CPS630 Iteration 1 & 2 Technical Report

P2S ONLINE SYSTEM

CPS630 - Winter 2021

Group 12

Nikan Afshar - 500807513

Mohamed Elbadry - 500860249

Table of Contents

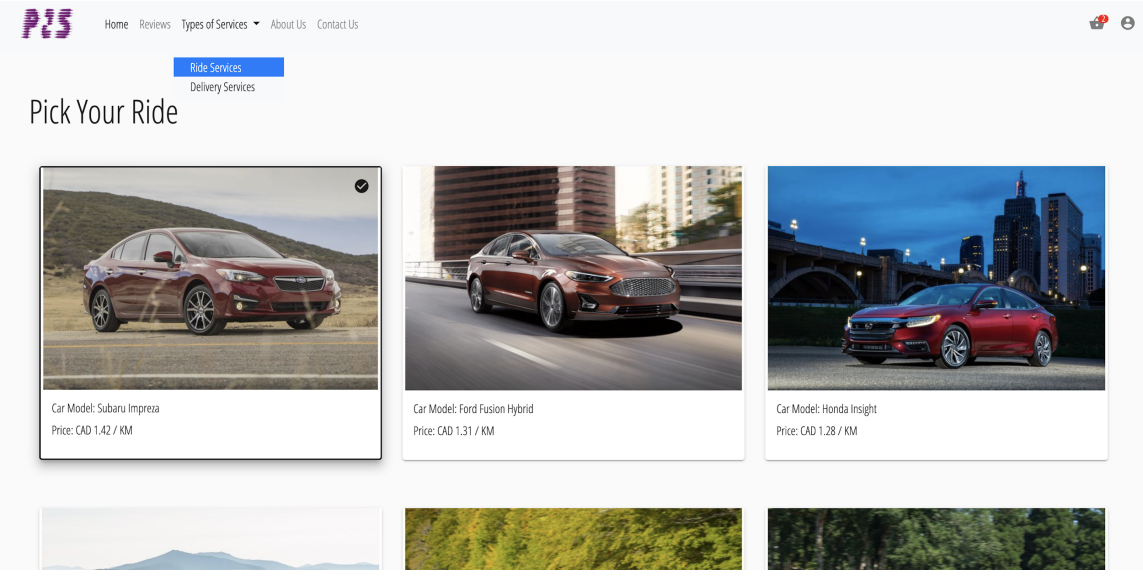
Introduction

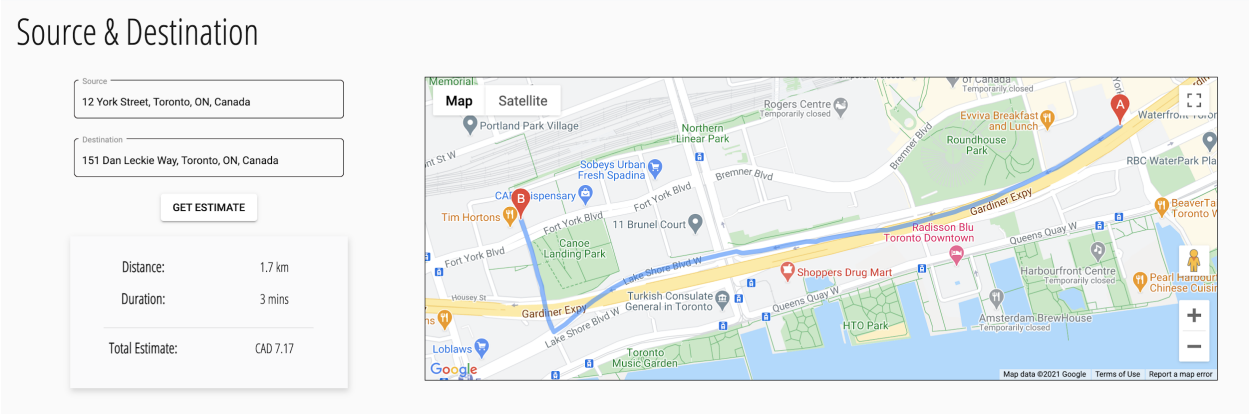
As part of this project for our CPS630 term project we are building a Web Application that allows customers to create accounts on our system, login and then book rides or order delivery online. We then use the google Geolocation API to display the directions from source to destination, give them a price estimate and after choosing the product/car model they will be able to place the order in our shopping cart using HTML5 and JS drag and drop functionality. Currently however our system only supports florist and coffee shops as per the requirements.

