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**DEBRE MARKOS UNIVERSITY**

**INSTITUTE OF TECHNOLOGY**

**Department of Software Engineering**

**Fundamentals of database management system**

**Group Assignment  
Group No.** 9

**GROUP MEMBERS ID. No.**

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**Instructor:**

**Submission Date: 30**/12/2014 E.C.

**Answer for question number 1**

Reserves

CAR

CUSTOMER

DRIVER

BOOKING

Confirms

PAYMENT Mode

DESTINATION

**Relational Schema**

CUSTOMER (Name, ph.-no-location, Email, Id)

CAR (Car id, Registration no, sedan, corporate, Economy, Van)

DRIVER (Id, Name, Contact no, License no)

PAYMENT MODE (Cash, E-banking, Tele birr, CBE-birr)

DESTINATION (Estimated cost, Arrival Time)

**#Answer for question number 2**

STUDENT

Enrolls

Belongs To

Studies

Section

Taught by

Courses

DEPARTMENT

Works for

PROFESSOR

Offer

Undertake

PROJECTS

**Answer for Question number 3**

**Disjoint Constraint**

An entity belongs to no more than one lower-level entity set.Any instance can map to at most one subclass. Not more than that. E.g., Bank Account can be either ‘Savings Account’ or ‘Current Account’ not both. So, when the database is operational, every given instance will be mapped to exactly one subclass defined under the super class. Another example a meal would be mapped to either Vegetarian or Non-vegetarian. It can’t be both. In a disjoint specialization, also called an exclusive specialization, an individual of the parent class may be a member of only one specialized subclass.

Example

MOTHER

PARENT

FATHER

**Overlapping**

The same entity belongs to more than one lower-level entity set with in a single generalization This constraint specifies that the subclasses of the specialization are not constrained to be disjoint. This means that an entity can be a member of more than one subclasses of the specialization. This case, which is the default, is displayed by placing O in the circle.

*Example*

PERSON

CUSTOMER

EMPLOY

**Total Generalization**

Each higher-level entity must belong to a lower-level entity set. A total specialization constraint specifies that every entity in the super class must be the member of at least one subclass in the specialization. For example, if every employee must be either an HOURLY\_EMPLOYEE or SALARIED\_EMPLOYEE, then the specialization {HOURLY\_EMPLOYEE, SALARIED\_EMPLOYEE} is a total specialization of EMPLOYEE. This is shown in the EER diagram by using a double line to connect the subclass to the circle.

Example

ACCOUNT

CREDIT

SAVING

**Partial Generalization**

Some higher levels entities may not belong to any lower levels’ entity set. It is default constraint Any instance may or may not map to multiple sub classes of a given super class. This usually happens when an instance plays multiple roles and not limited to one. e.g., Employee may map to either supervisor, manager, or both. This means an employee can play both the roles of a manager and a supervisor. Another example would be a musician who maybe mapping to either violin player, guitar player, flutist, saxophonist, or all of them

If an EMPLOYEE entity does not belong to any of subclasses, the specialization is called partial specialization which is shown by single line. For example, some EMPLOYEE entities do not belong to any of the subclasses {SECRETARY, ENGINEER, TECHNICIAN} then that specialization is partial

Example

PERSON

Employ

Customer