VINCE JOSEPH
S3 MCA
Roll no: 59

07-10-20

1) There are many advantages, some of them are as follows:

*) Data redundancy and inconsistency control

Redundancy means duplication of data. file systems may keep multiple copies of some file and which ~~may leads~~ is to redundancy.

Redundancy leads to data inconsistency which is nothing but some data in different files show different values.

*) Concurrency control

means more than one user can access the data at same time without creating any anomalies.

*) Data integrity

integrity can be achieved using DBMS with the help of integrity constraints. The data values must satisfy the constraints to get inserted into DB.

1) Effective data searching

DBMS provides inbuilt search operations, and in file systems we may have to use another application for it.

1) Data security

2)
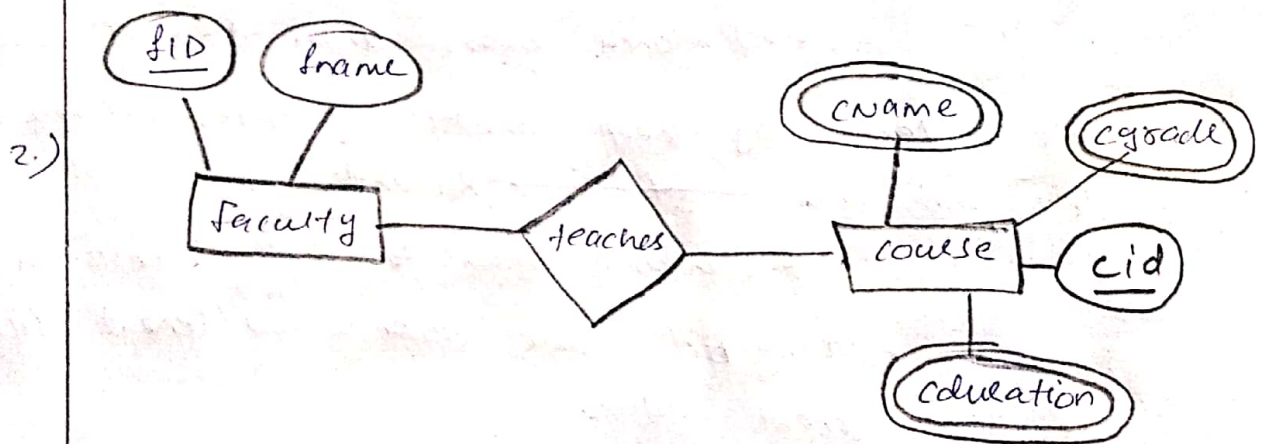
3)

i) Candidate key

A candidate key is a minimal set of attributes required to uniquely identify a tuple in a Relation in a RDBMS. There can be multiple candidate keys for a relation, and each candidate key can be a single / a combination of attributes

iii) Super key

It is a set of attributes in a relation which can be used to uniquely identify each tuple in that relation. A candidate key is a subset of super key. A super key needs not contain minimal attributes to uniquely identify a tuple.

5) Physical data Independence

First of all data independence is defined as a property of DBMS that helps to change the DB schema at one level without affecting the schema at next higher level. ~~data~~

Physical data independence helps you to separate conceptual levels from the internal/physical levels. That means allows us to provide/write / use logical description of a DB without the need to concern about actual physical structures. Actually physical data independence is relatively easy to achieve.

eg: if we use a different data structures / we change the storage devices like ~~HD~~ HDD

or even if we change file organization techniques then the conceptual level keeps the same with the help of physical data independence.

Logical data independence

It's nothing but the ability to change the conceptual schemas without affecting external views and programs. (external schema). This is hard to achieve.

eg: Add/modify/delete attributes of entity to an existing relation. Also splitting existing record into more relations.

7) entities

Cars , Salesperson , Company
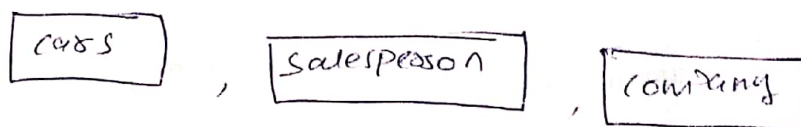
4.) i) $\sigma_{B = 'apple' \text{ AND } C = 'orange'} (\pi_{A,B,C,D} (R))$

ii) $\pi_{A,B,C,D} (\sigma_{B = 'apple' \text{ and } C = 'orange'} (R))$

iii) $\sigma_{B = 'apple'} (R) \cup \sigma_{C = 'orange'} (R)$