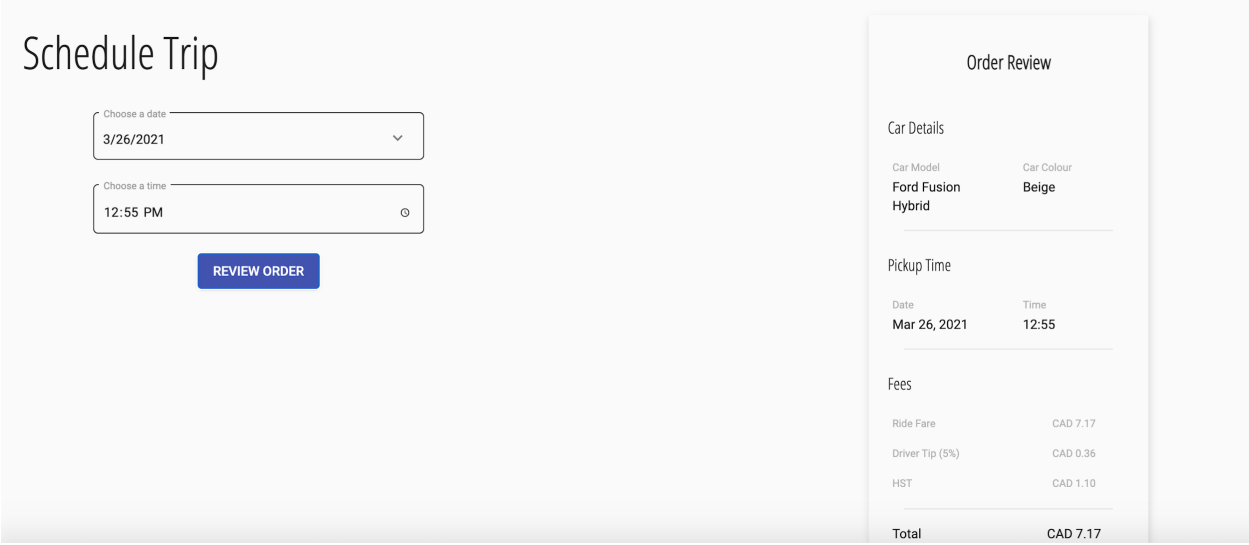
UI Design

Ride Services

Using our system users can book their rides online. First they need to pick the car model and after they can pick their source and destination, pick up and drop off time and finally review the order and if everything is good they will be able to drag and drop the order review card into the shopping card.



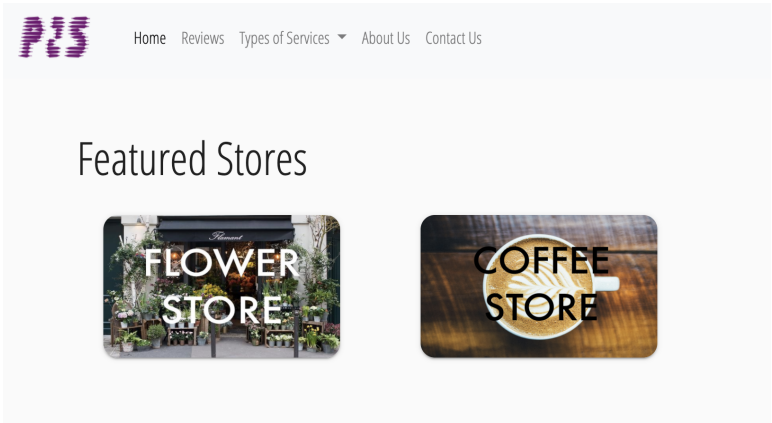




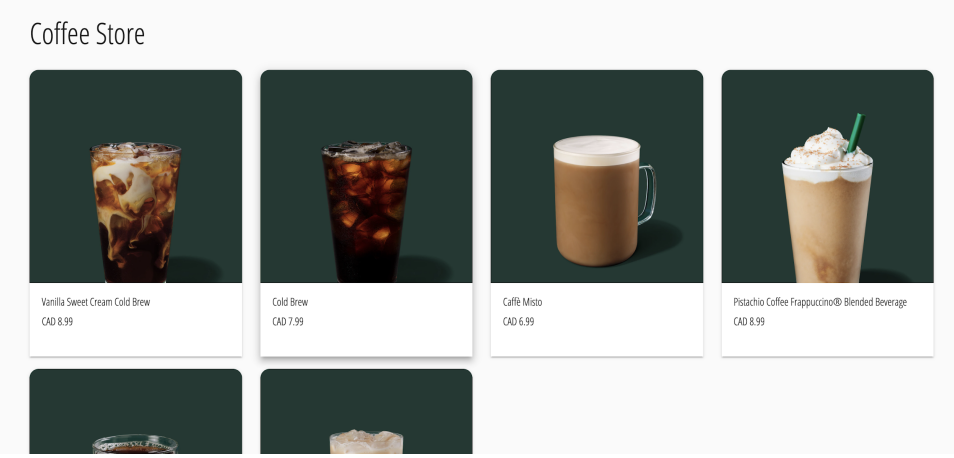
Delivery Services

Our system also allows users to get their favorite items delivered to their doors by choosing a destination and a dropoff time. At the moment the system only supports two stores:

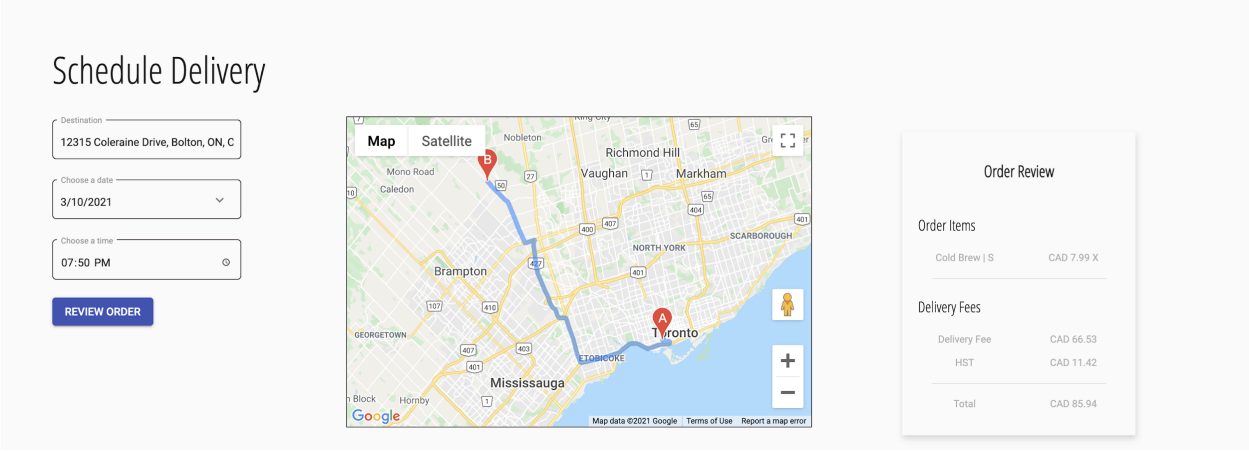
- A florist store
- A coffee shop



After picking the store, users will be able to view the products in that store.

