CX002-3-3-INTRODUCTION TO WEB PROGRAMMING

Assessment Mode: INDIVIDUAL

Instructions:

- The project is to be carried out individually
- Complete this cover sheet and attach it to your project

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Hand-out Date	**: 03/10/2019**
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Presentation Date	**: 03/12/2019 - 10:35 - 11:35**

Table of content

1) Gantt chart

Figure 1: Gantt chart

| Group	Activity	Duration	Start	End	Completion
Conception					
	Idea of website	5	03-oct	07-oct	100%
	Structure of website	4	06-oct	09-oct	100%
	Idea of design	2	06-oct	07-oct	100%
CSS/HTML					
	Home page	1	09-oct	09-oct	100%
	Login/registered page	37	11-oct	16-nov	100%
	Navbar	1	14-oct	14-oct	100%
	Booking page	1	15-oct	15-oct	100%
	Profile page	34	16-oct	18-nov	100%
	Selection car page	18	02-nov	19-nov	100%
	Booking summary	6	11-nov	16-nov	100%
	User management	8	14-nov	21-nov	100%
	Car management page	3	15-nov	17-nov	100%
	History Page	5	15-nov	19-nov	100%
	Edit car page	2	21-nov	22-nov	100%
PHP/SQL					
	Create database	1	01-nov	01-nov	100%
	Add user in database	16	02-nov	17-nov	100%
	Add car in database	2	10-nov	11-nov	100%
	Get car from database	5	11-nov	15-nov	100%
	Logout	1	11-nov	11-nov	100%
	Add booking in database	4	14-nov	17-nov	100%
	Upload car image	1	15-nov	15-nov	100%
	Security	8	16-nov	23-nov	100%
	Delete booking in database	1	20-nov	20-nov	100%
Report					
	Writing report	4	22-nov	25-nov	100%
	Given to the assignment office	1	26-nov	26-nov	100%

A Gantt chart is a useful kind of diagram used in project management to visualize how well a project progress.

On the horizontal axis, we can see the different groups and tasks, the number of days to complete the task, the begin date and the end date of the task and the percentage of completion of the task.

On the vertical axis, we can read the duration of each task.

3

2) Introduction

Silka System Solution is a software house that call me to design, build and implement a car rental business service that is located at Asia Pacific University. The website must provide an access to the system for customer and an access for administrator. Customer can create an account without the help of an administrator and the login. Both type of users can access to their profile and edit either their personal information either password or both.

Also, and it is the main point of the site, customers can rent cars. They will choose among three kind of cars: car, for daily use, special, for incredible events, or trucks, in case they need to transport a huge load.

Administrator will be able to manage customers and cars. They will see all the catalog available and can edit or delete any car. They can also have access to recap of all the registered customers and their information as their name, email and if they have on-loan items.

Last, administrator can add any car at any time in the catalog.

All these functionalities have been implemented and others have been added.

