**St. Xavier’s College**

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**DATABASE MANAGEMENT SYSTEM**

**LAB ASSIGNMENT #5**

**Submitted By**

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**Submitted To**

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1. **What do you mean by Entity- Relationship Diagram? Explain**

**Answer:**

E-R model describes the design of database in terms of entities and relationship among them. An entity is a “thing” or “object” in real world that are distinguishable from other objects. An entity is describes by a set of attributes.

E-R model graphically express overall logical structure of a database by an E-R diagram. Components of E-R diagram are as follows

rectangles: represent entity sets

ellipses: represent attributes

diamonds: represent relationships among entity sets

lines: link attributes to entity sets and entity sets to relationships

*Example:*



Figure: Sample E-R Diagram

Beside entities and relationship among them, E-R model has a capability to enforce constraints, mapping cardinalities which tell no. of entities to which another entity can be associated via relationship set. If each account must belong to only one customer, E-R model can express it. We discuss mapping cardinalities in detail in next chapter.

1. **Define entity and give an example.**

**Answer:**

An entity is a “thing” or “object” in the real world that is distinguishable from another object. For example, in a school database, students, teachers, classes, and courses offered can be considered as entities. All these entities have some attributes or properties that give them their identity.

1. **Explain the different between an entity class and an entity instance.**

**Answer:**

1. **Define attribute and its types.**

**Answer:**

**Simple and Composite attribute**

Simple attributes are atomic values, which cannot be divided further. For example, a student's phone number is an atomic value of 10 digits.

Composite attributes are made of more than one simple attribute. For example, a student's complete name may have first\_name and last\_name.

**Single-valued and Multivalued attributes**

Attribute that can take only one value in every entry called singled-valued attribute. For example:- Customer\_name, Social\_Security\_Number.

An attribute that can take more than one values in any entry called multivalued attribute. For example, a person can have more than one phone number, email\_address, etc.

**Stored and Derived attribute**

Derived attributes are the attributes that do not exist in the physical database, but their values are derived from other attributes present in the database. For example, in customer entity set, attribute age is derived attribute if customer entity set has attribute date\_of\_birth. We can derive age of customer from date\_of\_birth and current\_date. Here the attribute date\_of\_birth is stored attribute and the attribute age is derived attribute. The value of derived attribute is not stored, it is computed when required.

1. **What is derived attributes?**

**Answer:**

Attribute whose values can be derived from the values of other related attributes or entities called derived attribute. For example, average\_salary in a department should not be saved directly in the database, instead it can be derived. For another example, age can be derived from data\_of\_birth.

1. **Define relationship and give an example.**

**Answer:**