shopping list; and

delivering said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

15. The method of Claim 14, wherein said step of generating a promotion based on said personalized shopping list comprises searching said personalized shopping list for a trigger item; and

said step of delivering a promotion comprises, when said trigger item is found in said personalized shopping list, delivering a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

16. The method of Claim 1, wherein said step of generating a personalized shopping list comprises generating a personalized shopping list of items having a predetermined item identification type.

17. The method of Claim 15, wherein said predetermined item identification type is a

generic item.

18. The method of Claim 17, further comprising:

identifying a group of products corresponding to each generic item on said personalized shopping list; and

generating promotions for each group of products corresponding to a respective generic item.

19. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 1-18.

20. A system comprising:

a memory device having embodied therein, data related to a personalized shopping list; and

a processor in communication with said memory device, said processor configured to:

receive a purchase history associated with a customer identifier for identifying a customer;

generate a personalized shopping list based on said purchase history;

associate said personalized shopping list with said customer identifier; and

store said personalized shopping list associated with said customer identifier in said memory.

21. The system of Claim 20, wherein said processor is configured to receive a purchase history by:

receiving a customer identifier from a first remote computer associated with a customer;

transmitting said customer identifier to a second remote computer associated with an entity for generating customer purchase histories; and

receiving from said second remote computer, a purchase history associated with said customer identifier.

22. The system of Claim 20, wherein said processor is configured to generate a personalized shopping list by:

determining purchase trends from said purchase history; and

generating a personalized list based on said purchase trends determined.

23. The system of Claim 22, wherein said processor is configured to determine purchase trends by determining the frequency of purchase of each item in said purchase history, and to generate a personalized shopping list by:

determining the period of time between the customer's past shopping event and a shopping event for which the personalized shopping list is generated; and

generating a personalized shopping list based on said determined frequency and period of time.

24. The system of Claim 23, wherein said processor is further configured to estimate a date of the shopping event for which the personalized shopping list is generated.

25. The system of Claim 20, wherein said processor is further configured to:

receive shopping list criteria, and

to generating a personalized shopping list by generating a personalized shopping list based on said purchase history and said shopping list criteria.

26. The system of Claim 25, wherein said processor is configured to generate a personalized shopping list based on said purchase history and said shopping list criteria by:

determining purchase trends from said purchase history;

generating a preliminary shopping list based on said purchase trends determined;

searching said preliminary shopping list for items meeting a said shopping list criteria; and

generating a personalized shopping list of items on the preliminary shopping list meeting said predetermined criteria.

27. The system of Claim 20, wherein said processor is further configured to deliver

said personalized shopping list to a customer computer associated with said customer identifier.

28. The system of Claim 27, wherein said processor is further configured to:

generate a promotion based on said customer identifier; and

deliver said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

29. The system of Claim 28, wherein said processor is configured to generate a promotion based on said customer identifier by generating a promotion based on said purchase history associated with said customer identifier.

30. The method of Claim 27, wherein said processor is further configured to:

generate a promotion based on said personalized shopping list; and

deliver said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

31. The system of Claim 30, wherein said processor is configured to generate a promotion based on said personalized shopping list by searching said personalized shopping list for a trigger item; and

to deliver a promotion by, when said trigger item is found in said personalized shopping list, delivering a promotion associated with said trigger item along with said personalized shopping list to said customer associated with said customer identifier at said retail store location.

32. The system of Claim 20, wherein said processor is configured to generate a personalized shopping list by generating a personalized shopping list of items having a predetermined item identification type.

33. The system of Claim 32, wherein said predetermined item identification type is a

generic item.

34. The system of Claim 33, wherein said processor is further configured to:

identify a group of products corresponding to each generic item on said personalized shopping list; and

generate promotions for each group of products corresponding to a respective generic item.

35. A system comprising:

means for receiving a purchase history associated with a customer identifier for identifying a customer;

means for generating a personalized shopping list based on said purchase history;

means for associating said personalized shopping list with said customer identifier; and

means for storing said personalized shopping list associated with said customer identifier.

36. The system of Claim 35, wherein said means for receiving comprises means for receiving said purchase history via one of a wide area network and a local area network.

37. The system of Claim 35, wherein said means for generating a personalized shopping list comprises:

means for determining purchase trends from said purchase history; and

means for generating a personalized list based on said purchase trends determined.

38. The system of Claim 35, further comprising:

means for receiving shopping list criteria, wherein said means for generating a personalized shopping list comprises means for generating a personalized shopping list based on said purchase history and said shopping list criteria.

39. The system of Claim 38, wherein said means for generating a personalized shopping list based on said purchase history and said shopping list criteria comprises:

means for determining purchase trends from said purchase history;

means for generating a preliminary shopping list based on said purchase trends determined;

means for searching said preliminary shopping list for items meeting a said shopping list criteria; and

means for generating a personalized shopping list of items on the preliminary shopping list meeting said predetermined criteria.

40. The system of Claim 35, further comprising:

means for delivering said personalized shopping list to a customer computer associated with said customer identifier.

41. The system of Claim 40, further comprising:

means for generating a promotion based on said customer identifier;

means for delivering said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

42 The system of Claim 40, further comprising:

means for generating a promotion based on said personalized shopping list; and

means for delivering said promotion along with said personalized shopping list to said customer computer associated with said customer identifier.

