ASSIGNMENT

Subject Code	CSE402A
Subject Name	Web Architecture and Application development
Programme/Course	B. Tech
Department	CSE
Faculty	FET

Name of the Student	Ashish Kumar
Reg. No	16ETCS002144
Semester/Year	7th sem/ 4th year
Subject Leader/s	Mr. Kishore S. M.

Ramaiah University of Applied Sciences
University House, Gnanagangothri Campus, New BEL Road,
M S R Nagar, Bangalore, Karnataka, INDIA - 560 054.

Declaration Sheet			
Student Name	Ashish Kumar		
Reg. No	16ETCS002144		
Programme/Course	B.Tech	Semester/Year	7th sem/ 4th year
Subject Code	CSE402A		
Subject Title	Web Architecture and Application development		
Subject Date		to	
Subject Leader	Mr. Kishore S. M.		

Declaration

The assignment submitted herewith is a result of my own investigations and that I have conformed to the guidelines against plagiarism as laid out in the Student Handbook. All sections of the text and results, which have been obtained from other sources, are fully referenced. I understand that cheating and plagiarism constitute a breach of University regulations and will be dealt with accordingly.

Signature of the Student		Date	
Submission date stamp (by Examination & Assessment Section)			

Signature of the Subject Leader and date	Signature of the Reviewer and date

Question No. 1

Solution to Question No. 1:

1.1 Functional and non-functional requirements

Functional Requirements:

FR_1: The system must allow the new user to register with his/her details.

FR_2: The system must be able to verify information.

FR_3: The system must allow the registered user to login to the web application with valid details.

FR_4: The system must be able to search the database based on select search type to show available phones.

FR_5: The system must allow the user to select any item from the list.

FR_6: The system must block the smartphones that are already reserved from other user to reserve it.

Non-functional Requirements:

NFR_1: The system should be user friendly i.e. it should be easily understandable and responsive.

NFR_2: The system shall allow the users to access the system from the computer using web application. The system uses a web application as an interface. The system is user friendly which make system easy to use.

NFR_3: The system is available 100% for the user and is used 24 hours a day and 365 days a year.

NFR_4: Even if the system fails, the system will be recovered back up within an hour or less.

NFR_5: The system should accurately provide real time information taking into consideration various concurrency issues. The system shall provide 100% accessibility.

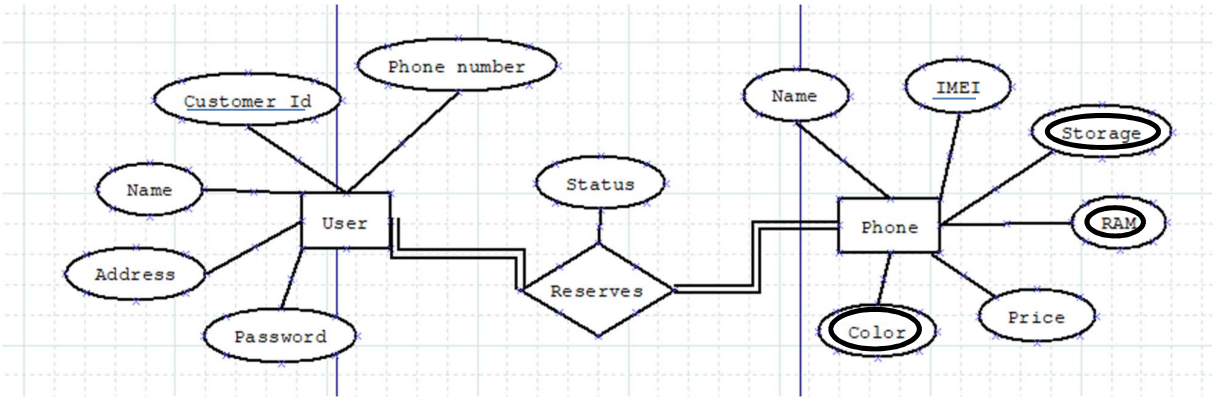
1.2 Identification and design of the entity classes using E-R diagrams:

Identification of the Entities:

1. User
2. Phones to be booked

Identification of the relation between the entities: User reserves the phone

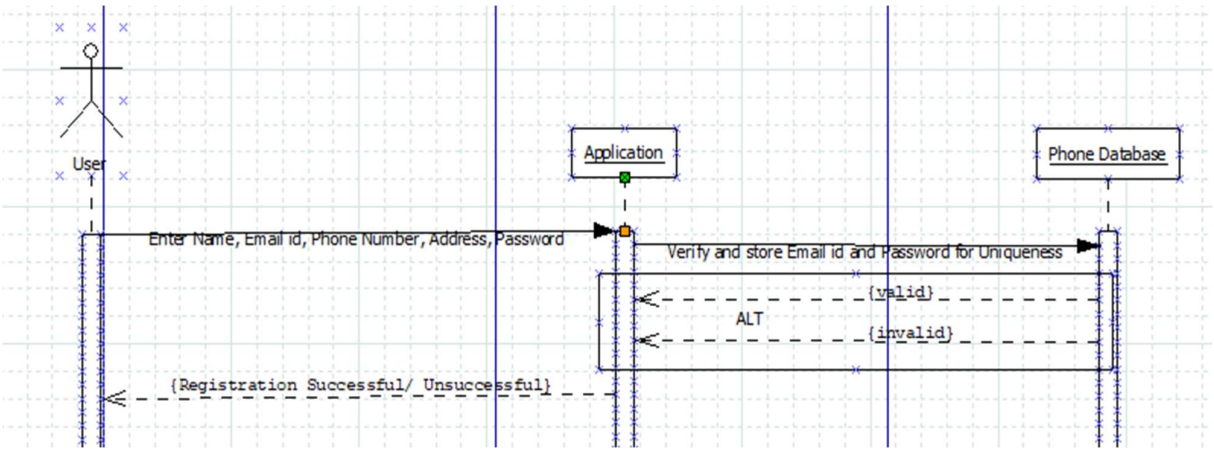
Design of the entity class diagram:



The above image shows the entity relationship diagram where the entities are user and phone and the relation between them is Reserves. The relation has an attribute status which indicates the status of reservation of the phone by the user. And the attributes of each entity is indicated.

