UNIVERSITY OF TECHNOLOGY, JAMAICA

FACULTY: Engineering and Computing

SCHOOL: Computing and Information Technology

Module Name: **Database Design** Module Code: **CMP2018**

Given: **Week of September 3, 2023** Due: **Week of October 2, 2023**

Assessment Type: **Group Project (10%)** Group Size: **3 - 4**

Scenario Four (SkUber Operation):

SkUber, a corporate area startup company, matching service between freelance drivers and passengers. They require a database to support the service that tracks trips, customer accounts, and includes a rating system where drivers and passengers can rate each other.

They would like to first keep track of all the drivers, identified by their TRN. They would like to also record their date of birth, address, gender, driver's license #, all their mobile numbers, email, date_joined and their name, which includes their first, middle and last name. SkUber has a driver's council on which their drivers are organized into clusters and one driver may represent a cluster of drivers on the council.

They would like to store the following details on clients that use the service: name, mobile number, email, gender and address. The mobile number is used to register the client.

Each Driver may own several vehicles registered to them, of which skUber would need to know the chassis number, license plate, colour, year, brand and model of the vehicle. Each vehicle can fall into 3 categories: luxury, group and individual. For luxury, they would like to note the description of the luxury items. For group vehicles, they would like to know the maximum capacity and no. of luggage. Vehicles may carry a group of customers in luxury.

A client may use their phone to request a trip. Each time a trip occurs for a particular vehicle it has an automated number that begins at one and increments by one each time another trip is made for that vehicle. This is stored along with the additional trip information such as date, time, status, # of travellers, approx. distance and cost will be generated. SkUber would like to record which driver using a specific vehicle was assigned the trip requested by the client.

A trip is also associated with at least two addresses. An address is also described by the gate number, street, town, parish and a landmark. Each address must be designated as either an origin or destination address for the trip. A passenger, however, can only have one address (associated with their account which designates the address as a home address for a passenger – this is useful for billing and for making a request for a home pick-up.

The rating system is one of the key features of SkUber. Both drivers and passengers can have ratings, although they may not have any ratings, especially if they just started with the service. When a driver or a passenger submits the rating, they give a star rating (1 to 5), brief comments, and the type of review (i.e., for driver, trip or for passenger). SkUber users can look up ratings by driver, passenger, or by trip (a trip could have more than two ratings if there were multiple passengers on the trip).

Required

1. Construct an ER diagram from the description above. Include required attributes to make the data storage meaningful.

[40 marks]

2. Use your research initiative to determine three other entities (and their attributes) that are of importance to this model.

    a. Write a paragraph for each added entity explaining its importance, what it will store, its **relationship** with the other entities and any other constraints.

[10 marks]

    b. In a separate diagram, show how they should be added to your ER diagram. **[10 marks]**

3. Based on the final E-R model developed part 2(b) above define the file structure using relational notation.

[20 marks]

4. The group is required to make a 10-minute VIDEO presentation on their diagram and the reason for the design during the tutorial session where each member is expected to participate. This video presentation must include the members of the group en camera.

[15 marks]

Submission Rules and Requirements:

1. Projects are due in Tutorial Time. Each presentation will last 10 minutes. Students are free to use any presentation software for the presentation.

2. The project must also have a project document outlining **(5 marks)**

    i) Cover/Introductory page with tutor's name, members' names and ID numbers

    ii) the scenario of the project

    iii) various required sections appropriately labeled.

    iv) A task list with the responsibility of each group member. Each member of the group should be responsible for a task of the project.

3. **Each group must submit the project in a compressed file via email by the due date as stated above before the tutorial begins.**

4. If the project is submitted to the lecturer after the due day a penalty is attracted for every late day. **Each day after due day (including Saturdays and Sundays) will attract a 10% accumulative penalty which will be deducted from the total mark of project. No Project will be accepted three days after the due date has passed.**