43. The system of Claim 35 wherein said means for generating a personalized shopping list comprises means for generating a personalized shopping list of items having a predetermined item identification type.

44. The system of Claim 43, wherein said predetermined item identification type is a generic item.

45. The system of Claim 43, further comprising:

means for identifying a group of products corresponding to each generic item on said

personalized shopping list; and

means for generating promotions for each group of products corresponding to a respective generic item.

FIG. 1

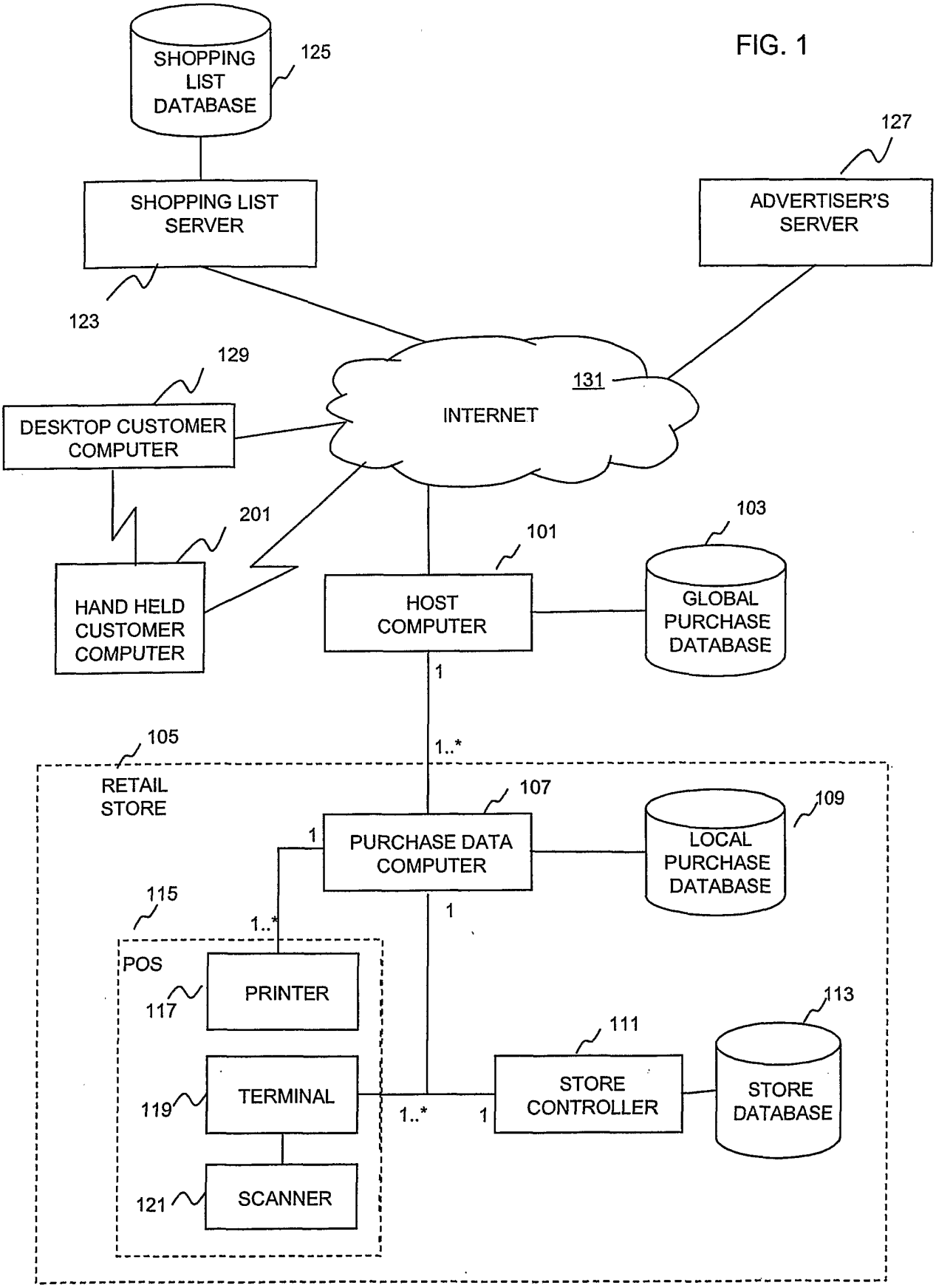
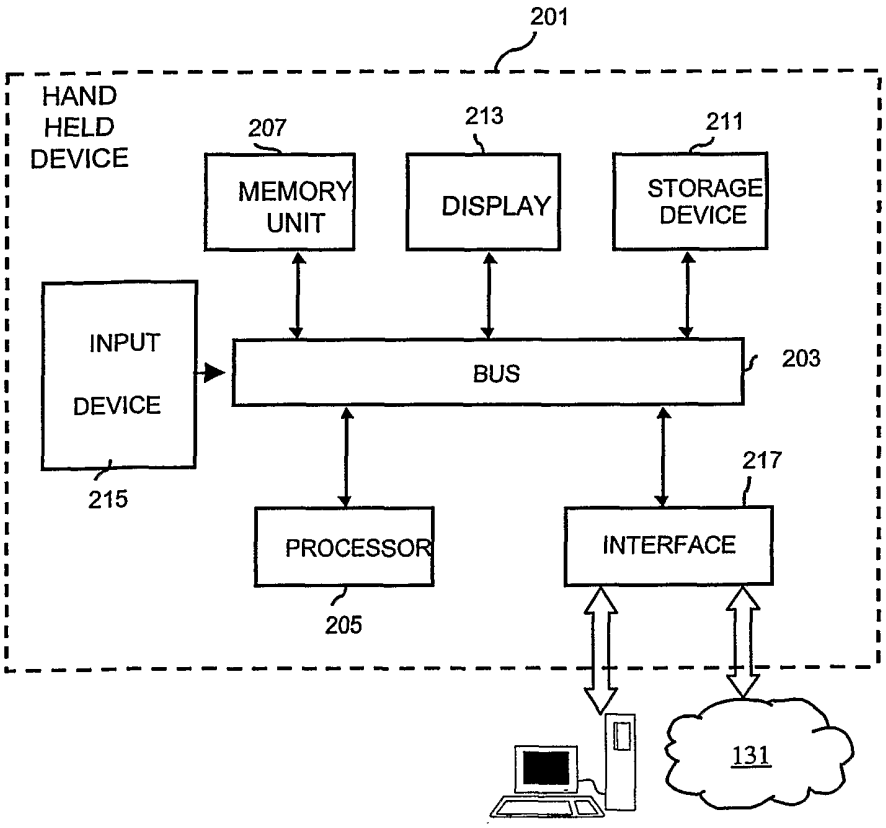

