**ASSIGNMENT 1:**

Q.Among databases and file systems, which enables easy data sharing. Why does the other one fail ?

->In file system datasharing is complex because data is distributed in many files. But in DATABASE it is easy because of the centralised nature.

->in file system multiple user can access same file , which can cause concurrent access anomalies. But DATABASE has locking system protocol's to deal with such issues.

->since data sharing is complex ,every search operation in file system will require a different application program for it . but DATABASE has inbuilt searching operations user just have to write query to retrieve data.

Q.Consider similar data is stored in different files in a file system. What is this scenario called, and how does DBMS deal with this problem ?

This scenario is called DATA REDUNDANCY.File systems cannot control data redundancy, as each user defines and manages the files needed to run a particular application. Two users may be managing data in the same file in different applications. Therefore, changes made by one user are not reflected in the file used by the second user, resulting in data inconsistency. A DBMS controls redundancy by maintaining a single data repository,Defined once, accessed by many users. Data is consistent as there is no redundancy.

Q. Consider some information of students, like assigned TA courses, working hours, and assigned mentor, need to be restricted and preferably moved to a new table. The student table is also linked to the course table in the database. How does a file system handle the scenario ? How does DBMS handle it ? Which properties of DBMS must be preserved while doing the modification ? What advantages do we get from that ? Does physical schema get affected by the alteration ?

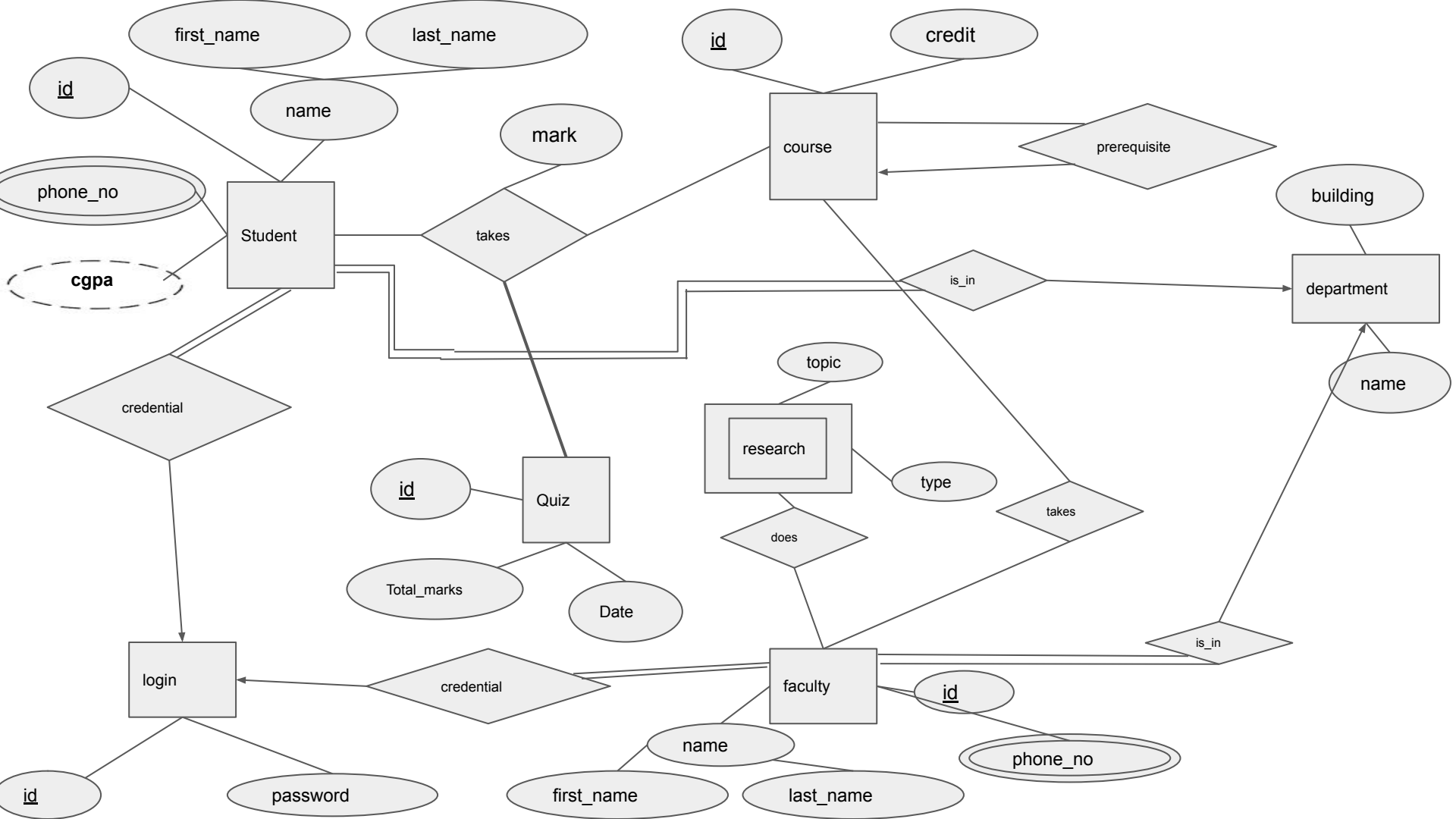
There is no direct way to do this action in file system , a separate program will have to be made to implement restrictions and transfer data to a new table. Whereas in database this can be done by just some lines of query .

