Title: SYSTEM AND PROCESS FOR MULTIPLE VARIABLE ELECTION OF FILES FOR DELETION

Abstract: A process for sorting and selecting stored digital files based on multiple variables. The process includes the steps of identifying a plurality of stored digital files using a plurality of identifying indicia (12); receiving at least three selection variables from among the identification indicia (16); and selecting the stored digital files based on the three selection variables (22). The selected files may then be deleted (24).
For two-letter codes and other abbreviations, refer to the “Guidance Notes on Codes and Abbreviations” appearing at the beginning of each regular issue of the PCT Gazette.
SYSTEM AND PROCESS FOR MULTIPLE VARIABLE ELECTION OF FILES FOR DELETION

Field of the Invention

The present invention relates to a system and process for deleting various stored digital files based on a plurality of user selected-variables and, more particularly, to sorting and deleting stored digital files based on a plurality of user-selected variables from a group comprising attributes, dates, time stamps or other identification indicia.

Background of the Invention

Many businesses process and store large amounts of information and data in the form of digital files. Each stored digital file may be a separate entry of information, such as an image, a document, a spreadsheet, or the like. Businesses may store files in electronic form for ease of access and to reduce storage space. Stored files may also be temporary files, such as incomplete forms, sample calculations, or other files that that are stored on a temporary basis.

Often, this information must be stored for various reasons. Internally, a business such as a financial institution or an insurance company may need to store files for a certain period of time to ensure that such files are accurately entered into its computer system and so that any appropriate adjustments are made to the accounts and records relating to the stored digital files. Additionally, many federal, state and/or local statutes and regulations may require that the information be stored for a predetermined period of time. Storing this information, whether required for internal or external reasons, may be costly to a business or organization, as storage resources for large amounts of files may be limited, costly to maintain and require large amounts of hardware.

One manner of reducing the costs associated with storing this information is to purge (e.g., delete) such stored information on a periodic basis. Deleting stored digital files may occur based on the type of information stored and the rules and laws, both internal and external, governing the storage of the particular information. There are automated processes pursuant to which stored information may be deleted.

Present deletion processes, however, suffer from drawbacks regarding efficient selection and deletion of the appropriate files and information at the appropriate times. Some processes only allow a user to sort files targeted for deletion based on one or two variables. By way of example, a deletion process may only allow stored files to be sorted by a particular date or by a particular type of file. Thus, if a business wants to delete all
files of a particular type which are older than seven (7) days, a business must either sort stored files by the type of file, and then manually select and delete each file which meets the date criteria or must separate the stored files by date and then select and delete each file by type criteria. This manner of sorting and deletion may be time-intensive, inefficient and costly. Manual identification of the appropriate stored files to delete may take a long time. Additionally, the monotony associated with such a sorting process may lead to errors, where some stored files are accidentally deleted which were not intended for deletion, while some stored files are not deleted which were intended to be deleted.

Other drawbacks may also exist.

10 **Summary of the Invention**

It is an object of the invention to overcome these and other drawbacks of present systems and methods.

It is another object of the invention to provide a system and process for efficiently sorting stored digital files based on a plurality of variables.

It is another object of the invention to provide a system and process for efficient deletion of stored digital files identified based on the plurality of variables.

Additional objects and advantages of the invention will be set forth in part in the description, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of instrumentalities and combinations particularly pointed out in the appended claims.

To achieve these objects and in accordance with the purpose of the invention, as embodied and broadly described herein, a process for sorting and selecting stored digital files based on multiple variables comprises the steps of identifying each of a plurality of stored digital files, where the identifying step uses a plurality of identification indicia, receiving at least three selection variables, wherein the selection variables are from a group including the plurality of identification indicia, and selecting at least one of the plurality of stored digital files based on the at least three selection variables.

In a further aspect, a system for sorting and selecting stored digital files based on a plurality of variables comprises an identification module for identifying each of a plurality of stored digital files, wherein identification occurs using a plurality of identification indicia, a receiver module for receiving at least three selection variables, wherein the at least three selection variables are from a group including the plurality of
identification indicia, and a selection module for selecting at least one of the plurality of stored digital files based on the plurality of selection indicia.

