

CSC-220 – Database Management System- Assignment 1	
CLO-1	Deadline: 8 <sup>th</sup> April, 2022
Class: BSE- 4B	Total Marks 5
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1. A person wants to store information (names, addresses, etc). The volume of data compels him to buy a database system. To save money, he wants to buy one with the fewest possible features, and he plans to run it as a stand-alone application on his PC clone. Indicate which of the following DBMS features he should pay for; in each case, also indicate why he should/should not pay for that feature in the system he buys.

- A security facility.
- Concurrency control.
- Crash recovery.
- A view mechanism.
- A query language.

### **SOLUTION :**

#### **A security facility :-**

A security facility is necessary because he does not plan to share his list with anyone else. Although he is running it on his stand-alone PC, a rival could break in and attempt to query his database. The security features of database would prevent the intruder.

#### **Concurrency control :-**

Concurrency control is not needed because only he himself uses the database.

#### **Crash recovery :-**

Crash recovery is essential for any database; he would not want to lose his data if the power was interrupted while he was using the system.

#### **A view mechanism :-**

A view mechanism is needed. he could use this to develop “custom screens” that he could conveniently bring up without writing long queries repeatedly.

#### **A query language :-**

A query language is necessary since he must be able to analyse the dark secrets of his victims. In particular, the query language is also used to define views.

2. What are the major capabilities of DBMS and why is a relational DBMS so powerful?

**SOLUTION :**

**Major Capabilities of DBMS**

The major capabilities of DBMS are listed below –

- Data Storage
- Data Retrieval
- Data Update
- Security
- Data Independence

**Database tuning:**

The DBA is responsible for evolving the database, in particular the conceptual and physical schemas, to ensure adequate performance as user requirements change.

A DBA needs to understand query optimization even if s/he is not interested in running his or her own queries because some of these responsibilities (database design and tuning) are related to query optimization. Unless the DBA understands the performance needs of widely used queries, and how the DBMS will optimize and execute these queries, good design and tuning decisions cannot be made.

**Powerful Relational DBMS :**

The relational DBMS is more powerful because of the reasons explained below –

- In the RDBMS model the data will be stored in the form of tabular format, whereas, table is nothing but a collection of rows and columns.
- The RDBMS model will provide high level security by using authentication and authorisation.
- RDBMS maintains accuracy and consistency of the data with the help of data integrity mechanism.
- RDBMS supports the data manipulations by using DML commands.
- RDBMS provides faster rate retrieving the data by using index mechanism.

**Benefits of RDBMS :**

Some of the key benefits of relational DBMS are as follows –

- Reduction in data duplication.
- Risk of inconsistent data is reduced, resulting in better data integrity.
- The Independence of data allows other views as well of the same data.
- Allows the easy extension to the structure of the database.