**TOPIC 11: INTRODUCTION TO DATABASES**

**Distinguish between a DBMS and a database**

***Database Management systems*** *refers a piece of software that manages databases and lets 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.*