CS 6314.002

Web Programming Languages

Instructor: Nurcan Yuruk

Project Report

RENT WHEELS

(Online Car Rental)

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Introduction:

A car rental agency is a company that rents automobiles for a period, usually located near airports or busy city areas and often complemented by a website that allows online reservations. In this generation, cars are frequently rented out by people who travel a lot, or students who just need a comfortable means of travel for a few days or people whose automobile is on repair and need a means of transport suddenly, etc.

With the car rental agency being such a booming business, especially in a busy city like Dallas, we, three students of the University of Texas at Dallas have decided to open one such business called "**Rent Wheels"** and also have developed a website to accompany it. The user interface of this site is pretty intuitive, straightforward and easy to understand and use.

Project Description:

The aim of the project is to provide a web interface for people who have to rent an automobile and make it easy for them by letting them view the various cars in the catalogue, the prices of them for each day and let them pre-book it.

The users of Rent Wheels:

1. **User**

   Once the user is logged in, they are directed to a catalogue page which has a list of all the available cars presently. Also, there is the option of filtering the cars based on either the car company or car model or both, which makes it easier to choose the car based on their preference. Once the user has decided on which car to rent, they are directed to the checkout page, where they are asked to choose the number of days, and accordingly the cost for the rent is displayed. If the price suits the user, they can continue with the checkout. The user also has the facility to view their history of rented cars.

2. **Admin**

   The admin has four main functions; they are adding another car to the catalogue, modify or delete the vehicle that is already present, and once the user has returned a car, check if any fines have to be allocated and calculate the total cost the user needs to pay.

Project Features:

The features of the project are explained based on the user of the website.

1. **User**
    a. **Register/Create an account:** A user needs to create an account to access the Rent Wheels site and should provide the following information: full name, email id, password, driver's license, and address. The password is hashed using MD5 to increase the security level up a notch.
    b. **Login:** A user needs to create an account only once, rest of the times they just need to login. Once, the user successfully logins, they are redirected to the catalogue.
    c. **Catalogue:** It shows the list of automobiles that are currently available at our website. It also has the option of filtering the list of available cars by selecting either the company of the car or the model of the car or both. To make it easier, we provide the picture of the car along with the price of the car for each day. If the user doesn't have complete information about the car to use the filter options, they could just search the name or a part of the name of the car.
    d. **Add to Cart:** Once the user has decided on which car to rent out, they are directed to the checkout page. On this page, the user asked to select the number of days they want to rent the car and once they decide on that, the cost for that model for the provided number of days is displayed.
    e. **Checkout:** If the user is okay with the price, they are directed to the checkout page and the transaction is complete.
    f. **Order History:** From the catalogue page, the user has the option of viewing their previous checkout history.
    g. **Logout:** It is always safe to logout from the website to prevent any web security attacks.

2. **Admin**
    a. **Login:** There is no administrator registration. This is done manually in the database. The admin needs to sign up using his email and password to log into the site and access the admin services.
    b. **Add a car:** This option allows the admin to add a car to the catalogue. While adding a car, the admin can add it in two ways. One, just a different vehicle of the same model that is already present. In this case, you need to add the vehicle number, color, price and image of the car. Two, the admin can also add an entirely different model.
    c. **Update a car:** This option allows the admin to update/modify the price of the car. This option is especially useful when it is a holiday season and everyone is looking out to rent a vehicle.

d. **Delete a car:** This option allows the admin to delete the details of the car when the car is being removed and people aren't allowed to rent it anymore.
e. **Checkin a car:** This option is used by the admin whenever a user returns a car. If the car is returned later than the due date, a penalty is charged to the user.
f. **Logout:** It is always safe to logout from the website to prevent any web security attacks.

Assumptions:

- The user needs have a driver's license to rent a car.
- To make sure that the user has a driver's license, the website is accessible only if the user has logged into the site.
- Users can checkout only one car at a time.
- When a user has booked a car, the rental period starts on the day they have booked the car.

Database Design:

We have created a database with four tables namely car, cart, inventory, users_table.

