TOPIC 11: INTRODUCTION TO DATABASES

Distinguish between a DBMS and a database

Database Managementsystems *refers a piece of software thatmanages databases andlets you create, edit, maintain, delete databases and their tables and data. It can also be a software which can be used to manage the data by storing it on to the data base and by retrieving it from the data base. While*
Database *is any collection of interrelated data that allows access, retrieval, updating and manipulation; it can be words that you write on a piece of paper in a digital form.*

List examples of typical databases that you know.

- *School registers*
- *National voters register*
- *National passport register*
- *National population register*
- *Address books register*
- *Bank registration databases*
- *National identification register databases*

What are the functions of the Database Management Systems.

- *Enables one to create summary reports*
- *It provides an interface for a user to enter data*
- *Enables the use to create forms*
- *Allows easy access and retrieval of data*
- *Allows querying/filtering of some data*

Give the popular examples of Database Management System software.

- *Microsoft access*
- *My Structured Query language(SQL)*
- *My SQL Server*
- *Oracle*
- *Postgress*
- *SQLite*

- *Amazon simple DB*
- *File Maker*
- *Informix*
- *ADABAS*
- *Teradata*
- *Microsoft SQL server*
- *IBM DB2*
- *Bento*
- *Borland Database Engine*
- *DBase*
- *FoxPro*
- *Paradox*

State the advantages of using electronic database system

- *It is easy to enter and retrieve data in a short period of time.*
- *A database stores data that is consistent and reliable since at each stage, it is checked for consistency and reliability.*
- *A database can store data for a very long period of time say 20 years and so in an archive.*
- *A database is flexible since it can be redesigned, to hold thousands of data.*
- *A database can be used by many people at the same time.*
- *Data is frequently updated after each single entry.*
- *Data is automatically saved as soon as data is entered into a database.*
- *Data can be retrieved in different formats e.g query, forms, reports, e.t.c.*

Give the disadvantages of using electronic database.

- *They are very expensive to maintain and require initial cost*
- *They are very complicated and complex to us.*
- *They need technical requirements and knowledge.*
- *Require extra cost of hardware and software*
- *They consist of data failure.*
- *Consumes a lot of space on the hard drives*
- *Requires a lot f system currency and updating*

Give the areas where a database can be used

1. ***Report card generation:*** *a database can be used by schools to generate report cards and necessary academic summaries.*
2. ***POS (Point of Sale****): in a supermarket, a database is used to design and automate a point of sale interface to manage money coming in, stock movement, e.t.c. e.g. Standard Supermarket in Kampala.*
3. ***Banks****: a big database is used to manage details about a customer's transaction with the bank.*
4. ***Electoral commission****: it manages a database archive for all eligible voters in a given country.*
5. ***Data warehouses:*** *information bureau use a database to manage and distribute information to users for example information about air travel by various air companies.*
6. ***Stores:*** *a database keeps consistent and reliable data. Very big stores used databases to store, manage and automate store records.*

Describe briefly the difference between a flat file database and a relational database.

A flat file database is made up of only one table. While A relational database can take information from two or more database tables and combine them into a new table or report through the use of a key field.

Describe briefly the following validation checks:

a) Presence check *is to make sure that data is actually present.*
b) Length check *is to make sure that the number of characters entered is within the limit.*
c) Range check *is to make sure that the data entered lies within a certain range.*
d) Type check *(also known as character check or alphanumeric check) is to make sure that the data entered is of the correct data type (e.g., numeric or alphabetic).*
e) A check digit *is an extra digit appended to a code consisting of a series of numbers or characters to detect errors arising from transcription.*

Define the following terms as used in databases

- ***Field-****A field is a column in a table that contains a specific piece of information within a record.*
- ***Record*** *A record is a row in a table that contains information about a given person, product, or event.*
- ***Validation rule****-Is a method used to check that data falls within the appropriate range or parameter defined by the database user.*

- ***Primary Key**. Is a field that uniquely identifies a record in a table. Before saving a table, you should insert a primary key.*
- ***Foreign key:** A key used in one table to represent the value of a primary key in a related table.*
- ***Field name**- Database feature assigned to each field to identify the different fields*
- ***Field properties**-Determine how data is handled, stored and manipulated - Further define data types and formats like field size, default values*
- ***Data type**-Specify the kind of data a field can contain and how the field is used.*