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an embodiment of the invention and, together with the description, serve to explain the principles of the invention.

**Brief Description of the Drawings**

Figure 1 is a flowchart illustrating steps in a process for selecting and deleting files according to an embodiment of the invention.

Figures 2a and 2b are a flowchart illustrating the selection of files for deletion according to an embodiment of the invention.

Figures 3 and 4 are examples of graphic user interfaces for selecting files for deletion according to an embodiment of the invention.

Figure 5 is a schematic representation of a system for deleting files according to an embodiment of the invention.

**Detailed Description of the Preferred Embodiments**

Reference will now be made in detail to the present preferred embodiment of the invention. An example which is illustrated in the accompanying drawings in which like reference characters refer to corresponding elements.

Figure 1 is a flowchart illustrating steps in a process for selecting and deleting stored digital files. At step 10, various digital files are received at System 300 which will be described below in greater detail with respect to Fig. 5. The digital files may be comprised of any sort of files such as documents, images, data files, text files, spreadsheets or other sort of files having information and data. At step 14, the digital files are assigned identification indicia. The identification indicia may include a name of the file, a “file type” extension for the file (e.g., “.doc,” “.jpeg,” “.xml,” “.dat,” etc.), a time the file was received by System 300 and a date the file was received by System 300. Additionally, other identification indicia may be assigned to each file, either automatically or manually, such as one or more flags including “save for archive,” “hidden files” or other types of information indicia. At step 14, System 300 stores the received digital files and, at step 16, receives a plurality of selection variables for selecting one or more of the stored digital files. The steps involved in designating such
plurality of selection variables for selecting one or more of the stored digital files will be
described below in greater detail.

At step 18, a user decides whether to first sort files based on selected variables, and then delete the files, or to examine the identification indicia of a file and either delete the file or leave it based on the selected variables. If the decision is made to sort the files, the process moves on to step 20, where the stored digital files are sorted based on the assigned identification indicia and the appropriate sorted files are selected at step 22. At step 24, the selected files are deleted. The process ends at step 26.

Alternatively, if the decision is made to examine files, the process moves to step 28, where the stored digital files are examined. Examined files meeting the selected variables are deleted at step 30. At step 32, a determination is made whether other files are to be examined. If more files are to be examined, the process returns to step 28 to examine additional stored digital files. If no more files are to be examined, the process ends at step 26.

Figures 2a and 2b illustrate a more detailed process for selecting and deleting stored digital files according to an embodiment of the invention. In connection with this description, reference will be made to Figs. 3 and 4, which illustrate examples of graphic user interfaces for designating selection variables and deleting selected ones of the stored digital files. At step 102, a user initiates the process for selecting and deleting the stored digital files in any manner which is conventionally used, such as activating an icon on a computer (e.g., double-clicking on an icon using a mouse).

At step 104, the user selects the identification indicia to be used for selecting the stored digital files for further action. A graphic user interface 200 may comprise a toolbar 201 which enables the user to manipulate data involved in designating the ones of the stored digital files for deletion such as that illustrated in Figs. 3 and 4. Toolbar 201 may be a conventional toolbar including a file, an edit and a help pulldown menu. Other options may also be included in toolbar 201.

At step 106, the user selects a directory location of each of the stored digital files to be reviewed. By way of example, in a conventional personal computer, the user may select the directory named "C:\Program Files/Microsoft Visual Studio/VB98" as the directory location to be reviewed. For such directory, an initial letter designates a particular computer drive and a designation of "C:\*.*" means a drive letter root directory
for the computer drive. The term “Program Files” means all files stored in such computer drive. The term “Microsoft Visual Studio” modifies and limits the term “Program File” so that only those Program Files stored in Microsoft Visual Studio format are selected. Finally the term “VB98” means a Visual Basic programming language version for 1998.

Window 220 within graphic user interface 200 may display a directory having a plurality of directory locations therein to enable the user to select the directory location for stored digital files to be reviewed. System 300 reviews each stored digital file located in this directory to determine if the selected identification indicia are met with respect to each such stored digital file.

