SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 23CST207 - DATABASE MANAGEMENT SYSTEMS

II YEAR / IV SEMESTER

Unit 1- Introduction to Data Base

Topic 2 : Purpose of Database Systems

Problem

Slow Read-Write Speeds

Performance slowdowns can occur due to high latency for disk read/writes.

Incorrect Virtual Machine Setup

With the increasing use of [virtual machines](#), database hardware is now required to give everything it has, and optimization matters when dealing with virtual machine management

Lack of Backup and Monitoring

Databases are fundamental to your entire organization's ability to deliver services, so if one database goes down, it will likely take down some important dependencies as well. Databases need to be resilient, frequently backed up, and monitored constantly to catch issues before they take down major parts of your infrastructure.

Purpose of Database Systems

➢Purpose of Database Systems

- Purpose of Database

    – Optimizes data management

    – Transforms data into information   Ex – Adding , Update and Delete data

- Database management systems were developed to handle the following difficulties of typical file-processing systems supported by conventional operating systems:

- Data redundancy and inconsistency

- Difficulty in accessing data

- Data isolation – multiple files and formats

- Integrity problems

- Atomicity problems

- Concurrent access by multiple users

- Security problems

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- Difficulty in accessing data

➢ The conventional file system does not allow to retrieve the desired data in efficient and convenient manner.

- Data isolation – multiple files and formats

➢ File may be in different formats, it becomes to retrieve the desired data from the file for writing the new application

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- Integrity problems

➢ Data integrity mean data values entered in the database fall within a specified range and correct format.

- Atomicity problem

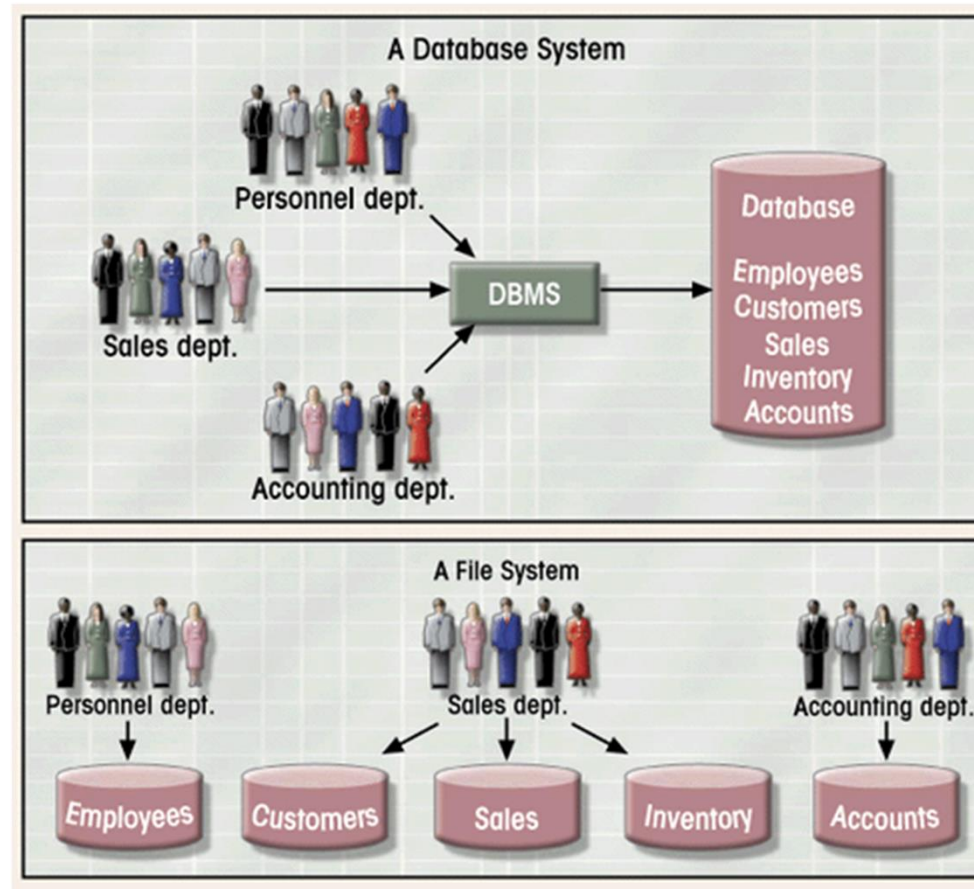➢ Atomicity problem mean particular operation must be carried out entirely or not at all with the database.

Concurrent access by multiple users

➢For efficient execution, multiple users update data simultaneously,

in such data need to be synchronized .

Security problems

➢ Every user is not allowed to access all the data of database

system.

Database System vs. File System

Database System vs. File System –Cont..

S.NO	DATABASE SYSTEM	CONVENTIONAL METHOD
1	Data redundancy is low	Data redundancy is high
2	Security is high	Security is low
3	Security constraints are high	Security constraints are low
4	Structured manner	Un- Structured manner
5	We can Retrieve the data in any desired formats	We cannot Retrieve the data in any desired formats
6	Data inconsistency is less	Data inconsistency is high

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Activity

Filling in the blanks

S.NO	DATABASE SYSTEM	CONVENTIONAL METHOD
1	Data redundancy is _____	Data redundancy is _____
2	Security is _____	Security is _____
3	Security constraints are _____	Security constraints are _____
4	_____manner	_____ manner
5	We _____ Retrieve the data in any desired formats	We _____ Retrieve the data in any desired formats
6	Data inconsistency is _____	Data inconsistency is _____

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Advantages

Reducing Data Redundancy

The file based data management systems contained multiple files that were stored in many different locations in a system or even across multiple systems

Sharing of Data

There are various levels of authorization to access the data, and consequently the data can only be shared based on the correct authorization protocols being followed.

Many remote users can also access the database simultaneously and share the data between themselves.

Data Integrity

Data integrity means that the data is accurate and consistent in the database. Data Integrity is very important as there are multiple databases in a DBMS

Data Security

Data Security is vital concept in a database. Only authorized users should be allowed to access the database and their identity should be authenticated using a username and

Disadvantages

Increased costs

one of the disadvantages of dbms is Database systems require sophisticated hardware and software and highly skilled personnel. The cost of maintaining the hardware, software, and personnel required to operate and manage a database system can be substantial. Training, licensing, and regulation compliance costs are often overlooked when database systems are implemented.

Frequent upgrade/replacement cycles

DBMS vendors frequently upgrade their products by adding new functionality. Such new features often come bundled in new upgrade versions of the software. Some of these versions require hardware upgrades. Not only do the upgrades themselves cost money, but it also costs money to train database users and administrators to properly use and manage the new features.

Assessment 1

1. List out the advantages of purpose of data base

   a)_____

   b)_____

   c)_____

   d)_____

2. Identify the disadvantages of purpose of data base

   a)_____

   b)_____

   c)_____

   d)_____

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THANK YOU