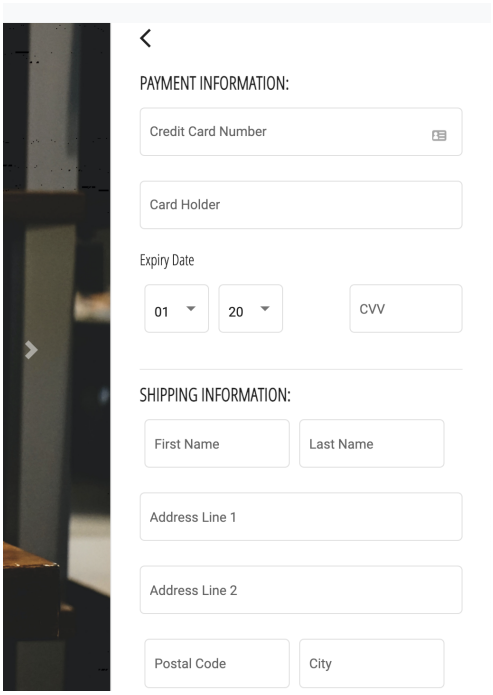


After picking the product they will be able to input their destination and drop off date and time. Finally they will be able to review the order and if everything looks good they will be able to drag the order and drop it into the shopping cart.



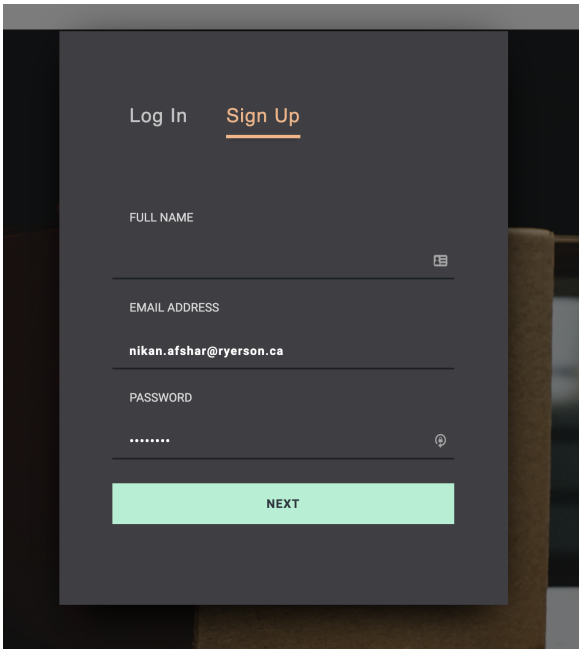
Checkout

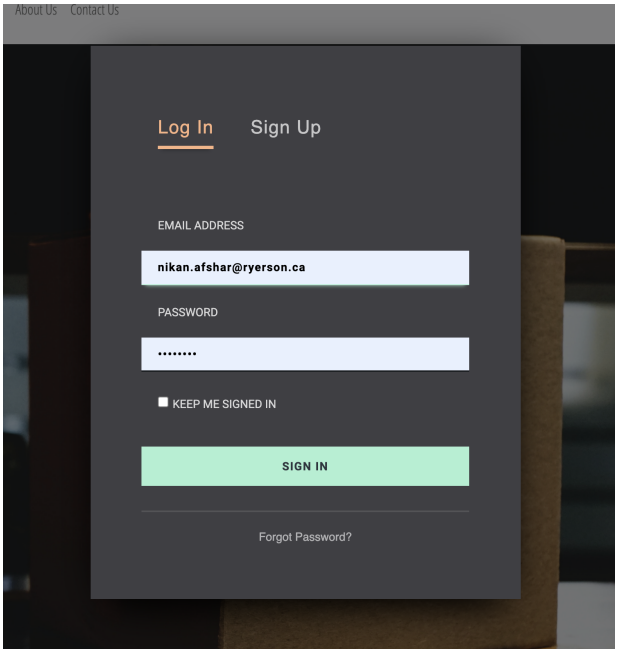
After adding all of the items to the cart our users can checkout by inputting their billing and shipping information. If they input their information correcting they will receive a confirmation message indicating that their order has been received.



