



**Name ! M a z h a r , S a l e e m !!**

**ID ! 14455**

**Subject ! Database Systems!!**

**Semester ! 4<sup>th</sup>!!**

**Submitted to ! Ma'am Rimsha Khan**

*Q: Answer the following Short Question in maximum 2 to 3 lines. (12 Marks)*

**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

*Ans ID, Name and Cell are a candidate keys.*

**Q2.what is data redundancy and Data Integrity?**

***Data redundancy;***

*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. ... Whenever data is repeated, this basically constitutes data redundancy. This can occur by accident, but is also done deliberately for backup and recovery purposes*

***OR***

*Data redundancy is defined as the storing of the same data in multiple locations. An example of data redundancy is saving the same file five times to five different disks. Your Dictionary definition and usage example*

***Data integrity***

*The term data integrity refers to the accuracy and consistency of data. ... If the system enforces data integrity, it will prevent the user from making these mistakes. Maintaining data integrity means making sure the data remains intact and unchanged throughout its entire life cycle.*

## 4 Types of Data Integrity!!

*In the database world, data integrity is often placed into the following types:*

- ξ *Entity integrity*
- ξ *Referential integrity*
- ξ *Domain integrity*
- ξ *User-defined integrity*

### ∞ *Entity Integrity:*

*Entity integrity defines each row to be unique within its table. No two rows can be the same.*

*To achieve this, a primary key can be defined. The primary key field contains a unique identifier – no two rows can contain the same unique identifier.*

### ξ *Referential Integrity:*

*Referential integrity is concerned with relationships. When two or more tables have a relationship, we have to ensure that the foreign key value matches the primary key value at all times. We don't want to have a situation where a foreign key value has no matching primary key value in the primary table. This would result in an orphaned record.*

*So referential integrity will prevent users from:*

- ✓ *Adding records to a related table if there is no associated record in the primary table.*
- ✓ *Changing values in a primary table that result in orphaned records in a related table.*
- ✓ *Deleting records from a primary table if there are matching related records.*

∞ **Domain Integrity:**

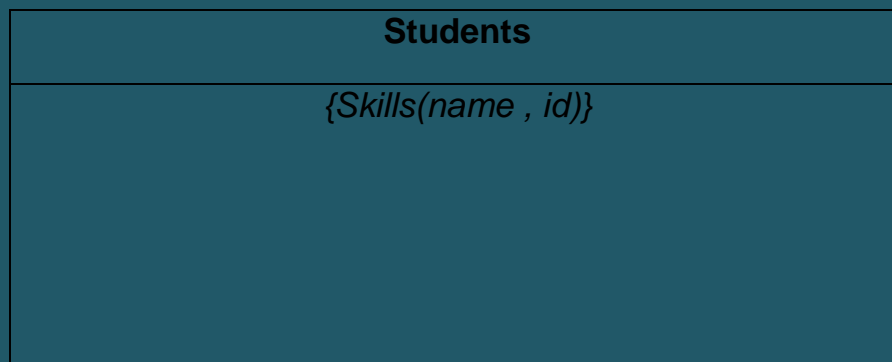
*Domain integrity concerns the validity of entries for a given column. Selecting the appropriate data type for a column is the first step in maintaining domain integrity. Other steps could include, setting up appropriate constraints and rules to define the data format and/or restricting the range of possible values.*

∞ **User-Defined Integrity:**

*User-defined integrity allows the user to apply business rules to the database that aren't covered by any of the other three data integrity types.*

**3 How a multi valued composite attribute is represented in Conceptual Model. Show with example**

*Ans:*



*Multivalued composite attribute.*

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

*Ans : Maintenance in database have little or no effect on the database application ,thus reducing the maintaince cost or Because it cuts down on the subsequent need for maintainance.*

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

*P.t.o*

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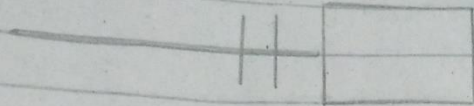
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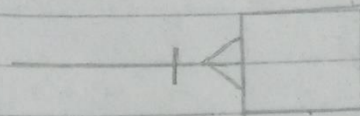
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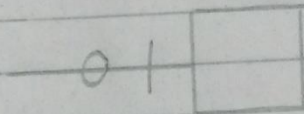
Mandatory one:



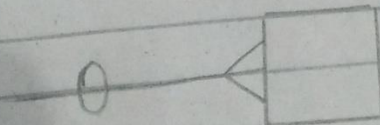
Mandatory Many:



Optional one:



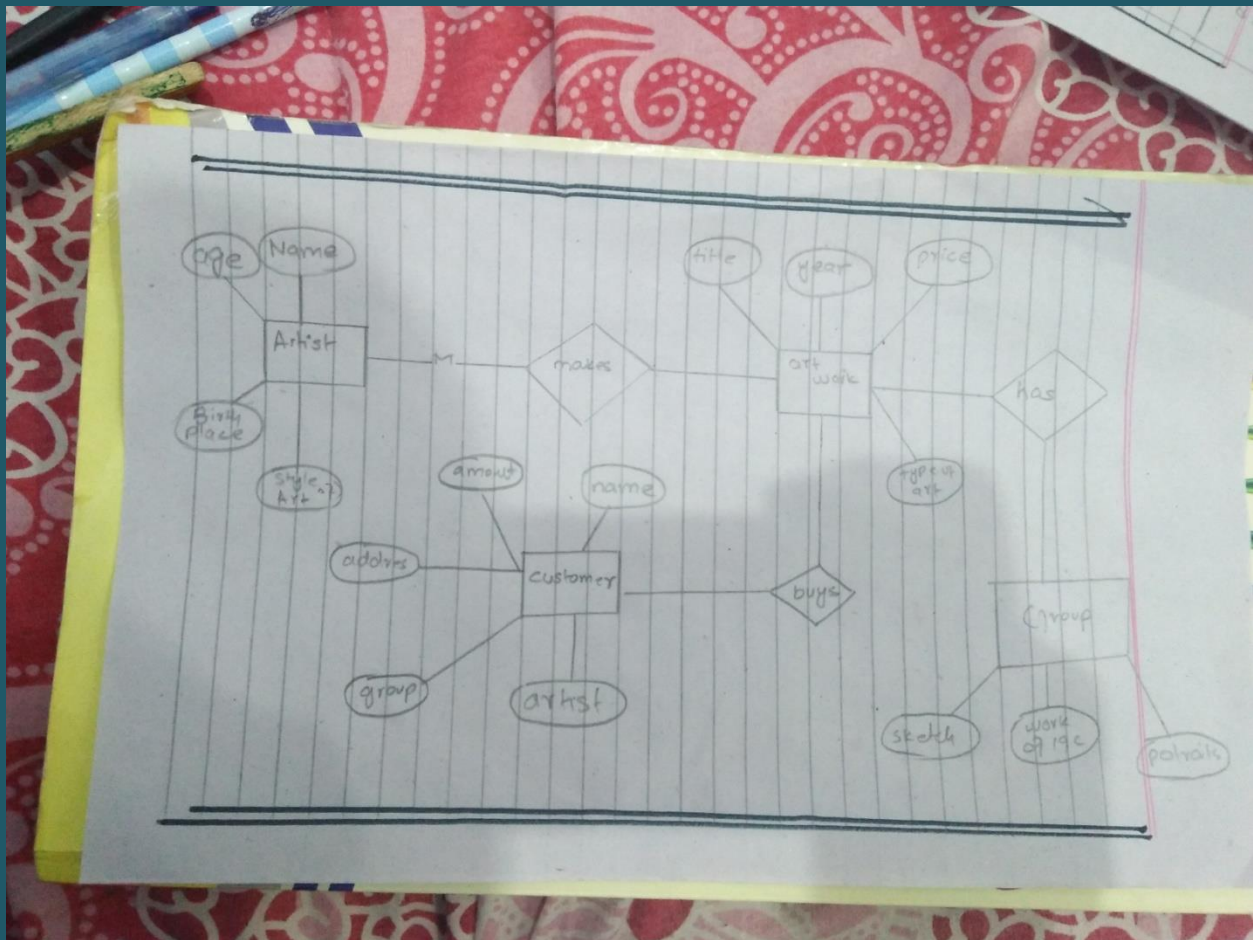
Optional many:



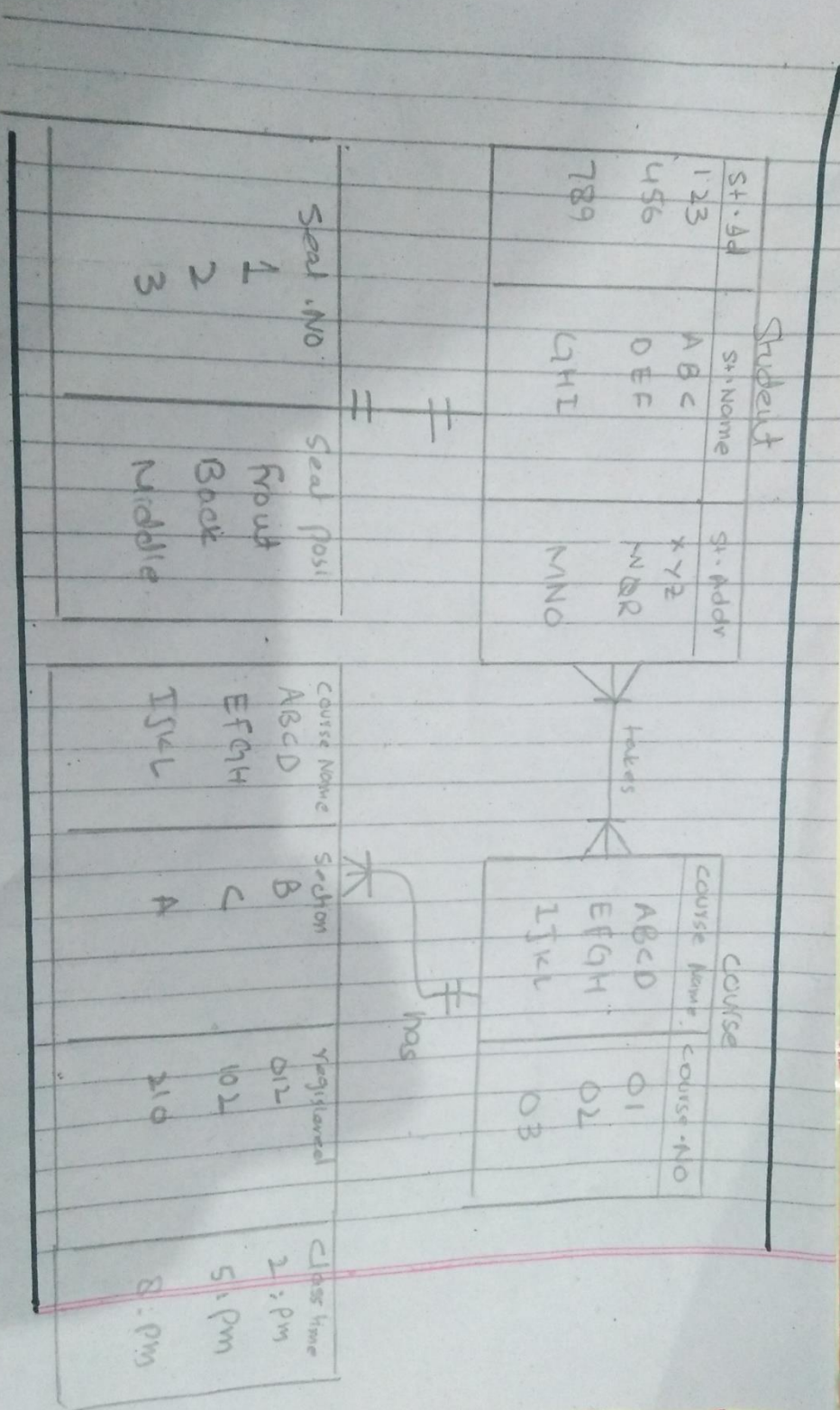
6. Why is there an explicit need of backup in database approach?

Ans: Because for a centralized share database to be accurate and available all times or it's a way to protecting and restoring files.

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



Q 3: Convert the following Conceptual Model to Relational Model.



St. Id	St. Name	St. Addr
123	ABC	XYZ
456	DEF	MNO
789	GHI	MNO

Course Name	Section	Registered	Class Time
ABC	B	012	2:pm
DEF	C	102	5:pm
IJK	A	210	8:pm