{ Mid Term Assignment Spring 2020 }

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Program ___ BSCS- (8th smester)

Course Title ___ Database Systems

Instructor ___ Rimsha Khan

Q__(1)__ Answer the following Short Question in maximum 2 to 3 lines.

1_

1. Which attribute in the following table is a candidate key? Assume that no more data will ever be added to this table. (2 Marks)

ID	Name	Semester	Department	Cell
1	Sania	1	CS	03334324234
2	Romaisa	1	CS	03335399123
3	Alina	1	CS	03150034224
4	Ayeza	3	CS	03455559822

ANSWER__

The ID and the cell attributes is the candidate key, we cannot add more data because we have the unique attributes.

……

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

ANSWER__

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

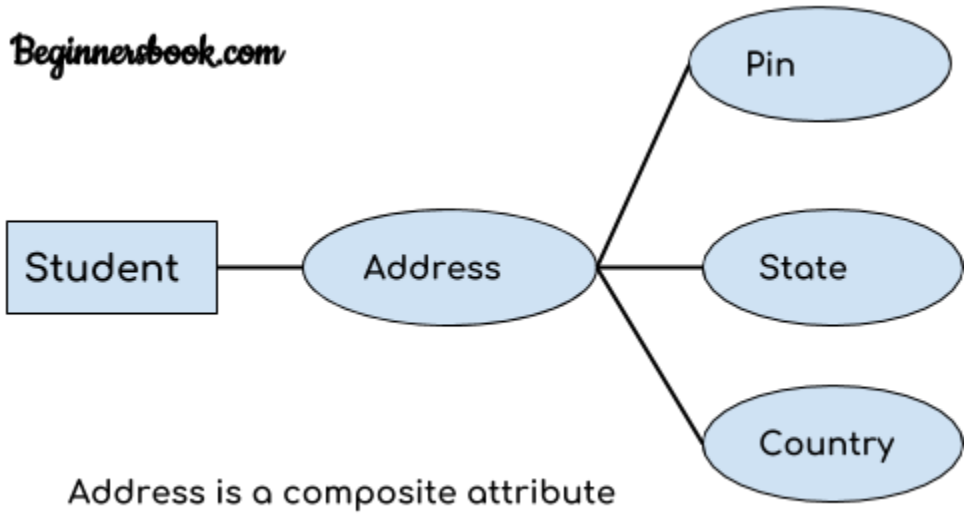
ANSWER : before having the main solution we should know about **multivalued attribute** ….. Conceptual Model

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.**

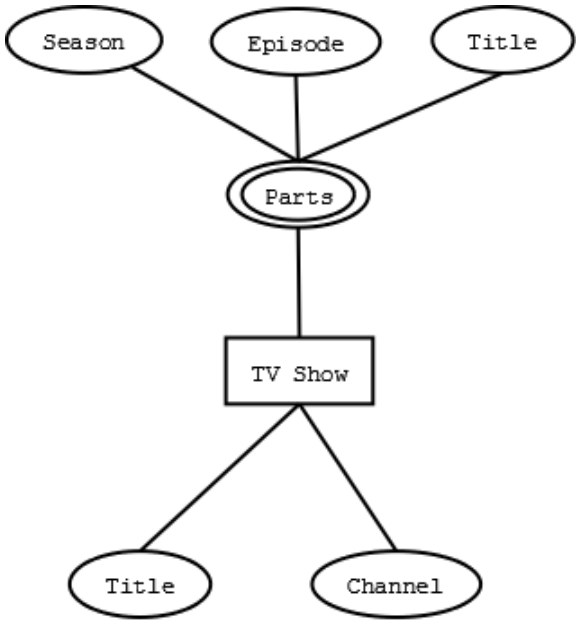
A **multivalued attribute** can have more than one value at a time for an **attribute**. For ex., the skills of a surgeon is a **multivalued attribute** since a surgeon can have more than one skill. Another common example is the address field, which can have multiple values like zipcode, street address, 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**

Examples :



eg_1



eg_2

.....

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

ANSWER

Most of processes within the system are encapsulated and reside inside the database engine, the behaviors maybe reused and incorporated into new behaviors in an ad hoc fashion.

