**Database system Concepts 6th**

**1.4 List at least 3 different types of information that a university would main-**

tain, beyond those listed in Section 1.6.2.

:except of (department,course,instructor,student)

first grades , University Type(example : College of Engineering , College of Liberal Arts

,Art ..ect) , A living area ;student , gender

**1.5 Suppose you want to build a video site similar to YouTube. Consider each**

**of the points listed in Section 1.2, as disadvantages of keeping data in a**

**file-processing system. Discuss the relevance of each of these points to the**

**storage of actual video data, and to metadata about the video, such as title,**

**the user who uploaded it, tags, and which users viewed it.**

:

1) Data redundancy and inconsistency:

-This would be relevant to metadata to some extent, although not to the actual video data, which is not updated. There are very few relationships here, and none of them can lead to redundancy.

2) Difficulty in accessing data:

- If video data is only accessed through a few predefined interfaces, as is done in video sharing sites today, this will not be a problem. However, if an organization needs to find video data based on specific search conditions,, if metadata were stored in files it would be hard to find relevant data without writing application programs. Using a database would be important for the task of finding data.

3) Data isolation:

- Since data is not usually updated, but instead newly created, data isolation is not a major issue. Even the task of keeping track of who has viewed what videos is (conceptually) append only, again making isolation not a major issue. However, if authorization is added, there may be some issues of concurrent updates to

**1.8 List four significant differences between a file-processing system and a**

**DBMS.**

:

1) A database coordinates the physical and logical access to the data;

a file-processing system only coordinates physical access to the data

2) A DBMS reduces the amount of data duplication

3) A DBMS is designed to allow flexibility in what queries give access to the data,

where a file-processing system only allows pre-determined access to data

(by specific compiled programs)

4) A DBMS is designed to coordinate and permit multiple users to access data at the same time.

A file processing system is much more restrictive in simultaneous data access

**1.11 List at least two reasons why database systems support data manipulation**

**using a declarative query language such as SQL, instead of just providing**

**a a library of C or C++ functions to carry out data manipulation.**

:

1) easier for programmers to learn, and non-programmers

2)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.

**1.12 Explain what problems are caused by the design of the table in Figure 1.4.**

**:**

The repetition of information in our alterna-

tive design is undesirable. Repeating information wastes space. Furthermore, it

complicates updating the database.

Duplication of data occurs.

Duplication of data leads to the complexity of modifying many surpluses.

Duplication causes useless disk capacity.

There are inconveniences in finding and fixing everything.