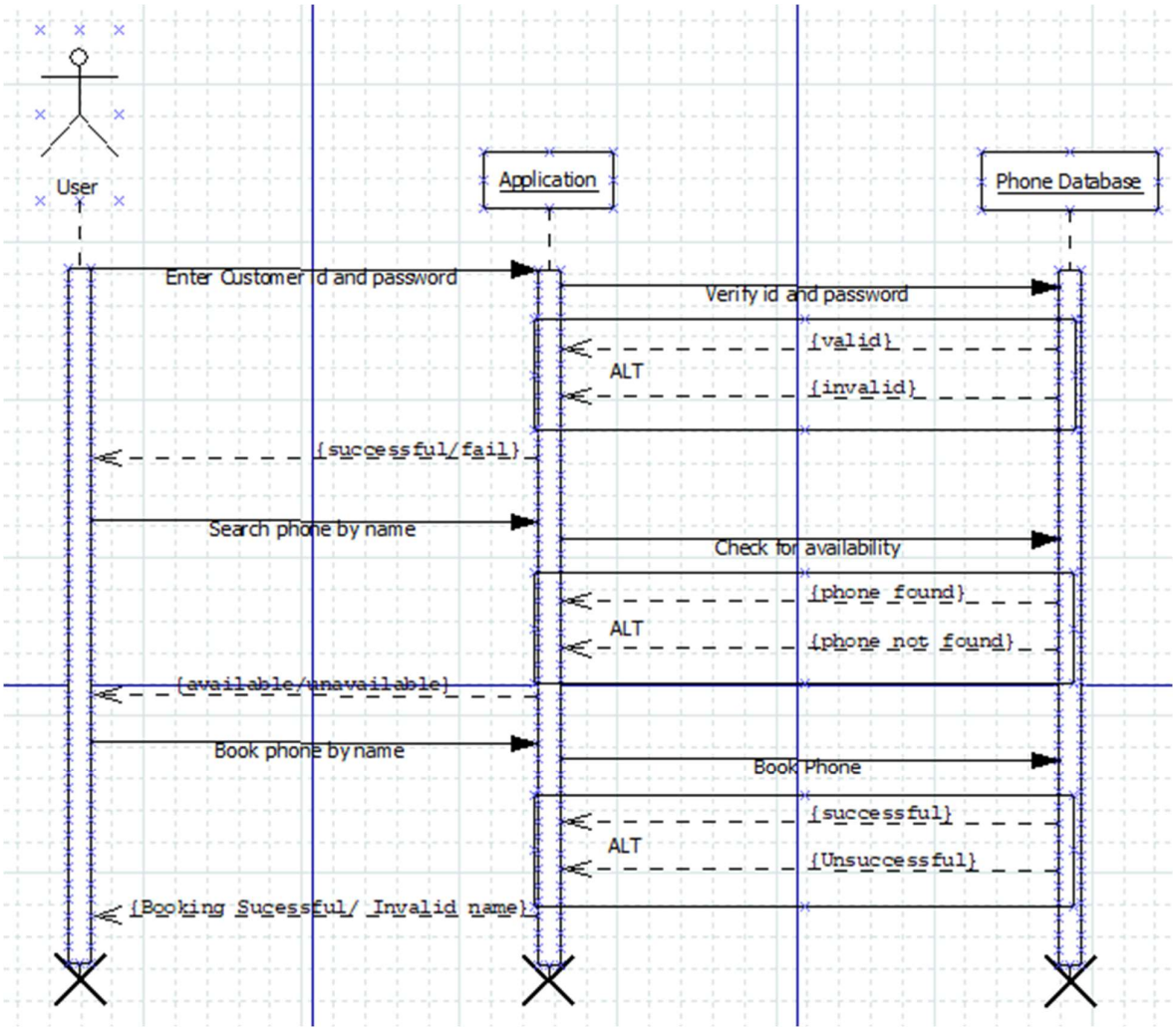
1.3 Design of UML interaction sequence diagrams

Sequence diagram for registration:



The above sequence diagram shows the flow of control in sequence between the user, application and the database. The details about the user is stored into the database for registration.

Sequence diagram for login and reservation:



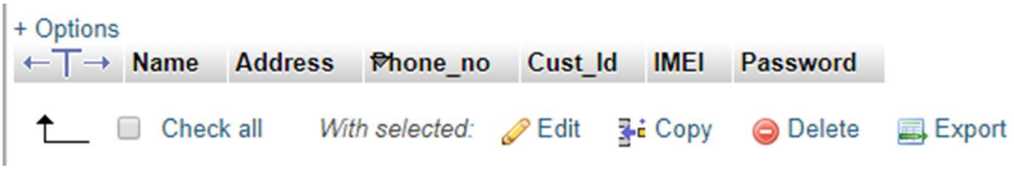
The above sequence diagram shows the flow of control in sequence between the user, application and database. The reservation comes after the login is successful which is verified from the database. Similarly the phone is booked only if it is available for booking.

Question No. 2

Solution to Question No. 2:

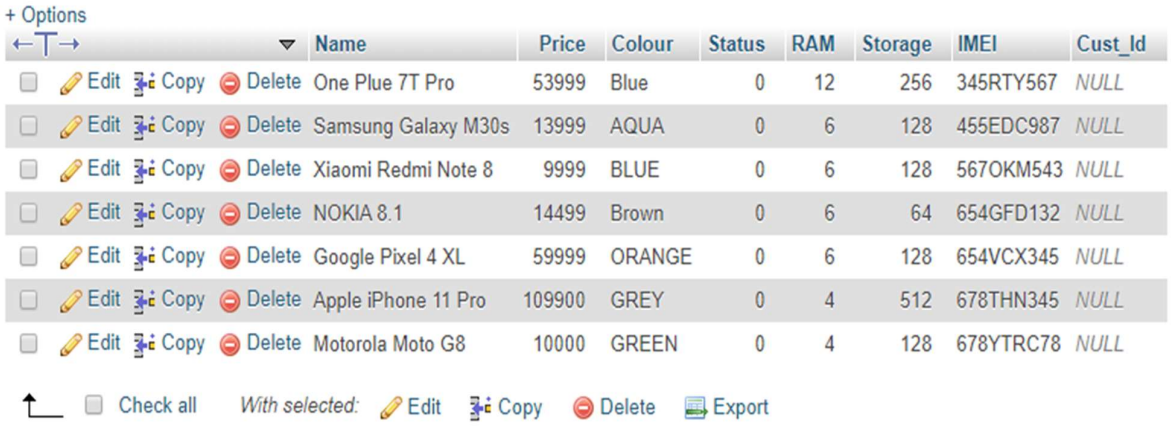
2.1 Implementation of database with justification of relationships:
Database:

User table:



The above table contains attribute as per the E-R diagram, where the Cust_Id is the primary key and IMEI is the foreign key which takes the value of IMEI of the phone reserved by the customer. IMEI is foreign key because it indicates the phone which is reserved by the user and it is unique for each phone. The customer id is the primary key because it is unique for each user and its is the foreign key for the phone database where the phone which is reserved by the user get the customer id of the user and it cannot be booked by any other user.