SHOPPING LIST DATABASE
125
SHOPPING LIST SERVER
123
127
ADVERTISER'S SERVER
129
DESKTOP CUSTOMER COMPUTER
131
INTERNET
201
HAND HELD CUSTOMER COMPUTER
101
HOST COMPUTER
103
GLOBAL PURCHASE DATABASE
1
105
RETAIL STORE
1..*
107
PURCHASE DATA COMPUTER
109
LOCAL PURCHASE DATABASE
115
POS
117
PRINTER
119
TERMINAL
121
SCANNER
111
STORE CONTROLLER
113
STORE DATABASE

FIG. 2


201
HAND
HELD
DEVICE
207
MEMORY
UNIT
213
DISPLAY
211
STORAGE
DEVICE
INPUT
DEVICE
215
BUS
203
217
PROCESSOR
205
INTERFACE
131

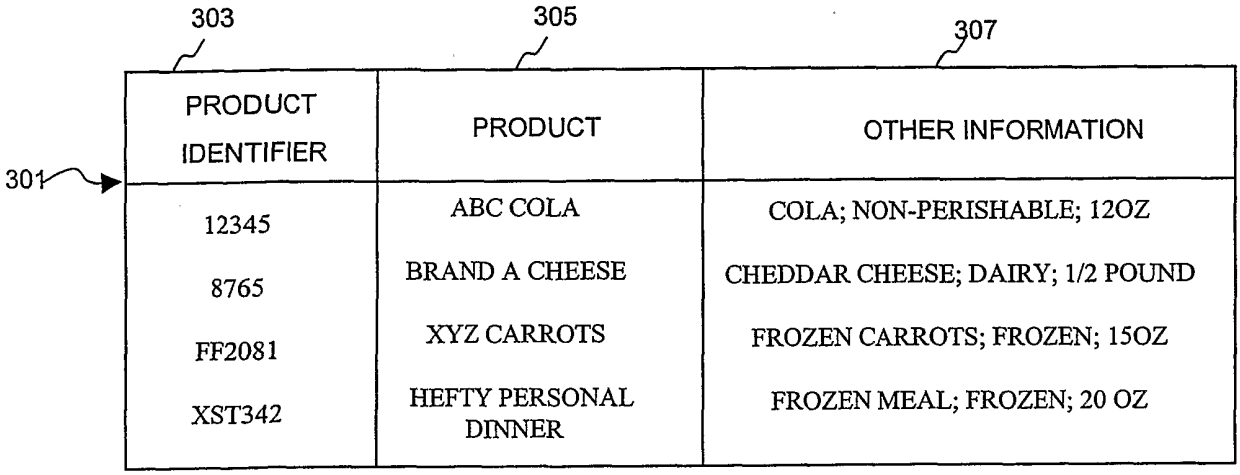

303
305
307
301
PRODUCT IDENTIFIER
PRODUCT
OTHER INFORMATION
12345
ABC COLA
COLA; NON-PERISHABLE; 12OZ
8765
BRAND A CHEESE
CHEDDAR CHEESE; DAIRY; 1/2 POUND
FF2081
XYZ CARROTS
FROZEN CARROTS; FROZEN; 15OZ
XST342
HEFTY PERSONAL DINNER
FROZEN MEAL; FROZEN; 20 OZ