3) System design

A) Flow chart
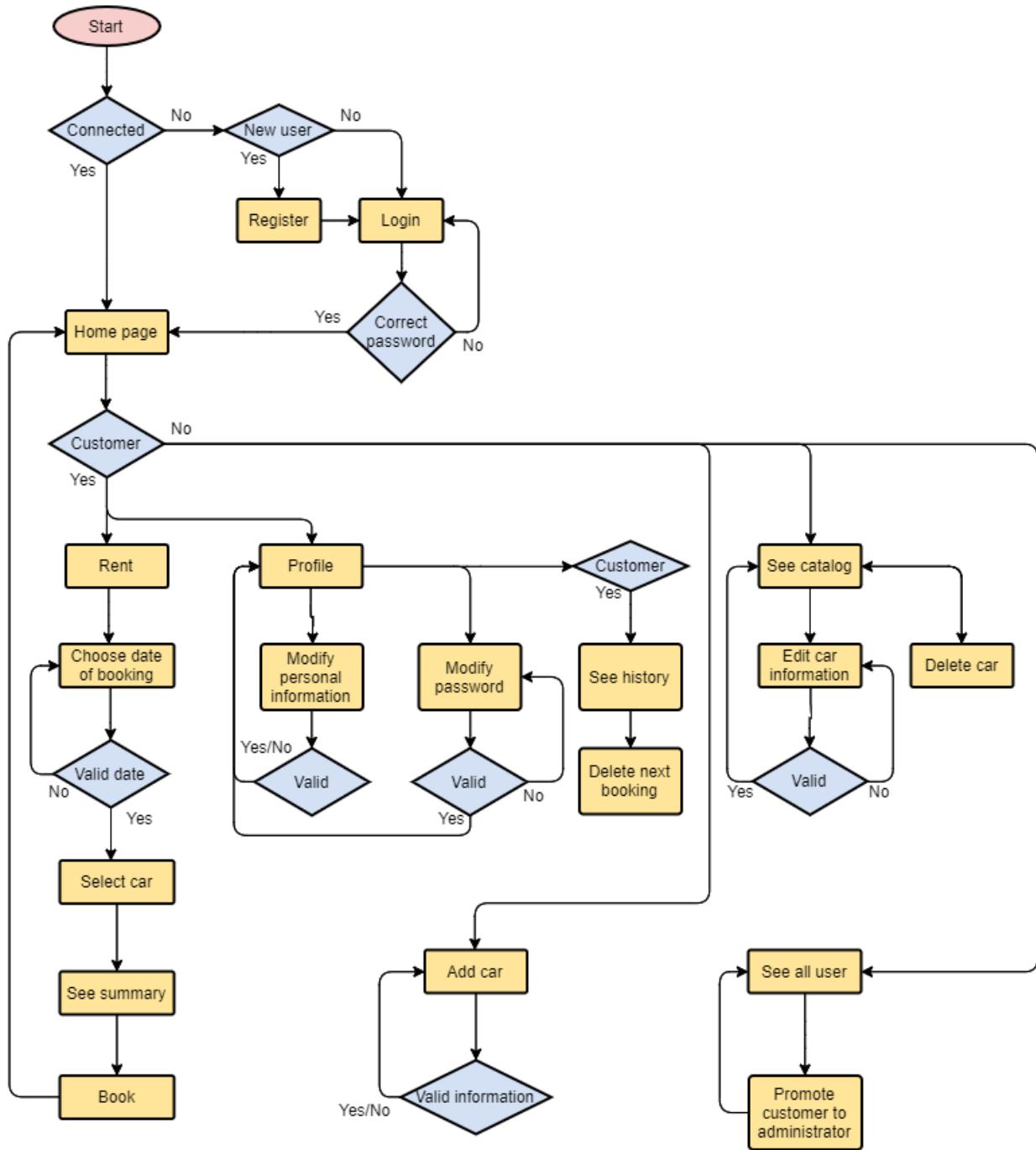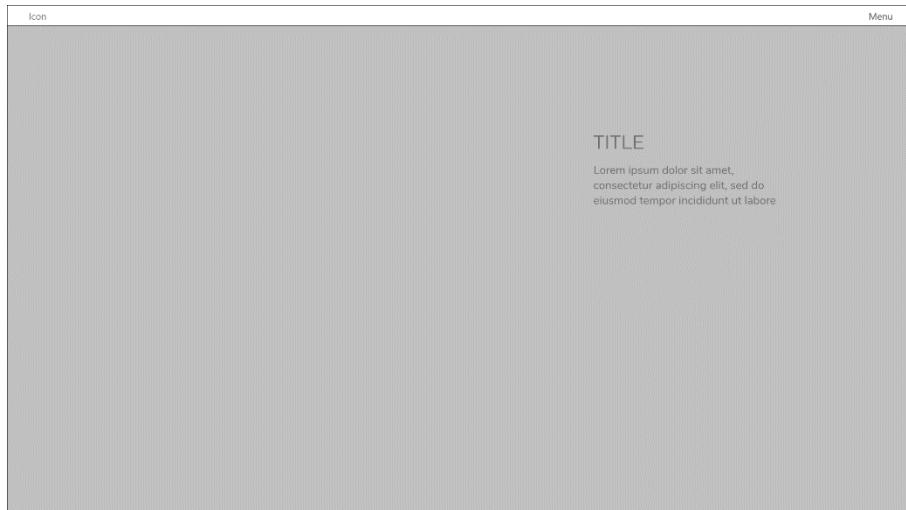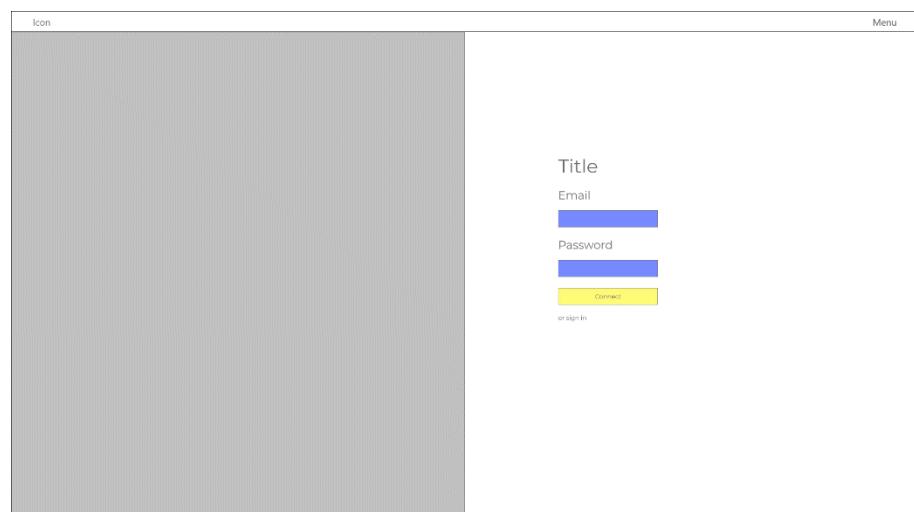
Figure 2: Flow chart

B) Story board
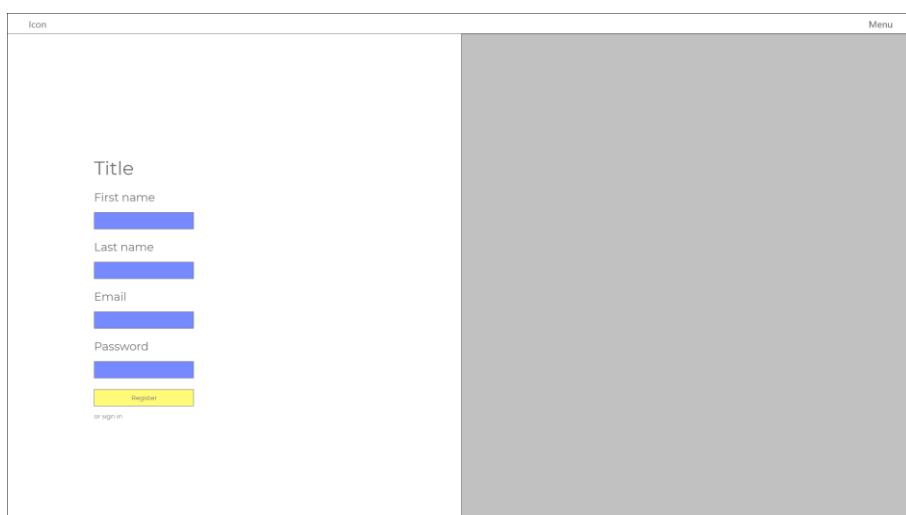
The following pictures describe the storyboard of the website. Grey squares represent images, blue squares represent text fields or input, and yellow boxes represents the buttons.