According to an embodiment of the invention, System 300 confirms the intention of the user before a full deletion of any computer drive letter root directory is permitted. By way of example, if the user selects to delete files from the drive letter root directory named “D:\*.*,” the user would be first queried as to whether the user intends to delete the entire D drive root directory before being allowed to continue. System 300 may also step through each subdirectory for a particular drive letter root directory in order to select and delete stored files within each subdirectory based on the predefined criteria. Other manners of selecting a file location or locations may also be used.

At step 108, attribute variables for sorting the stored files are selected. Attribute variables may include files set for archive, read-only files, hidden files, or system files. There may be a user-changeable option to prompt the user before deletion of a Read Only or a System file. By way of example, the user may be presented the options of flagged, not flagged, and ignore for the Read Only attribute. By selecting the flagged option, the system will only select and delete those files flagged as Read Only. If the not flagged option is selected, the system will only select and delete those files which are not flagged Read Only. If the ignore option is selected, the system will complete ignore the Read Only attribute when selecting and deleting files. The user may select attribute variables, as illustrated in an area 208 of graphic user interface 200, by selecting attributes from a plurality of pull-down menus. Other attribute variables may also be used.

At step 110, the user determines whether to create a log file. A log file allows the user to track the attribute variables used for selecting and deleting stored files, as well as track the stored files that are deleted. Such log file may have a plurality of parameters such as a size of the log file, a list feature for listing the files deleted and a plurality of
criteria used for determining the stored files for deletion. If the user decides to create the log file, the log file designation, Log File icon 212, is activated at step 112.

If the user decides not to create the log file, the user moves to step 114 to determine whether to show a preview list to display a sample of the stored files to be sorted and deleted. The preview list may enable the user to change the criteria for sorting and deleting files before deletion of the stored files actually occurs. If the user desires to display the preview list, the preview list icon, Show Preview List icon 214, is shown in graphic user interface 200 of Fig. 3, is activated at step 116. If the user does not desire to show the preview list, the user skips to step 118.

At step 118, the user determines whether to use a recycle bin. According to an embodiment of the invention, a recycle bin may be located within System 300 (e.g., a recycle bin in a Microsoft Windows™ platform). In some systems, such as in a personal computer system, use of the recycle bin may be meant for use for deletions of a small number of stored files as such a use may slow the deletion process. Often, deletion to the recycle bin does not actually result in deletion, but rather merely copies the file to the recycle bin or a temporary directory. The files are not permanently deleted until a user accesses the selected files in the recycle bin or temporary directory and designates them for permanent deletion. If the user decides to use the recycle bin, a Use Recycle Bin icon 216 in graphic user interface 200 is activated at step 120. If the user decides not to use the recycle bin, the user moves on to step 122.

At step 122, the user determines whether to use advanced selection and deletion techniques. If the user decides not to use advanced selection and deletion techniques, the user may begin deletion of the selected files at step 124. As illustrated in Figure 3, graphic user interface 200 may have a general tab 202 for basic variable selection and deletion and an advanced tab 203 for advanced variable selection and deletion.

If the user decides to use advanced selection and deletion techniques, the user activates advanced tab 203. By selecting advanced tab 203, the user is presented with advanced variable selection and deletion techniques as further illustrated in Figure 4. In accordance with such advanced selection and deletion techniques, the user determines at step 126 whether to select one or more of a plurality of time variables. If the user decides to select one or more of the plurality of time variables, the user may either designate a time range at step 128 or designate a time age at step 130. A time range allows the user
to designate a range of times for a particular selected file. By way of example, the user may determine that all stored files saved between 9:00 a.m. and 10:00 a.m. of a particular day should be deleted. Using graphic user interface 200 of Figure 4, the user may activate a time range function 224 of time variable area 222 and enter one or more time ranges in the appropriate area. Other manners of designating a time range may also be used.

To designate a time age, the user may determine that all files stored for longer than a certain amount of time should be selected and deleted. By way of example, the user may designate that all stored files which have been stored for more than twelve (12) hours should be selected and deleted. Using graphic user interface 200, the user designates time age 226 and enters/selects twelve (12) hours as the age of stored files to be selected and deleted. According to an embodiment of the invention, designating the time age of a stored file may be exclusive of other date and time designations (e.g., the user cannot designate a time or date range, or a date age if the time age variable has been designated).

