DBMS

Assignment - 1

1. What is DBMS ? Explain its advantages.

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

2] The DBMS serves as the intermediary between the user and database. The database structure itself is stored as a collection of files in DBMS.

3] The purpose of a b database is to store and retrieve information in a way that is accurate and effective and to manage the different database.

Advantages-

1] Shared data - A database allows the sharing of data under the its control by any number of applications program or users for example the application of the public relations and payroll departments can share the same data

2] Reduction of Reduncies - Centralized control of data by the DBA avoids unnessary duplication of data and effectively reduces the total amount of data storage required.

3. Data independence - The ability of modify a schemes definition in one level without affecting a schema definition in the next higher level is called data independence. Application programs should be as independent and storage.

2. What is data Abstraction? Explain its levels.

Ans Database system are made up of complex data structure. To ease the user introduction with database. the developers hide internal irrevelant details from users. This process of hiding irrelevant details from users is called data abstraction.
The three levels of data abstraction are as follows:-

1) Physical level - The physical level of abstraction is the lowest level of abstraction that describes how the data is actually stored. The physical level on internal schema, which contains the definition of stored record the method of representing the data fields express the internal view and the access aids used.

2) Logical level - The logical level of data abstraction defines what data are actually stored in the database. and what relationship exist among these data. In relational DBMS, the conceptual schema describes all relations that are stored in the database.

3) View level - This is the highest level of abstraction as seen by a user. The level of abstraction describe Only the part of entire database which exists to simplify the interaction with the system.
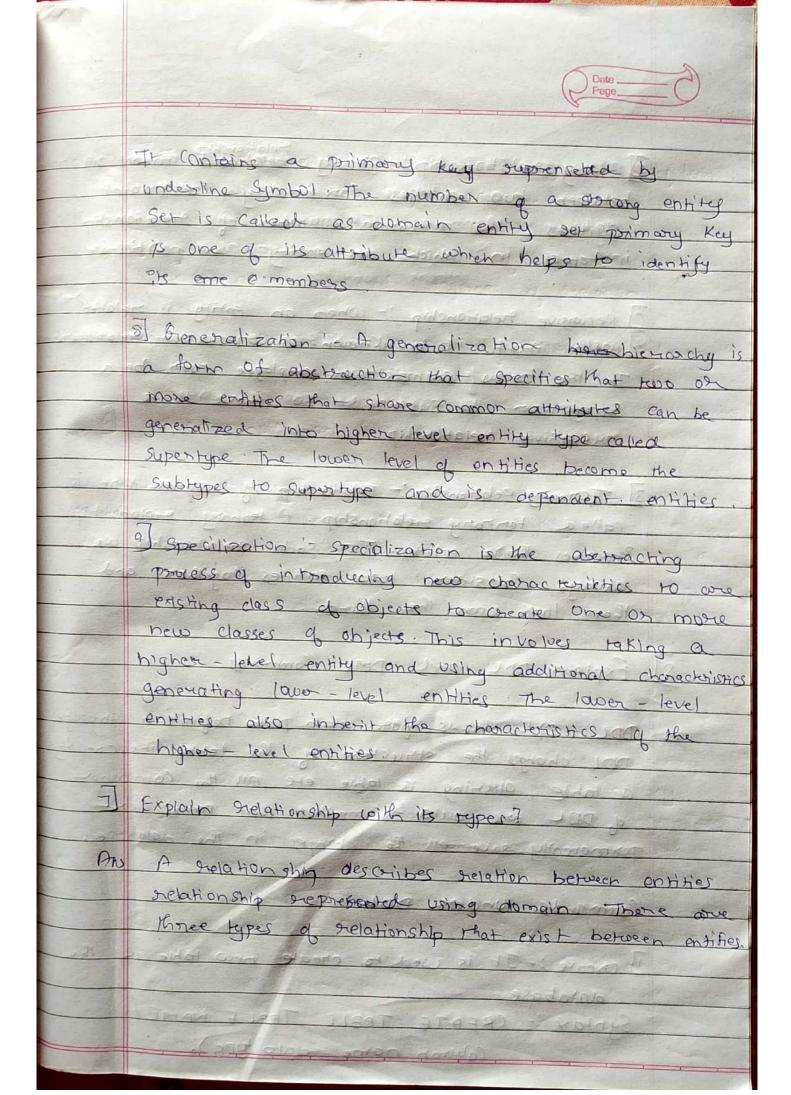
3] What is Database Admininstrator? Explain the various function of DBA.