Figure 3: Home Page

Figure 4: Login page

Figure 5: Register page

Figure 6: Profile customer

Figure 7: Booking history

Figure 8: Profile administrator

Figure 9: Booking page

Figure 10: Profile page

Figure 11: Booking summary
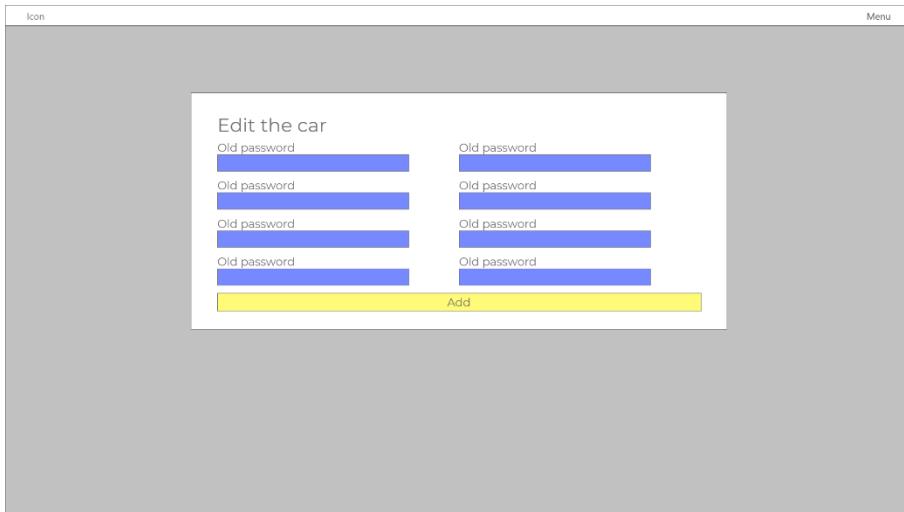
Figure 12: Add car
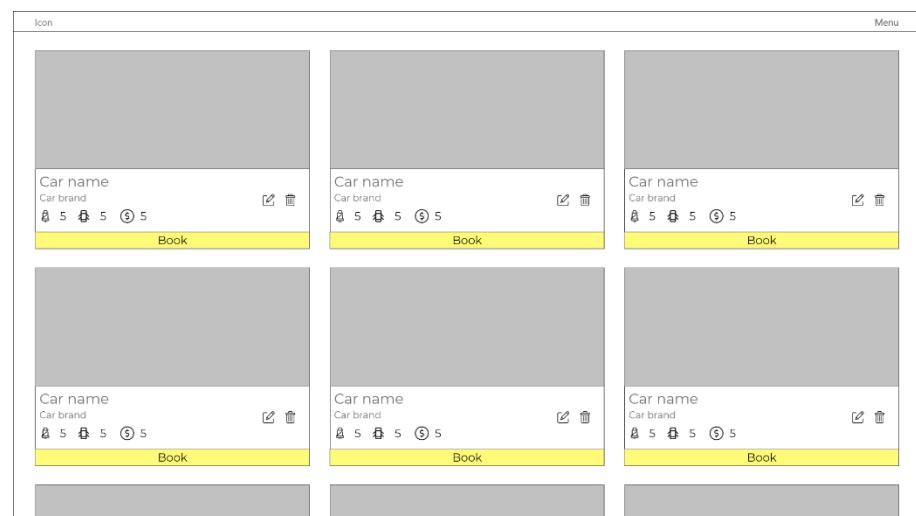
Figure 13: Car catalog
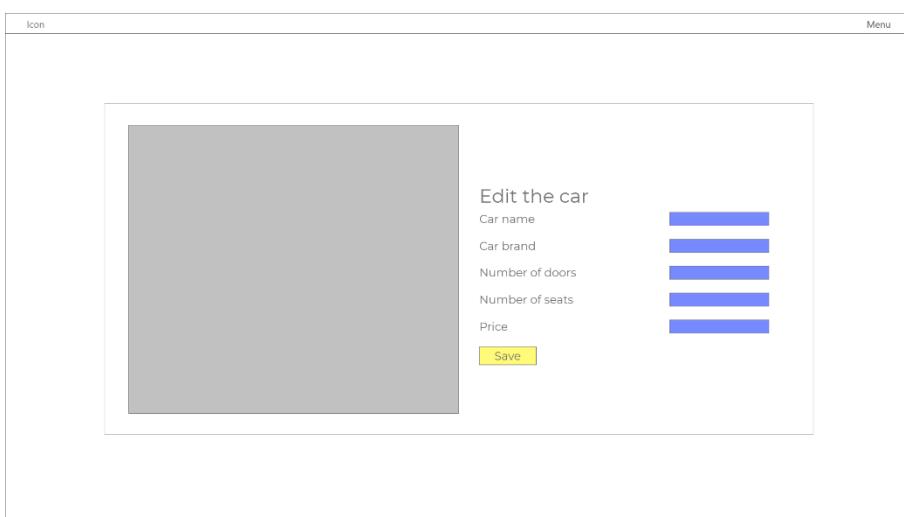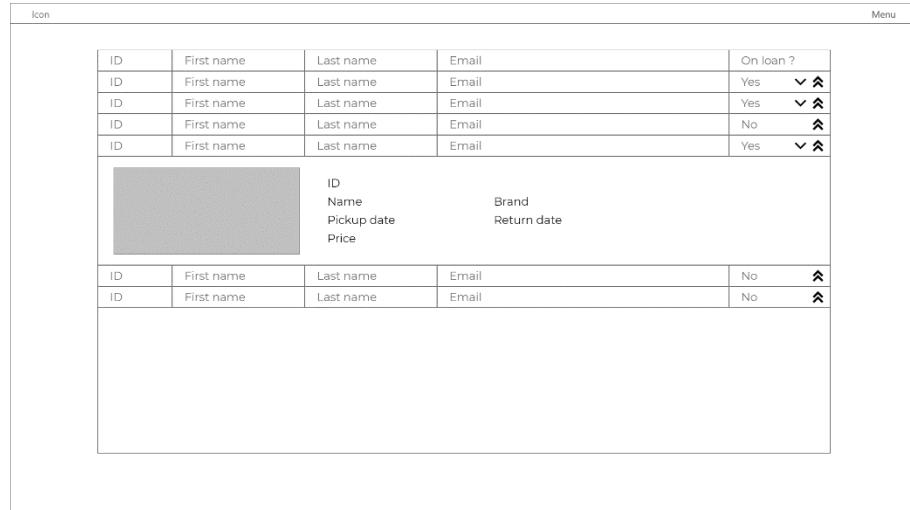
Figure 14: Edit car
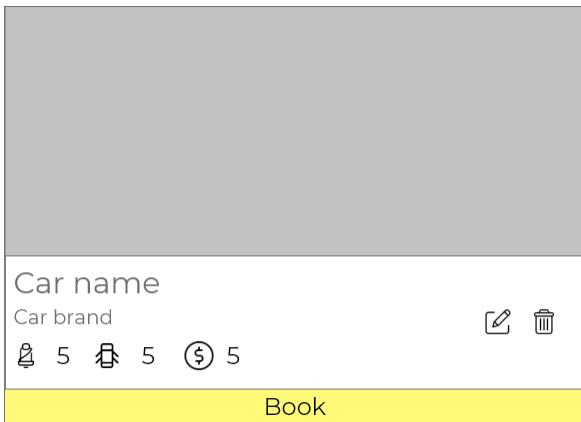
Figure 15: User management