FIG.3A

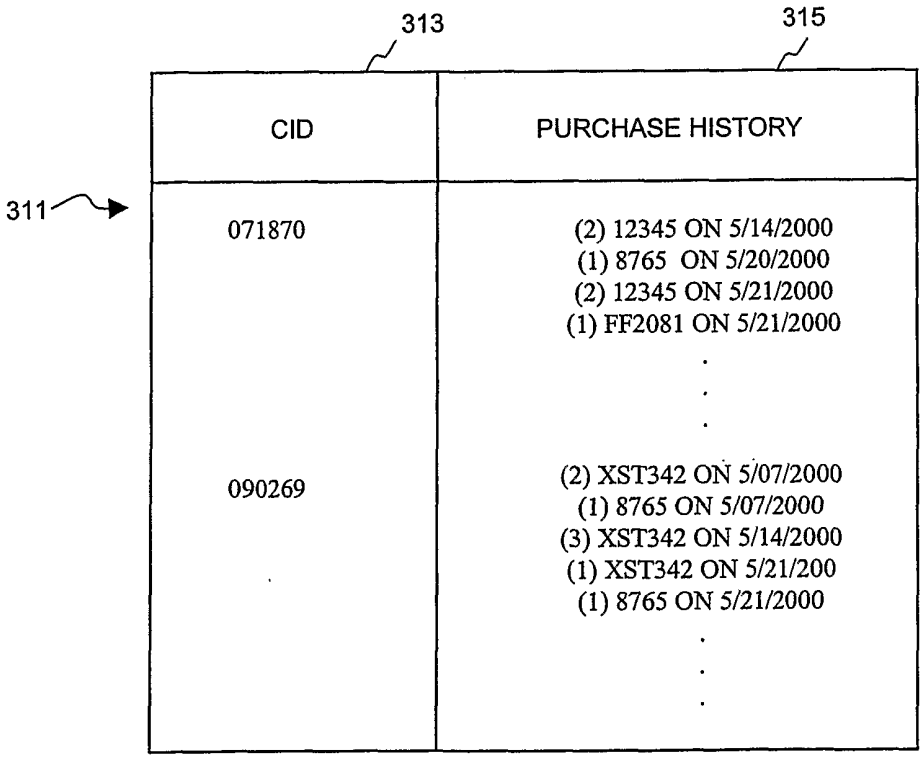

313
315
311
CID
PURCHASE HISTORY
071870
(2) 12345 ON 5/14/2000
(1) 8765 ON 5/20/2000
(2) 12345 ON 5/21/2000
(1) FF2081 ON 5/21/2000
090269
(2) XST342 ON 5/07/2000
(1) 8765 ON 5/07/2000
(3) XST342 ON 5/14/2000
(1) XST342 ON 5/21/200
(1) 8765 ON 5/21/2000