the property of DATA INTEGRITY needs to be maintained while doing this action, that means consistency and constraints of the data should be maintained.

The advantage of data integrity in dbms is that ,the file system does not provide any procedure to check these constraints automatically. Whereas DBMS maintains data integrity by enforcing user-defined constraints on data by itself.

The physical schema does not change until there is a change in logical schema . so if this action will cause a change in logical schema then physical schema can change .

**ASSIGNMENT 2-**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**ASSIGNMENT 3-**

**Qa.**

**->**the relationship between student , quiz and course is a ternary relation and can be converted to binary as shown in diagram in next page .

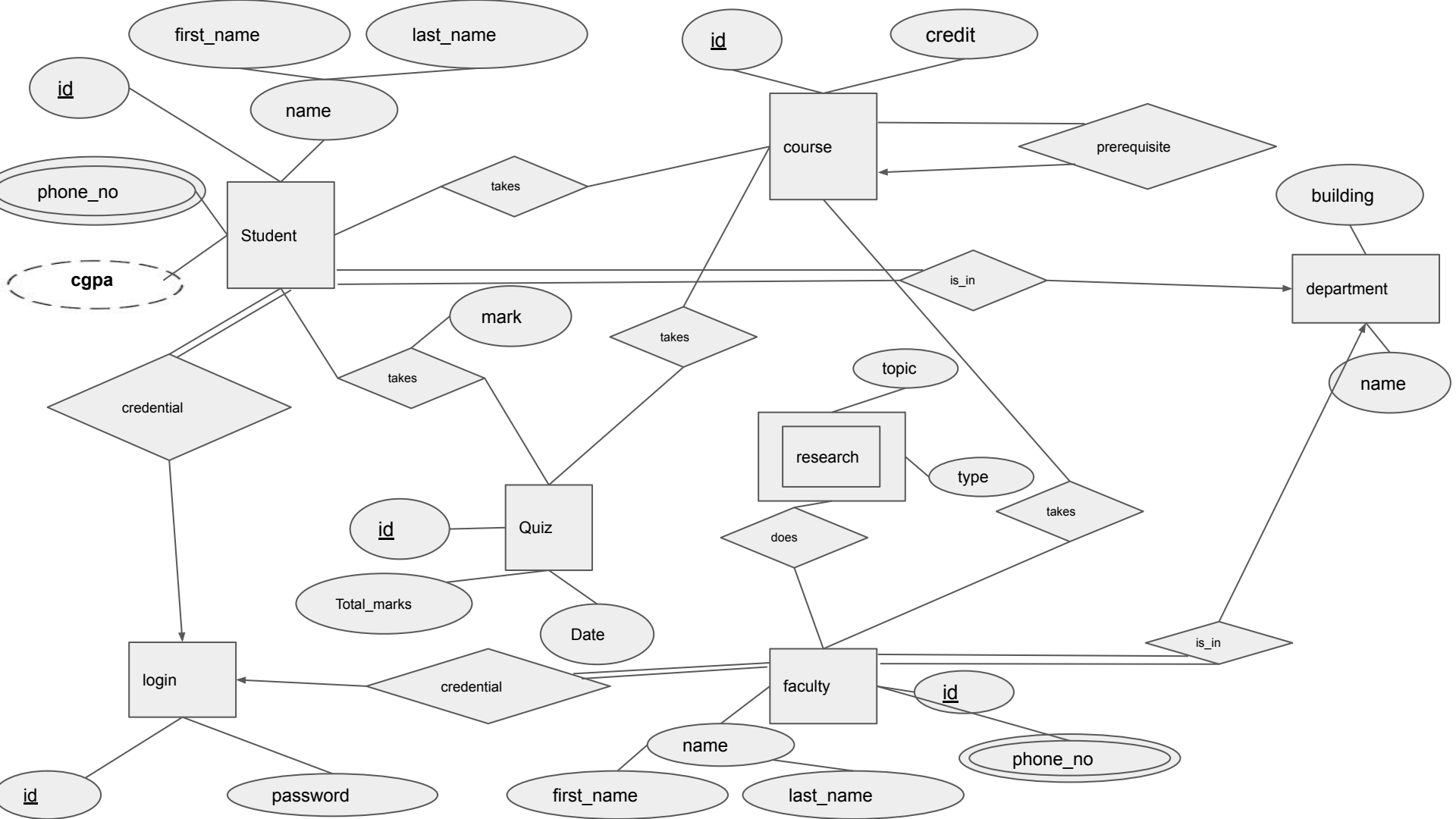
Qb.

