

Database Management system in agriculture

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1 Data Base

A database is a systematic collection of data arranged in columns and rows. It can be used to quickly retrieve, sort and test data meeting specific criterion. In database language, each row is called a record and each column a field. A database is used to store large volumes of data.

2 DBMS

A database management system is the software that functions as the interface between users, other programs and the database itself. It allows the data to be stored, maintained, manipulated and retrieved.

3 Features of DBMS

The DBMS permits the user to create, maintain and manipulate the information stored within a file. These features are common to almost all database packages.

1. Creating a file
2. Entering database records
3. Sorting
4. Deleting
5. Updating

4 Structure of database management packages

The structure of DBMS is used to organize the data elements in three basic ways:

1. Hierarchical database structure
2. Network database structure
3. Relational database structure

5 Relational Database Management Systems (RDBMS)

A relational database management system is defined as a method of viewing information from several, separate databases that relate to one another through keywords or values.

Features of RDBMS

1. Tables
2. Queries
3. Forms
4. Reports

Excel as package for RDBMS

To some extent, Microsoft Excel also serves as database management software, which stores data in the form of columns and rows. In Excel there are 256 columns and 65,536 rows.

Sort: Use the Sort dialog box to sort a range of selected cells. Sort by

If you're sorting rows, select the first column to sort by. If you're sorting columns, select the first row to sort by. Then by

Use this box if you're sorting by more than one column or row. After the range is sorted by the column or row in the Sort By box, additional columns or rows sort the range in sequence.

Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria (criteria: Conditions you specify to limit which records are included in the result set of a query or filter.) you specify for a column. Microsoft Excel provides two commands for filtering ranges:

6 Perform a statistical analysis:

Microsoft Excel provides a set of data analysis tools— called the Analysis Tool-Pak— that you can use to save steps when you develop complex statistical or engineering analyses. You provide the data and parameters for each analysis; the tool uses the appropriate statistical or engineering macro functions and then displays the results in an output table. Some tools generate charts in addition to output tables.

1. On the Tools menu, click Data Analysis.
2. If Data Analysis is not available, load the Analysis ToolPak.
3. In the Tools menu, click Add-Ins.
4. In the Add-Ins available list, select the Analysis ToolPak box, and then click OK.
5. If necessary, follow the instructions in the setup program.
6. In the Data Analysis dialog box, click the name of the analysis tool you want

to use, then click OK.

7. In the dialog box for the tool you selected, set the analysis options you want.

7 Access databases:

A database is a collection of information that's related to a particular subject or purpose, such as tracking customer orders or maintaining a music collection. If your database isn't stored on a computer, or only parts of it are, you may be tracking information from a variety of sources that you have to coordinate and organize yourself. For example, suppose the phone numbers of your suppliers are stored in various locations, in a card file containing supplier phone numbers, in product information files in a file cabinet, and in a spreadsheet containing order information. If a supplier's phone number changes, you might have to update that information in all three places. In a database, however, you only have to update that information in one place—the supplier's phone number is automatically updated wherever you use it in the database.

8 access database files

Using Microsoft Access, you can manage all your information from a single database file. Within the file, you can use: Tables to store your data. Queries to find and retrieve just the data you want. Forms to view, add, and update data in tables. Reports to analyze or print data in a specific layout. Data access pages to view, update, or analyze the database's data from the Internet or an intranet.

Create an Access database Microsoft Access provides three methods to create an Access database. 1. Create a database by using a Database Wizard

2. Create a database by using a Template

3. Create a database without using a Database Wizard

9 SQL queries (MDB)

An SQL query is a query you create by using an SQL statement. You can use Structured Query Language (SQL) to query, update, and manage relational databases such as Microsoft Access. When you create a query in query Design view, Access constructs the equivalent SQL statements behind the scenes for you. In fact, most query properties in the property sheet in query Design view have equivalent clauses and options available in SQL view. If you want, you can view or edit the SQL statement in SQL view. However, after you make changes to a query in SQL view, the query might not be displayed the way it was previously in Design view. Some SQL queries, called SQL-specific queries, can't be created in the design grid. For pass-through, data-definition, and union queries, you must create the SQL statements directly in SQL view. For sub-queries, you enter the SQL in the Field row or the Criteria row of the query design grid. You

can type an expression in an SQL SELECT statement, or in WHERE, ORDER BY, GROUP BY, or HAVING clauses. You can also type an SQL expression in several arguments and property settings. For example, you can use an SQL expression as a: Where Condition argument of the Open Form or Apply Filter action. Domain or criteria argument in a domain aggregate function

Role of Databases in Modern Agriculture Agenda

- Need of Databases in different domain
- Why Databases in Agriculture?
- What is Power of Database?
- Creating tables
- Insertion / Deletion / Modification of tables
- Extracting data from Tables Databases in different domain
- In Production Industry – Employee database
- Production database
- Quality database and analysis
- Sales analysis
- Stock
- Accounting Service Industry • Employee
- Customer
- Different types of services provided
- Analysis of quality service given
- Accounting

Education

- Employee
- Student
- Library
- Academics
- Results

Databases in Agriculture • Farmer level Database

- Research level Database
- Production level Database Farmer level Database • Land type
- Cultivation of Crops
- Yield of Crops in specific type of land
- Quality of Grown crops
- Income / Expenditure Research level Database
- Quality and type of soil
- Crop grown
- Yield of crop
- Quality of crop
- Fertilizers used
- pesticides used to grow Production level Database
- General report of each crop in different areas
- Analysis of the grown crop
- Local level, State level, Center level

Power of Database

- Store the information permanently
- Extracting the Information in required way
- Manipulation of Data stored
- Dynamic data updation

How to create tables?

- Problem definition: An investor is looking for the lands wherein he can invest and get the profit.
- The investor maintains the information of different formats, size of available land, soil type, location, source of irrigation, labor availability, crops grown in different area
- The investor makes proper investment depending on his convenience and the information about the farmers.
- Question comes how he can maintain the information?? – Files?
– Spread sheets?
- What is wrong with Files and Spread Sheets?

So the DATABASE

- Information is stored in structured manner
- Information access is easy and Fast
- Secured
- Concurrent access
- Identify the information attributes to be stored in database
- Normalize the identified attributes

10 Advanced concepts in Databases

- Primary Key
- Secondary Key
- Constraints on Keys
- Joining of tables
- Views
- Triggers
- Report Generation and Front end