Figure 16: Colour palette

My design focus on two main points, hero image and card.

Hero image are large banner image. They are used to describe quickly what is the point of the page or website. For example, on the home page, I used three hero images, the ones below the others, to show what are the types of car a customer can book.

Card component is a preview of more detailed content a user sees when actioned. I used them to display the catalog of cars available to the customer or display all the cars to the administrator.

The main part is the photo of the car because it the first thing customer want, what they will have between ends. I add to it the name and brand, and characteristics of the car.

The fact that an image worth thousand words, I prefer to display icon to represent the information.

Figure 17: Card

A seat for the number of seats, a car, doors open, seen from above to represent the number of doors, a coin for the price or a pen for editing.

Moreover, I have tried to keep the design simple, but I used a yellow color for the main color of the website. Yellow often refers to faith, energy and youth. Those adjectives well describe a car rental service. The faith is important because the business must provide a quality and reliable service. The business will be in APU so it will focus on student which are young and full of energy.

4) Implementation

Customers need to access catalog at any time, managers can update cars information, so we need to implement a database to store and retrieve data. I used PHPMyAdmin and sql queries to manager my database with PHP script in the source code.

First, we need to have a script to connect the website to the database. This script will be called each time, I need to get, update or delete any information in the database.

```php
<?php
    $server = 'localhost';
    $phpmyadmin_username = 'root';
    $phpmyadmin_password = '';
    $dbname = 'web_project';
    $con = mysqli_connect($server, $phpmyadmin_username, $phpmyadmin_password,
$dbname);
    if (mysqli_connect_errno()){
        echo "Fail to connect to dabatabse : " . mysqli_connect_error();
    }
```

We need to provide to the *mysqli_connect* function the name of the server we are using (here it is localhost because I do not work on a remote server), the username, the password and the database name's we want to access.

If the connection is ready, we can now manipulate database with DML commands (SELECT, UPDATE, DELETE, INSERT).

So, the first identity to insert in the database are the users. We use INSERT command to add data in the database as follo: INSERT INTO table_name(column1, column2 …) VALUES (value1, value2 …).

```php
$sql = "INSERT INTO user(user_first_name, user_last_name, user_email,
user_password, user_role)
        VALUES
        ('$first_name', '$last_name', '$email', '". md5($pwd) ."', 'user')";
```

Here, I insert the first name, last name, email address, role and password into the table **user** in the column **user_first_name**, **user_last_name**, **user_email**, **user_password**, **user_role.**

Security and confidentiality are important in web development; therefore, I have used a hash function called md5 to has my password and not store them in plain text in the database.

