# *CSCI 4710/5710 Databases*

## *Spring 2024*

**Due :11:59PM, May 7,2024**

**Total Points: 200**

## Problem Statement:

Your task is to design and implement a Bus route schedule system. The application needs to keep record of the following:

**Drivers:** You should be able to keep record about the bus drivers and their information including their driver's license and its expiry date.

**Busses:** You should keep record of the busses in the fleet and some important information such as number of passengers and license plate expiry date.

**Customers:** You need to keep important customer information as they will purchase subscriptions. The information to be stored is up to your assumption on what's necessary.

**Subscriptions:** You should keep track of the subscription to the bus system such as monthly or some balance for rides. You will also need to keep track of the rides on each subscription. This means when a customer uses a bus under a certain subscription, the customer ID, subscription ID and the bus ID need to be stored.

**Routes:** you should keep track of the routes that the bus go through the city including the stops in the route and which busses go on that route.

**Stations:** these are the bus stations which can be a bus stop too but it has the offices to buy bus tickets or subscriptions.

**Part 1: (25 Points)** Design an ERD for the above problem.

**Part 2: (25 Points)** Convert your ERD to relational model.

**Part 3: (30 Points)** Implement the database and populate the tables with data.

**Part 4: (70 Points)** write queries to accomplish the following:

View all routes in the city and what busses go on these routes.

- Search by bus stop to see which bus goes to that stop and display the bus number and the full route.
- Display driver's information and the assigned bus.
- Search for expired license plates for the busses and/ or expired driver's license and

display the bus information and the driver's information.

· Search by station and see all busses stopping at that station along with the routes they will go on.

View all busses and all routes for the busses.

· search by customers and show their subscription information.

## Project Guidelines:

· This is a **TEAM PROJECT** so **ALL** team members should participate in **ALL** phases of the project.

· Submit a .zip file on Canvas containing all files of your project.

· Your team will be asked to present the work done in class.

· You should develop an ERD, a relational model for the project along with the database.

You must submit the following to canvas.

- ERD.
- Relational Model.
- Table creation and data population.
- SQL script/ Queries/ User interface.