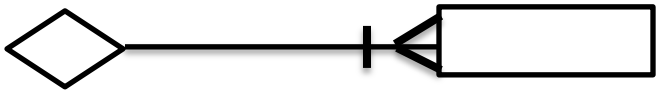
……

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

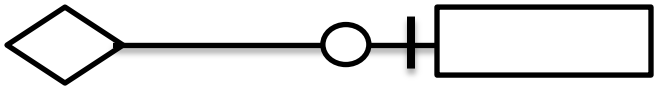
ANSWER :

Mandatory one:

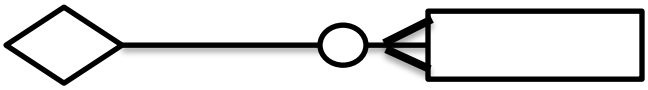
Mandatory many:



Optional one:



Optional many:



……

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

ANSWER:

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__2**: Draw an ERD from the following business rules: Use proper notations for the type of attributes**

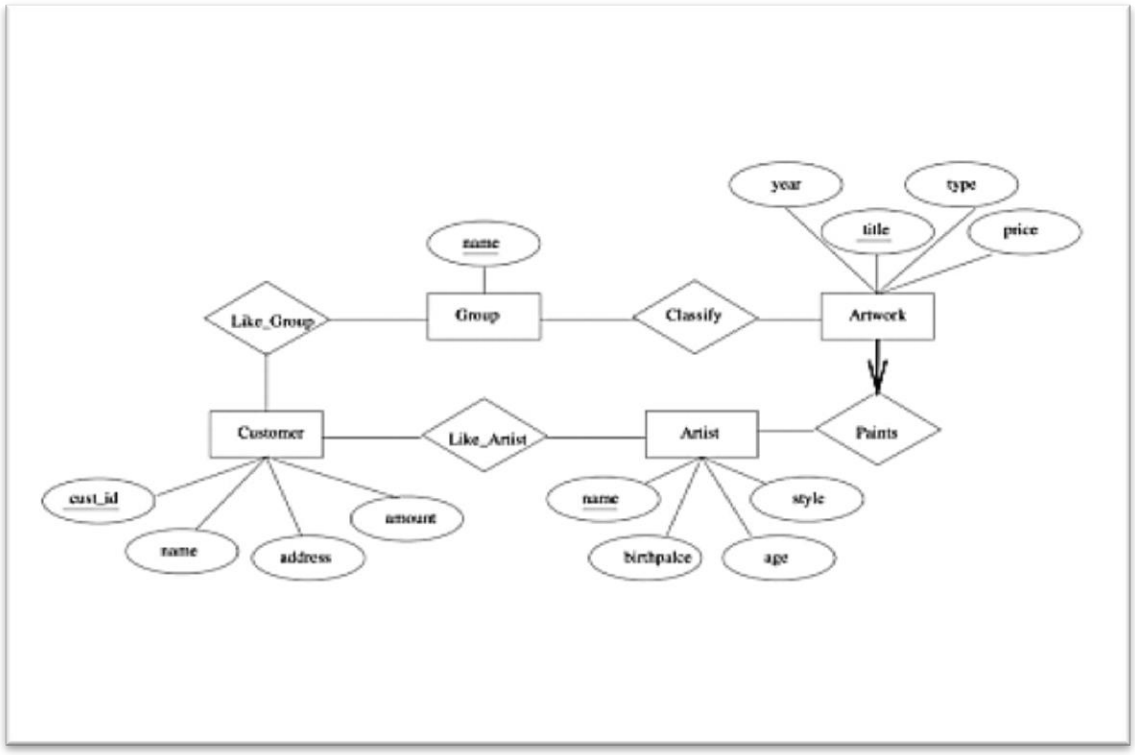
A schema needs to capture all the information that An Art gallery need to maintain.

- **The database shall keep information about Artists, their names (which are unique), birthplace, age, and style of art**

. • For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g. painting lithography, sculpture, photograph), and its price must be stored.