When users try to login, I need to check if their credentials are correct. I will check in the database if the email and password given match a line in the user table. To complete this action, I used the "SELECT" keyword of the SQL language, SELECT column1, column2 FROM table_name WHERE condition.

```php
$sql = "Select * from user where user_email = '".$user_email."' && user_password =
'".md5($password)."'";
```

Then, I will check if there is a match. If it is the case, I will store user information in SESSION global variable to use them later, if not, I inform the user that the password or email address are incorrect.

```php
if(mysqli_num_rows($result) <=0 ){
    die("<script>alert('Wrong username or password !'); window.history.go(-
1);</script>");
}
else{
    while ($row = mysqli_fetch_array($result)){
        $_SESSION['user_id'] = $row['user_id']; //use session to store user data
        $_SESSION['user_first_name'] = $row['user_first_name'];
        $_SESSION['user_last_name'] = $row['user_last_name'];
        $_SESSION['user_email'] = $row['user_email'];
        $_SESSION['user_role'] = $row['user_role'];
    }
    header('location: ../HTML/HomePage.php');
}
```

With these two scripts, a user can be logged in the website.

He might want to update his personal information. To achieve that, I have used the UPDATE command, UPDATE table_name SET column_name1 = value1… WHERE condition.

```php
$sql = "UPDATE user SET " .
    "user_first_name = '$first_name', " .
    "user_last_name = '$last_name', " .
    "user_email = '$email' WHERE user_id = $uid";
```

He can update his first name, last name or email. He may want to change his password. So, I need to check if the previous password is the same in the database and if the new password and the confirmation are the same. If conditions are true, I update the information.

```php
if ($pwd_bd === $previous){
    if ($new === $confirm){
        echo $uid . " " . $previous . " " . $new . " " . $confirm . " " .
$pwd_bd;
        $sql = "UPDATE user SET " .
            "user_password = '$confirm' WHERE user_id = $uid";
        mysqli_query($con, $sql);
```

The same process is used when a manager wants to update car information.

The main goal of the website is to provide a car rental service so when the user wants to check the catalog, I need to give the car he wants with the correct filter. To do this, I will build the sql queries depending on the type of car the user has entered in the input. By default, I retrieve all the car. If the user apply filter, my sql query will be change with "WHERE" and "AND" keywords.

```php
$sql = "SELECT * FROM car";

if ((isset($_POST['type']))){
    $type = $_POST['type'];
    $nb_seats = $_POST['nb_seats'];
    if (($nb_seats!="") || ($type != "All")) {
        $sql = $sql . " WHERE";}
    if ($type != "All"){
        $sql = $sql . " (car_type = '$type')";}
    if (($nb_seats!="") && ($type != "All")) {
        $sql = $sql . " AND (car_nb_seats = $nb_seats)";}
    else if ($nb_seats != ""){
```

```
        $sql = $sql . " (car_nb_seats = $nb_seats)";}
    $_SESSION['car_nb_seats'] = $nb_seats;
    $_SESSION['car_type'] = $type;}
else{
    if($_GET['car_type'] != "All"){
        $sql = $sql . " WHERE car_type ='" .  $_GET['car_type'] . "'";}
}
$result = mysqli_query($con, $sql);
```

However, I will only display available cars. To do this, for each car, I will check in the booking table, how many bookings have been made with this car during the period of renting the user wants. I will compare this number with the total stock available of the car. If the number is strictly under the stock, the car is available, and I will display it to the customer.

```
function isCarAvaible($id, $stock){
    include("Db_connexion.php");
    $pickup = $_GET['pickup_date'];
    $return = $_GET['return_date'];
    $sql = "SELECT * FROM booking WHERE booking_car_id=" . $id;
    $result = mysqli_query($con, $sql);

    if (mysqli_num_rows($result) <= 0){
        return true;
    }
    else{
        $count = 0;
        while ($rows = mysqli_fetch_array($result)){
            if (!(($return < $rows['booking_pickup_date']) || ($pickup >
$rows['booking_return_date']))){
                $count++;
            }
        }
        if ($count < $stock){
            return true;
        }
        else{
            return false;
        }
    }
}
```

When the customer has finished his booking, I will update the database by inserting a new row in the booking table.

```
$sql = "INSERT INTO booking(booking_car_id, booking_user_id, booking_pickup_date,
booking_return_date, booking_price)
        VALUES
        ('$car_id', '$user_id', '$pickup_date', '$return_date', $booking_price')";
```

Managers of the system can see all registered customers and their on-loan item. So, first I get all customer and then for each customer, if he has an active booking, I get it.

```
$sql_user = 'SELECT * FROM user WHERE user_role="user"';
        Get all user which are user
```

```php
$sql_booking = "SELECT * from booking WHERE booking_user_id= " .
$rows_user['user_id'] . " AND booking_pickup_date < '". $today . "' AND
booking_return_date > '" . $today . "'";
```
For each user, get his on-loan item

Last, administrator of the website can delete a car in the database. I used the DELETE command to do this, DELETE FROM table_name WHERE condition.

```php
$sql = "DELETE FROM booking WHERE booking_car_id=". $_GET['car_id'];
```

The same type of query is used when the customer wants to delete one booking.
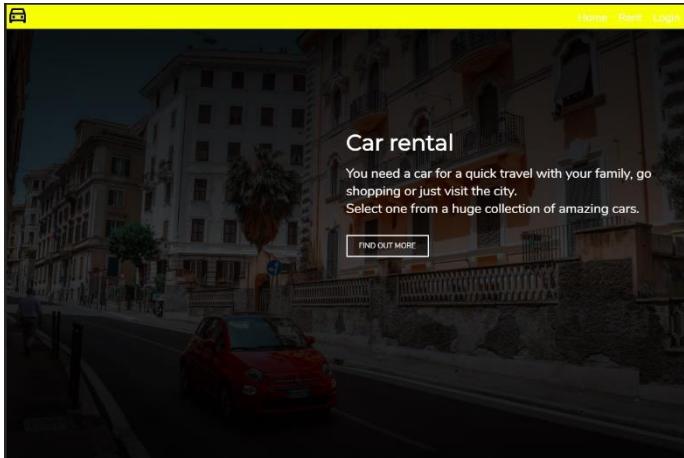
Last, when any kind of user wants to logout, he only needs to click on the logout button in the navbar. I will destroy the active session to clear his information.

```php
session_start(); //logout the user by destroying the session
session_destroy();
```

Notice that each time information needs to be display, I build the HTML code in the PHP by using echo. This allows to have dynamic pages.

