Database Management System

Assignment 2.

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1. Discus the advantages of DBMS approach over the traditional file based approach for database.

=> There are several advantages of DBMS over the traditional file based approach, few of them are as follows:

i) No redundant data:
In traditional file processing system, same data is stored in multiple locations. This redundancy creates a number of problems such as data integrity problem. But in DBMS redundancy removed by data normalization. No Duplication saves storage and improves access time.

ii) Data consistency and integrity:
The main cause of data inconsistency is data redundancy, since data normalization takes care of as part of it.

iii) Data security:
A DBMS provides a security and authorization system, which the DBA uses to create accounts and to specify account restrictions. So that only authorized user is able to access the data. Each user has different set of access thus data is secured from the issues such as identity theft, data leaks and misuses of data.

iv) Providing persistence storage:
DBMS allows objects to be stored permanently in a form that is compatible to be used by a variety of programming languages.

v) Efficient query processing capability.
Database systems must provide capabilities for efficiently executing queries and updates. Because the database is typically stored on disk, the DBMS must provide specialized data structures and search techniques to speed up disk search for the desired records.

vi) Easy to backup & restore
A DBMS must provide facilities for recovering from hardware or software failures. The backup & recovery system of the DBMS is responsible for recovery.

vii) Representation of complex relationship among data
A database may include numerous varieties of data that are interrelated in many ways. A DBMS have the capability to represent a variety of complex relationships among the data to define new relationships as they arise. and to retrive and update related data easily.

viii) Privacy:
Limited access means privacy of data.

ix) Flexible:
DBMSs are more flexible than traditional file based systems.

2. Who is DBA. Explain roles of DBA.

A database administrator in DBMS is an it professional who works on creating, maintaining, quering and tuning the database of the organization. there are some chief responsibilities that make up the day-to-day work of a DBA.

i) Software installation and maintenance

The system administrator sets up hardware and deploys the operating system for the database server, then the DBA installs the database software and configures it for use.

ii) Database Backup and recovery.

DBA creates backup and recovery plans and procedures ~~based on~~ in the case of server failure or other form of data loss, the DBA will use existing backups to restore lost information to the system.

iii) Security

DBA needs to know potential weakness of the ~~dbms~~ database software, and the organizations overall system and work to minimize risks.

In the case of a security breach or irregularity, the DBA can consult audit logs to see who has done what to the data.

iv) Authentication:

Setting up employee access is an important aspect of database security. DBA controls who has access and what type of access they are allowed. for instance, a user may have permission to see only certain piece of information.

v) Capacity planning:
The DBA needs to know how large the database currently is and how fast it is growing in order to make predictions about future needs.

vi) performance monitoring.
Monitoring databases for performance issues is part of the on-going system maintenance a DBA performs.

vii) Troubleshooting
DBAs are on call for troubleshooting in case of any problems. whether they needed to quickly restore lost data or correct an issue to minimize damage, a DBA needs to quickly understand and respond to problems when they occur.