- Car(**car_id**, company, car_type, model)
- Cart(**user_id**, **number_plate**, date_out, date_in, due_date, no_of_days, amount_pay, penality)
- Inventory(**car_id**, **number_plate**, color, availability, price, image)
- Users_table(**user_id**, user_name, user_email, user_password, joining_date, role, license_no, address)

The DDL commands to create the tables are provided below:

```
CREATE TABLE `car` (
  `car_id` int(11) NOT NULL AUTO_INCREMENT,
  `company` varchar(20) DEFAULT NULL,
  `car_type` varchar(20) DEFAULT NULL,
  `model` varchar(20) DEFAULT NULL,
  PRIMARY KEY (`car_id`)
) ENGINE=InnoDB AUTO_INCREMENT=6 DEFAULT CHARSET=utf8

CREATE TABLE `cart` (
  `user_id` int(11) DEFAULT NULL,
  `date_out` date DEFAULT NULL,
  `date_in` date DEFAULT NULL,
  `due_date` date DEFAULT NULL,
  `no_of_days` int(11) DEFAULT NULL,
  `number_plate` varchar(20) DEFAULT NULL,
```

```
  `AMOUNT_pay` decimal(6,2) DEFAULT NULL,
  `penality` decimal(6,2) DEFAULT NULL,
  KEY `user_id` (`user_id`),
  KEY `number_plate` (`number_plate`),
  CONSTRAINT `cart_ibfk_1` FOREIGN KEY (`user_id`) REFERENCES `users_table` (`user_id`) ON DELETE
CASCADE,
  CONSTRAINT `cart_ibfk_2` FOREIGN KEY (`number_plate`) REFERENCES `inventory` (`number_plate`)
ON DELETE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8

CREATE TABLE `inventory` (
  `car_id` int(11) DEFAULT NULL,
  `number_plate` varchar(20) NOT NULL,
  `color` varchar(15) DEFAULT NULL,
  `availability` tinyint(1) DEFAULT NULL,
  `price` decimal(6,2) DEFAULT NULL,
  `image` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`number_plate`),
  KEY `car_id` (`car_id`),
  CONSTRAINT `inventory_ibfk_1` FOREIGN KEY (`car_id`) REFERENCES `car` (`car_id`) ON DELETE
CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8

CREATE TABLE `users_table` (
  `user_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_name` varchar(50) NOT NULL,
  `user_email` varchar(60) NOT NULL,
  `user_password` varchar(255) NOT NULL,
  `joining_date` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP,
  `role` varchar(1) NOT NULL DEFAULT 'U',
  `licence_no` varchar(20) NOT NULL,
  `address` varchar(100) NOT NULL,
  PRIMARY KEY (`user_id`)
) ENGINE=InnoDB AUTO_INCREMENT=5 DEFAULT CHARSET=utf8
```

Languages/Frameworks:

- **Client-side:** HTML, CSS, JavaScript, jQuery, AJAX
- **Server-side:** PHP
- **Back-end:** MySQL
- **Frameworks:** Bootstrap

Screenshots:

Fig 1: Home page

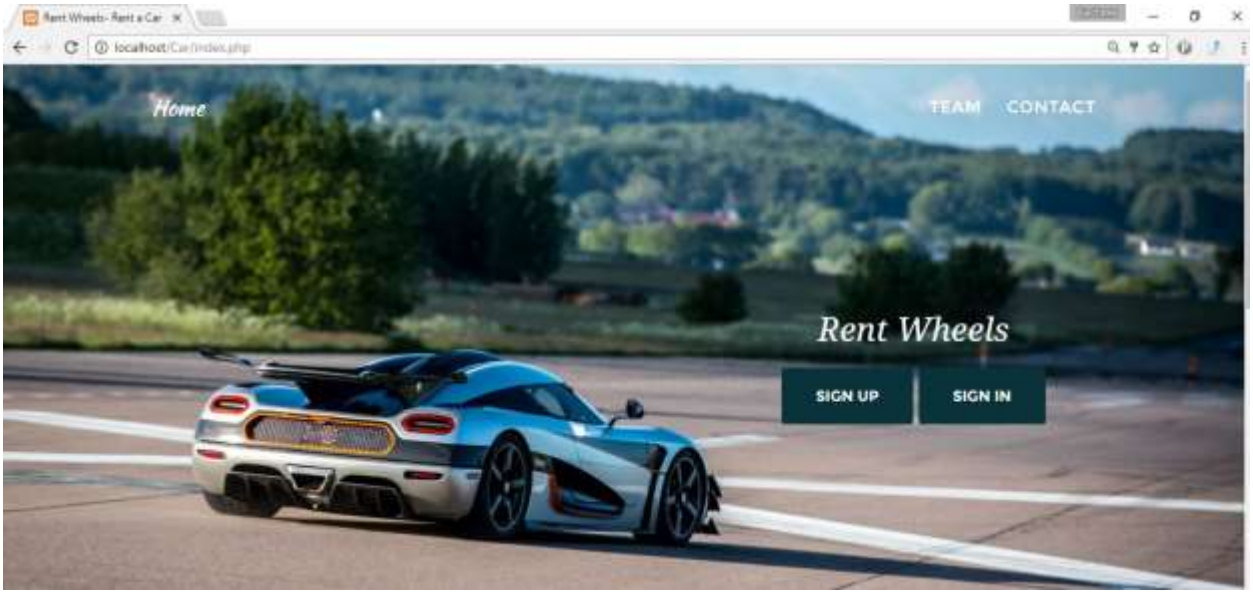


Fig 2: Sign Up Form

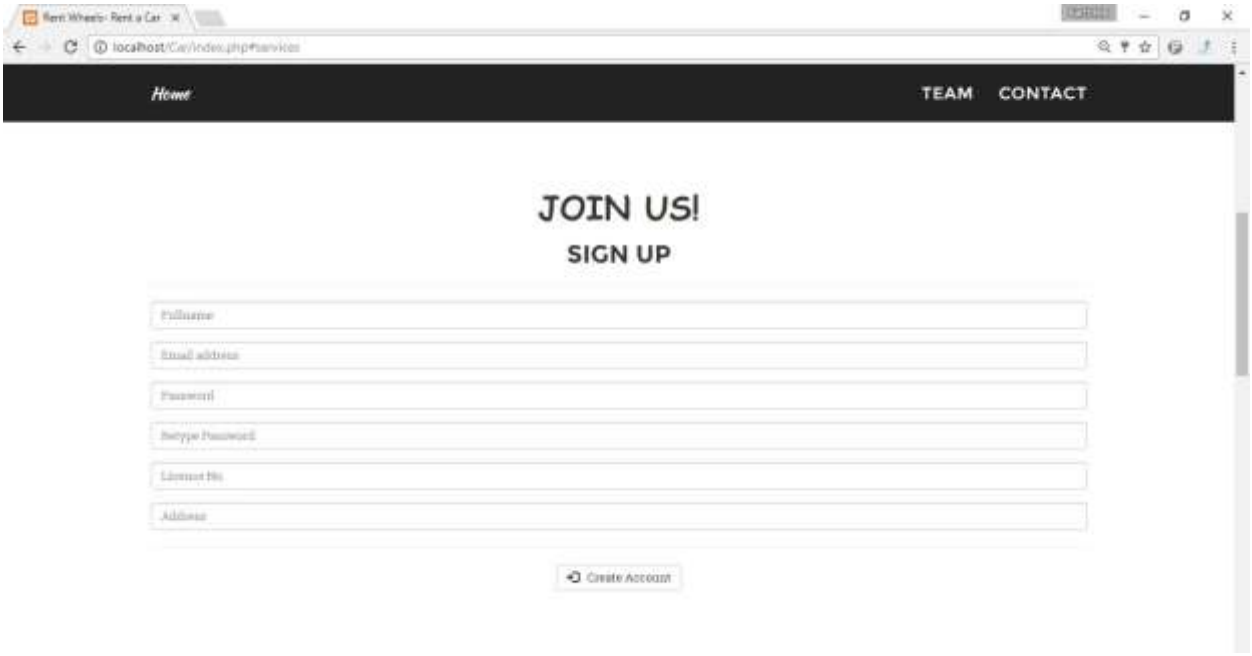


Fig 3: Catalogue

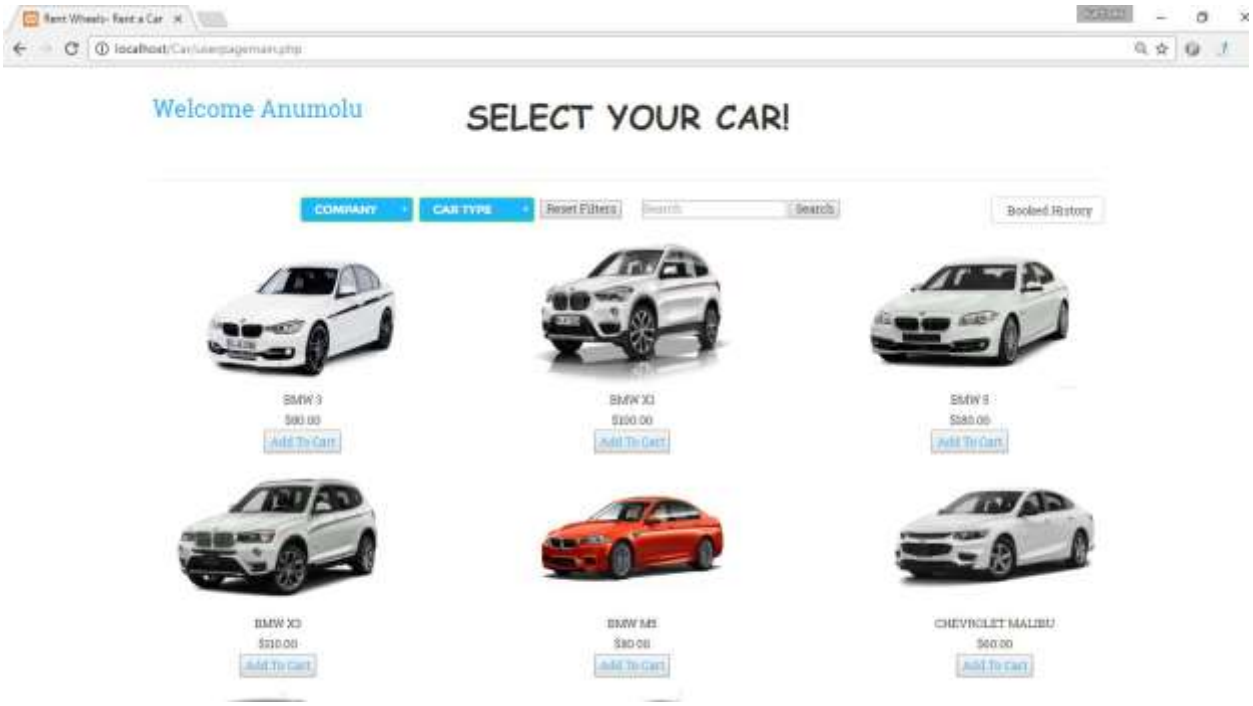


Fig 4: Checkout Page

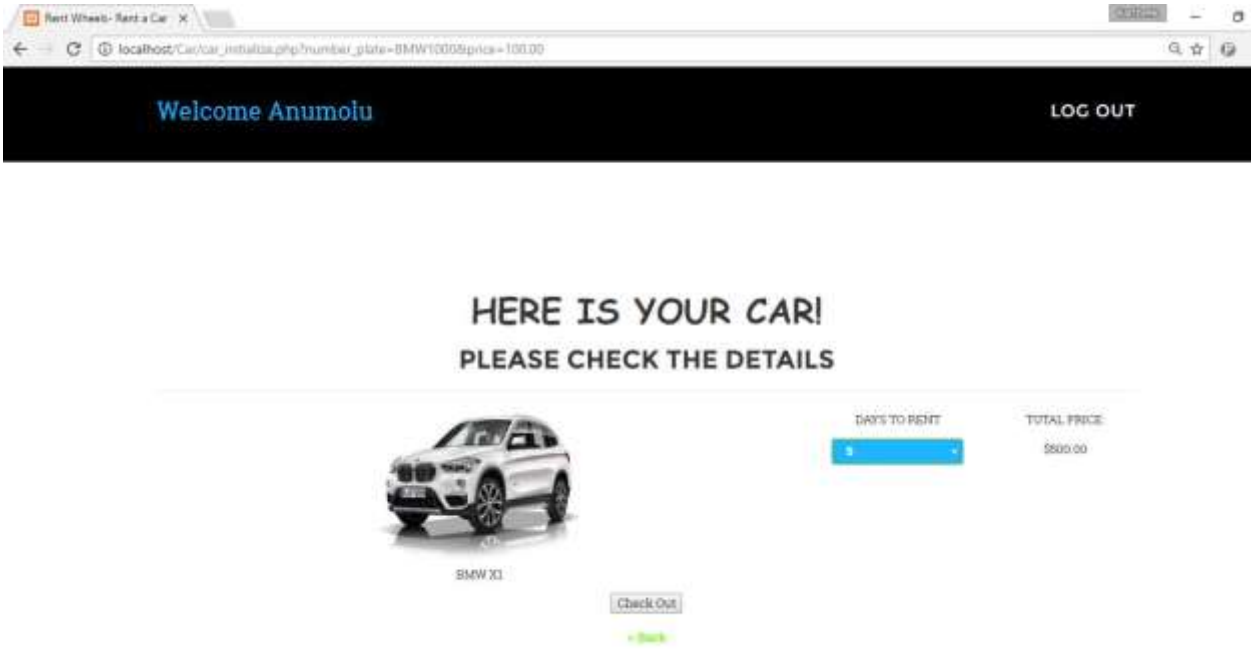


Fig 5: Booking History

Fig 6: Admin Home Page

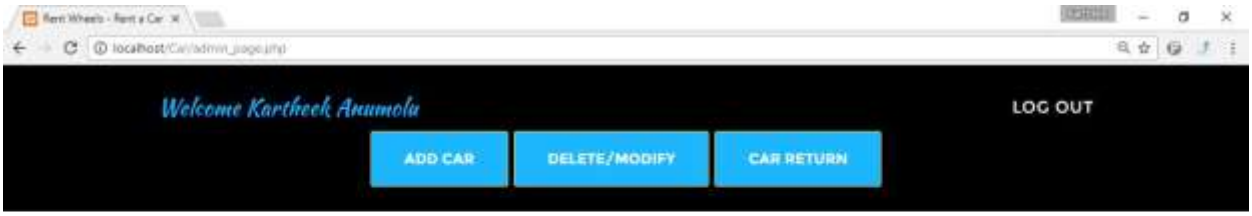


Fig 7: Add New Car

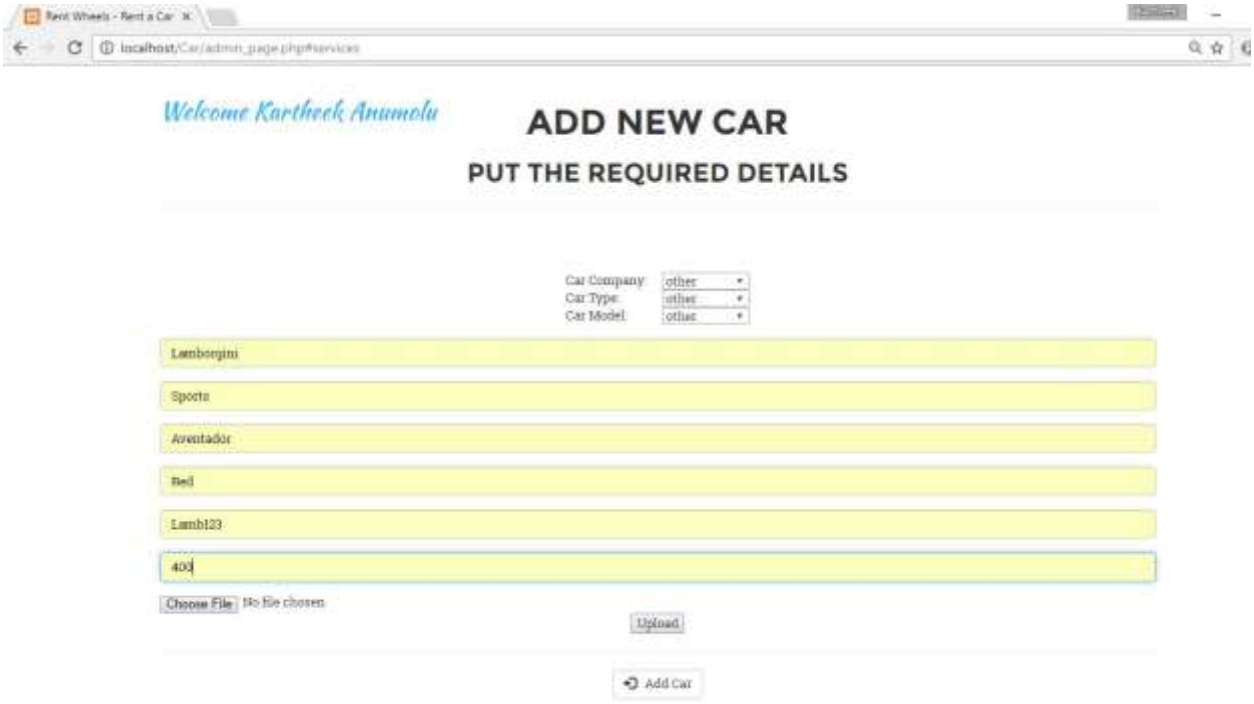