5) User guide

A) Customer

When you first arrive on the website, you will arrive on the main page. This main page let you scroll through the different categories of rental the website proposes. Car for a quick trip or longer one, special car for special events like a gleaming Ferrari or a London taxi cab, or trucks if you go in a new city with all your stuff.

Figure 18: Home page

The first thing to do if you want to book any car of the catalog is to login by clicking on the button in the navbar. If you do not have an account yet. You can register by filling the register form. You only need to provide your first name, your last name, an email address and a password.

When your account has been created, you can now login and start to rent cars.
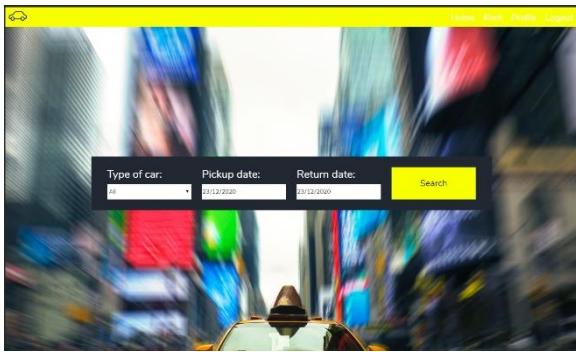
Figure 19: Register page on mobile

Figure 20: Login page on mobile
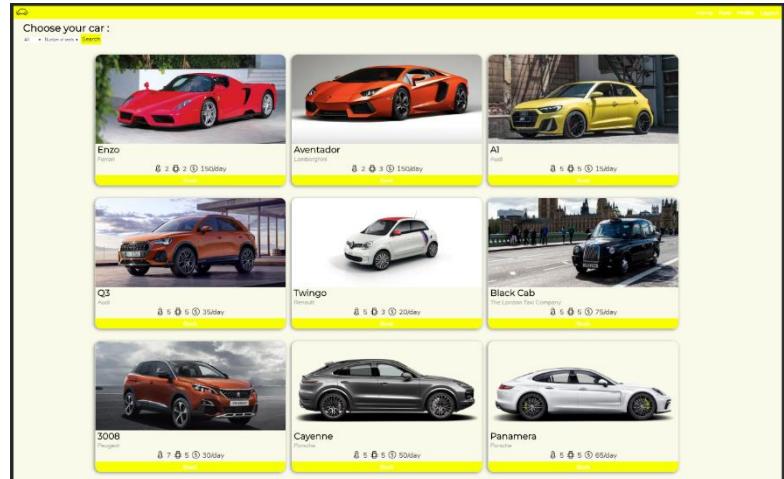
This is the first step to book any kind of car. Choosing the type of car you want, the pickup date, the date you will collect the car at the agency, and the return date, the day you will return the car. Note that you cannot book a car for only half a day (pickup the morning, return the evening). You can only book for one day minimum.

You have access to this menu by clicking on the rent button in the navbar.

Figure 20: Booking page

Once it is done, you can see all the car in the catalog that are available for the period of time that you want. For each car, you have the following information: the name, the brand, how many seats, how many doors and the price per day of location. Moreover, you see a photo the car. If you want to change the pickup and return date. You must go to the previous page.

Last, you can filter the car by type and number of seats by selecting the filter you want to apply and relaunch the research in the top left corner.


Figure 21: Selection car page

When you have found the car of your dream, you only need to click on "Book" under the car to access to the recap of your booking.

Figure 22: Booking summary page

This page will recap all the information you have entered to book the car.

17

The first part recaps the details of the car, its name, number of seats, number of doors. All booking includes fuel, insurances and theft protection.

The second part will recap your personal information, your first name, last name and email address.

