#### MINOR-PROJECT BATCH-3

## VEHICLE PARKING MANAGEMENT SYSTEM

By: Aayushi Sharma

# **Project Overview:**

This project is a console application made using Python and SQLite. This project contains functionalities to simplify the booking process of vehicle parking and helps in effective management of customer data. Customers can book a parking slot based on their vehicle type by getting the help of an attendant. Staff or attendant acts as an intermediator between customer and the management system.

# **Key Features:**

This project offers below mentioned functionalities and features:

- 1. User authentication and role-based access as admin or attendant.
- 2. Interactive interface.
- 3. Maintaining confidentiality of user credentials through hashing.
- 4. Logging and monitoring.
- 5. Input validations using Regex.
- 6. Exception Handling.
- 7. Clean code with proper folder structure.
- 8. Classes following single responsibility principles.
- 9. Maintained different files for prompts and input statements showing uniformity.

# **Major Modules of Project:**

#### 1. User Module:

User will be the one interacting with the system.

Users can be 2 types:

- (i) Admin:
  - The very first user to login into the system will be admin.

- This system assumes that there will be only one active admin in the system.
- Admin will be the one responsible for adding other users or employees that will be assigned attendant role.
- Admin will have different functionalities than other staff.
- Admin will be responsible for registering parking slot details and managing them.
- Admins will also be responsible for managing employee details.

#### (ii) Attendant:

- Attendant will be responsible for registering customers and managing them.
- Customers will be interacting with the attendant to book a parking slot.
- Attendants will have all the rights to manage customer data and booking or vacating parking slots.

#### \*\* Important Points:

- All the users will have a default-password during their first login. This password will be provided by the admin to the user and will be known to the user.
- After entering the default password, the user will have to change their password and this
  password will be stored as a hash and thus will be unknown to admin, maintaining
  confidentiality of credentials.
- Also, this password will follow all the rules of strong password generation.
- Also, every user will have only 3 login attempts, on failure of which user will be restricted from interaction with the system for some duration.

#### 2. Vehicle Type:

- Admin will be responsible for adding vehicle types and managing the price per hour of the vehicles.
- Based upon this price, the customer will have to pay the amount according to the number of hours spent in parking slot.

## 3. Parking Slot:

- Admin will be responsible for managing the parking slot details about which slot is for which vehicle type.
- Attendant will be responsible for assigning and vacating of parking slots to customers.

# **Tech Stack:**

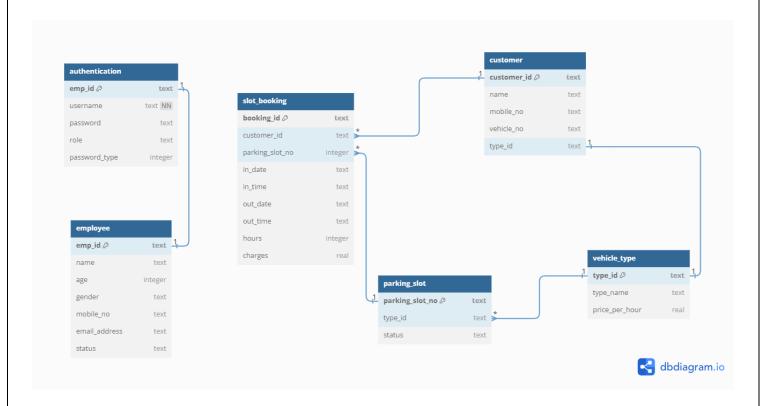
Language: Python

Database: SQLite

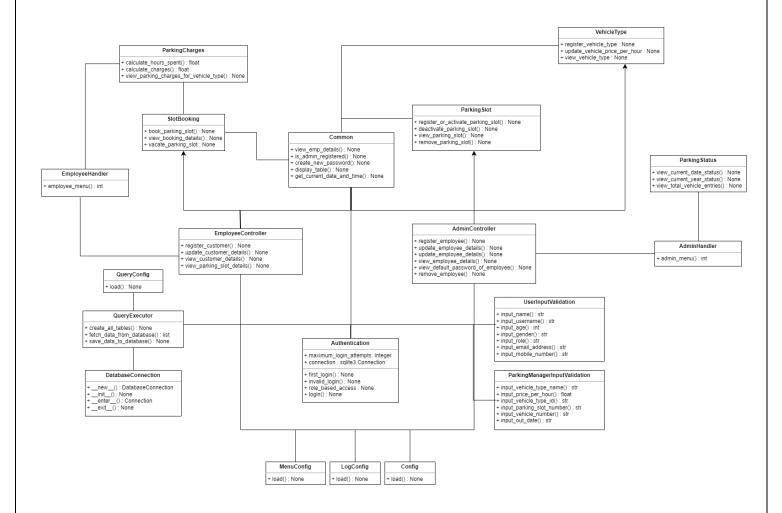
Integrated Development Environment: Visual Studio Code

# **UML Diagrams:**

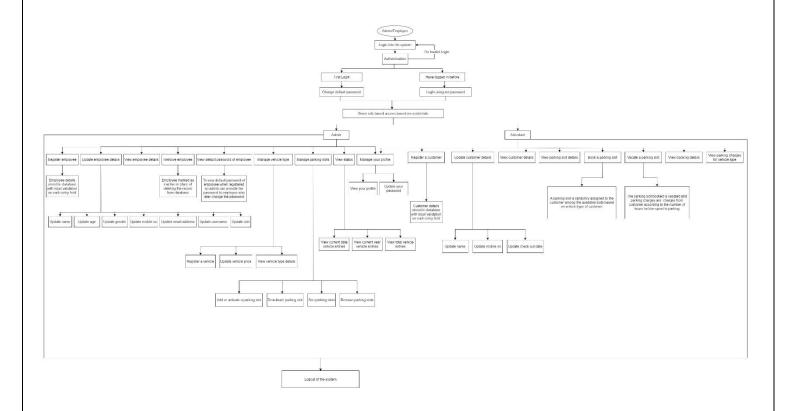
# 1. Database Schema



# 2. Class Diagram



# 3. Flow Diagram



# 4. Use Case Diagram