Login / Register

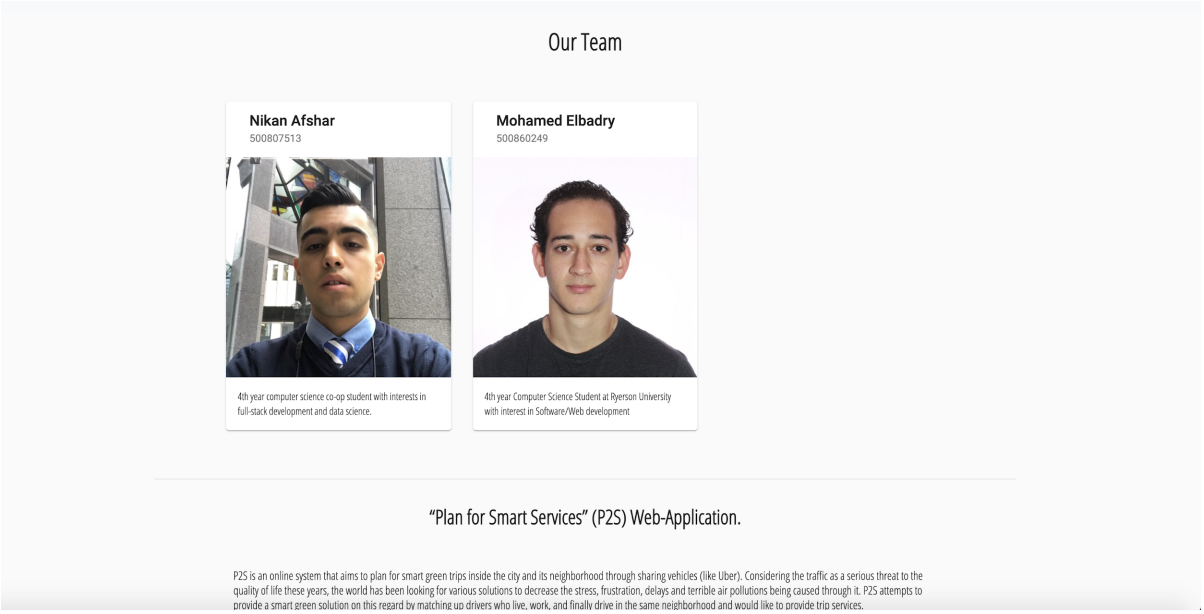
Our system also allows users to sign up on our system and later they can log into the system. In future releases we are going to use this feature to load the past orders of our users.





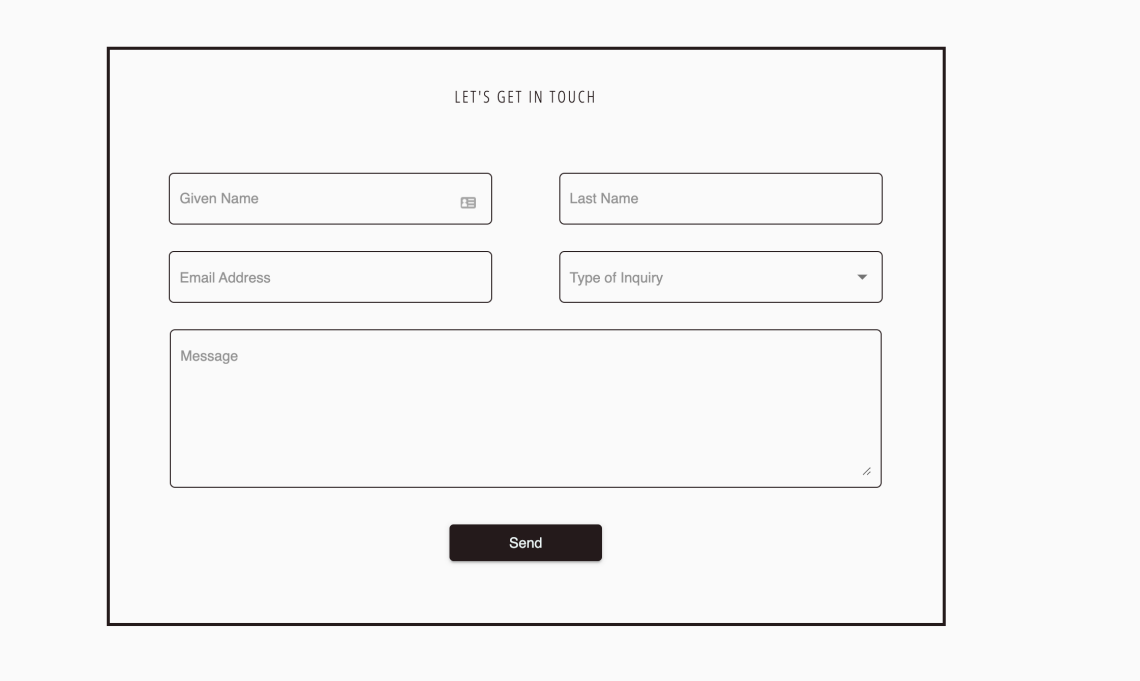
About Us

Additionally we have developed an about us page displaying our information and what we stand for.



Contact Us

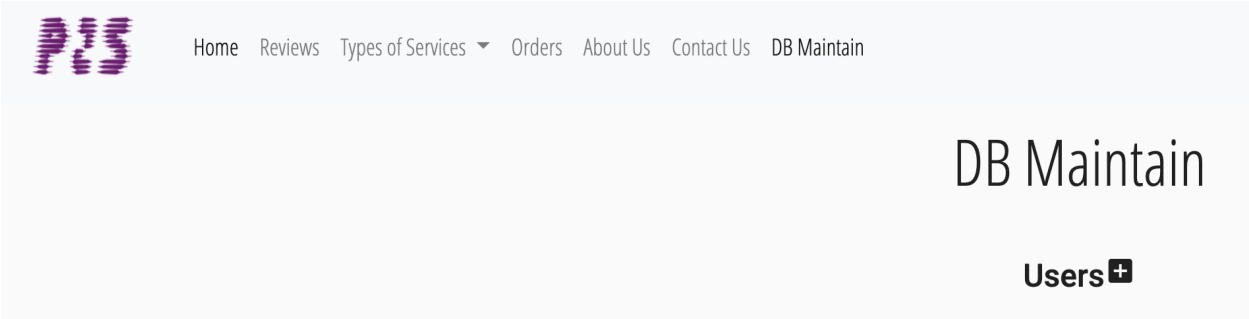
We have developed a contact us screen that would allow the users to reach out to us in case of any technical or non-technical problem.