FIG.3B

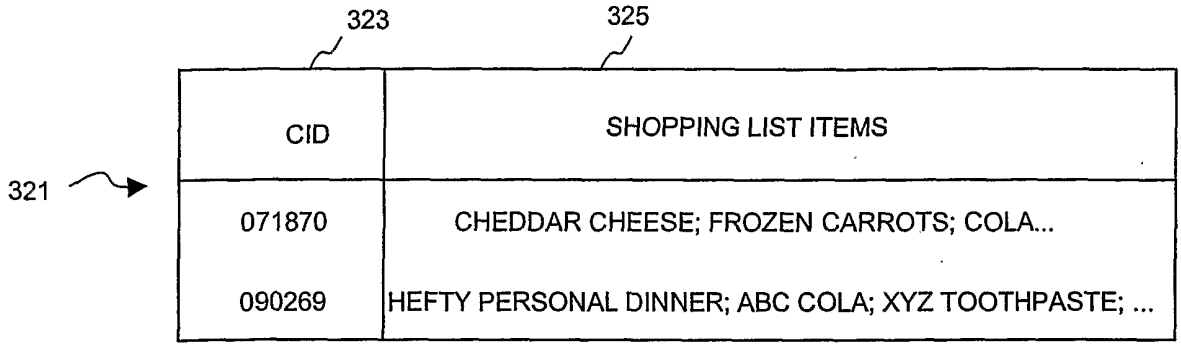


FIG.3C

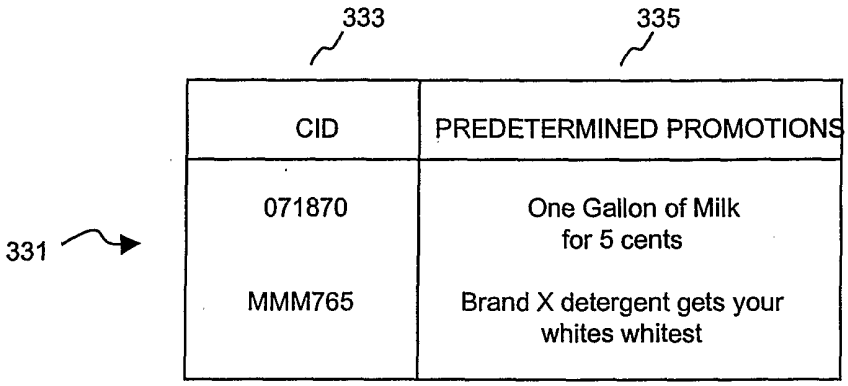


FIG.3D

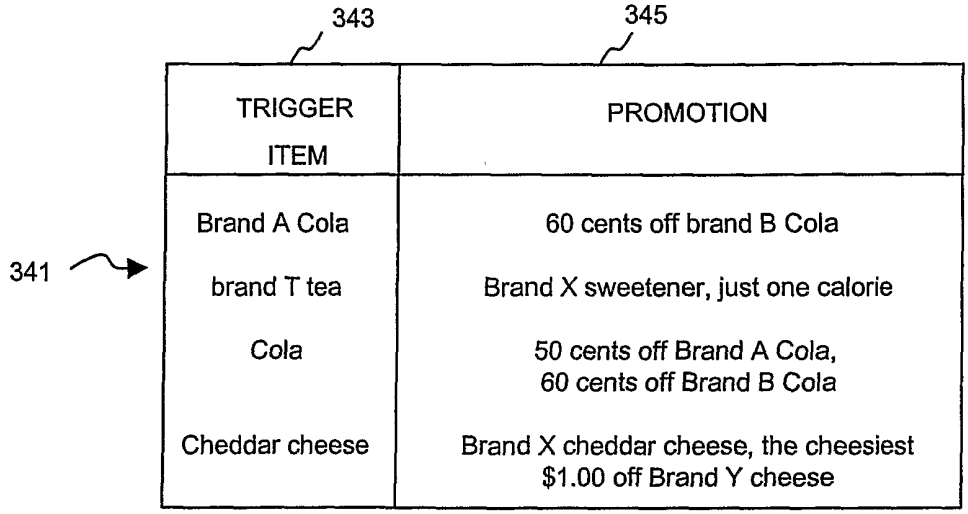


FIG.3E

FIG. 4

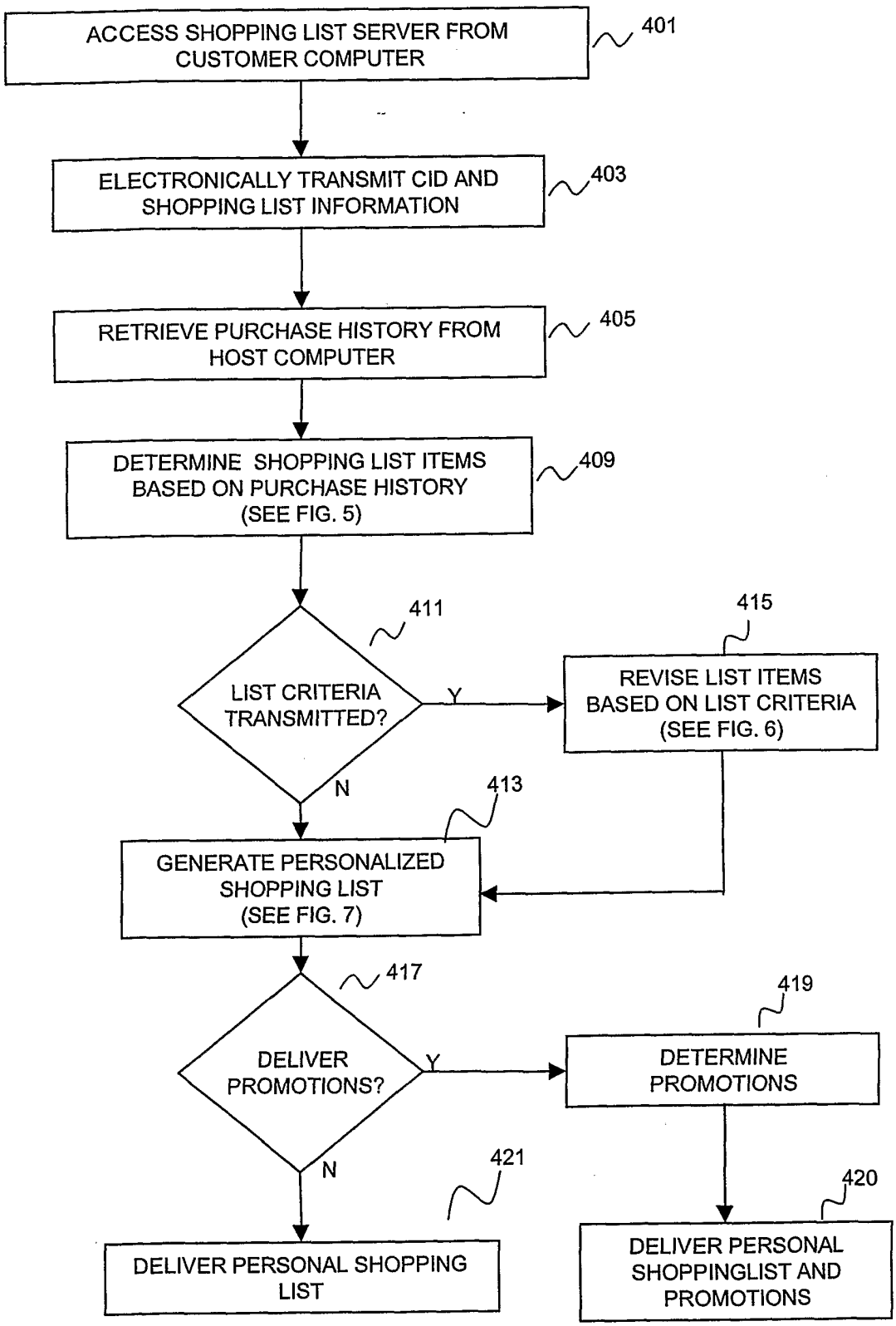

ACCESS SHOPPING LIST SERVER FROM CUSTOMER COMPUTER
401
ELECTRONICALLY TRANSMIT CID AND SHOPPING LIST INFORMATION
403
RETRIEVE PURCHASE HISTORY FROM HOST COMPUTER
405
DETERMINE SHOPPING LIST ITEMS BASED ON PURCHASE HISTORY (SEE FIG. 5)
409
411
LIST CRITERIA TRANSMITTED?
Y
N
415
REVISE LIST ITEMS BASED ON LIST CRITERIA (SEE FIG. 6)
413
GENERATE PERSONALIZED SHOPPING LIST (SEE FIG. 7)
417
DELIVER PROMOTIONS?
Y
N
419
DETERMINE PROMOTIONS
421
DELIVER PERSONAL SHOPPING LIST
420
DELIVER PERSONAL SHOPPINGLIST AND PROMOTIONS