The third and last part will tell you when the pickup date and return date are, where you must go the get it and the total price you will have to pay. If all is ok, you only have to click on "Book" to confirm. You will be redirect to the main page.
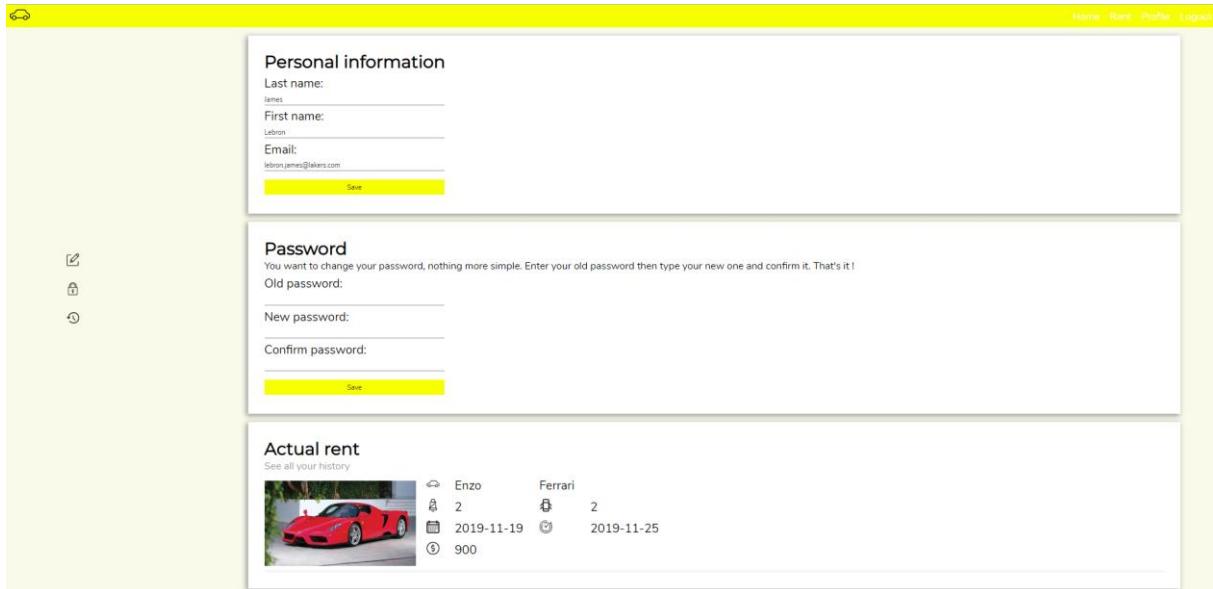
Figure 23: Profile page for customer
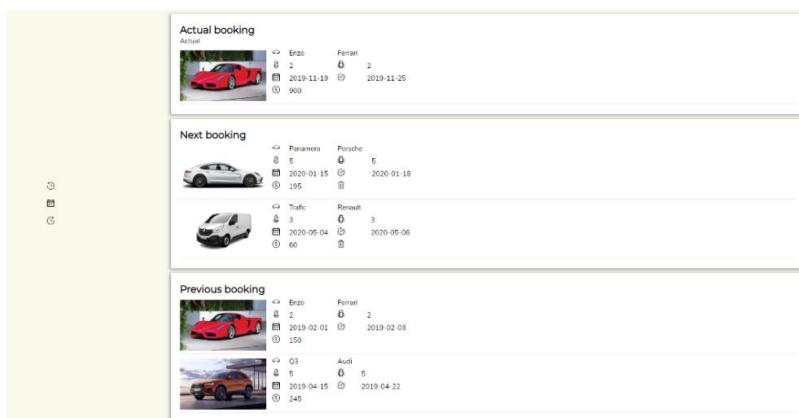
Also, you can consult your profile and booking history by clicking on the profile button.

You will be able to edit your personal information like your first name, last name or email as well as your password. To modify it, you must type your previous password, find a new one and confirm it. Do not forget to save otherwise modification will not be saved.

Moreover, you will see the information of your actual rent in the last part. You can also click on "See all your history" to see your previous, next and actual bookings.


Your history is divided into three parts. Your actual booking, your next booking and your previous ones. On each line you will see all the information about the booking. Note that if the list is to long you can click on one the three icon on the left of the screen to access to the part of the history that you want.

Figure 24: Booking history

| Actual |
| Next |
| Previous |

In case, you change your mind and you do not want a car (among the incoming booking), you can delete a booking by hitting the bin icon on the right of the price.

Next booking
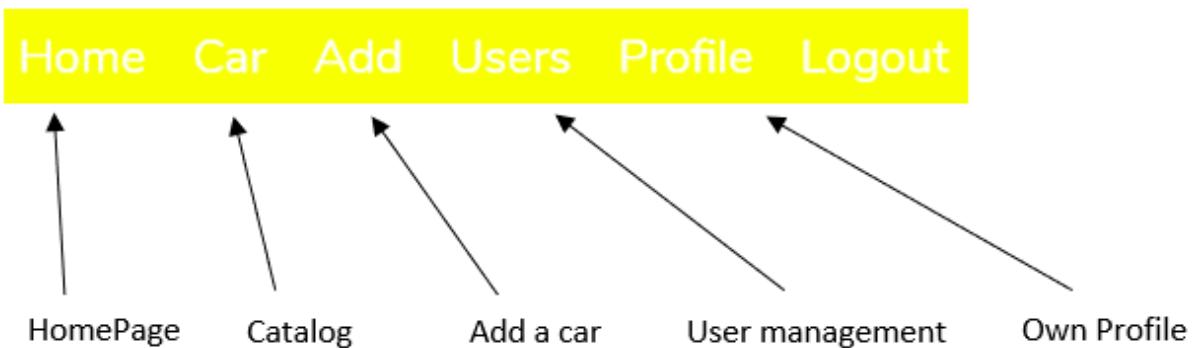
Figure 25: Next booking

Last, when you want to exit the site, you can logout first or you will be automatically when you close the window.

B) Administrator

Administrator of the system will access to the admin section of the website as the customer access to the customer section. Namely by login with an administrator account. An administrator should create a customer account and be promote administrator by another one to has admin access. When you are login with an administrator account, you have access to management part of the site accessible in the navbar.