Phone:



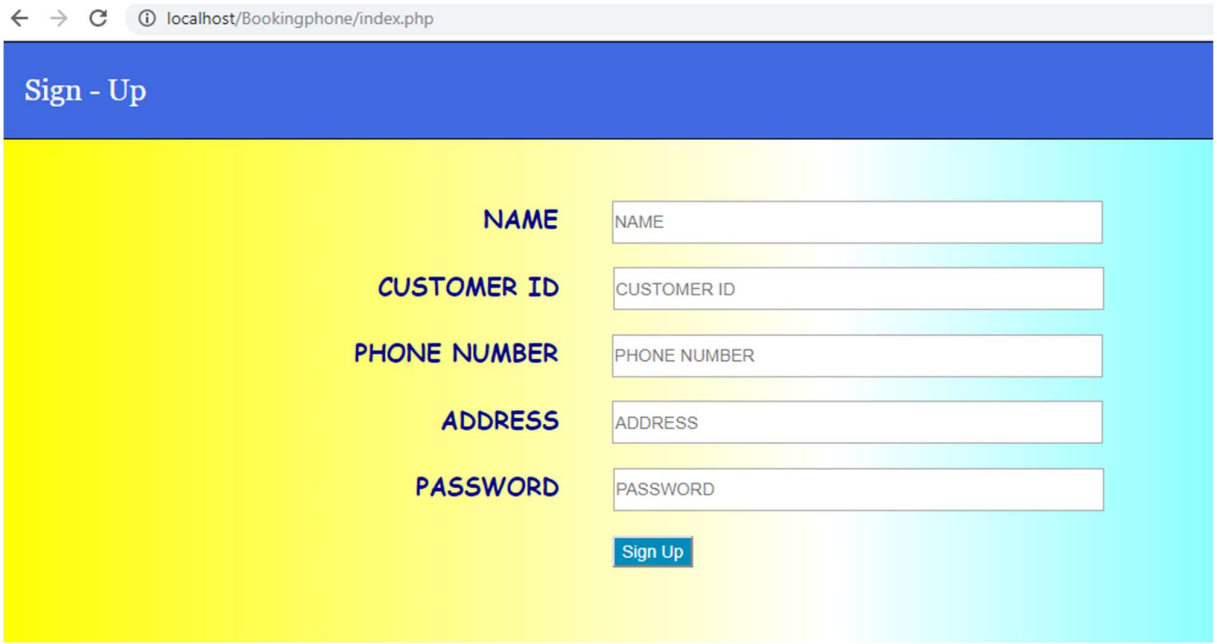
The above table contains attribute of the phone as per the E-R diagram and the phones that are available in the database. Here IMEI is the primary key because it unique for each phone and it is also the foreign key for user table as it tells that the phone is reserved by that user. The cust_id is the foreign key from user which tells the about which user booked the phone and it cannot be booked by any other user.

2.2 Implementation of user registration

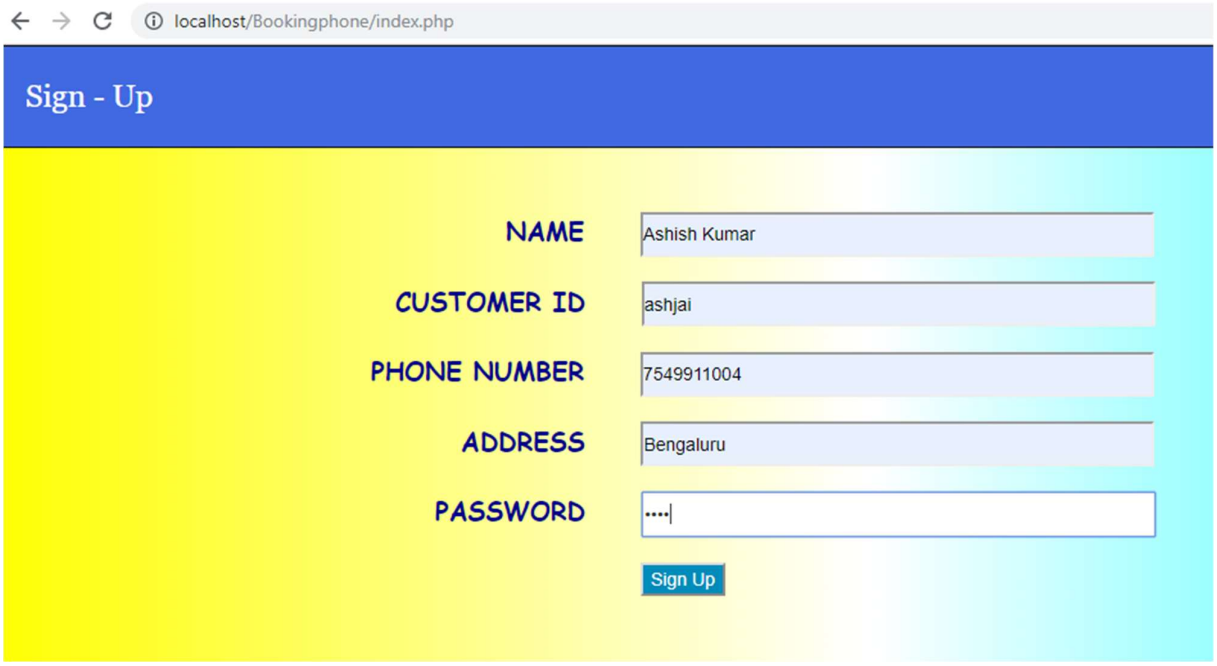
User registration:

```
        <?php
  error_reporting(E_ERROR);
        if($_SERVER["REQUEST_METHOD"]=="POST"){
            $customerName = $_POST['Name'];
            $email = $_POST['Email'];
            $phoneNumber = $_POST['Phone_no'];
            $shippingAddress = $_POST['Address'];
            $password = $_POST['Password'];
            $custid = $_POST['Cust_Id'];
            $con = mysqli_connect("localhost","root","Qwerty@123","phonebooking");
        }
$query = "INSERT INTO `user` (Name, Address, Phone_no, Password,Cust_Id) VALUES ('$customerName', '$shippingAddress', '$phoneNumber',
'$password', '$custid')";
                        $result  = mysqli_query($con,$query);
                        if($result){ echo ("<SCRIPT LANGUAGE='JavaScript'>
                      window.alert('You Registered successfully');
                      window.location.href='login.php';
                    </SCRIPT>");}
                        else { echo ("<SCRIPT LANGUAGE='JavaScript'>
                      window.alert('Registeration Unsuccessfully');
                      //window.location.href='index.php';
                    </SCRIPT>"); }
         ?>
```