Once the user has selected the time variable for a file or decides not to select any time variables, the user may determine whether to select date variables for a file at step 132. If the user decides to select date variables, the user may designate a date range at step 134 or designate a date age at step 136. Designating a date range for a stored file allows the user to select and delete one or more stored files within a range of dates. By way of example, as illustrated in graphic user interface 200 of Figure 4, the user may activate the date range function 228 in date area 226 and insert one or more dates in the appropriate area. The user may determine that files stored between the dates of December 1, 1998 and December 15, 1998 should be deleted. By entering those dates into data range area 212, the user may instruct System 300 to select and delete the stored files meeting the date range criteria. According to an embodiment of the invention, the user could specify several different date ranges for selecting and deleting one or more stored files.

Alternatively, if the user decides to designate a date age at step 136, the user may instruct System 300 to select and delete files which are a certain age or which were stored within one or more certain date ranges. By way of example, the user may decide to select and delete stored files which were stored before a certain date. The user may activate the
date age function 230 in date area 226 and enter the date age of a file in the appropriate area. Thus, the user may decide that all files older than thirty (30) days old should be selected and deleted by System 300. According to another embodiment of the invention, the user may select to have stored files selected and deleted based on a particular day of the week on which such files were stored (e.g., select and delete files received on Saturdays). It is understood that other manners for determining date ranges or date ages of files may also be used.

According to an embodiment of the invention, a scheduler function may allow the user to schedule selection and deletion of stored files for a particular time of day, and/or a particular day(s) of the week (e.g., start the selection and deletion process at 7:00 PM every Friday evening). This function enables the user to schedule regular, periodic deletions of stored files without reentering the selection and deletion variables. Further, the user may save the selected variables for a particular delete job into a batch command. This will allow the user to delete stored files from several directory locations without having to wait for each deletion job to finish. This feature may be used with the scheduler to provide a completely automated file deletion process.

According to an embodiment of the invention, the user may enter an e-mail address for the System 300 to send a notification when a deletion job is finished. By way of example, this notification function may be used when the scheduler function is used, thereby informing the user when the scheduled deletion has been performed and that the scheduled deletion was successful.

Once the user has designated a date range at step 134 or a date age at step 136, or has decided not to select date variables for selecting a stored file for deletion at step 132, the user decides whether to activate the Cache To File function at step 138. By selecting the Cache To File function by activating the Cache to File icon 230, the user can specify the directory location on any available drive letter root directory to store the stored file listings for the files for deletion, thereby eliminating the need for memory to be used to store such information. This may be a powerful option for certain operating systems and/or platforms where a listing of deleted files is cached to memory. Caching to memory, however, may be limited due to limited amounts of random access memory (RAM) or virtual memory for a particular system. By way of example, deletion processes involving tens of thousands or hundreds of thousands of stored files may result in a
system running out of memory and crashing. Selection of the Cache To File function helps to eliminate this problem. According to an embodiment of the invention, the user may be prompted with a recommendation whether to use a disk drive or a hard drive memory for storing the file listing of the files for deletion. If the user decides to cache to memory the listing of the files, the user may designate the cache to memory function at step 140. If the user decides not to cache to memory, the user proceeds to step 142 to determine whether to ignore certain variables at step 144.

According to another embodiment of the invention, as described above in connection with Fig. 1, the process may involve examining each file individually. A particular file is examined based on selected variables. If the identification indicia of the particular file meets the criteria for the selected variables, the file is deleted. The identification indicia of the next file is then examined based on the selected variables. The process continues through each file in sequence. This process may enable the system to delete files without first having to create a list. Memory use is conserved, thereby allowing the system to perform other functions while examining and deleting the files.

An "ignore variables function" allows the user to ignore or disregard certain selection variables, such as time or date variables, or a size of the file variable. The user may designate one or more variables to be ignored in area 234 of graphic user interface 200 in Fig. 4. Thus, by way of example, after the user has selected a certain time range for a stored file to be deleted and has viewed the stored files that have been selected for deletion, the user may decide to ignore the time range variable without having to go back and delete the time range variable information.

