

Database Management System – cs422 DE

Assignment 1 – Week 1

This assignment is based on lecture 1 (chapter 1).

- Submit your *own work* on time. No credit will be given if the assignment is submitted after the due date.
 - Note that the completed assignment should be submitted in .doc, .docx, .rtf or .pdf format only.
 - In MCQs, if you think that your answer needs explanation to get credit then please write it down.
 - You are encouraged to discuss these questions in the Sakai forum.
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1. List two examples of database systems other than those listed in Section 1.1 of the book.

ANS:

a) Booking a flight ticket

When we book the flight ticket with different airlines. They have a system with the flight info and routes. When we booked the flight using our details. It stored the details of the passenger in their database system. When we checked in to an airport it retrieved the data from database and check our details before they issue a boarding pass.

b) Create account in bank.

When we went to bank to create a new account. We provide our all detail including our salary and job description. This all details are saved in the bank database while creating account and they provide us an account number which is unique to every account holder in the bank. Whenever we went to bank for deposit and withdraw our cash, we need the account number provided by the bank for the transaction.

2. Explain what is meant by a database management system, and contrast it with a File Management System.

ANS: File management is the earliest way of record keeping system which is now also known as old approach of storing the data where data are stored in physical file format. Which are in different cupboard in the office. For security reason those cupboards are placed in the secure location. Whenever we stored data on the file-based system if the data are huge amount, they it will be difficult to manage the secure place. Also, in file-based approach it hard to retrieve the data because we need to manually search in the files. To overcome this issue and difficulties the new approach is introduced which is known as Database management system. The database management system is application programs which store data separately and independently. Database is a single, possibly large repository of data which can be simultaneously used differently. Database can hold the operational data and can be shared to any department. Data can be stored and accessed in easy manner by multiple users. DBMS provided many security features to multiple level.

3. Discuss advantages and disadvantages of DBMSs in short.

ANS:

Advantages of Database Management Systems (DBMS):

i) Data Integrity and Accuracy:

- Advantage: DBMS ensures data integrity by enforcing constraints and relationships between tables, reducing the risk of data inconsistencies.

ii) Data Security:

- Advantage: DBMS provides access control and authentication mechanisms, limiting unauthorized access to sensitive information.

iii) Data Independence:

- Advantage: Changes in the database structure (schema) do not affect the application programs. This achieves data independence.

iv) Data Retrieval and Query Optimization:

- Advantage: DBMS offers query languages (e.g., SQL) for efficient data retrieval, and it optimizes queries for better performance.

v) Concurrency Control:

- Advantage: DBMS manages concurrent access to data, ensuring that multiple users can access and modify data simultaneously without conflicts.

Disadvantages of Database Management Systems (DBMS):

i) Cost:

- Disadvantage: Implementing and maintaining a DBMS can be expensive, involving licensing fees, hardware costs, and personnel training.

ii) Complexity:

- Disadvantage: The complexity of DBMS systems can be a challenge for small-scale applications or users with limited technical expertise.

iii) Performance Overhead:

- Disadvantage: DBMS introduces some performance overhead due to additional processing and

iv) Potential for Data Inconsistency:

- Disadvantage: In complex systems, the potential for data inconsistency exists if proper normalization and constraints are not enforced.

iv) Vendor Lock-In:

- Disadvantage: Choosing a specific DBMS vendor may lead to vendor lock-in, making it challenging to switch to a different system later.

4. What are the 5 major components of the DBMS environment?

ANS: The 5 major components of DMBS environment are Hardware, Software, Data, Procedures, People

5. A database management System (DBMS) is

- A. Collection of interrelated data
- B. Collection of programs to access data
- C. Collection of data describing one particular enterprise
- D. All of the above

ANS: D

6. The DBMS provides uncontrolled access to the database.

- A. True
- B. False

ANS: B

7. Disadvantages of File systems to store data is:

- A. Data redundancy and inconsistency
- B. Difficulty in accessing data
- C. Data isolation
- D. All of the above

ANS: D

8. The Database Administrator (DBA) is responsible for the management of the data resource including database planning, development and maintenance of standards, policies and procedures, and conceptual/logical database design.

- A. True
- B. False

ANS: A

9. Data Manipulation language enables users to

- A. Retrieval of information stored in database
- B. Insertion of new information into the database
- C. Deletion of information from the database
- D. All of the above

ANS: D

10. Which of the following is Database language?

- A. Data Definition Language
- B. Data Manipulation Language
- C. Query Language
- D. All of the above

ANS: D

MUM-DBMS