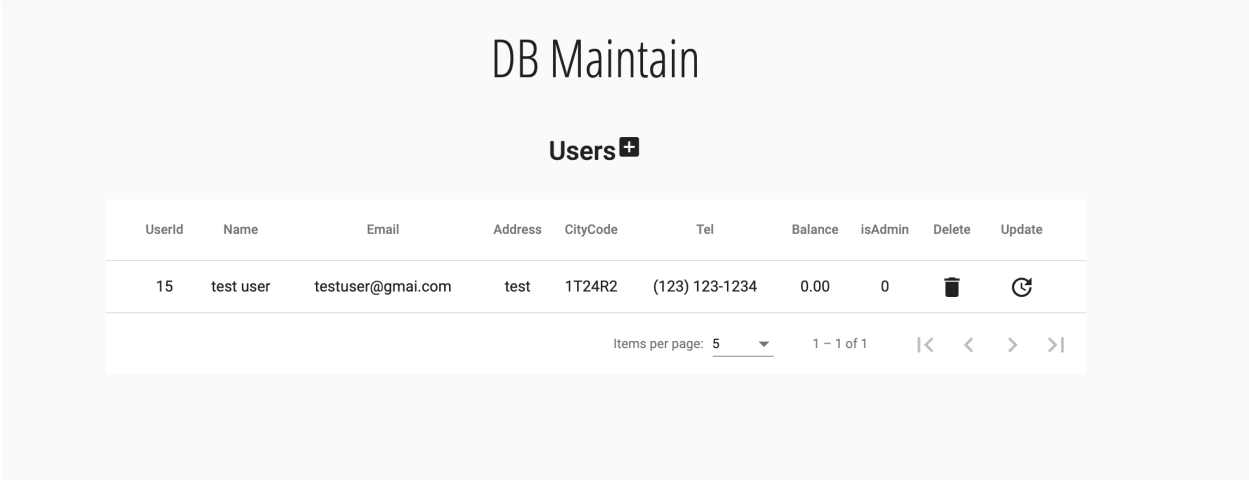
DB Maintain

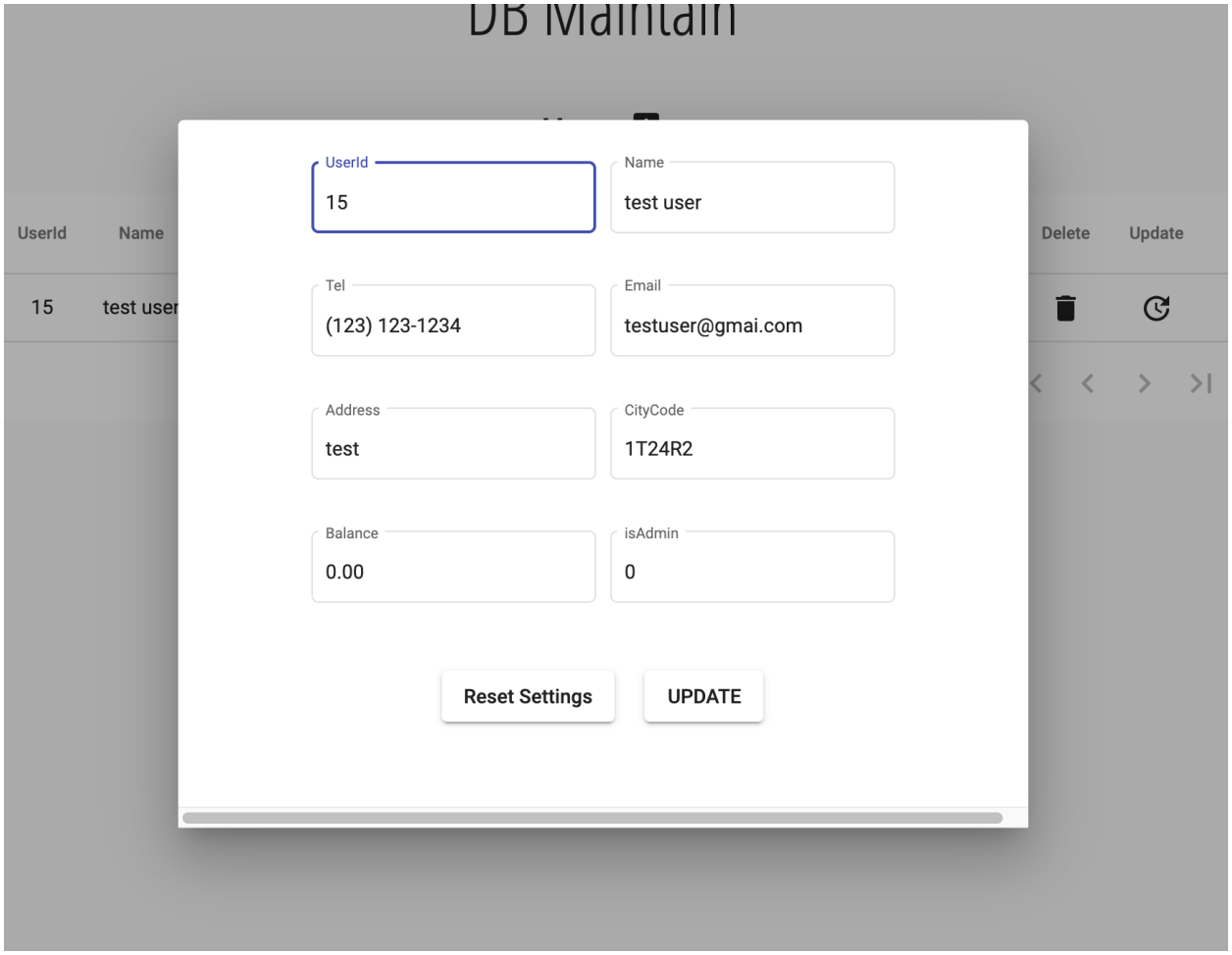
We have also developed the DB Maintain component for our system admins. At the moment only the User table is manageable from this component. Once a user logs in we check whether they are an admin or not by checking for the value stored in isAdmin flag. If admin they will be able to see the “db maintain” item on the navbar.

```
<li class="nav-item" *ngIf="user.isAdmin == 1">
              <a class="nav-link" [routerLink]="['dbMaintain']"
routerLinkActive="active">DB Maintain</a>
          </li>
```