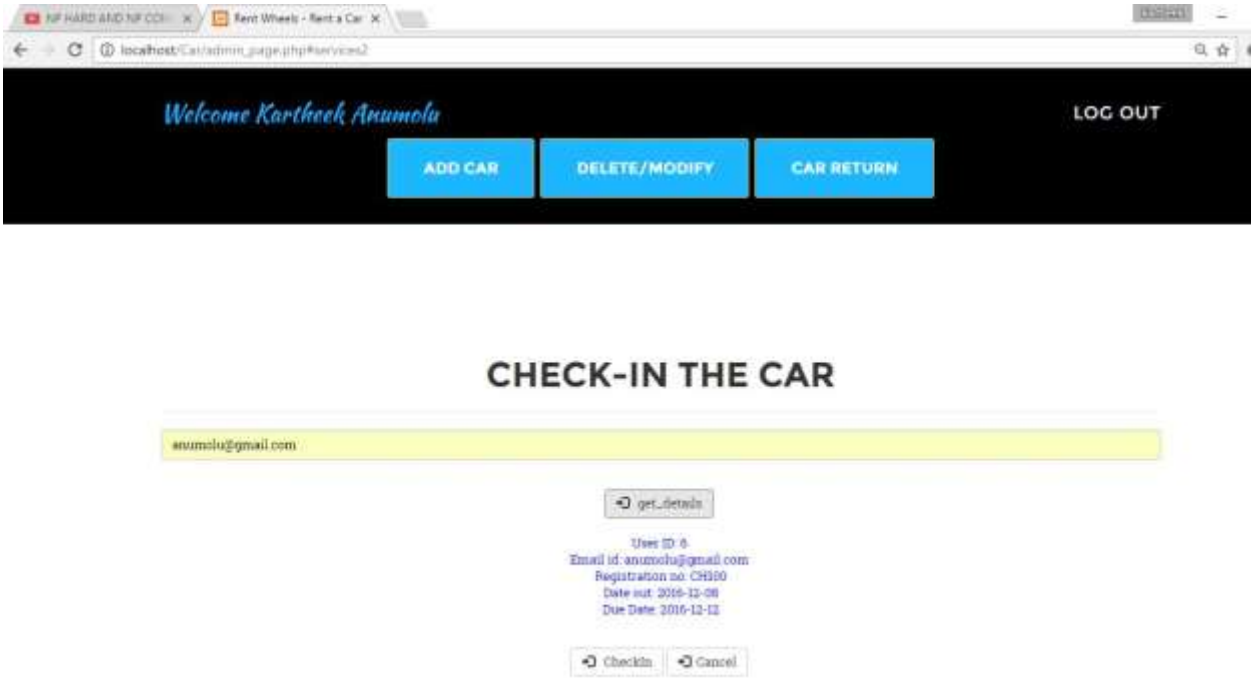


Fig 8: Update or Delete Car

Fig 9: Checkin Car Page



Team Members:

Kartheek Anumolu - kxa152730

Srinivas Kumar Varupula - sxv152730

Tapasya Gutta - txg150730

Work Division:

1. **Kartheek Anumolu**
   a. Worked on the database structure and normalization of it
   b. Worked on the catalogue page of the project.
   c. Worked on searching pictures for the project.
   d. Worked on the checkout portion of the project.
   e. Worked on the Admin Delete/Modify page of the project.

2. **Srinivas Kumar Varupula**
   a. Worked on complete HTML and CSS of the project
   b. Worked on implementing the Bootstrap of the project
   c. Worked on the validation of log in and sign up forms
   d. Worked on the database structure and normalization of it

e. Worked on searching pictures for the project.

3. Tapasya Gutta

a. Worked on the database structure and normalization of it.
b. Worked on the filtering results of the Catalogue page in the project.
c. Worked on the Booking History of the project.
d. Worked on the Admin Add Car page of the project.
e. Worked on the Admin Checkin page of the project.