**NAMRATA PANDEY**

**ASSIGNHMENT 07**

**Q.1 What is ER (Entity Relationship) Diagram?**

**Ans:** It is a type of structural diagram which is used in database design. It contains different symbols and connectors that visualize two important information:

* The major entities within the system scope
* Inter-relationships between these entities

It is more often used to design or debug the relational databases in the fields of software engineering, business information system. They use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes

***Uses of ER Diagram:***

* Database design
* Database troubleshooting
* Business information system
* Business process re-engineering
* Education
* Research

***Components and features of ER Diagram:***

* Entity, Entity set, entity categories (Strong and weak), Entity keys (Super key, candidate key, primary key and foreign key)
* Relationship (Recursive relationship)
* Attributes: descriptive attributes, attributes categories (SIMPLE, COMPOSITE, DERIVED), multivalued attribute, single value attribute
* Cardinality: one-to-one, one-to-many, many-to-many, many-to-one, Cardinality view, Cardinality constraints

ER Model is drawn up to three levels of detail:

1. **Conceptual data model:** Highest level view containing least

Detail

1. **Logical data model:** contains more detail than conceptual model
2. **Physical data model:** it shows enough technological detail to produce and implement actual database

***Limitations of ER Diagram:***

* Only used for relational data
* Not suitable for unstructured data
* Difficulty integrating with existing database
* Limited relationship representation
* Difficult to show data manipulation

**ER Diagram: Travelling**

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Description automatically generated**

Note that Group, Year, and Country have a single attribute “name” that is their primary key. Also note that the model makes the following compromise: On the one hand side, it limits the number of groups each person can belong to in a given year by making Year a separate entity type and using functionalities for “belongs-to”. On the other side, it does not model the fact that each group “travels to exactly one city in any given year”. We could have model “exactly one” with the min/max notation, but then the constraint above (a person can belong to at most one group per year) could not be enforced anymore.