-> candidate keys are id, phone_no can be considered as candidate attribute as no two people will have the same key or phone_no.

->derived attribute can be cgpa of student as it can be obtained from marks of quiz .

Qc.

-> research is a weak entity in this case as research can’t exist without faculty and there can be faculty which are not doing research.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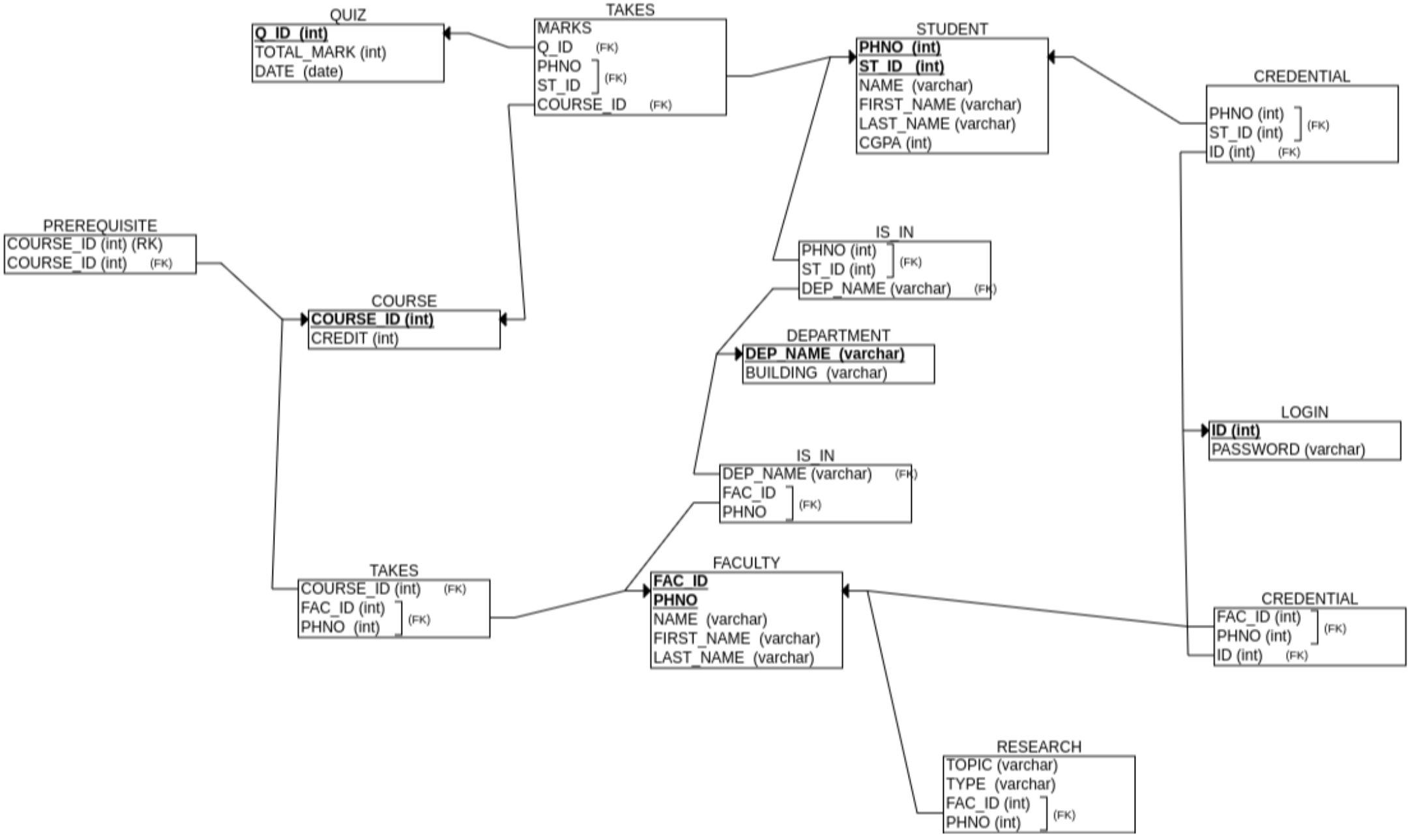
ASSIGNMENT 4



**ASSIGNMENT 4-**

**Qa.**
Done in diagram.
Qb.
Done in diagram.

Qc.

Domain constraints like int, varchar, date were added for specific attributes and integrity constraints like foreign key and primary key were also added for specific attributes of specific table.