**Final Report for Software Engineering**

Car Park Management System

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Group 5

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# Components of the system:

* **Car driver**
* **Member**
* **Database**
* **Parking**

Controller:

Calculator

Controller\_Class

IdGenerator

IParkingCintroller

ParkingSystemController

Service:

NewUserService

NewUserServiceImp

DAO:

DatabaseManager

IDatabaseManager

NewUserRepository

TempDatabasemanager

UserDatabase

View

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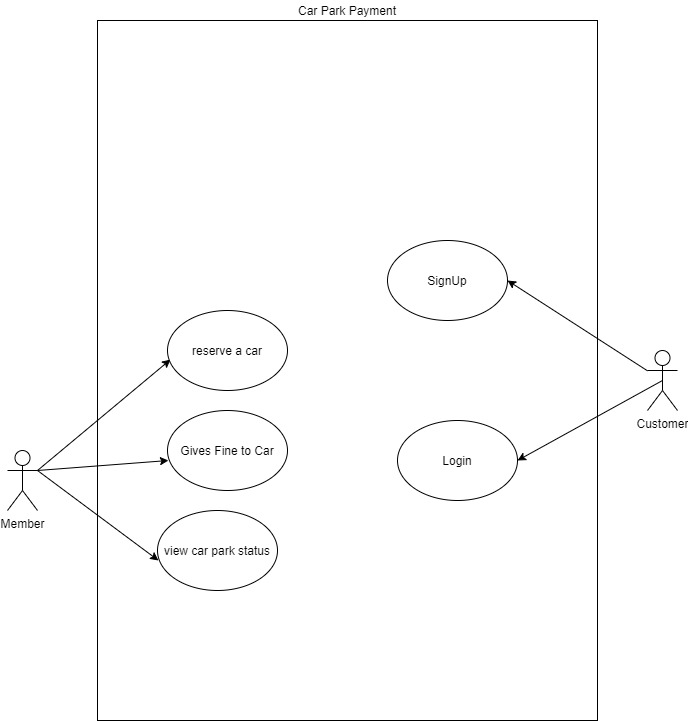
# Project Introduction

The “Car Parking Management System” is a program used to manage parking lots, provide users with virtual tickets and allow easy oversight by management. The hope with this project is for clients to minimize staff onsite while allowing the administrators to ensure maximum profits from their sites. For the target audience we will be marketing this software towards parking lot management companies.

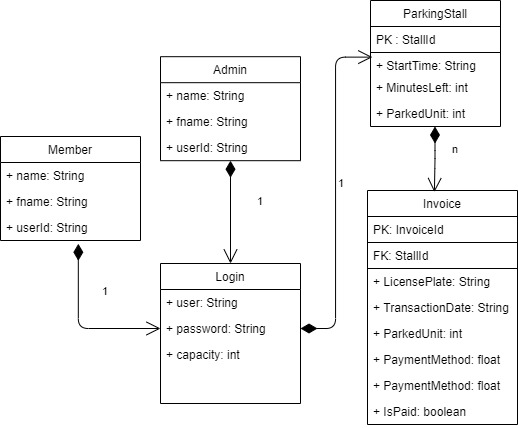
The importance of our project is in organizing and managing the cars and parking lots. Number of cars around the world are increasing continuously; however, the number of parking lots are limited. Due to this, car owners or drivers are not able to find the perfect parking lot.

# UML Diagrams

**Use Case Diagram of the Program**



**Defining the database and schemas**



**Our database will contain three tables.**

* ParkingStall**:** keep information related to parking stalls.
* Invoice: contain the payment info for each record. In ParkingStall, StartTime tracks the time that the driver first bought the ticket while minutes left records the amount of time left including extensions bought. In Invoice, PaymentMethod records the type of payment(cash, visa, mastercard, debit) used, PaymentType is the type of payment it’s for(parking or fine)
* Member: employee who reserved a stalls.

**Description of the system architecture**

Our project is a multi layered application:

* **API layer**: connect with user, web page
* **Service layer**: manage application and connect with different layer
* **Database Access layer**: connect with database

# Project plan

**1. Login/Logout**

This feature will allow a member to be able to log into the Car Parking Lot system, if a profile has been created before for a member, he/she can login by using user and password and observe parking stalls and times that are reserved.

If the user is new, an error message shows and a sign-up page opens.

**2. Sign up**

This feature will allow a new member to register for a stall. The member should enter personal information such as first name, last name, employee id, email id, address and contact number.

**3. Filter parking stalls, empty/full**

This feature will allow logged in admin and members to view a list of parking stalls, and also apply a custom filter on them.

**4. Invoice**

This feature shows the information related to the invoice for each parking stall such as payment method (cash/visa card) , amount, parking stall number, license plate.

**User Story**

“As a car park owner, I want to check how long each car parks for and the busiest times so that I can track my profits”

Consider a big company that owns several car park lots. We will create a database for management and ticketing of these car parking lots. The application contains a main page, payment page and an administration page. In the main page, users can choose to enter a new parking session, extend a current stay, or access the administration page.

In the “new parking” page the user may enter the parking space, enter the vehicle's license plate, choose the duration of stay and proceed to pay.

In the “extend” page users may enter their current Stall Number and select the amount of time they wish to extend their stay by and proceed to pay. The payment is done on the payment page.

In the administration page, the admin can check the parking space, the number of empty slots and occupied spaces.

**Acceptance test:**

* Cars can be
  + Each car spot displays plate no, time arrived, departure time and payment
* Admin overview of lot can be seen
  + Admin overview displays number of spots filled
* Payment can be made
  + Drivers can pay for parking fees and fines
* Fines can be assessed
  + Admins can levy fines against cars in violation of rules
* Profiits displayed
  + Admin overview displays total profit and a breakdown of profit