The first management is the "Car" page.
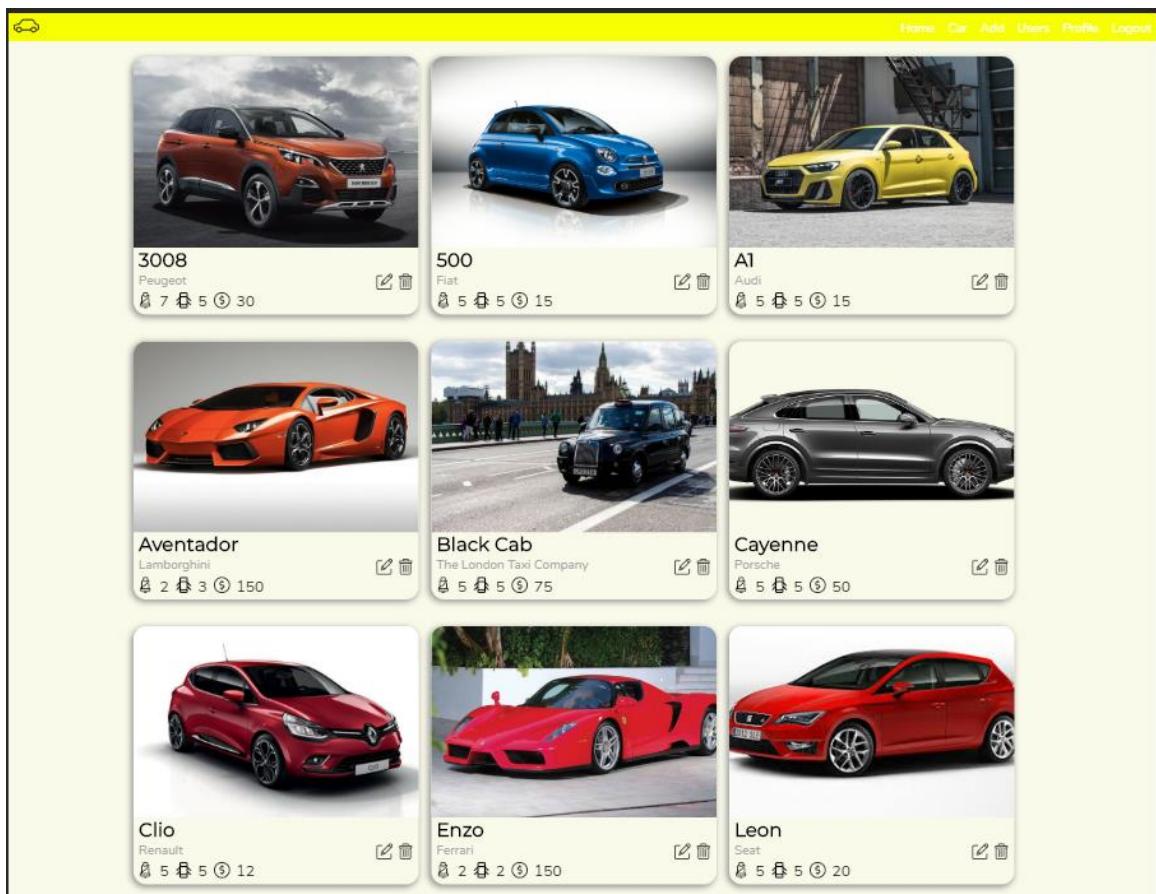
Figure 26: Car catalog

This page let you see all the catalog of car available order alphabetically. For each car, you can see the details of the car and do two actions, delete the car of the catalog (bin icon) or edit its characteristics (pen icon).

If you delete the car, all booking that has been done with this car will be deleted.

If you want to edit the car, you only need to click on the pen icon.

Figure 27: Edit car page

Once again, you will see all the information of the car but, this time, you will be able to modify all the information about the car except its photo. Always hit the save button, to save you modifications otherwise anything will be change.

Moreover, you can a car to this catalog by hitting "Add" in the navbar.

Figure 28: Add car form

You must enter the name of the car, the brand, the number of doors, number of seats, the price per day, the stock available and a photo of the car. All fields must be completed. The selected field is yellow and the ones with incorrect value are in red. When you have finished, hit the yellow "Add" button.

Last exclusive administration page is the customer management page. You will be able to see all the customer registered in the system.

ID	First Name	Last Name	Email	On loan ?	
179	Tony	Parker	tony.parker@spurs.com	No	»
181	Chris	Paul	chris.paul@thunder.com	No	»
177	Nicolas	Batum	nicolas.batum@hornets.com	No	»
180	Lebron	James	lebron.james@lakers.com	Yes ˅	»
182	James	Harden	james.harden@rockets.com	No	»

Figure 29: Registered customer table

Information about customers will be display in a table. You will see the ID of the customer, its first name, last name and email address. If the customer currently has a rented car, a little down arrow will appear. If you click on the arrow the information the information about the booking will be displayed.

| 180 | Lebron | James | lebron.james@lakers.com | Yes | ∧ | ≪ |

#	30	
Name:	Enzo	Brand: Ferrari
Pickup date:	2019-11-19	Return date: 2019-11-25
Price (RM):	900	

Figure 30: Customer row's and his actual on loan item

Last, the double up arrows at the end of the line will be used to promote a customer to administrator.

Finally, you will be able to edit your personal information in the "Profile" tab.

You will be able to edit your personal information like your first name, last name or email as well as your password. To modify it, you must type your previous password, find a new one and confirm it. Do not forget to save otherwise modification will not be saved.

Personal information
Last name:
Dubois
First name:
Vincent
Email:
vincent.dubois@efrei.net

Save

Password
You want to change your password, nothing more simple. Enter your old password then type your new one and confirm it. That's it !
Old password:

New password:

Confirm password:

Save

Figure 31: Administrator profile's

6) References

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