If the user decides to ignore one or more variables, the user designates the particular variables to ignore at step 144. If the user decides not to ignore file one or more variables, the user then decides when to designate the size of a stored file at step 146. By way of example, the user may decide to conserve space in System 300 by deleting all stored files above a certain size, i.e., above 5 megabytes ("MB"). Alternatively, the user may decide that all stored files smaller than 100 kilobytes ("KB") should be deleted. The size of a stored file to be selected and/or deleted may be designated by the user by indicating the file size in File Size Area 236 in graphic user interface 200. The user may activate the designated file size at step 148 by providing the
appropriate information. Once the user has designated the file size, or if the user decides not to designate the file size, the user starts the file deletion process at step 124.

Starting the file deletion process may involve a number of decisions and/or inputs from the user. According to an embodiment of the invention, the user is prompted to input a confirmation of the intended files for deletion. The user may acknowledge the intended files for deletion, or the user may be prompted to enter a password. According to an embodiment of the invention, if there is not enough memory in the user's input device or if available disk space on any associated drives, System 300 notifies the user, and may confirm with the user to perform a staged deletion. The user input device will take a group of files and use its memory to delete the group of files, and then reassess if it can complete the rest of the job. If not, the process is repeated until the deletion can be completed. For some deletions, such as non-critical deletions, the user may designate that System 300 run in the background on the appropriate device, thereby having the deletion process performed when the device (e.g., the personal computer) is idle. Additionally, a user may designate that he/she wishes to have System 300 conduct a secure deletion process for the selected files. The secure deletion process may not only delete the selected files but also wipes the disk space of System 300 clean, thereby preventing anyone from restoring the selected deleted files using an undelete process.

During the deletion process, some selected files may be in use or may be locked, thereby preventing their deletion. System 300 may simply skip the file(s) in question and make note that it skipped such selected files on a completion summary for the deletion process. Alternatively, the selected files may be flagged and the deletion process may return to such selected files for deletion once the file, are no longer in use or locked. Other manners for dealing with files which are locked or in use may also be used.

After file deletion, System 300 may display a summary of how many files were deleted and information about the files, such as the amount of disk space freed, and other information. According to an embodiment of the invention, the user may be able to "undo" a deletion process by restoring the selected deleted files to their file directory. The undo function may be limited based on the number of files previously deleted and/or the capacity of the equipment performing the delete function.

The process and system of the present invention may be used for selecting and deleting any type of file. By way of example, the process and system of the present
invention would work with files associated with e-mail applications, such as Microsoft Exchange® mailboxes. Additionally, instead of deleting the selected files, the process and system of the present invention may be used to select and move files to an alternate location specified by the user.

For purposes of illustration, an example of selecting and deleting files according to an embodiment of the invention will now be briefly described. The user activates the process and selects the appropriate identification indicia for System 300 to use to select the stored files for deletion. For example, after selecting the drive to search for the files, the user indicates that all files that end in ".dat," and which are read-only, hidden, and not archived will be selected for deletion.

Using the advanced tab (such as advanced tab 203 in graphic user interface 200), the user indicates that stored files created between 10:00 a.m. and 2:00 p.m. on any day in the time period January 5 through February 7, and which are less than 200 KB but greater than 49 KB, will be selected for deletion. The user also selects view a sample of files selected for deletion. After all selection variables have been selected, the user activates the select and delete function. The user is then presented with a list of at least some of the stored files selected for deletion. By way of example, a sample of fifty (50) stored files may be presented to enable the user to verify what files will be deleted. Once the user has verified that the appropriate files have been selected for deletion, the user may confirm the deletion, such as by entering a deletion confirmation word. As this example is illustrative, it is understood that other manners for selecting files for deletion may also be used.

Figure 5 illustrates a System 300 according to an embodiment of the present invention. System 300 comprises multiple requester devices 305 (or “computers”) used by requesters to connect to Network 302 through multiple Connector Providers (CPs) 210. Network 302 may be any network that permits multiple requesters or computers to connect and interact. According to an embodiment of the invention, Network 302 may be comprised of a dedicated line to connect a plurality of the requesters, such as the Internet, an intranet, a local area network (LAN), a wide area network (WAN), a wireless network, or other type of network. CP 310 may be a provider that connects the requesters to the network 302. For example, CP 310 may be an internet service provider (ISP), a dial-up access means, such as a modem, or other manner of connecting to network 302. In actual
practice, there may be significantly more users connected to System 300 than shown in
Fig. 5. This would mean that there would be additional requesters which are connected
through the same CPs shown or through other CPs. Nevertheless, for purposes of
illustration, the discussion will presume four requester devices 305 are connected to
Network 302 through two CPs 310.