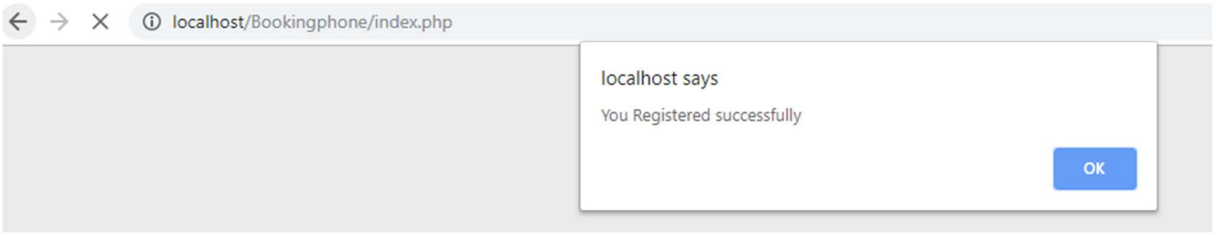
The above snippet shows the php implementation of the registration of the user. The variables for each input field is created which stores the value entered by the user for each field. The user can sign up only when all the fields are filled. User cannot sign up twice with same customer id because the customer id is unique for each user. When the input values satisfy all the conditions and the sign up button is clicked then the query will run which will store the details of the user in the database and registration successful message will pop as the alert message and user will move to the login page. If the values do not satisfy all the conditions and sign up is clicked, then a message will pop as the alert message about the failure of the registration and registration. The user stays in the registration page again.



The above snippet shows the registration page user interface with the required fields.

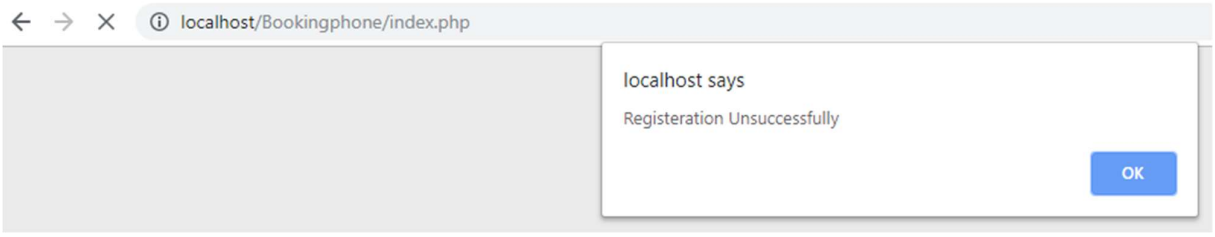


The above snippet shows a user entering credentials to register. Since all the field has correct values it will be a successful registration.



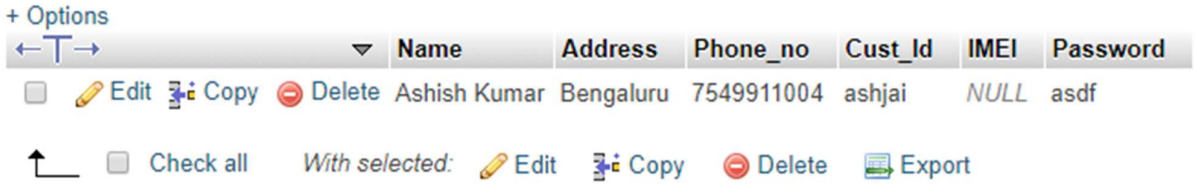
The above snippet shows the alert message showing that the registration was successful and it will direct to the login page.

The above snippet shows the unsuccessful registration as the customer id has been used previously.



The above snippet shows the alert message for unsuccessful registration and will keep the user in the registration page again.

Database update:



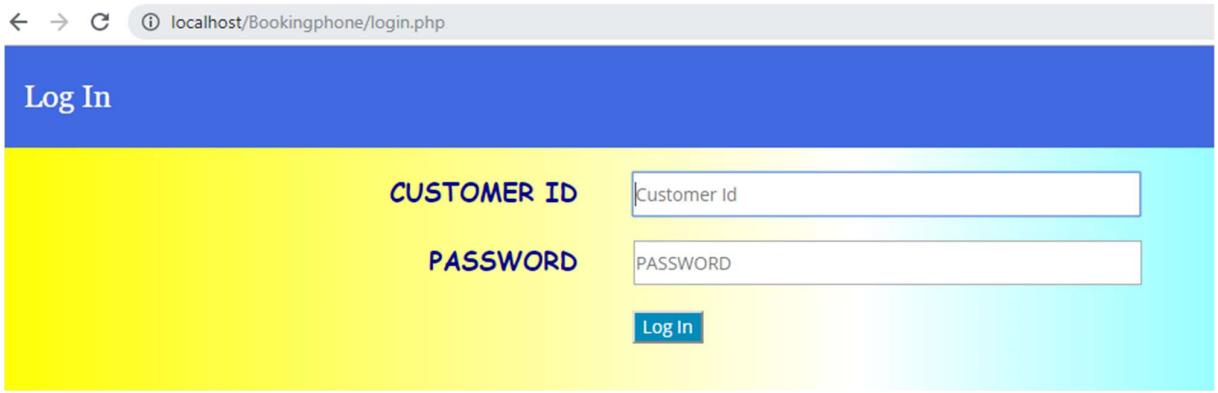
The above snippet shows that the database has been updated with the details of the user. We can see the IMEI value is empty as the user has not booked any phone.