Using the DB Maintain feature users will be able to insert/delete/update records on our database system without the need of writing any SQL queries.





Technologies Used

In order to develop our web application we used the following technologies:

- Backend:
  - Object oriented PHP
  - MySQL
- Frontend:
  - Bootstrap
  - Angular
  - HTML
  - CSS
  - Font Awesome
  - Google Fonts

- Google Geolocation API
- Angular Material Library (used for the styling of our form input fields)

Database Design

We use the following tables to store our data in our MySql database:

- User

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	**UserId**	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
☐	2	**Name**	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	3	**Tel**	varchar(100)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	4	**Email**	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	5	**Address**	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	6	**CityCode**	varchar(10)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	7	**Password**	varchar(50)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	8	**Balance**	decimal(6,2)			Yes	0.00			Change Drop More
☐	9	**isAdmin**	tinyint(1)			No	*None*			Change Drop More

When users sign up on our system we use the information inputted by the user to register the user in our system. After data validation, we make a post request to our PHP API and insert the record into our database.

```
/**
    * Takes an object with fullName, email and password as parameters and makes a post request to register.php endpoint to register a new user.
    * @param param0
    */
   registerUser({fullName, email, password, phoneNumber, address, postal}) {
       return this.httpClient.post(this.baseUrl + '/user/register.php', {'fullName': fullName, 'email': email, 'password': password, 'phoneNumber': phoneNumber, 'address': address, 'postal': postal});
   }
```

The PHP backend will ensure the POST data is set and then instantiate the User Object, set the properties and call the register method to insert into the database.

```php
<?php
   header("Access-Control-Allow-Origin: *");
   header("Access-Control-Allow-Methods: PUT, GET, POST, DELETE");
   header("Access-Control-Allow-Headers: Origin, X-Requested-With, Content-Type,
Accept");

   include_once '../config/database.php';
   include_once '../objects/user.php';

   $postdata = file_get_contents("php://input");
   $request = json_decode($postdata);

   $database = new Database();
   $db = $database->getConnection();

   $user = new User($db);

   if(isset($postdata) && !empty($postdata)){
       $user->Name = $request->fullName;
       $user->Email = $request->email;
       $user->Password = $request->password;
       $user->Tel = $request->phoneNumber;
       $user->Address = $request->address;
       $user->CityCode = $request->postal;

       if ($response = $user->register()) {
           http_response_code(200);
           echo json_encode(array("message" => "User was created."));
       } else {
           http_response_code(400);
           echo json_encode(array("message" => "User was not created."));
       }
   }
?>
```

By default all users are not admin (isAdmin = false) and Balance is set to 0 (Balance = 0). The UserId column is an auto increment column (i.e. the ID will get incremented by 1 automatically after each insert).

PHP API code for insert into the User table:

```
public function register() {
       $query = "INSERT INTO User(Name, Tel, Email, Address, CityCode, Password)
VALUES('$this->Name', '$this->Tel', '$this->Email', '$this->Address',
'$this->CityCode', '$this->Password')";

       $stmt = $this->conn->prepare($query);
       $stmt->execute();

       return $stmt;
   }
```

- Car

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	CarId 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
☐	2	CarModel	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	3	CarCode	varchar(100)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	4	AvailabilityCode	varchar(100)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	5	CarColour	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	6	ImageURL	varchar(255)	utf8mb4_general_ci		Yes	*NULL*			Change Drop More
☐	7	CarPrice	decimal(6,2)			Yes	*NULL*			Change Drop More

The car table is used to display the car models available for ride services. CarId is the PRIMARY KEY and set to AUTO_INCREMENT. When the Car component on our angular app is loaded the car records will be requested and shown in the component.

```
/**
    * Returns the cars that we have for ride services.
    */
   getCars() {
       return this.httpClient.get(this.baseUrl + '/car/read.php');
   }
```

```
<?php

class Car {
```

```
    private $conn;
    private $tblName = "Car";

    public $CarId;
    public $CarModel;
    public $CarCode;
    public $AvailabilityCode;
    public $CarColour;
    public $ImageURL;
    public $CarPrice;

    public function __construct($db) {
        $this->conn = $db;
    }

    public function read() {
        $query = "SELECT
                    * FROM
                        " . $this->tblName;

        $stmt = $this->conn->prepare($query);
        $stmt->execute();
        return $stmt;
    }
}
?>
```

- Order

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	**OrderId**	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	**UserId**	int(11)			No	*None*			Change Drop More
3	**OrderTotal**	varchar(10)	utf8mb4_general_ci		No	*None*			Change Drop More
4	**Timestamp**	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Order component is used to store the orders placed by our users. OrderId is used as PRIMARY KEY and is set to AUTO_INCREMENT. We use UserId as FOREIGN KEY to link the table to the USER table. For every order, we only create a single record in the ORDER table even if the user orders multiple products. To link the ORDER table to the PRODUCT table we use the OrderProductMap table.