According to an embodiment of the invention, requester devices 305a-305d may
each make use of any device (e.g., computer, wireless telephone, personal digital
assistant, etc.) capable of accessing Network 302 through CP 310. Alternatively, some or
all of requester devices 305a-305d may access Network 302 through a direct connection,
such as a T1 line, or similar connection. Fig. 5 shows four requester devices 305a - 305d,
each having a connection to Network 302 through a CP 310a and 310b. Requester
devices 305a-305d may each make use of a personal computer such as a computer located
in the requester’s home, or may use other devices which allow the requester to access and
interact with others on Network 302. Central controller module 312 may also have a
connection to Network 302 as described above. Central controller module 312 may
communicate with one or more data storage modules 314, the latter being discussed in
more detail below.

Each requester device 305a-305d used may contain a processor module 304, a
display module 308, and a user interface module 306. Each requestor device 305a-305d
may have at least one user interface module 306 for interacting and controlling the
computer. The user interface module 306 may be comprised of one or more of a
keyboard, a joystick, a touchpad, a mouse, a scanner or any similar device or combination
of devices. Each of the computers 305a-305d used by requester devices 305a-305d may
also include a display module 308, such as a CRT display or other device.

System 300 further includes a central controller module 312. Central controller
module 312 may maintain a connection to Network 302 such as through transmitter
module 318 and receiver module 320. Transmitter module 318 and receiver module 320
may be comprised of conventional devices which enable central controller module 312 to
interact with Network 302. According to an embodiment of the invention, transmitter
module 318 and receiver module 320 may be integral with central controller module 312.
The connection to Network 302 by central controller module 312 and computers 305 may
be a high speed, large bandwidth connection, such as though a T1 or a T3 line, a cable
connection, a telephone line connection, a DSL connection, or other type of connection.

Central controller module 312 functions to permit requester devices 305a-305d to interact
with each other in connection with various applications, messaging services and other
services which may be provided through System 300.

Central controller module 312 preferably comprises either a single server
computer or a plurality of multiple server computers configured to appear to requester
devices 305a-305d as a single resource. Central controller module 312 communicates
with a number of data storage modules 314. Each data storage module 314 stores digital
files. According to an embodiment of the invention, any data storage module 314 may be
located on one or more data storage devices, where the data storage devices are combined
or separate from central controller module 312.

Processor module 316 performs the various processing functions required in the
practice of the process taught by the present invention, such as performing the selection
and deletion of files based on selected variables and identification of files using the
identification indicia. Processor module 316 may be comprised of a standard processor,
such as a central processing unit (CPU), which is capable of processing the information in
the necessary manner.

While System 300 of Fig. 5 discloses a requester device 305 connected to
Network 302, it is understood that a personal digital assistant ("PDA"), a mobile
telephone, a television, or another device that permits access to Network 302 may be used
to arrive at the system of the present invention.

According to another embodiment of the invention, a computer usable and
writeable medium having a plurality of computer readable program code stored therein
may be provided for practicing the method of the present invention. The process and
system of the present invention may be implemented within a variety of operating
systems, such as Windows®, various versions of a Unix based operating system (e.g.,
Hewlett Packard, Red Hat, or Linux version of a Unix-based operating system); or
various versions of an AS/400-based operating system. For example, the computer usable
medium may be comprised of a CD ROM, a floppy disk, a hard disk, or any other
computer usable medium. One or more of the components of the System 300 may
comprise computer readable program code in the form of functional instructions stored in
the computer usable medium such that when the computer usable medium is installed on
the System 300, those components cause the System 300 to perform the functions described. The software for the present invention may also be bundled with other software. For example, if another software company has a product that generates a lot of files that needs to be deleted periodically, they could add the code for implementing the present invention directly into their program.

According to one embodiment, central controller module 312, data storage 314, processor module 316, receiver module 318, and transmitter module 320 may comprise computer-readable code that, when installed on a computer, perform the functions described above. Also, only some of the components may be provided in computer-readable code.

