Answer 1:-The software that is used to perform operations on a relational database is called Relational Database Management System. Operations include inserting, retrieving, and storing of data/records. The RDBMS provides an interface b/w the users/applications and the database.

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| **Database Management System** | **File Management System** |
| A Database Management System (DBMS) is an application software that allows users to efficiently define, create, maintain and share databases. | A File Management system is a DBMS that allows access to single files or tables at a time. In a File System, data is directly stored in set of files. It contains flat files that have no relation to other files. |

*Advantages of DBMS over File System:-*

1. The file system cannot control the redundancy of data as each user defines and maintains the needed files for a specific application to run.
2. There may be a possibility that two users are maintaining the data of the same file for different applications.
3. Whereas DBMS controls redundancy by maintaining a single repository of data that is defined once and is accessed by many users.
4. The file system does not allow sharing of data or sharing is too complex. Whereas in DBMS, data can be shared easily due to a centralized system.
5. The file system does not provide any procedure to stop anomalies. Whereas DBMS provides a locking system to stop anomalies to occur.
6. DBMS provides inbuilt searching operations. User only has to write a query to retrieve data from the database. This is not possible in file system.
7. The file system does not provide any procedure to check constraints automatically. Whereas DBMS maintains data integrity by enforcing user-defined constraints on data by itself.
8. DBMS also has a recovery manager which keeps backup of the data, which can be used in case the system crashes.

Answer 2:- ACID properties stands for :--

1. A(Atomicity):- This means that either the entire transaction takes place at once or doesn’t happen at all. There is no midway i.e. transactions do not occur partially. Each transaction is considered as one unit and either runs to completion or is not executed at all.
2. C(Consistency):- This means that integrity constraints must be maintained so that the database is consistent before and after the transaction. It refers to the correctness of a database.
3. I(Isolation):- This property ensures that multiple transactions can occur concurrently without leading to the inconsistency of the database state. Transactions occur independently without interference. Changes occurring in a particular transaction will not be visible to any other transaction until that particular change in that transaction is written to memory or has been committed.
4. D(Durability):- This property ensures that once the transaction has completed execution, the updates and modifications to the database are stored in and written to disk and they persist even if a system failure occurs. These updates now become permanent and are stored in non-volatile memory. The effects of the transaction, thus, are never lost.

Answer 3:-Normalization is the process of minimizing **redundancy** from a relation or set of relations. Redundancy in relation may cause insertion, deletion, and update anomalies. So, it helps to minimize the redundancy in relations. **Normal forms** are used to eliminate or reduce redundancy in database tables.

Answer 4:- Query languages :-

1. DQL:-Data Query Language.(Example-Select statements)
2. DML:-Data Manipulation Language(Example-Insert, Update, Delete functions)
3. DCL:-Data Control language(Example-Grant and Revoke)
4. DDL:-Data Definition Language(Example-Create, Alter, Drop functions)

Answer 5:-

**Primary key** is that column of the table whose every row data is uniquely identified. Every row in the table must have a primary key and no two rows can have the same primary key. Primary key value can never be null nor can be modified or updated.

**Composite Key** is a form of the candidate key where a set of columns will uniquely identify every row in the table.

For example, in a table named student details only roll number can be used as a primary key or a combination of roll n umber and admission number can be used. The second scenario will be called as composite key.

Answer 6:-

Graphical user interface, text, application, email

Description automatically generated