- OrderProductMap

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	**OrderProductMapId**	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	**OrderId**	int(11)			No	*None*			Change Drop More
3	**ProductId**	int(11)			No	*None*			Change Drop More

OrderProductMapId is the PRIMARY KEY of the table and we use ProductId and OrderId to map the ORDER table to the FLOWER/COFFEE table.

- Coffee

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	**ProductId**	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	**Name**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
3	**Price**	varchar(10)	utf8mb4_general_ci		No	*None*			Change Drop More
4	**ImageURL**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
5	**StoreCode**	varchar(10)	utf8mb4_general_ci		No	*None*			Change Drop More

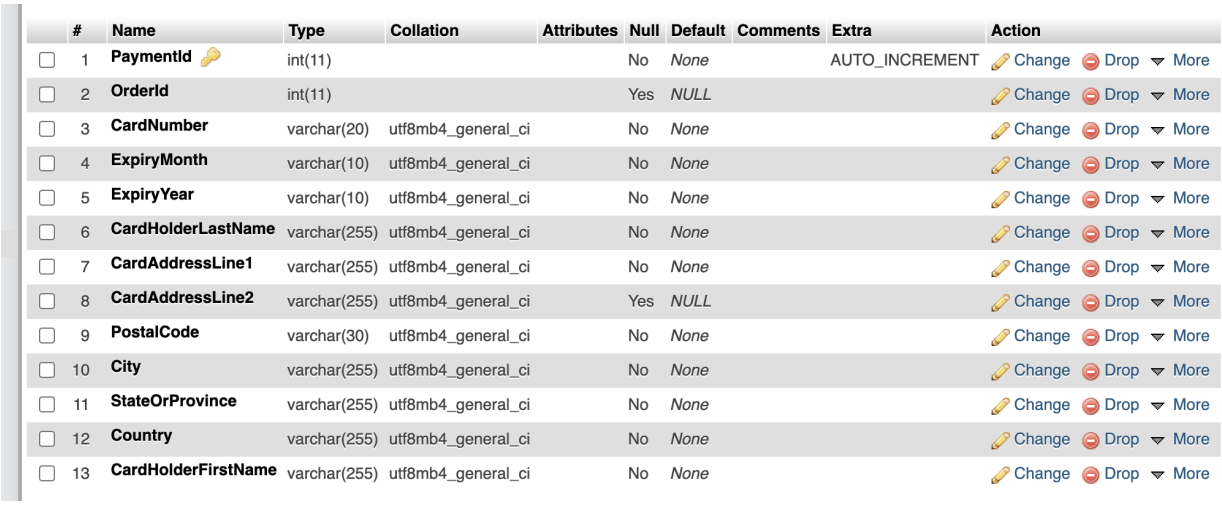
The coffee table is used to store the coffee products that we display in our Delivery Services component of our application. ProductId is set to PRIMARY KEY. ImageURL field is used to store the image URL used on our website.

- Flower

The FLOWER table is used to store the flower products that we display in our Delivery Services component of our application. ProductId is set to PRIMARY KEY. ImageURL field is used to store the image URL used on our website.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	**ProductId**	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
2	**StoreCode**	varchar(6)	utf8mb4_general_ci		No	*None*			Change Drop More
3	**Name**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
4	**Price**	varchar(10)	utf8mb4_general_ci		No	*None*			Change Drop More
5	**ImageURL**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More

- Payment



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	PaymentId	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	OrderId	int(11)			Yes	NULL			Change Drop More
3	CardNumber	varchar(20)	utf8mb4_general_ci		No	None			Change Drop More
4	ExpiryMonth	varchar(10)	utf8mb4_general_ci		No	None			Change Drop More
5	ExpiryYear	varchar(10)	utf8mb4_general_ci		No	None			Change Drop More
6	CardHolderLastName	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
7	CardAddressLine1	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
8	CardAddressLine2	varchar(255)	utf8mb4_general_ci		Yes	NULL			Change Drop More
9	PostalCode	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
10	City	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
11	StateOrProvince	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
12	Country	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
13	CardHolderFirstName	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More

Payment table is used to store the users payment information when they create a new order on our system. PaymentId is set as the PRIMARY KEY of this table. We store the payment information to be displayed on the checkout component when they log into the system. So that they don't have to input their payment information twice (to be implemented in future iterations).

