COMP- 8115-M50 Database systems

Quiz – 1

1) List two disadvantages of a database system?

Answer:

Even though database systems have made our lives easier. There are certain disadvantages with the database system they are:

1) Increased cost:
   a) Increased cost includes the cost of the software and hardware:
      To store huge data, we need a huge amount of space. So, it requires more memory and fast processing power to run the DBMS. IN order to get all of them it might cost you higher.

   b) Cost of the staff:

Staff includes the database administrators, application programmers, Database designers etc., to get such specialists one needs to spend lots of amount and training in DBMS would cost you higher.

   c) Data conversion:
      Data conversion costs more to the company than it would cost software or hardware. We need trained people to convert data into the new system.

2)Complexity

DBMS has extremely complex software. All the database developers must have a proper skill set to use it properly.

3)Database Failure

Data plays a major role for any organization, if any kind of data is lost it brings a huge loss to the organization. As we know in DBMS, all the files are stored in a single database so the chances of failure in the databases are more.

4)Difficult Backup and Recovery:

It is processed and handled by several users, so it becomes very difficult to get the accurate state of the database at the time of failure. Making a backup and recovering the database as just one application program may cause a serious problem.

5) Data Integrity:

Several users attempting to update the data create the main problem causing a threat to the Data Integrity.

2)List at least three different types of mini-world that a university would maintain, different from the given example in the textbook in Chapter 1.

Answer:

The examples of three different types of the mini world that a university would maintain are:

All the Universities would have a library and data about the books and when and who have been issues to needs to be maintained well.

1)Every university has an accounting department and data about salaries of employees, fees of the d student and other types of payments and their receipts can also be stored.

2)Details of employees who are not instructors of the university like clerks, and non-teaching staff details also need to be maintained.

3)Details of visitors/ Guests to the university visiting each day need to be maintained

4)Details of Guest speakers during events and all the events happening every year all need to be stored by the event managing team in order to know the future plans of the university.

3)Suppose you want to build a video site like YouTube. List the actors (entities) and their relationships. (25 pts)

Answer:

These might be some of the entities and their relationships I might consider if I wanted to make a site similar to YouTube, they are

Entities:

User Profile

User Video

Video Profile

Video Comment

Comment

Relationship:

The relationships between different tables are being built in this way. I would consider

In User Profile, userid is the primary key and in video profile, videoid is the primary key

And we combine through many to many relationships, so that we break them into another table is User Video, which has userid, and videoid both as composite key and foreign key.

Whereas the Comment table has commentid as a primary key, while the Video comment table has videoid, and commentid as composite and foreign keys.

4)Is there any problem with the following database? If yes, how would you solve it? Explain
it briefly. (25 pts)

Note: I couldn't Paste the Table here please refer to the Question document

Answer:

I could see some issues in the database. The major one is It is not in the normalised form so it causes data duplication. So, to avoid we need to convert it to 1 NF (One Normal Formal).

Explanation:

It is suggestable to use a 1 Normal Form because it is better than a simple normal Form and It would be easy and faster to use when you are inserting, updating, and reading the data. It is because each type of data element has exactly one column in which it is to be found, and that column contains only one piece of data for each record.

We can do the above-mentioned process in the following way:

In the first table,

for example, its name is Employee, and the attributes are id, name, salary

In the second table,

The table name is Department where id, dept_name, building, and budget are the attributes