Roll No:- 126 FYIJ

Date

Assignment - 1

1) What is DBMS? Explain its advantages?

Ans 1) A database management System (DBMS) is a collection of Program that manages the database structure and controls access to data stored in database.

2) The DBMS Serves as intermediatory between the user and database. The database structure itself is stored as collection of files, So we can access the data in those files through DBMS.

3) The Purpose of database is store and retrieve information in a way that is accurate and effective and to manage the different database it contains (performance, security, availability, integrity etc)

Advantages of DBMS :-

1) Shared data :- A database allows the sharing of data under its control by any number of application Programs or users for example, the application of Public relations and Payroll departments can share the same data.

2) Reduction of Redundancies :- Centralized control of data by DBA avoids unnecessary duplication of data and effectively reduces the total amount of data Storage required. It also eleminates the extra Processing necessary to trace required data in large mass of data

3] Data Independence :- The ability of modify a schema defination in one level without affecting a schema defination in next higher level is called data independence. Application Programs should be as independent as possible from details of data representation and Storage.

2] What is Data Abstraction ? Explain its levels.

Ans Database System are made up of complex data structure. To ease the user interaction with database the developers Hide internal irrelevant details from users. This process of hiding irrelevant details from user is called data abstraction.

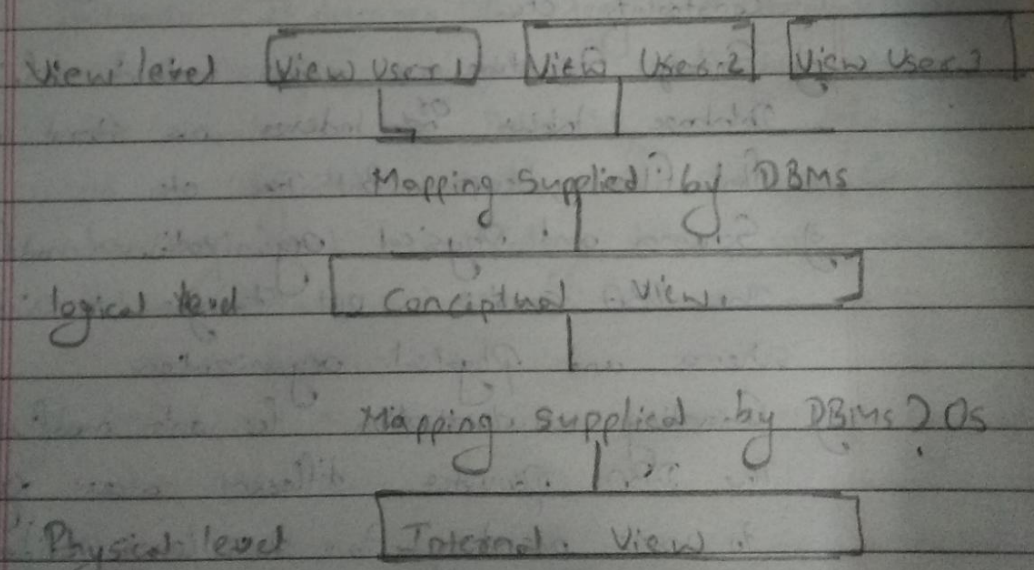
The three level of abstraction are as :-

i] Physical level
ii] Logical level
iii] View level

i] Physical level :- The Physical level of abstraction is lowest level of abstraction that describes how data is actually stored. The Physical level or internal Schema which contains the defination of stored record the method of representing the data field expresss the internal view and access aids used

2) Logical level :- The logical level of data abstraction defines what ~~does~~ data are actually stored in database and what relationship exist among those data. In relational DBMS, the Conceptual Schema describe all relation that are stored in database.

3) View level :- This is highest level of abstraction as seen by user. This level of abstraction describes only part of entire database which exist to simply the interaction with system.



3) What is database Administrator ? Explain the various function of DBA.

Ans A Person who has such control ~~of Database~~ over system is called a Database Administrator (DBA)

The following are functions of DBA :-

1) Schema Definition :- The DBA creates the database schema by executing DDL Statements. Schema includes the logical structure of Database table (relation) like data type of attributed length of attributes, integrity constraints etc.

2) Storage Structure can access method definition :- Database tables or indexes are stored in flat files, heaps, B+ Tree etc.

3) Schema and Physical organization modification :- The DBA carries out changes to existing schema and physical organization

4) Granting authorization for data modification :- The DBA provides different access rights to users according to their level ordinary users might have higher restricted access to data, while you go up in hierarchy to administrator you will get more access rights.

5) Routine maintenance :- Some of routine maintenance activities of DBA are given below :-

1) Taking backup of database periodically
2) Ensuring enough disk space is available all time.
3) Monitoring jobs running on database
4) Performing tuning
5) Ensure that performance is not degraded by some expensive task submitted by some users.

4) Why data models are used in database ? Explain its components.

Ans A database model defines logical structure of database. It describes the design of database to reflect entities attributes, relationship among data constraints etc Datamodel can be defined as an integrated collection of concepts for describing and manipulating data, relationships between data, and constraints on in an organization.

i) Hierarchical Model :- The database model organises data into tree-like-structure, with a single root to which all other data is linked The hierarchy starts from Root data, and expands like a tree, adding child nodes to parents nodes. In this model a child node will only have a single parent node.

