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| TE-computer Roll number : |
| Experiment no. : 2 Date of Implementation : |
| Related Course outcome : At the end of the course, Students will be able to design EER model and develop relational model |
| **Rubrics for assessment of Experiment:**   |  |  |  |  | | --- | --- | --- | --- | | Indicator | Poor | Average | Good | | Timeliness   * Maintains assignment deadline (3) | Assignment not done (0) | One or More than One week late (1-2) | Maintains deadline (3) | | Completeness and neatness   * Complete all parts of ER diagram(3) | N/A | < 80% complete (1-2) | 100% complete (3) | | Originality   * Extent of plagiarism(2) | Copied it from someone else(0) | At least few questions have been done without copying(1) | Assignment has been solved completely without copying (2) | | Knowledge   * In depth knowledge of the assignment(2) | Unable to answer 2 questions(0) | Unable to answer 1 question (1) | Able to answer 2 questions (2) | |
| **Assessment Marks :**   |  |  | | --- | --- | | Timeliness |  | | Completeness and neatness |  | | Originality |  | | Knowledge |  | | Total |  | |
| **Total : (Out of 10)** |
| **Teacher's Sign :** |

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| **Name Student** |  | **Roll No.** |  |
| **Lab Experiment No.** |  | **Date** |  |
| **Expt. Title** | Draw EER diagram and Relational Model of Problem | | |

**Aim** : To write Problem Definition, to draw ER /EER diagram and to convert EER digram in form of relational model.

**Objective of the Experiment:**

1. Write the need of EER for problem defined in expt. no1.
2. Draw EER diagram

**Theory : Summary of ER, EER Diagram Notation**

**Strong Entities**

Entity Name

**Weak Entities**

Entity Name

**Attributes**

**Multi Valued Attributes**

**Composite Attributes**

**Relationships**

Relationship Name

**Identifying Relationships**

**N-ary relationships**

Relationship Name

* **More than 2 participating entities.**

Relationship Name

**Constraints - Participation**

* **Total Participation - entity X has total participation in Relationship Z, meaning that every instance of X takes part in AT LEAST one relationship. (i.e. there are no members of X that do not participate in the relationship.**

***Example*: X is Customer, Y is Product, and Z is a ‘Purchases’ relationship. The figure below indicates the requirement that every customer purchases a product.**

## Y

**X**

Relationship Z

* **Partial Participation - entity Y has partial participation in Relationship Z, meaning that only some instances of Y take part in the relationship.**

***Example*: X is Customer, Y is Product, and Z is a ‘Purchases’ relationship. The figure below indicates the requirement that not every product is purchases by a customer. Some products may not be purchased at all.**

Relationship Z

**X**

## Y

**Constraints - Cardinality**

* **1:N – One Customer buys many products, each product is purchased by only one customer.**

Purchases

**Customer**

## Product

1

N

* **N:1 - Each customer buys at most one product, each product can be purchased by many customers.**

Purchases

**Customer**

## Product

N

1

* **1:1 – Each customer purchases at most one product, each product is purchased by only one customer.**

Purchases

**Customer**

## Product

1

1

* **M:N – Each customer purchases many products, each product is purchased by many customers.**

Purchases

**Customer**

## Product

M

N

**Specialization/Generalization**

* **Each subclass inherits all relationships and attributes from the super-class.**

Entity Super Class

Subclass

Subclass

Subclass

**Constraints on Specialization/Generalization**

* **Total Specialization – Every member of the super-class must belong to at least one subclass. For example, any book that is not a text book, or a novel can fit into the “Other” category.**

Books

Text

Novel

Other

* **Partial Specialization – each member of the super-class may not belong to one of the subclasses. For example, a book on poetry may be neither a text book, a novel or a biography.**

Books

Text

Novel

Biography

**Disjointness Constraint**

* **Disjoint – every member of the super-class can belong to at most one of the subclasses. For example, an Animal cannot be a lion and a horse, it must be either a lion, a horse, or a dog.**

Animal

Lion

Horse

Dog

**Overlapping – every member of the super-class can belong to more than one of the subclasses. For example, a book can be a text book, but also a poetry book at the same time.**

Book

Text

Novel

Poetry

**Multiple Inheritance – a subclass participates in more than one subclass/super-class relationship, and inherits attributes and relationships from more than one super-class. For example, the subclass Mermaid participates in two subclass/super-class relationships, it inherits attributes and relationships of Animals, as well as attributes and relationships of Humans.**

Animal

Human

Mermaid

**Union – a subclass/super-class relationship can have more than one super-class, and the subclass inherits from at most one of the super-classes (i.e. the subclass purchase will inherit the relationships and attributes associated with either service or product, but not both). Each super class may have different primary keys, or the same primary key. All members of the super-classes are not members of the super-class. For example, a purchase can be a product, or a service, but not both. And all products and services are not purchases.**

Purchase

Product

Service

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| **Description of Problem Statement:-** |
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| **EE-R diagram for the Problem to be implemented.** |
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| **Relational Model of Problem** |
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| **Post Lab Assignment:** |
| 1. Describe various symbols used in EE-R Diagram |