2.3 Implementation of Smartphone reservation for user

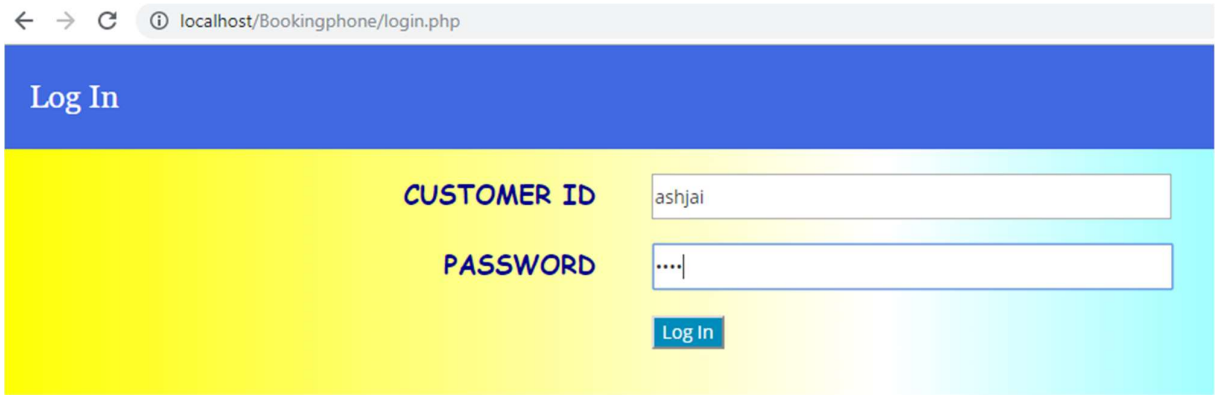
User login:

```
   <?php
error_reporting(E_ERROR);
session_start();
  if (isset($_POST['email'])) {
      $cust_id = $_POST['email'];
      $Password = $_POST['password'];
      $con = mysqli_connect("localhost","root","Qwerty@123","phonebooking");
      if (mysqli_connect_errno())
        {  echo "Failed to connect to MySQL: " . mysqli_connect_error();  }
          $query = "SELECT * FROM user WHERE Cust_Id='$cust_id' and Password='$Password'";
    $result = mysqli_query($con,$query);
    $count = mysqli_num_rows($result);
    if($count==1) {  echo ("<SCRIPT LANGUAGE='JavaScript'>
                        window.alert('You are logged in successfully');
                            window.location.href='dashboard.php';
                                </SCRIPT>");
                          $_SESSION["email"]=$cust_id;  }
    else { echo("<SCRIPT LANGUAGE='JavaScript'>
                        window.alert('Invalid Email or Password');
                            window.location.href='login.php';
                                </SCRIPT>");}
   mysqli_close($con); }
 else  {  ?>
```

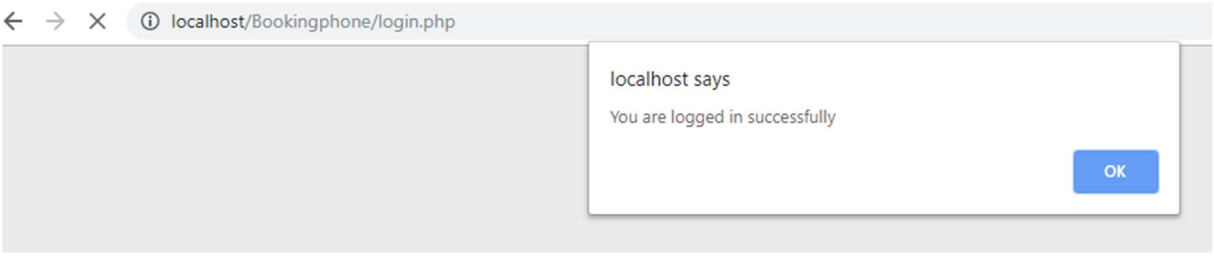
The above snippet shows the php implementation of the login page. The login page is for the registered who will login first to reserve any phone. The login page has two fields, the customer id and the password. There are two variable used to store the value entered by the user in the two fields. When the user clicks on the login button the query checks the value of the fields in the database if the values are correct then the user goes to registration page else they have to reenter the values in the field. The alert message shows the status of login via message before going to next page or staying in the same page if the credential is wrong.



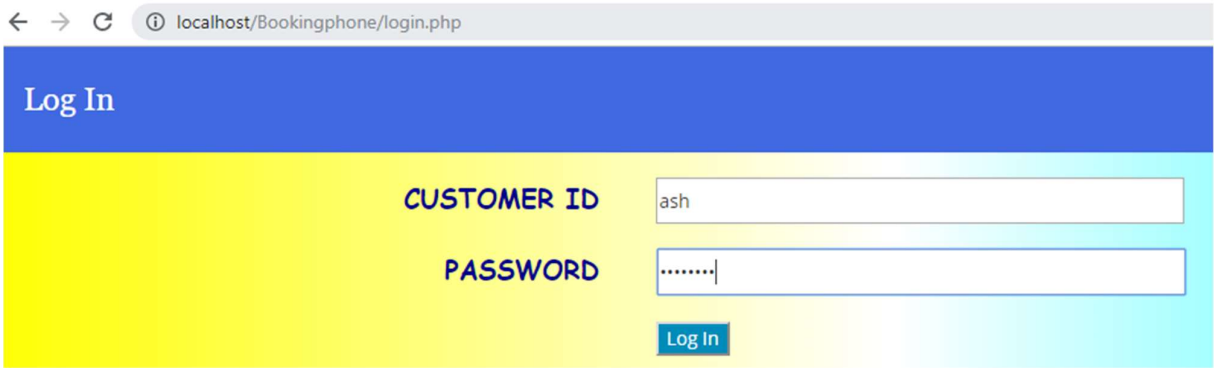
The above snipper shows the user interface for login with two input fields and the log in button.



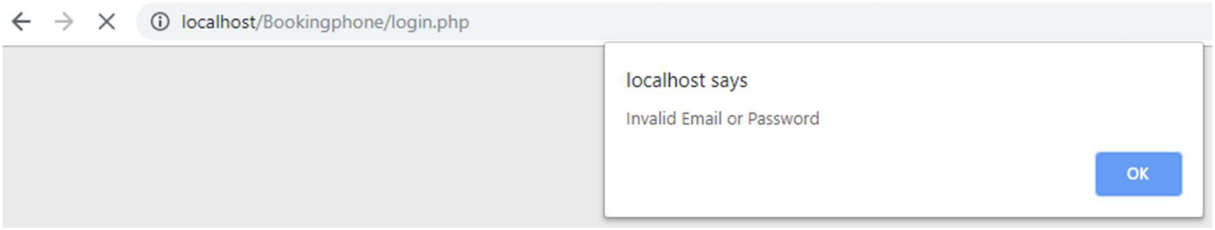
The above snippet shows the user entering the value in the fields and since the values are correct hence the user can successfully log into the booking page.



