Name: Waseem Khan

ID: 12984

Department: BS (CS)

Semester: 8th

Course: Database

1. **Which attribute in the following table is a candidate key? Assume that no more data will ever be added to this table.**

   In this table the ID and the CALL attribute is the candidate key for the table we cannot add more data because we have the unique attributes.

2. **What is Data Redundancy and Data Integrity?**

   Data integrity is the overall completeness, accuracy and consistency of data.
   This can indicated by the absence of alteration between two instances or between two updates of a data record, meaning of a data is intact and unchanged.

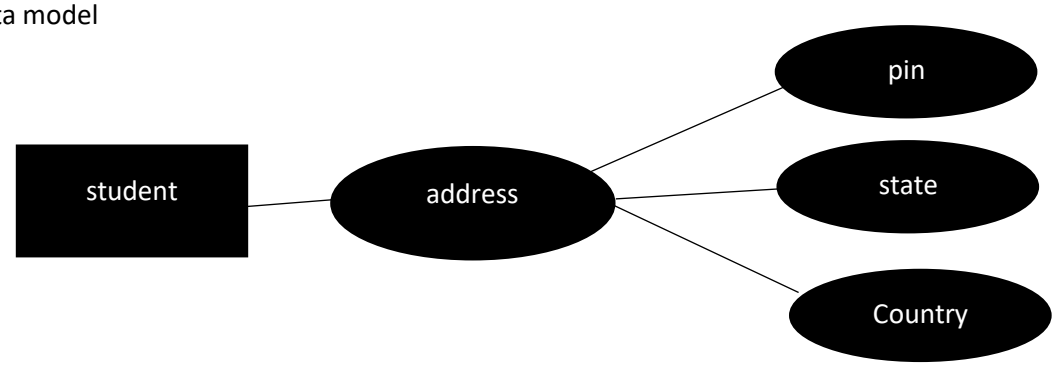
   Data redundancy is a condition created within a database or data storage technology in which the same piece of data is held in two separate places.

3.How a multivalued composite attribute is represented in Conceptual Model. Show with example?

before having the main solution we should know about
multivalued attribute.
Conceptual Model

Composite Composite attributes are not atomic because they are assembled using some other atomic attributes. A typical example of a composite attribute is a person's address, which is composed of atomic attributes, such as City, Zip, and Street.

A **multivalued attribute** can have more than one value at a time for an attribute. For ex., the skills of a surgeon is a multivalued attribute since a surgeon can have more than one skill. Another common example is the address field, which can have multiple values like zipcode, street address, state, etc
The main aim of conceptual model is to establish the entities, their attributes, and their relationships. Logical data model defines the structure of the data elements and set the relationships between them. A Physical Data Model describes the database specific implementation of the data model

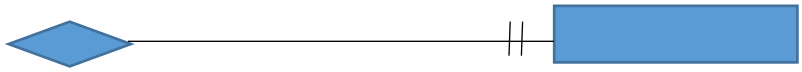


4. How is there 'reduced maintenance' in database approach?

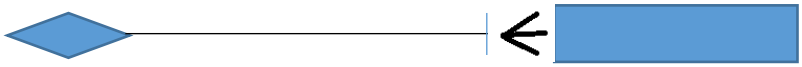
most of process within the system are encapsulated and reside inside the database engine the behaviors maybe incorporated into new behaviors in an ad hoc fashion.

5. How are the following represented using ER Diagram: Mandatory one, Mandatory many, Optional one, Optional Many?

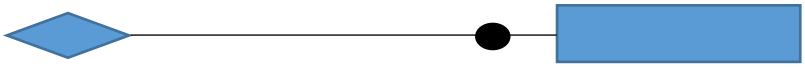
Mandatory one



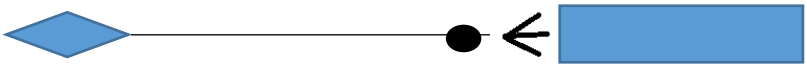
Mandatory many



Optional one



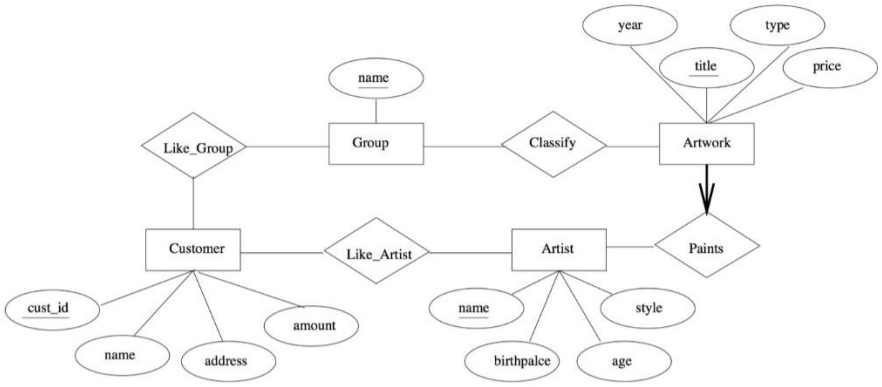
Optional many



6. Why is there an explicit need of backup in database approach?

The explicit need of backup in database approach is because for a centralized shared database to be accurate and available all times, comprehensive procedure is required to be developed and used for providing backup copies of data and for restoring a database when damage occurs.

Q 2: Draw an ERD from the following business rules: Use proper notations for the type of attributes.



A relational schema corresponding to the above ER diagram is given below.

Artist

(**a** name:string(10), birthplace:string(22), age:int, style:string)

artwork(title:string(10), year:int(10), type:string(10), price:real(50), **a** name:string(10)

customer(**cust** id:string(10), **c** name:string(25), address:string(100), amount:real(10)

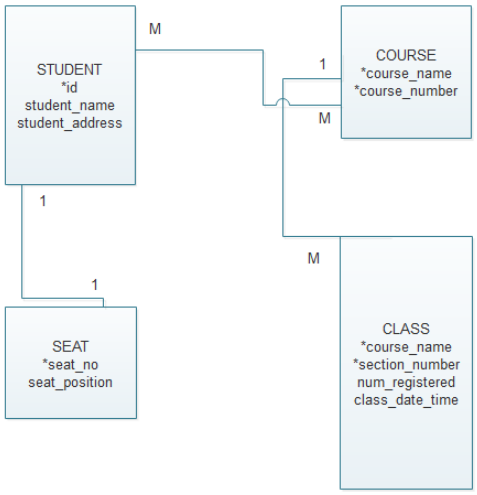
a group (**g** name:string)(10)

classify(title:string(50), **g** name:string(10)

like group(**cust** id:string(10), **g** name:string(10)

like artist(**cust** id:string(10), **a** name:string(10)

Q:3 Convert the following Conceptual Model to Relational Model


STUDENT
*id
student_name
student_address
M
1
COURSE
*course_name
*course_number
M
1
M
1
SEAT
*seat_no
seat_position
CLASS
*course_name
*section_number
num_registered
class_date_time