

# **CMPUT 291**

## **Mini Project 1**

### **DESIGN DOCUMENT**

**Submission Date: November 4, 2019**

Group Members:

1. Evan Timms, ccid: perretti (1504825)
2. Vanika Dhamija, ccid: vanika (1503248)
3. Jordan Los, ccid: los (1550572)

## **I. A general overview of your system with a small user guide:**

The goal of this project is to use SQL in Python, and to demonstrate some of the functionalities that result from combining SQL with interfaces like Python. In this project, a software system is built to keep the enterprise data in a database and to provide services to users. It will store data in a SQLite database. A user, who can be a registry agent or a traffic officer, can run the program using the terminal and typing in “python3 main.py” and interact with the database to perform various queries.

## **II. Detailed Design of the program:**

In addition to being able to login on the login screen using a valid user id and password, a user is able to perform subsequent operations based on their type (Registry agents or Traffic officers).

Roles were assigned to each type of user and it was linked to the functions they have permissions for. For instance, all users can quit the program, ask for help and logout of the program. In addition, a registry agent can register births and marriages, renew registrations, process bill of sale and ticket payments as well as get a driver's abstract for a person in the database. While traffic officers cannot perform these operations, they are able to issue tickets and find car owners.

### System functionalities allowed to a Registry Agent:

1. Register a birth:

2. Register a marriage:

The two queries were implemented using the same function register which was given different arguments: 'b' and 'm' for registering births and marriages respectively and executes the queries as well as table updates and inserts accordingly. It is made sure that every time a registration happens, it is assigned a unique registration number. Also, mother and/or father of the newborn are added into the persons table if they do not already exist, otherwise the birth cannot be registered. Relevant exceptions and error messages are raised for invalid queries or inputs.

3. Renew a vehicle registration:

A vehicle registration is renewed and its new expiry date is set based on the requirements described in the project description and exception is raised in case of missing arguments to notify the user of an incorrect query.

4. Process a bill of sale:

5. Process a payment:

6. Get a driver abstract:

System functionalities allowed to a Traffic Officer:

1. Issue a ticket:
2. Find a car owner:

**III. Testing Strategies:**

- Started building the program by having all the set-up data in place and writing one query at a time. This allowed to build a bug-free program in small steps.
- A small test database was also created to test the functionality of the queries.
- Error checks were performed by adding try and accept blocks.

**IV. Group Break down Strategy:**

Break-down of the work items:

- Evan worked on authentication system, SQL injection and queries 1-4 and testing
- Vanika worked on queries 5,6, 7 and modified query 1-4 and testing
- Jordan worked on query 7 and 8, testing and generating unique tno. regno

Time spent of each member:

- Evan spent 12 to 15 hours
- Vanika spent 10 to 12 hours
- Jordan spent 8 to 10 hours

Method of coordination to keep the project on track

- The group met in the beginning of the project to discuss an overall strategy and divide the work among themselves.
- The group also met on the submission day to go through the code together, divide it into separate files for improving code quality. Changes were also made in the code to ensure it works well with the python version on the lab machine
- The code was pushed on GitHub so the members could see the current state of the project at all times and review each others' work as well.
- All the other communication was done in a group chat, including modifying work distribution as necessary and tracking progress.
- The design document was prepared by collaborating on a google doc

No further assumptions were made in this assignment