

## DATA STORAGE AUDIT TRAIL

This application is a continuation of prior application Ser. No. 07/409,230 filed Sep. 15, 1989, now abandoned.

### RELATED INVENTIONS

The present invention is related to the following inventions, all assigned to the assignee of the present invention:

System Control Structure of a Hospital Information System and Method of Using Same, having Ser. No. 116,614, and filed on Nov. 3, 1987;

Clinical Task List with Charting Through the Task List onto Underlying Form and Automatic Updating of Task List, having Ser. No. 572,317 filed on Aug. 24, 1990, continuation of Ser. No. 268,822, and filed on Nov. 7, 1987 (now abandoned);

Clinical Task List with Charting onto Underlying Form and Automatic Updating of Task List, having Ser. No. 572,315 filed on Aug. 24, 1990, a continuation of Ser. No. 268,323, and filed on Nov. 7, 1987 (now abandoned);

Method for Generating Patient-Specific Flowsheets by Adding/Deleting Parameters, having U.S. Pat. No. 4,878,175 issued on Oct. 31, 1989;

Method for Generating a Display, having Ser. No. 540,382 and filed on Jul. 19, 1990, a continuation of Ser. No. 322,740, now abandoned;

A Method for Displaying Information from an Information Based Computer System, having Ser. No. 407,979 and filed on Sep. 15, 1989;

Spreadsheet Cell having Multiple Data Fields, having Ser. No. 408,166 and filed on Sep. 15, 1989;

A Method for Displaying Information from an Information Based Computer System, having Ser. No. 407,836 and filed on Sep. 15, 1989;

Electronic Data Storage Interface, having Ser. No. 408,178 and filed on Sep. 15, 1989;

Method for Updating Data in a Database, having Ser. No. 408,167 and filed on Sep. 15, 1989;

Method for Processing and Storing a Transaction in a Distributed Database System, having Ser. No. 408,164 and filed on Sep. 15, 1989;

Method of Forming a Spreadsheet Display, having Ser. No. 407,972 and filed on Sep. 15, 1989 now abandoned.

### FIELD OF THE INVENTION

The present invention relates, in general, to databases and, more particularly, to a data storage audit trail used in a database.

### BACKGROUND OF THE INVENTION

The present invention relates to an automated records management system kept in a database form. A database is a collection of logically organized data items. Generally, a database is organized into tables (or pages) which may contain one or more records (or rows). The records are comprised of one or more fields which contain the data.

Such an automatic system has utility, for example, in a hospital based patient record keeping system. Patient record keeping systems are used for maintaining a wide variety of separate, often interrelated, types of medical records concerning patients.

Hand written patient record keeping systems have evolved through many years of careful refinement and enhancement into systems which maintain a detailed manual record of medical information concerning each patient. To meet the needs of different hospital entities (such as doctors, nurses, pharmacy, accounting, laboratory, etc.) a manual record keeping system would require that one piece of information be entered into multiple records.

In a typical manual patient record keeping system a patient chart, usually in the form of a notebook, is maintained at the nursing station for each patient. The notebook is divided into a plurality of individual tabbed sections, such as Physicians Orders, Kardex, Nursing Care Plan, Nursing Assessment, and Laboratory.

Each of the above sections is further subdivided into a number of forms. The forms are those which are appropriate to the individual patient and/or such patient's physician. For example, within the Laboratory section there may appear forms for chemistry, hematology, blood gas, and microbiology.

In addition, a "flowsheet" chart is usually kept at the patient's bedside. On the "flowsheet" chart there are individual areas for medication records, vital signs, intake/output, laboratory results, and other categories which are dependent upon the patient's affliction, such as intravenous (IV) drips.

The flowsheets are often a type of spreadsheet arranged by a progression of time versus a particular parameter. Each of the time/parameter intersections form a cell.

One way of replacing the manual charting system is with electronic databases such as described in the patents and applications referenced in the preceding Related Inventions section. Here a visual display is provided in much the same configuration as present manual charts. Each display provides a time/variable spreadsheet consisting of a plurality of data cells.

In this type of electronic database, a cell in a flowsheet may have a form or report associated with it which expands on the information in the cell. This form may be comprised of various attributes and processing rules obtained from one or more object instances of one or more object classes.

An object instance is the instantiation of an object class. An object class is similar to a type (as used in programming languages) in that it defines a structure. The information for these flowsheet cells and the underlying forms, comes from a database containing various patient records. Examples of forms and records are found in copending patent applications "A Method of Forming a Spreadsheet Display" and "Spreadsheet Cell having Multiple Data Fields". During the patient's stay, the information in the database relating to that patient will grow and be physically distributed about the data storage device. Accessing and displaying this information becomes more difficult as the amount of information grows.

Additionally, in a critical care environment, it is a necessity to obtain and display the information in as little time as possible to the health care provider.

An important objective in obtaining a fast turn around time from request to display is the organization and storage of the information in the database, as well as the method used to retrieve the data.

Accordingly, it is an object of the present invention to provide a data storage audit trail in a database which