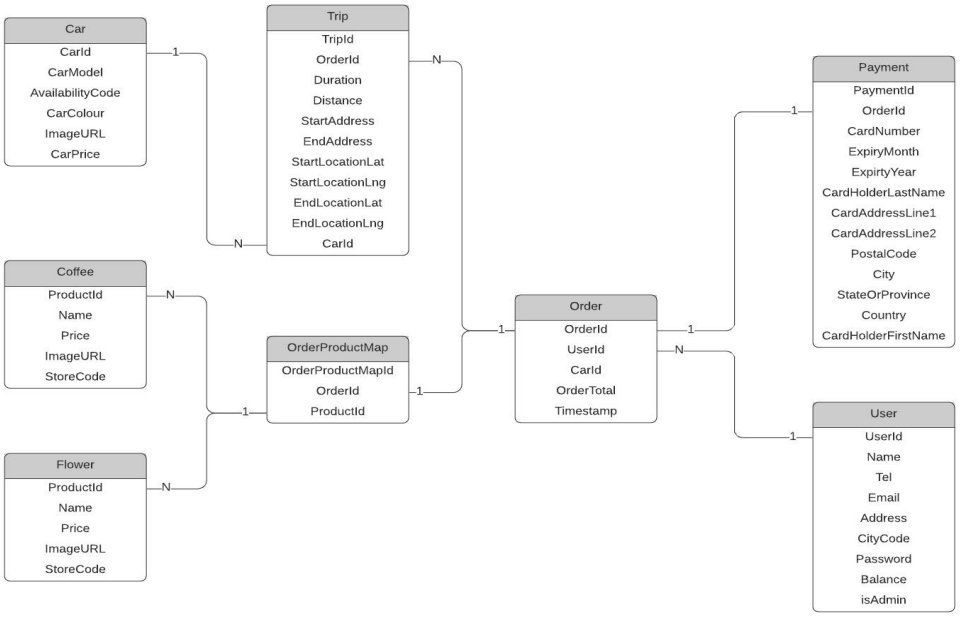
```
if ($response = $order->create()) {
        $payment->OrderId = $db->lastInsertId();
        $trip->OrderId = $payment->OrderId;
        $orderProductMap->OrderId = $payment->OrderId;
        if ($response = $payment->create()) {
            if ($response = $trip->create()) {
                if ($response = $orderProductMap->create()) {
                    http_response_code(200);
                    echo json_encode(array("message" => "Order was created."));
                } else {
                    http_response_code(400);
                    echo json_encode(array("message" => "Order was not created."));
                }
            }
        }
    }
```

- Trip

	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	**TripId** 🔑	int(11)			No	*None*		AUTO_INCREMENT	Change Drop More
☐	2	**OrderId**	int(11)			No	*None*			Change Drop More
☐	3	**Duration**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	4	**Distance**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	5	**StartAddress**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	6	**EndAddress**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	7	**StartLocationLat**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	8	**StartLocationLng**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	9	**EndLocationLat**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More
☐	10	**EndLocationLng**	varchar(255)	utf8mb4_general_ci		No	*None*			Change Drop More

The TRIP table is used to record the trip information for our users. TripId is set as the PRIMARY KEY of the table and OrderId and FOREIGN KEY to link it to the ORDER table. Each order could be made up of 1 or more trips. We store the start location / coordinates as well as the address / coordinates of the destination. On top of that we store the duration and the distance of the trip.

- Database ER Diagram



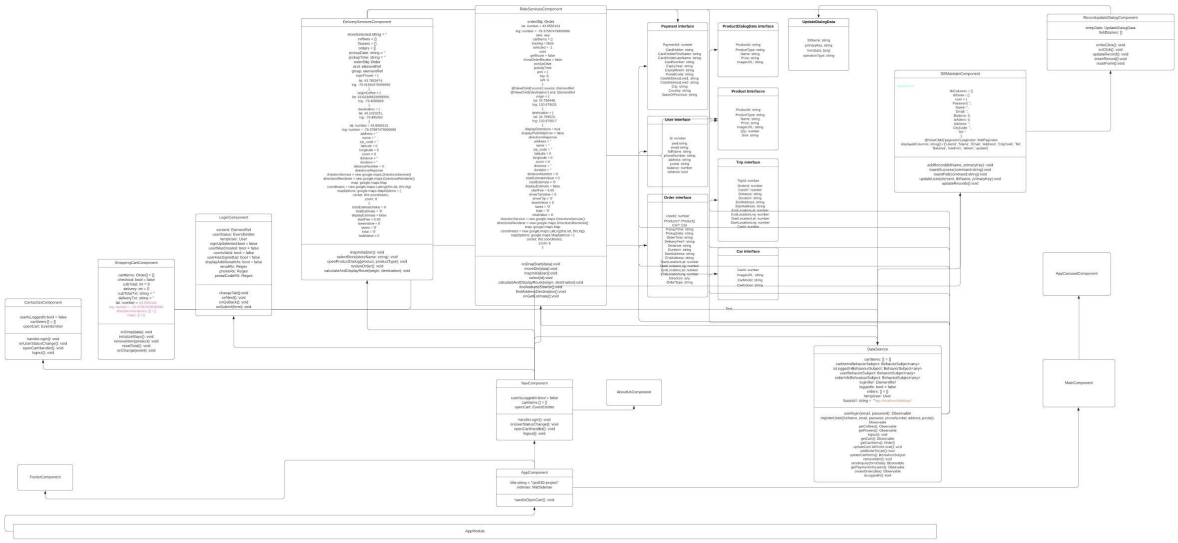
MVC Design Pattern - Component Architecture

Angular makes use of MVVM design patterns. MVVM design pattern is the refinement of the MVC design pattern and facilitates the separation of the development and the graphical user interface. MVVM design pattern includes 3 main features:

1. Model: is the data that is represented in the HTML part.
2. View: is the HTML part that displays the data.
3. View-Model: is the part that handles the flow from model to the view. In Angular that is done through data binding between the TypeScript files and the HTML files.

System Architecture (Class Diagram)

Note: The class diagram image with higher resolution has been submitted as well.



Workload Distribution

Group Member	Percentage of the total work completed
Nikan Afshar	50%
Mohamed Elbadry	50%