1.7)1. FILE SYSTEM

Used to manage and organise the files stored in the hard disk of the computer

DBMS

A software to store and retrieve the user’s data

2.FILE SYSTEM

Redundant data is present

DBMS

No presence of redundant data

3.FILE SYSTEM

Query processing is not so efficient

DBMS

Query processing is efficient

4.FILE SYSTEM

Data consistency is low

DBMS

Due to the process of normalisation, the data consistency is high

1.6) 2- Universities- For students information, courses registering, and grades, also all the enterprises information.3- Airlines- For reservations and the information scheduling4- Telecommunication- For calls made, keep records, generate the bills every month, and storinginformation about communication networks.- Enterprise information: sales, accounting, human resources,manufacturing, online retailers.

1.8) Physical Data Independence is defined as the ability to make changes in the structure of the lowest level of the Database Management System (DBMS) without affecting the higher-level schemas

1.9) A database management system (DBMS) is defined as a computerized system that enables users to create and maintain a database. It is a general-purpose software system that facilitates the processes of defining, constructing, manipulating, and sharing databases among various users and applications

Five responsibilities include:

1. Defining a database: involves specifying the data types, structures, and constraints of the data to be stored in the database. The database definition or descriptive information is also stored by the DBMS in the form of a database catalog or dictionary; it is called meta-data.

If a DBMS doesn’t support defining a database; a user might invariably define non-sense as there will be no pre-defined syntax/rule.

2. Constructing the database is the process of storing the data on some storage medium that is controlled by the DBMS.

There will be lack of organization if the DBMS doesn’t hold the responsibility to construct the database.

3. Manipulating a database includes functions such as querying the database to retrieve specific data, updating the data-base to reflect changes in the miniworld, and generating reports from the data.

If the DBMS doesn’t hold the responsibility for manipulating the database, there will be problem arising with user trying to manipulate the database which might be querying the database or searching for information.

4. Sharing a database allows multiple users and programs to access the database simultaneously.

If the DBMS doesn’t hold the responsibility for sharing a database; it will be hard to user to manipulate database sharing within user.

5. Protection includes system protection against hardware or software malfunction (or crashes) and security protection against unauthorized or malicious access.

If the DBMS doesn’t hold the responsibility for Protection; there is very much likely that the database will be exposed to various security threats.

1.11) The Transaction Isolation concept makes this possible. It ensures that only one student's registration request is fulfilled and database maintains accuracy and consistency.

Declarative languages are easier for programmers to learn and use

(and even more so for non-programmers).

b. The programmer does not have to worry about how to write

queries to ensure that they will execute efficiently; the choice of

an efficient execution technique is left to the database system. The

declarative specification makes it easier for the database system to

make a proper choice of execution technique

1,15)

A users table containing users, with attributes such as account

name, real name, age, gender, location, and other profile information.

Exercises 5

2). A content table containing user provided content, such as text and

images, associated with the user who uploaded the content.

3). A friends table recording for each user which other users are connected to that user. The kind of connection may also be recorded

in this table.