Additionally, various entities and combinations of entities may employ a computer to implement the components performing the above described functions. According to an embodiment of the invention, the computer may be a standard computer comprising an input device, an output device, a processor device, and data storage device. According to other embodiments of the invention, various components may be different department computers within the same corporation or entity. Other computer configurations may also be used. According to another embodiment of the invention, various components may be separate entities such as corporations or limited liability companies. Other embodiments, in compliance with applicable laws and regulations, may also be used.

According to one specific embodiment of the present invention, a system may comprise components of a software system. The system may operate on a network and may be connected to other systems sharing a common database. Other hardware arrangements may also be provided.

Other embodiments, uses and advantages of the present invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. The specification and examples should be considered exemplary only. The intended scope of the invention is only limited by the claims appended hereto.
Claims
What is claimed is:
1. A process for sorting and selecting stored digital files based on multiple variables, the process comprising the steps of:
   identifying each of a plurality of stored digital files, where the identifying step uses a plurality of identification indicia;
   receiving at least three selection variables, wherein the selection variables are from a group including the plurality of identification indicia; and
   selecting at least one of the plurality of stored digital files based on the at least three selection variables.

2. The process of claim 1, further comprising the step of deleting the at least one selected file.

3. The process of claim 1, wherein the plurality of identification indicia comprise at least one of:
   a) a title indicia;
   b) a time indicia;
   c) a date indicia;
   d) a file type indicia;
   e) a file size indicia; and
   f) a file directory indicia.

4. The process of claim 1, further comprising the step of creating a file log for tracking the plurality of selection variables received.

5. The process of claim 1, further comprising the step of displaying at least one of the selected stored digital files.

6. The process of claim 1, wherein one of the plurality of identification indicia is a time identification indicia, and wherein one of the plurality of selection variables is a range of time indicia.
7. The process of claim 1, wherein one of the plurality of identification indicia is a date indicia, and wherein one of the plurality of selection variables is a range of date indicia.

8. The process of claim 2, further comprising the step of receiving a designated location.

9. A system for sorting and selecting stored digital files based on a plurality of variables, the system comprising:
    an identification module for identifying each of a plurality of stored digital files, wherein identification occurs using a plurality of identification indicia;
    a receiver module for receiving at least three selection variables, wherein the at least three selection variables are from a group including the plurality of identification indicia; and
    a selection module for selecting at least one of the plurality of stored digital files based on the plurality of selection indicia.

10. The system of claim 9, further comprising a deletion module for deleting the at least one selected files.

11. The system of claim 9, wherein the plurality of identification indicia comprise at least one of:
    a) a title indicia;
    b) a time indicia;
    c) a date indicia;
    d) a file type indicia;
    e) a file size indicia; and
    f) a file directory indicia.

12. The system of claim 9, further comprising a creation module for creating a file log for tracking the plurality of selection variables received.

13. The system of claim 9, further comprising a display module for displaying at least one of the selected stored digital files.
14. The system of claim 9, wherein one of the plurality of identification indicia is a time indicia, and wherein one of the plurality of selection variables is a range of time indicia.

15. The system of claim 9, wherein one of the plurality of identification indicia is a date indicia, and wherein one of the plurality of selection variables is a range of date indicia.

16. The system of claim 10, further comprising a receiver module for receiving a designated location.
FIG. 2B
FIG. 5
**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**
- IPC(7) : G06F 17/30
- US CL : 707/1, 7
- According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**
- Minimum documentation searched (classification system followed by classification symbols)
  - U.S. : 707/1, 7, 2, 3, 4, 5, 100, 200
- Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
- Electronic database consulted during the international search (name of database and, where practicable, search terms used)
  - WEST, EAST, NPL

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,878,410 A (Zbikowski et al.) 02 March 1999, See figs. 2-6.</td>
<td>1-16</td>
</tr>
</tbody>
</table>

- See patent family annex.

- Further documents are listed in the continuation of Box C.

**Date of the actual completion of the international search**
- 22 AUGUST 2001

**Date of mailing of the international search report**
- 19 SEP 2001

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Form PCT/ISA/210 (second sheet) (July 1998)*