The above snippet shows the alert message popping up shows the successful log into the booking page and it will direct the user to the booking page.



The above snippet shows that the user has used wrong customer id to login hence he will not get to the booking page. The alert message will pop up with the message of invalid email or password and will keep the user in the same page.



The above snippet shows the alert message when the user has used wrong customer id of password to log in. This will direct the user to the same log in page.

User searching and booking the phone:

```
        <?php
    session_start();
    $email=$_SESSION["email"];
    error_reporting(E_ERROR);
      if ($_SERVER["REQUEST_METHOD"]=="POST") {
          $phonename=$_POST["phonename"];
          $conn1 = mysqli_connect("localhost","root","Qwerty@123","phonebooking");
          if (mysqli_connect_errno())
            {  echo "Failed to connect to MySQL: " . mysqli_connect_error();  }
              $sql1 = "SELECT * FROM phone WHERE Name='$name'";
        $result1 = mysqli_query($conn1,$sql1);
        mysqli_close($conn1);
       }
 ?>
```

The above snippet shows the php implementation of the query which takes the customer id and use that to welcome user after login while registration to top in the navigation bar.

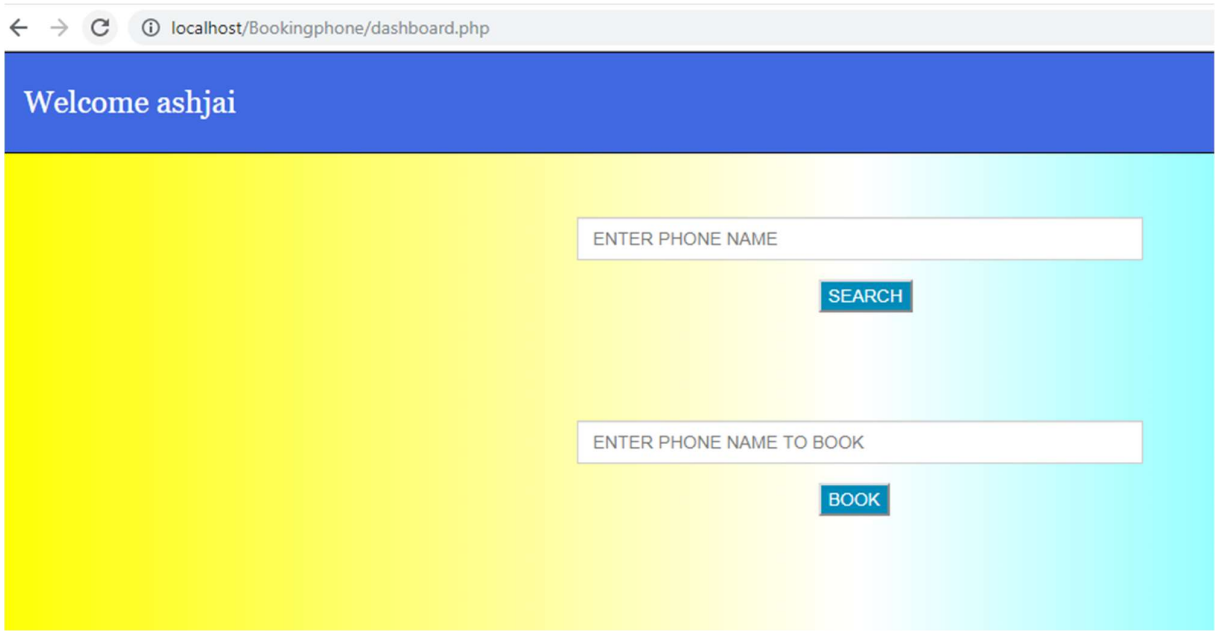
```
<?php
    $conn2 = mysqli_connect("localhost","root","Qwerty@123","phonebooking");
    if (mysqli_connect_errno())
          {  echo "Failed to connect to MySQL: " . mysqli_connect_error();  }
    echo "";
    if(isset($_POST['phonename'])){
        $PHONENAME = $_POST['phonename'];
        $sql2 = "SELECT * from phone where Name LIKE '%$PHONENAME%' AND status = '0' order by Name";
        $result2 = mysqli_query($conn2, $sql2);
?>
```

The above snippet shows the php implementation of the search button where when the user enters anything in the search bar and enters the search button then all the phones with name containing those set of characters and are available for booking will appear in a table for the user to select from. The table shows the phone with their details which can be used by the customer to choose between smartphones. The LIKE word in query allows us to search all the phone containing the set of character entered by the user in the field.