Ans   A person who has such control over the system is called a Database administrator DBA.

The following are the functions of a Database Administrator.

1] Schema definition — The database administrator executes the database schema by executing DDL statements. Schema includes the logical structure of database table creation like data type of attributes length of attributes, integrity Constraints etc.

2] Storage structure and access method definition — Database tables or indexes are stored in flat files, heaps, B+ tree etc.

3] Schema and physical organization modification :— The DBA provides different access rights to the users according to their. The DBA carries out changes to the existing schemes and physical organizah

4] Granting authorization for data modification :— The DBA provides different access rights to the users according to their level. Ordinary users might have higher restricated access to the administrator, you will get more access rights.

5] Ro

5] Routine Maintenance :- some of the routine mainta-nence activities of DBA are given below :-

a] Taking backup of database periodically.

b] Ensuring enough disk space is available all the time

c] Monitoring jobs running on the database

d] Performing tunning

e] Ensure that performance is not degraded by some expensive task submitted by same users.

4] why data models are used in database? Explain its components :-

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

1] Hierarchical model :- This database model organises data into a tree line structure with a single root to which all the other data is linked. The hierarchy starts from the root data and expands line a tree adding child nodes to the parent nodes In this model a child node will only have a singe parent node

2] Network model :- In the network data model are represented by collections of records relation ship among data are represented by lines. In this data model graph data structure is us. It permits a record to have more than one.

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

5] Define

1] Entity :- An entity is a person, place, thing or event about which the data are to be collected and stored. An entity is the distinguable ie each entity occurance is a unique and distinct.

2] Attribute :- An attribute is the characteristic of any entity for eg : Customer entity can be described by attribute such as frone name, phone, address, gender each attribute is associated with a set of values called domain.

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

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

5] Cardinality :- Total number of rows present in the 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 null values. A table can have only one primary Key and in the table Primary Key consist of single or multiple column.

b] Alternate Key :- Alternate Key is a Secondary Key it can be if a table has more than one candidate Key one of them will become the primary Key and rest of are called alternate Key eg :- Student contain (name, Roll no, ID). Here Roll no is primary Key and rest all columns are alternate keys.

c] candidate Key :- Candidate Key is a set attribute that uniquely identify tuples in a table candidate Key is a super key with no repeated attributes. The primary Key should be selected from the candidate Key.

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

Types of attribute :-

1] Simple attribute :- Simple attributes are those attributes which can not be devided further.

2] Composite attribute :- Composite attribute are those which are composed of many other sample attribute.

3] Single value attributes :- Those attributes which can take only one value for a given entity from an entity set.

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

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

6] Key attributes :- Those attributes which can identity an entity uniquely in an entity set.

7] 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 number of a strong entity set is called as domain entity set primary key is one of its attribute which helps to identify its eme e members

8] 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 of entities become the subtypes to supertype and is dependent entities.

9] Specialization :- specialization is the abstracting process of introducing new characteriktics to one 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 the higher - level entities.

7] Explain relationship with its types?

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

1] Binary relationship :- Binary relationship means relation between two entities cardinality constraint defines the maximum number of relationship instances in which an entity can participate.

2] Recursive relationship :- when an entity is related with itself it is known as recursive relation. In the below example an employee can be a supervisor be suprised so there is a recursive relationship.

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

8] Explain DDL and DML Commonds

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

Commands under DDL

1] create :- It is used to create new table in the database

Syntax :- CREATE TABLE TABLE NAME (
Column name

2] Drop :- It is used to delete both the structure and record stored in database.
Syntax :- DROP TABLE TABLE NAME(

3] ALTER :- It is used to alter structure of the database. This changes could be either to modify the characteristics of an existing attribute or to add new data.
Syntax :- To add a new column in the table
Alter table table_name (A
Add column_name column definition

To modify existing column in the table.
Alter table table name
modify (column definition);

b] DML :- DML stands for Data Manipulation language DML commands are used to modify the database. it responsible for all the forms of changes in database. The command of DML is not auto-committed in database. that means it can't permanently save all the changes in the database.

Commands that come under DML.
1] Insert :- It is used to insert data into the row of the table
Syntax :- INSERT INTO TABLE_NAME
Values (values, column).

2] UPDATE - It is used to update or modify the value of a column of the table

Syntax :- UPDATE TABLE - NAME
SET [Column - name = value, ...) Column
where Condition.

3] DELETE :- It is used to remove one or more from a table.

Syntax :- DELETE FROM TABLE - NAME
where Condition.