

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:

Example 1: Booking a hotel with a travel agent. You make inquiry about hotel rooms, then access database to check room status. If there is one room available, so it may have a conflict between others who booked the same room.

Example 2: Banking application. The application allows customers to withdraw money online. Customer needs to log in and provide withdraw amount. The application checks balance in database to make sure the withdraw amount is valid, then confirm to withdraw process.

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

ANS:

A Database Management System (DBMS) is significantly more efficient than a file-based management system, offering numerous advantages that traditional file systems lack. The key advantages include:

- Control of data redundancy
- Efficient data sharing
- Improved data integrity
- Enhanced security measures
- Economies of scale
- Increased concurrency
- Various other benefits

However, it's important to acknowledge that there are also some drawbacks associated with DBMS, such as increased complexity and conversion costs, among others.

Despite these drawbacks, the multitude of advantages offered by DBMS has positioned it as an evolutionary approach to data management.

(3) Discuss advantages and disadvantages of DBMSs in short.

ANS:

Advantages of DBMS:

- **Data Integration:** DBMS allows for the integration of data from multiple sources into a single, cohesive database.
- **Data Consistency:** DBMS ensures data consistency by enforcing constraints and rules, reducing the likelihood of errors and discrepancies.
- **Data Security:** DBMS provides robust security features to protect sensitive data from unauthorized access and manipulation.
- **Concurrent Access:** DBMS enables multiple users to access and modify data simultaneously without causing conflicts.

- Data Independence: DBMS separates the logical structure of the data from its physical storage, allowing for easier maintenance and modifications.

Disadvantages of DBMS:

- Cost: Implementing and maintaining a DBMS can be expensive, including initial setup costs, licensing fees, and ongoing maintenance expenses.
- Complexity: DBMS systems can be complex to design, implement, and manage, requiring specialized skills and expertise.
- Performance Overhead: DBMS may introduce performance overhead due to additional processing and resource requirements compared to simpler file-based systems.
- Risk of Failure: A centralized DBMS introduces a single point of failure, which could potentially lead to data loss or downtime in case of system failures.
- Learning Curve: Users and administrators may require training to effectively use and manage a DBMS, increasing the initial learning curve.

(4) What are the 5 major components of the DBMS environment?

ANS:

They 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: B

(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