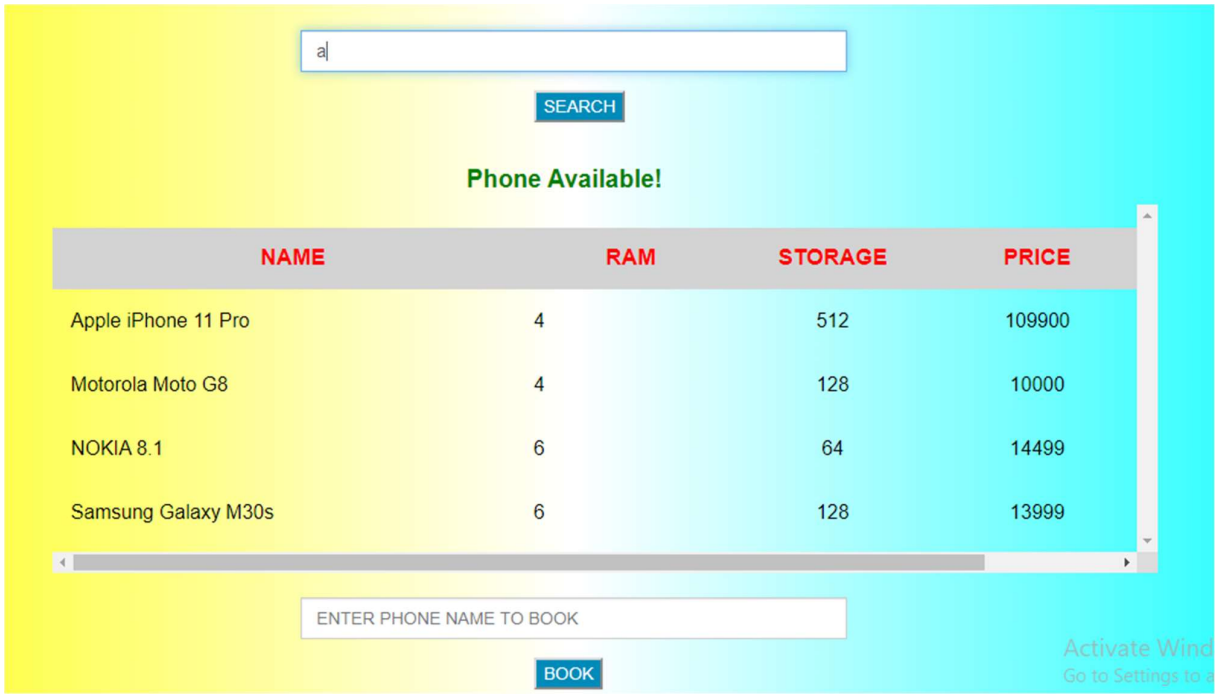
```
<?php
    $conn3 = mysqli_connect("localhost","root","Qwerty@123","phonebooking");
    if (mysqli_connect_errno())
         {  echo "Failed to connect to MySQL: " . mysqli_connect_error();  }
    echo "";
    if(isset($_POST['bookphone'])){
        $BOOKPHONE = $_POST['bookphone'];
        $sql3 = "Select * from phone where Name='$BOOKPHONE' AND status='0'";
        $result3 = mysqli_query($conn3, $sql3);
        $count1 = mysqli_num_rows($result3);
      if($count1!=0){
         $sql4="UPDATE phone SET status = '1',Cust_Id='$email' WHERE Name ='$BOOKPHONE'";
        $result4 = mysqli_query($conn3, $sql4);
          $sql5="UPDATE user SET IMEI=(Select IMEI from phone where Name='$BOOKPHONE') where Cust_Id='$email'";
          $result5=mysqli_query($conn3, $sql5);
       echo "<p style='color:green;margin-top:50px;margin-left:565px;font-size:20px;font-weight:bold'>"."BOOKED SUCCESSFULLY!"."</p>";}
     else { echo "<p style='color:red;margin-top:50px;margin-left:600px;font-size:20px;font-weight:bold'>"."INCORRECT NAME"."</p>" ;  }
       mysqli_close($conn3);}
?>
```

The above snippet shows the php implementation of the booking of the phone by user. There is another field where used enters the exact name of the phone to be booked and if the phone is available for booking

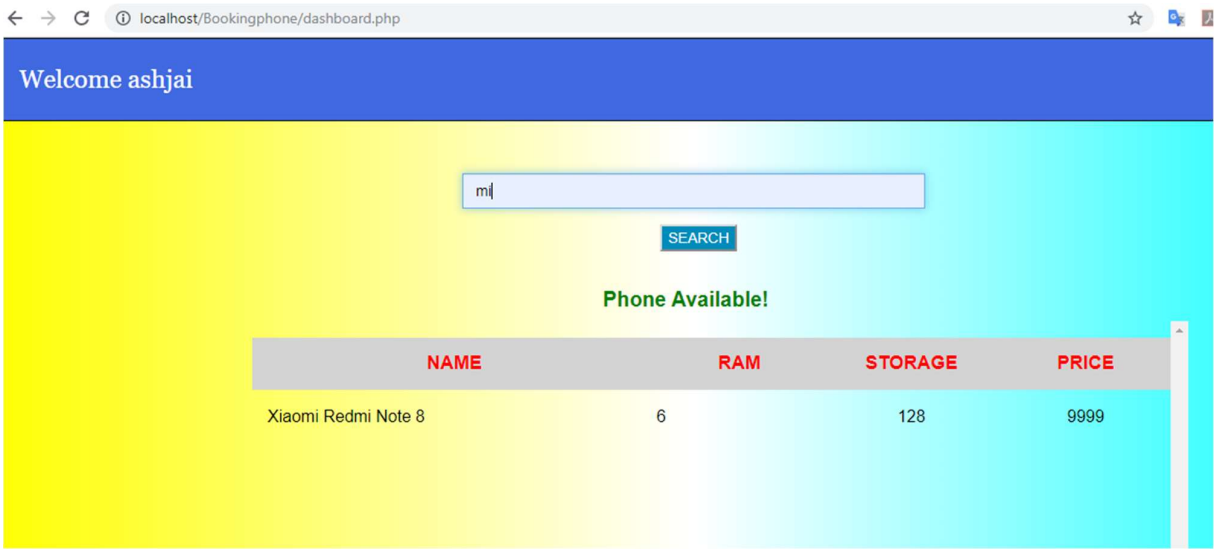
then it will get booked. If the user enters a wrong name, then the incorrect name will prompt as message for user to correct the name of the phone. If the everything is correct then the database will update with the foreign of the user (i.e. customer id) will add in the phone table along with the status value will change to 1 indicating that the phone has been booked (the default status value of each phone is 0 which indicates the phone ready to be booked) and the foreign key of the phone (i.e. IMEI) will add in the user table.



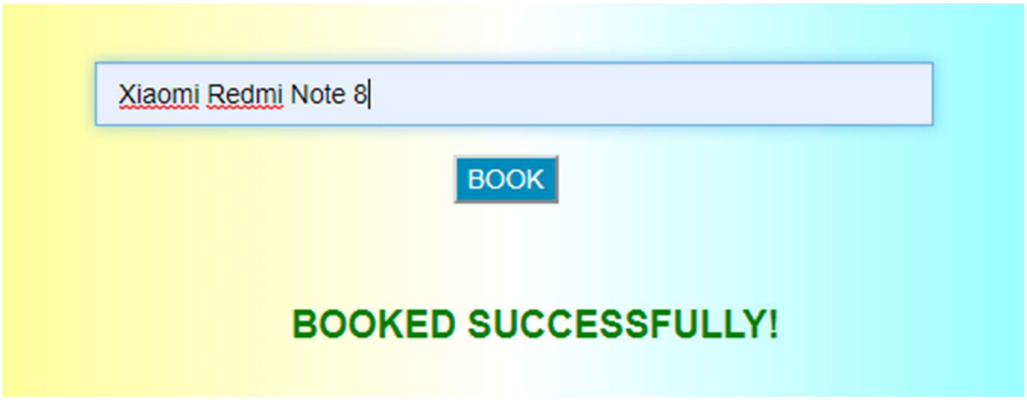
The above snippet shows the user interface to the booking page where the welcome has the customer id to tell user which account has been login in. There are two fields, one for searching the phones and the next for booking.