FIG. 5

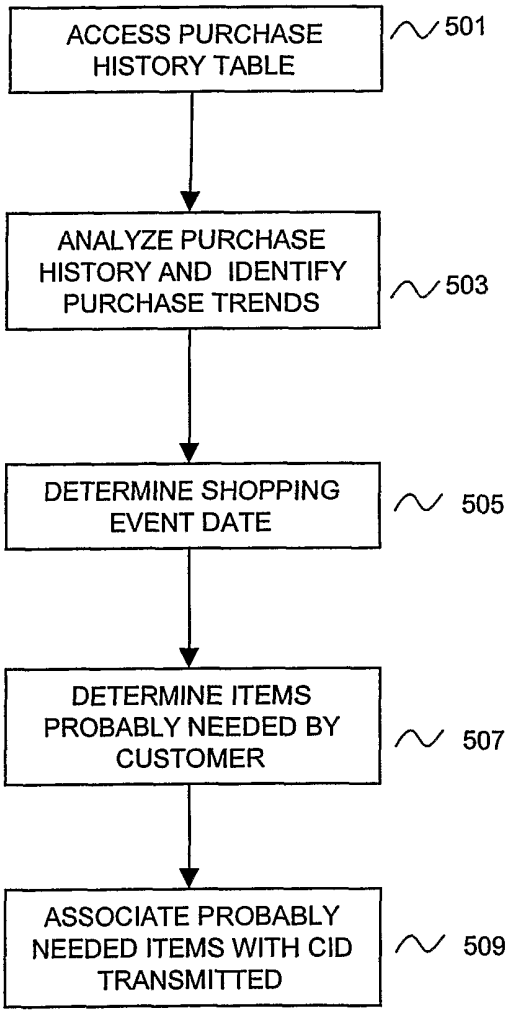

ACCESS PURCHASE HISTORY TABLE
501
ANALYZE PURCHASE HISTORY AND IDENTIFY PURCHASE TRENDS
503
DETERMINE SHOPPING EVENT DATE
505
DETERMINE ITEMS PROBABLY NEEDED BY CUSTOMER
507
ASSOCIATE PROBABLY NEEDED ITEMS WITH CID TRANSMITTED
509

FIG. 6

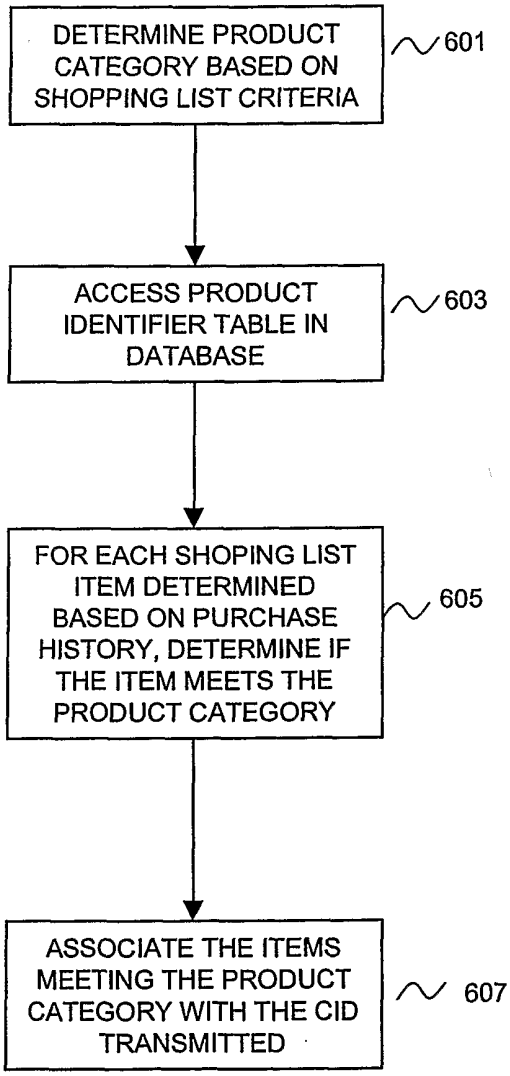
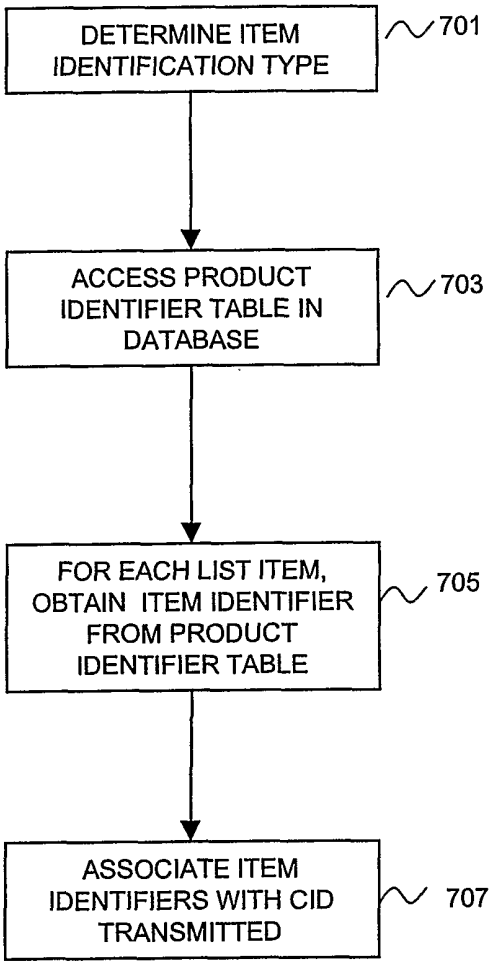