- **Pieces of artwork are also classified into groups of various kinds for example, potraits, still lifes, works by Picasso, or works of the 19th century.**
- **A given piece may belong to more than one group.**
- **Each group identified by a name that describes the group.**
- **Finally galleries keep the Customer's unique name, address, total amount of dollars spent in the gallery and the artist and groups of the art that the customer tends to like .**

ANSWER :



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)

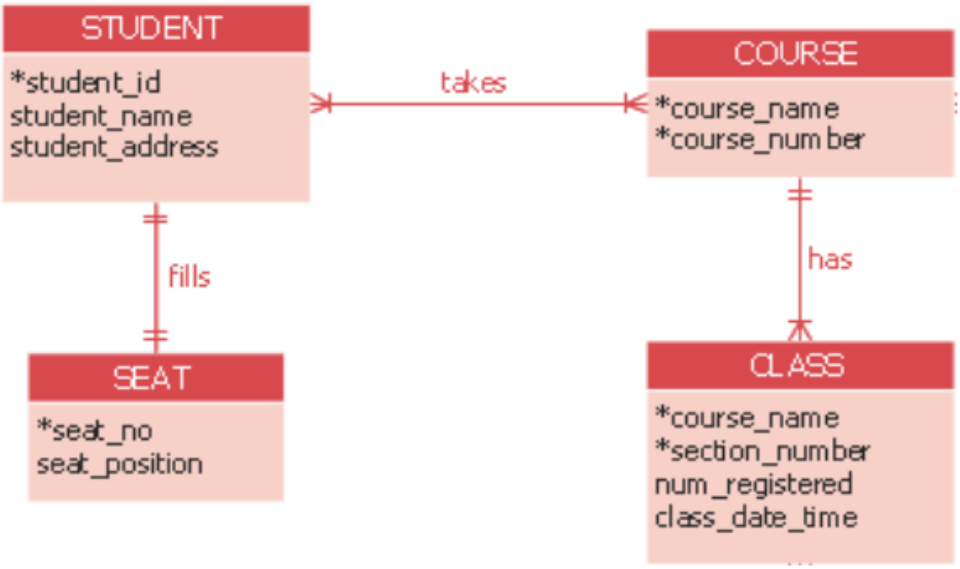
a group (g name:string)(10)

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

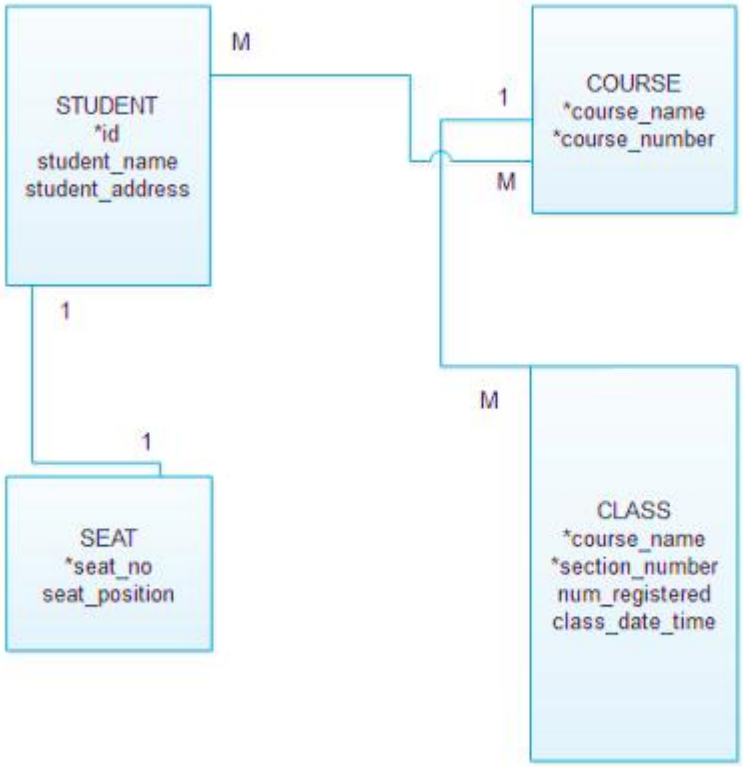
like group(cust id:string(10), g name:string(10)

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

Q__3__**Convert the following Conceptual Model to Relational Model ?**


STUDENT
*student_id
student_name
student_address
takes
COURSE
*course_name
*course_number
fills
has
SEAT
*seat_no
seat_position
CLASS
*course_name
*section_number
num_registered
class_date_time

ANSWER:


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

{ THE END } ***