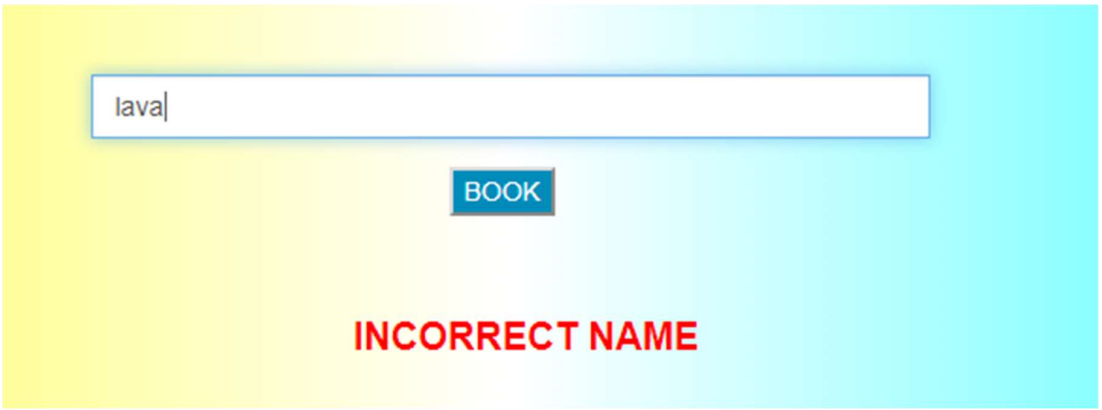
The above snippet shows that even if user enter only one character all the phones containing the character in their name will appear in the table below with the details.



The above snippet shows the result of the search query where the available phone to be booked containing the character are shown in the table. The phone available message shows below the search button if the phone with similar name is available in the database for booking.

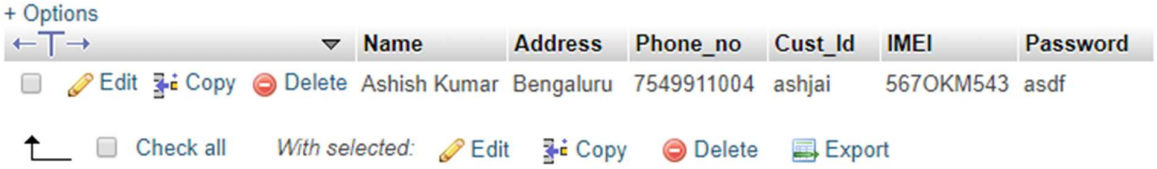


The above snippet shows the confirmation message of the booking if the phone's name is correct and the phone is available for booking.



The above snippet shows that if user enter a phone name that is not in the database or the name of the phone is incorrect.

Database updated:

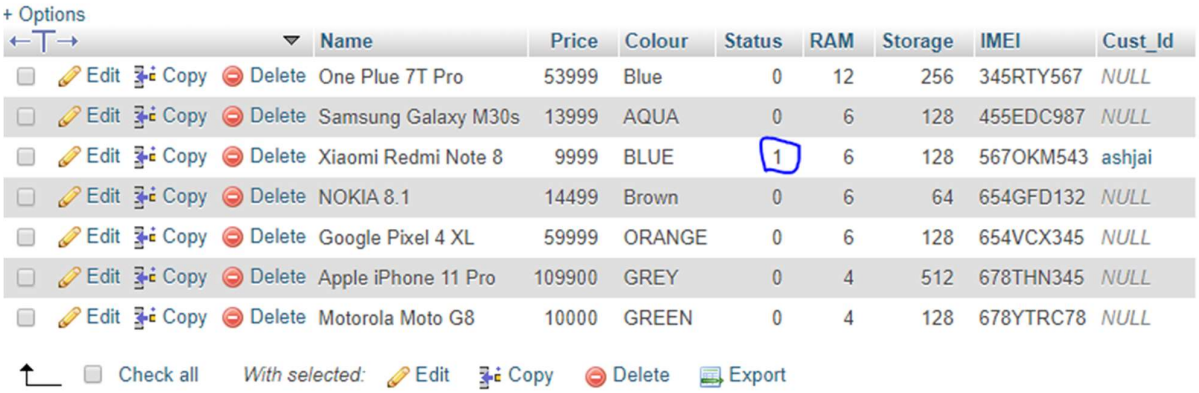


+ Options

	Name	Address	Phone_no	Cust_Id	IMEI	Password
Edit Copy Delete	Ashish Kumar	Bengaluru	7549911004	ashjai	567OKM543	asdf

Check all With selected: Edit Copy Delete Export

The above snippet shows the database update of the user data where the IMEI of the booked phone is filled in its place.



+ Options

	Name	Price	Colour	Status	RAM	Storage	IMEI	Cust_Id
Edit Copy Delete	One Plue 7T Pro	53999	Blue	0	12	256	345RTY567	NULL
Edit Copy Delete	Samsung Galaxy M30s	13999	AQUA	0	6	128	455EDC987	NULL
Edit Copy Delete	Xiaomi Redmi Note 8	9999	BLUE	1	6	128	567OKM543	ashjai
Edit Copy Delete	NOKIA 8.1	14499	Brown	0	6	64	654GFD132	NULL
Edit Copy Delete	Google Pixel 4 XL	59999	ORANGE	0	6	128	654VCX345	NULL
Edit Copy Delete	Apple iPhone 11 Pro	109900	GREY	0	4	512	678THN345	NULL
Edit Copy Delete	Motorola Moto G8	10000	GREEN	0	4	128	678YTRC78	NULL

Check all With selected: Edit Copy Delete Export

The above snippet shows that the database has been updated and the cust_id value for the phone has been updated with the customer id of the user who booked that phone. Also the status of the phone has been updated from 0 to 1 since the phone has been booked.