DETERMINE PRODUCT CATEGORY BASED ON SHOPPING LIST CRITERIA
601
ACCESS PRODUCT IDENTIFIER TABLE IN DATABASE
603
FOR EACH SHOPING LIST ITEM DETERMINED BASED ON PURCHASE HISTORY, DETERMINE IF THE ITEM MEETS THE PRODUCT CATEGORY
605
ASSOCIATE THE ITEMS MEETING THE PRODUCT CATEGORY WITH THE CID TRANSMITTED
607

FIG. 7


DETERMINE ITEM IDENTIFICATION TYPE
701
ACCESS PRODUCT IDENTIFIER TABLE IN DATABASE
703
FOR EACH LIST ITEM, OBTAIN ITEM IDENTIFIER FROM PRODUCT IDENTIFIER TABLE
705
ASSOCIATE ITEM IDENTIFIERS WITH CID TRANSMITTED
707

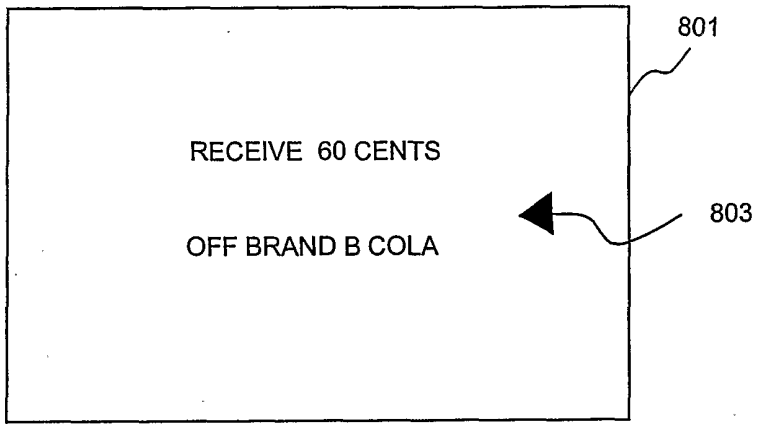


FIG. 8A

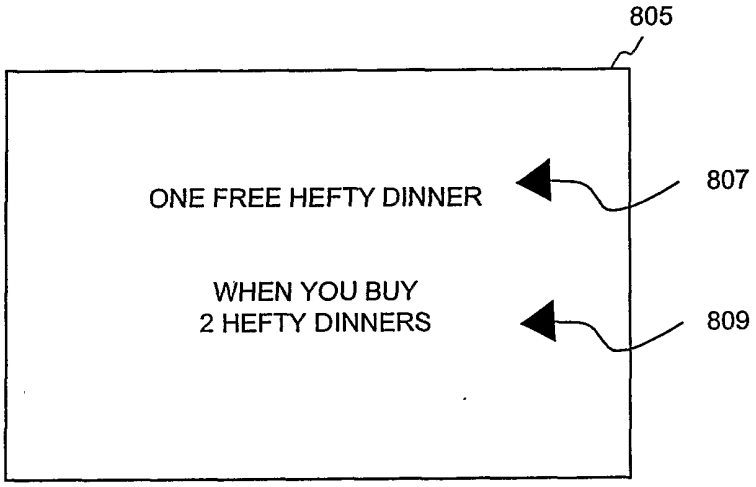


FIG. 8B

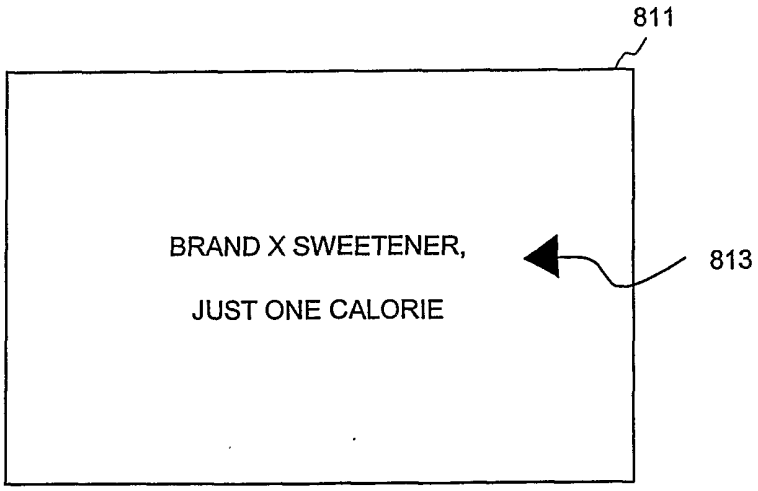


FIG. 8C

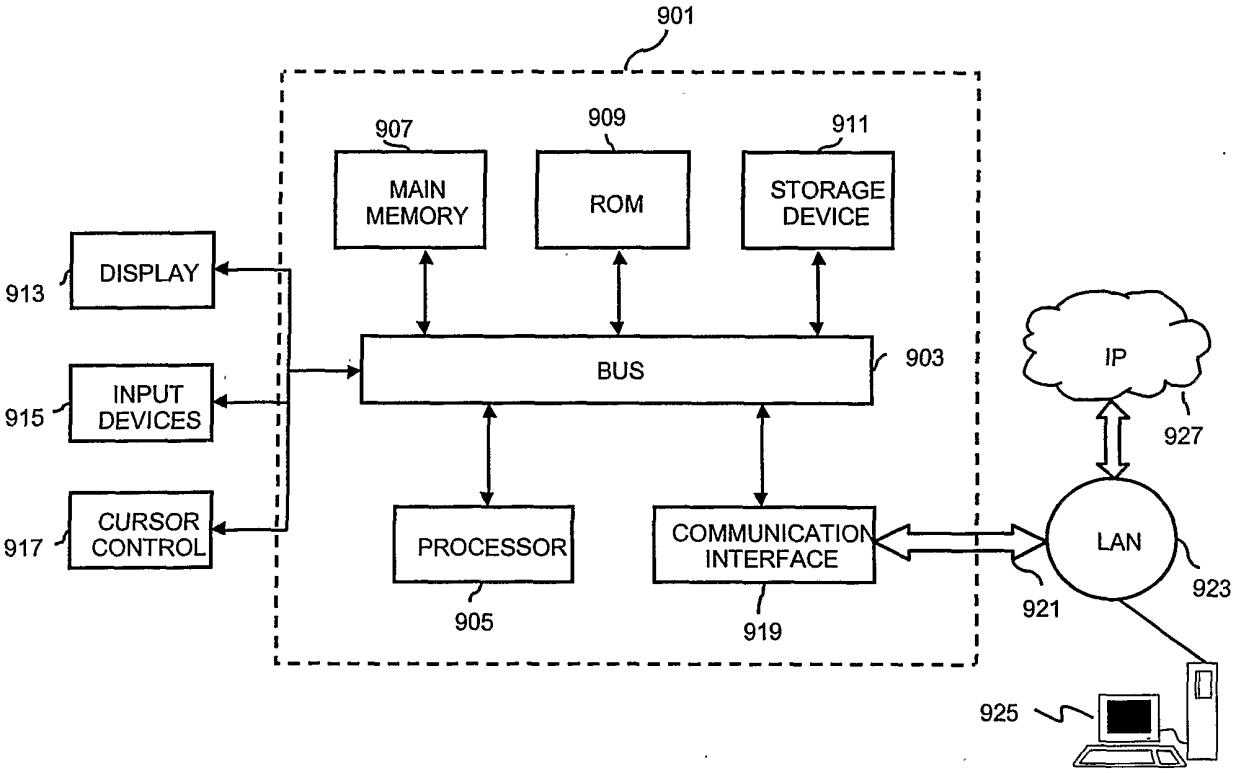

901
907
MAIN MEMORY
909
ROM
911
STORAGE DEVICE
913
DISPLAY
915
INPUT DEVICES
917
CURSOR CONTROL
BUS
903
PROCESSOR
905
COMMUNICATION INTERFACE
919
IP
927
LAN
923
921
925

FIG. 9

PATENT COOPERATION TREATY

PCT

DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference	IMPORTANT DECLARATION	Date of mailing *(day/month/year)*
165847WO25		19/04/2001
International application No.	International filing date *(day/month/year)*	(Earliest) Priority date *(day/month/year)*
PCT/US 01/ 01225	02/02/2001	03/11/2000
International Patent Classification (IPC) or both national classification and IPC	G06F17/60	
Applicant		
CATALINA MARKETING INTERNATIONAL, INC.		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below

1. ☐ The subject matter of the international application relates to:
   - a. ☐ scientific theories.
   - b. ☐ mathematical theories
   - c. ☐ plant varieties.
   - d. ☐ animal varieties.
   - e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
   - f. ☐ schemes, rules or methods of doing business.
   - g. ☐ schemes, rules or methods of performing purely mental acts.
   - h. ☐ schemes, rules or methods of playing games.
   - i. ☐ methods for treatment of the human body by surgery or therapy.
   - j. ☐ methods for treatment of the animal body by surgery or therapy.
   - k. ☐ diagnostic methods practised on the human or animal body.
   - l. ☐ mere presentations of information.
   - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.

2. ☐ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
   ☐ the description ☒ the claims ☐ the drawings

3. ☐ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
   - ☐ the written form has not been furnished or does not comply with the standard.
   - ☐ the computer readable form has not been furnished or does not comply with the standard.

4. Further comments: SEE FURTHER INFO

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Lucia Van Pinxteren

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

A meaningful search is not possible on the basis of all claims because all claims are directed to - Scheme, rules and method for doing business - Rule 39.1(iii) PCT

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.