**201533661 이승수’s Database homework#1 date: 2016.09.19**

**1.4**

**List at least 3 different types of information that a university would maintain, beyond those listed in Section 1.6.2.**

University is organized by dept\_name, building, budget, course, prerequisites and so on.

University additionally maintain the number of students who attend the course, professor who teach the class, whether the room have enough computer or not.

**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 view it.**

[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.

[Difficulty in accessing data] If video data is only accessed through a few predefined interfaces, Exercises 3 this will not be a problem. However, if an organization needs to find video data based not in simple queries, 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.

[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 authorization information.

[Integrity problems] It seems unlikely there are significant integrity constraints in this application, except for primary keys. if the data is distributed, there may be issues in enforcing primary key constraints. Integrity problems are probably not a major issue.

[Atomicity problems] When a video is uploaded, metadata about the video and the video should be added atomically, otherwise there would be an inconsistency in the data. An underlying recovery mechanism would be required to ensure atomicity in the event of failures.

[Concurrent-access by multiple users] Since data is not updated, concurrent access anomalies would be unlikely to occur.

[Security problems] These would be a issue if the system supported authorization.

**1.8**

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

1) DBMS allows both physical and logical access to data but file-processing system only allows physical access to the data.

2) at DBMS the data can coordinate multiple users at the same time but at file-processing system, only one user can access the file system.

3) DBMS provide data backup and recovery, however file system doesn’t provide it.

4) At file system, there are problem with redundancy and inconsistency but DBMS doesn’t.

**1.11**

**List at least two reasons why data base systems support data manipulation using a declarative query language such as SQL, instead of just providing a library of C or C++ functions to carry out data manipulation.**

To specify the database schema and to express database queries and updates. Users can easily update database not ruining the database schema.

For simple usage for user and for simple data searching and management . User can find the data they wants just by declaring the query, not searching using for loop.

**1.12**

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

At Figure 1.4, user can access and change the building data in each line. Pretend user change building data in instance whose name is Gold from Watson to Taylor. Then instance whose name is Einstein is in the same dept\_name Physics but they are in another building. So inconsistency corrupted. So building data will be hided.