2) Network model :- In network data model data are represented by collections of records. Relationship among data are representation by links. In this data model graph data structure is used. It permits a record to have more than one parent.

3) Relation model :- Relational model is most popular model and most extensively used model. In this model the data can be stored in tables and this storing is called as relation, the relations can be normalized and unnormalized relation values are called atomic values. Each row in a relation contains unique value and it is called as tuple, each column contains value form same domain and it is attribute

Page No.
Date

3) Define

1) Entity :- An entity is a person, place, thing or event about which data are to be collected and stored. An Entity is a fundamental item in any data model as it is distinguishable i.e each entity occurrence is unique and distinct.

2) Attribute :- An attribute is the characteristics of any entity for e.g : CUSTOMER entity can be described by attribute such as name, phone, address, gender. Each attribute is associated with a set off values called domain.

3) Tuple :- It is nothing but a single row of table, which contains a sing record.

4) Degree :- The total number of attribute which in the relation is called degree of relation.

5) Cardinality :- The total number of rows present in table.

6) Write a note on following

a) Primary key :- The Primary key constraint uniquely each record in a table. Primary key must contain unique values and cannot contain values. A table can have only one Primary key and in table Primary key consist of single or multiple columns.

b) Alternate key :- Alternate key is a secondary key. If a table has more than one candidate key one of them will become the Primary key and rest of all are called alternate keys.
Eg :- Student contain (NAME, ROLL No, ID)
Here ROLL No is Primary key and rest of all column alike NAME, ID are alternate key.

c) Candidate key :- Candidate key is a set of attribute that uniquely identify tuples in a table. Candidate key is a super key with no repeated attribute. The Primary key should be selected from candidate key. A table can have multiple candidate key but only a single Primary key.

d) Attributes and its types :- Attributes are the descriptive properties which are owned by each entity of an entity set. There exist a specific domain or set of values for each attribute from where this attribute can take its value.

Types of attributes

1) Simple attribute :- Simple attribute are those attribute which can not be divided further.

2) Single value attribute :- Those attributes which can take only one value for a given entity from an entity set.

3) Composite attribute :- Composite attributes are those which are composed of many other simple attributes.

4) Multi valued attribute :- Those attribute which can take one value for a given entity from an entity set.

5) Derived Attributes :- Those attribute which can be derived from other attributes.

6) Key attribute :- Those attribute which can identify an entity uniquely in an entity set.

e) Strong entity :- Strong entity set always has a primary key. It represented by a rectangle symbol. It contains a primary key represented by underline symbol. The member of a strong entity set is called as domain entity. Primary key is one of its attributes which helps to identify its member.

Q) Generalization :- A generalization hierarchy is a form of abstraction that specifies that two or more entities that share common attributes can be generalized into higher level entity type called supertype. The lower level entities become the subtypes the supertype and is dependent entities.

Q) Specialization :- Specialization is an abstracting process of introducing new characteristics to an existing class of objects to create one or more new classes of objects. This involves taking a higher level entity and using additional characteristics generating lower-level entities. The lower level entities also inherit the characteristics of higher-level entity.

Q) Explain relationship with its types ?

Ans A relationship describes relation between entities. Relationship is represented using diam There are three types of relationship that exist between entities.

Q) Binary Relationship :- Binary relationship means relation between two Cardinality constraint defines the maximum number of relationship instances in which an entity can participate

Cardinality ratios
- Many-to-many
- Many-to-one
- One-to-many
- One-to-one

2) Recursive Relationship :- When an entity is related with itself it is known as Recursive relationship. In the below table example an employee can be Supervisor be supervised so there is a recursive relationships

3) Ternary Relationship :- Relationship of degree three is called Ternary relationship. A Ternary relationship involves three entities. In such relationship we always consider two entities together and then look upon the third.

8) Explain DDL and DML Commands.

Ans DDL - DDL stands for Data Definition language DDL changes the structure of table like creating a table, altering a table etc. All command of DDL are auto-committed that means it permanently save all changes in database

Commands that come under DDL

1) CREATE :- It is used to create new table in database.

Syntax :- CREATE TABLE TABLE_NAME (COLUMN_NA DATATYPES' ....);

2) DROP :- It is used to delete both structure and record stored in table.

Syntax :- DROP TABLE TABLE_NAMES ;

3) ALTER :- It is used to alter structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

Syntax :- To add a new column in table

ALTER TABLE table_name
ADD column_name column_definition ;

To modify existing column in table

ALTER TABLE table_name
MODIFY (Column Definition);

DML :- DML Stands for Data Manipulation language
DML Commands are used to modify the database
It responsible for all form of changes in database. The command of DML is not cute - committed that means it can't permanently save all changes in database.

Commands that come under DML

1) INSERT :- It is used to insert data into the row of table.

~~2) UPDATE :-~~

Syntax :- INSERT INTO TABLE_NAME VALUES (value1, value2, value3);

2) UPDATE :- It is used to update or modify t
Values of a Column in the Table.

Syntax :- UPDATE TABLE_NAME
SET [Column_name = value ... col
name = value);
WHERE CONDITION

3) DELETE :- It is used to remove one or
row form a table

Syntax :- DELETE FROM TABLE_NAME
WHERE CONDITION