DMDD ASSIGNMENT-1

1. Discuss the differences sublanguages that were discussed in class. What operations would you typically expect to be available in each language.

A. Different sublanguages that were discussed are DML (Data Manipulation Language), DDL (Data Definition Language) and TCL (Transaction Control Language).
DDL- It is used to create/alter/drop/rename/truncate the entity.
DML- It is used to select/insert/update/delete the entity.
TCL – it is used for commit/rollback activities of entities.

2. Discuss the function and importance of the system catalog.

A. System Catalog basically describes the structure of database of how table and view's data is stored in it. Each database has its own system catalog. User cannot alter the data directly in database but if any user wants to see the data or information regarding any field or attribute in the table then he has to fetch system catalog through and SELECT rights are given to user. It is important to view data to user. User can only view data and cannot alter or modify it.

3. What is a transaction? Give an example of a transaction.

A. Transaction is an logical unit of work. It is an action performed by user or program on the database which reads or updates the contents. There can be one or more transactions at a time like reducing the quantity from one account and simultaneously another transaction of increasing the quantity in other's account.
For example: Stock deduction from a retail store database.
Customer 1 buys Apples from Store 1 for 5$. So now the stock has to be deducted form Store 1's database.

4. Discuss the function and importance of conceptual modeling.

A. Conceptual modeling is a graphical representation of relationship with entities and its database.
Its function is to Improve knowledge representative system, easy conveyance of system details between team members, It will provide point of reference and also it can be documented for future reference.
Conceptual Modeling is important because it provides clear understanding of system throughout system development life cycle and also defines project scope with time management and scheduling.

5. Explain the concept of database schema and discuss the three types of schema in a database.

A. Database schema is blueprint of how data is organized and stored in database. Data is actually stored in unstructured form but when we need to use data we need it in structured format, this is when database schema comes into the picture. It gives us insight how data can be organized in tables or view or modules.
There are 3 types of schema:
View Schema : It generally tells about the user end interaction with the database system.

Logical Schema : It defines all the logical constrains that are applied on the stored data. It represents how data is logically stored in table and how attribute of tables are linked.

Physical Schema : It specifies how the files/data is physically stored on storage system.

6. What is logical and physical independence?

A. Data independence keeps the data separated that is used in program.
Physical Data Independence : If we want to alter or modify the data at physical level like storing new files or creating new indices, physical data independence has the ability to change the lowest level of database without altering the higher level data schemas(Logical schema and View schema)
Logical Data Independence : Any changes at middle level(logical level) like adding or deleting attributes Logical Data independence does not the data at highest level view schema or application programming.

7i. How many records does the file contain? How many fields are there per record?

A. There are 7 records and 5 fields per record.

7ii. What problem would you encounter if you wanted to produce a listing by city? How would you solve this problem by altering the file structure?

A. City comes under MANAGER_ADDRESS which is difficult to bifurcate as it is complete address field. We could alter the MANAGER_ADDRESS column into further more columns like MANAGER_ADDRESS, MANAGER_CITY, MANAGER_STATE, MANAGER_ZIPCODE in this way one can directly produce a list of cities by accessing MANAGER_CITY column.

7iii. If you wanted to produce a listing of the file contents by last name, area code, city, state, or zip code, how would you alter the file structure?

A. In the similar way what we did in previous question we can alter PROJECT_MANAGER into PMANAGER_FIRSTNAME and PMANAGER_LASTNAME so we can access last name of the project manager and alter the MANAGER_ADDRESS column into further more columns like MANAGER_AREA, MANAGER_CITY, MANAGER_STATE, MANAGER_ZIPCODE.

7iiii. What data redundancies do you detect? How could those redundancies lead to anomalies?

A. Same name in PROJECT_MANAGER and same phone number in MANAGER_PHONE and same address in MANAGER_ADDRESS has created data redundancies. Data redundancies can create anomalies when altering the data, suppose someone changes the phone no. in one field and forgets to change in other fields this can lead to confusion within the team.