

Data:

Data are the raw facts or figures which are processed to get the information.

Database:

A collection of data stored in a standardized format, designed to be processed, shared by different users. A database may have single table or multiple tables. The data in a database are organized in *rows* and *columns*.

Database Management System (DBMS):

It is software that defines a database, stores the data and supports a query language, produces reports, and creates data entry forms. Some DBMS software are MS-Access, Oracle and FoxPro etc.

Features/Advantages of DBMS:

- ⇒ The data independence and efficient access of data.
- ⇒ It reduces application development time
- ⇒ It provides data integrity and security
- ⇒ Easy in data administration or data management
- ⇒ Provides concurrent access, recovers the data from the crashes
- ⇒ Centralized control

Disadvantages of DBMS:

- ⇒ Problem Associate with centralized
- ⇒ Cost of software, hardware and migration
- ⇒ Complexity of backup and recovery

RDBMS:

RDBMS stands for Relational Database Management System. RDBMS data is structured in database tables, fields and records. RDBMS store the data into collection of tables, which might be related by common fields (database table columns). The most popular RDBMS are MS SQL Server, Oracle and MySQL.

Features of MS-Access

- ⇒ It shares data with other applications such as Word, Excel or Web pages.
- ⇒ It incorporates Structured Query Language (SQL), macros and Visual Basic (VB).

Table:

A database consists of one or more tables. A table is a collection of data, arranged in rows and columns.

Entity:

Entity is the distinguishable objects of real world. For e.g. Student, customer, employee.

Attributes:

They are the set of properties possessed by an entity. E.g. Name, address, contact no of student.

Query:

A query is search or question that we make for a record or an item. Queries help to investigate about data records.

Types of Queries:

Action query:

An *action query* is a query that makes changes to or moves many records in just one operation.

There are four types of action queries:

Delete, Append, Update and Make-Table.

SQL query:

An *SQL query* is a query you create by using an SQL statement.

Tuple:

Each record row in a table is tuple.

Design view:

A window that shows the design of these database objects: tables, queries, forms, reports, macros, and data access pages. In Design view, you can create new database objects and modify the design of existing ones.)

Datasheet view:

A window that displays data from a table, form, query, view, or stored procedure in a row-and-column format. In Datasheet view, you can edit fields, add and delete data, and search for data.

Forms:

A form is a type of a database object that is primarily used to enter or display data in a database.

Report:

Report is an object of database, which can be an effective way to present your data in a printed format.

Field:

The title of the column that holds a specific type of data is known as field. A table can have maximum 255 fields.

Record:

The collection of data horizontally for each field is known as record. A record is complete information about an entity.

Primary Key:

Primary key is one or more fields (columns) whose value or values uniquely identify each record in a table. A primary key does not allow Null values and must always have a unique value. A primary key is used to relate a table to foreign keys in other tables.

Foreign Key:

Foreign key is a field in a relational table that matches the primary key column of another table.

Wizard:

A database wizard is a small built in program which lets us to create table, form, and reports automatically.

Relationship:

A relationship is association among different related tables so that we can pull; extract the information from different tables easily.

Data Types:

Data Type	Description	Max. Data/Space	Default Field Size
Text	Use for text or combinations of text and numbers.	Up to 255 Characters	50
Memo	Use for lengthy text and numbers.	Up to 65,536 Characters	
Number	Use for data to be included in mathematical calculations.	1,2,4 or 8 Bytes	Long Integer
Date/Time	Use for dates and times.	8 Bytes	
Currency	Use for currency values and to prevent rounding off during calculations.	8 Bytes	Long Integer
AutoNumber	Use for unique sequential (incrementing by 1).	4 Bytes	
Yes/No	Use for data that can be only one of two possible values, such as Yes/No.	1 Bit	
OLE Object	Use for OLE objects (such as Microsoft Word documents, Microsoft Excel spreadsheets, pictures, sounds).	Up to 1 GB	
Hyperlink	Use for hyperlinks.	Up to 64,000 Characters	
Lookup Wizard	Use to create a field that allows you to choose a value from another table	4 Bytes	

Field Properties:**Field size:**

Specifies the maximum no of characters that can be stored. The maximum is 255 and default is 50 characters.

Format:

Specifies how the field will be displayed.

Input mask:

Allows to create a format or pattern in which data must be entered. For example you can insist that telephone numbers include international codes.

Required:

If an entry in the field is mandatory, you should set its required property to "Yes". The default value is "No".

Decimal place:

The number of decimal places for number and currency field.

Caption:

A descriptive name for the field, as it will appear in focus.

Default value:

If a field is containing the same value for almost every record, we can set a value field as default to save time and it is appeared when the record is created.

Validation rule:

An expression that limits the range of allowable values in the field.

Validation text:

The message displayed to the user when the validation rule is not followed.

Primary key:

See above

Indexing:

Indexing a table makes it faster for access to find and sort its records. An index contains a "pointer" to the location of the data, rather than the actual data itself in a similar way that the book's index directs us to go to the relevant pages (Or Indexing speed up searches by cataloging the contents of a particular field. The primary key field is automatically indexed.)