CC316 OOP Project

Pharmacy System

Members:

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Tech Stack:

- Java
- JavaFx & Scene builder
- MongoDB NOSQL Database

Examples on the implementation of requirements:

1) Interfaces:
   - Salary interface: implemented by employees who earn a salary.
   - Payment interface: implemented by order for checking out.

```java
package Models.Interfaces;

6 usages  3 implementations  Mohamed Hagras
public interface Salary {
    3 usages
    float baseSalary = 500;
    no usages  3 implementations  Mohamed Hagras
    void calculateSalary();
}
```

```java
public interface Payment {
    no usages  1 implementation  Mohamed Hagras
    void Pay(CreditCard card) throws Exception;
    no usages  1 implementation  Mohamed Hagras
    void Pay(Cash cash);
}
```

2) Method overloading:
   - Overloading the pay method depending on the payment method (Cash or Credit card)

```java
public void Pay(CreditCard card) throws Exception{
    if(this.totalCost > card.getBalance()) {
        throw new Exception("Not Enough Balance!");
    }
    card.decreaseBalance(this.totalCost);

    this.paymentMethod = PaymentMethod.CARD;
}

no usages  Mohamed Hagras
public void Pay(Cash cash) { this.paymentMethod = PaymentMethod.CASH; }
```

3) Method overriding:
   - Overriding the *toString* method
   - Overriding the *calculateSalary* method depending on the employee type

```java
@Override
public String toString() {
    return "Total Cost: " + this.totalCost + "\n" + "Status: " + this.status + "\n" + "Payment method: " + this.paymentMe
}
```

```java
@Override
public void calculateSalary() {
    this.salary = baseSalary *4;
}
```

```java
@Override
public void calculateSalary() {
    this.salary = baseSalary *3;
}
```

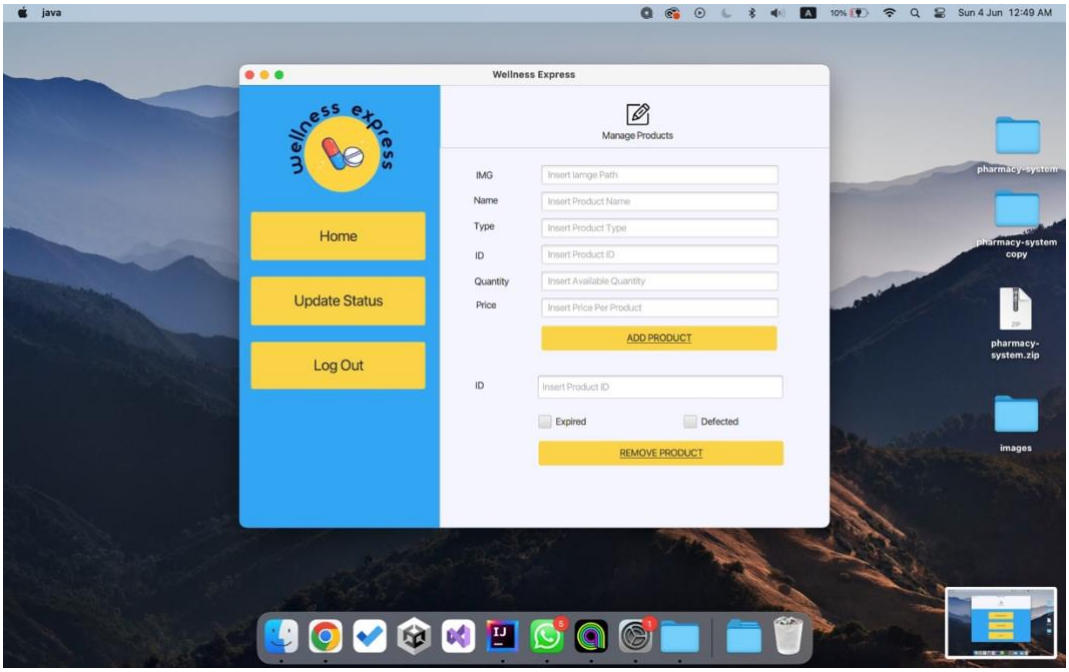
4) Singleton design pattern:
   - Implemented the singleton design pattern to ensure that only one single instance of the database object is created and used throughout the whole program.

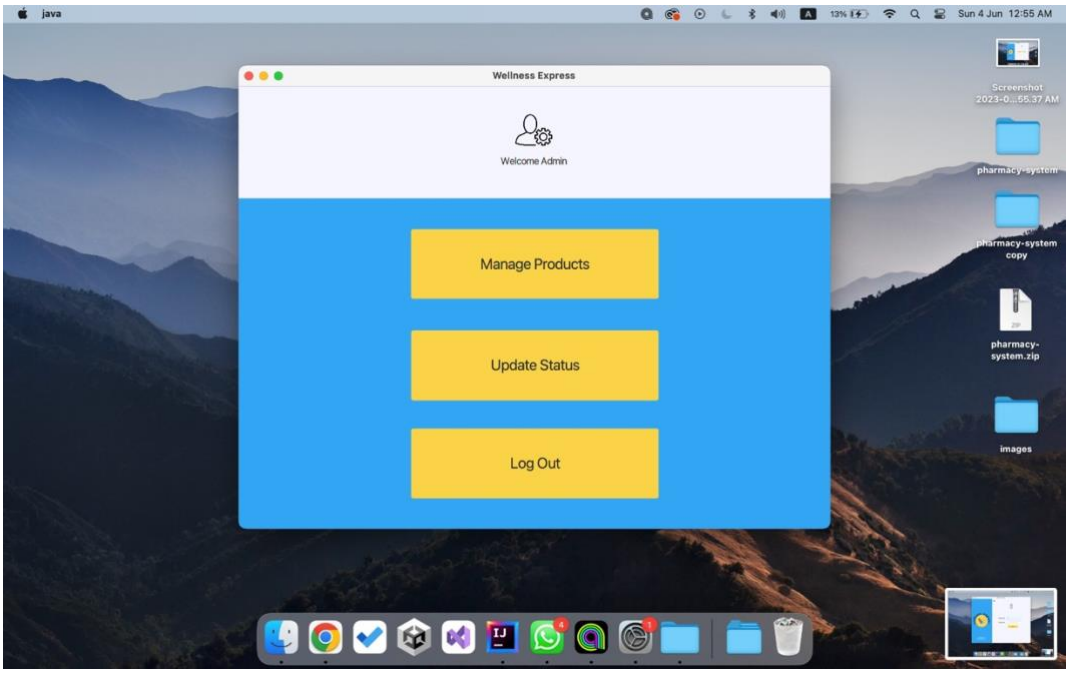
```java
private Database() {
    try {
        MongoClient mongoClient = MongoClients.create(connectionString);
        database = mongoClient.getDatabase(databaseName);
    }
    catch(Exception exception) {
        System.out.println(exception.getMessage());
    }
}

8 usages  Mohamed Hagras
public static Database getUniqueInstance() {
    if(uniqueInstance==null) {
        uniqueInstance = new Database();
    }
    return uniqueInstance;
}
```

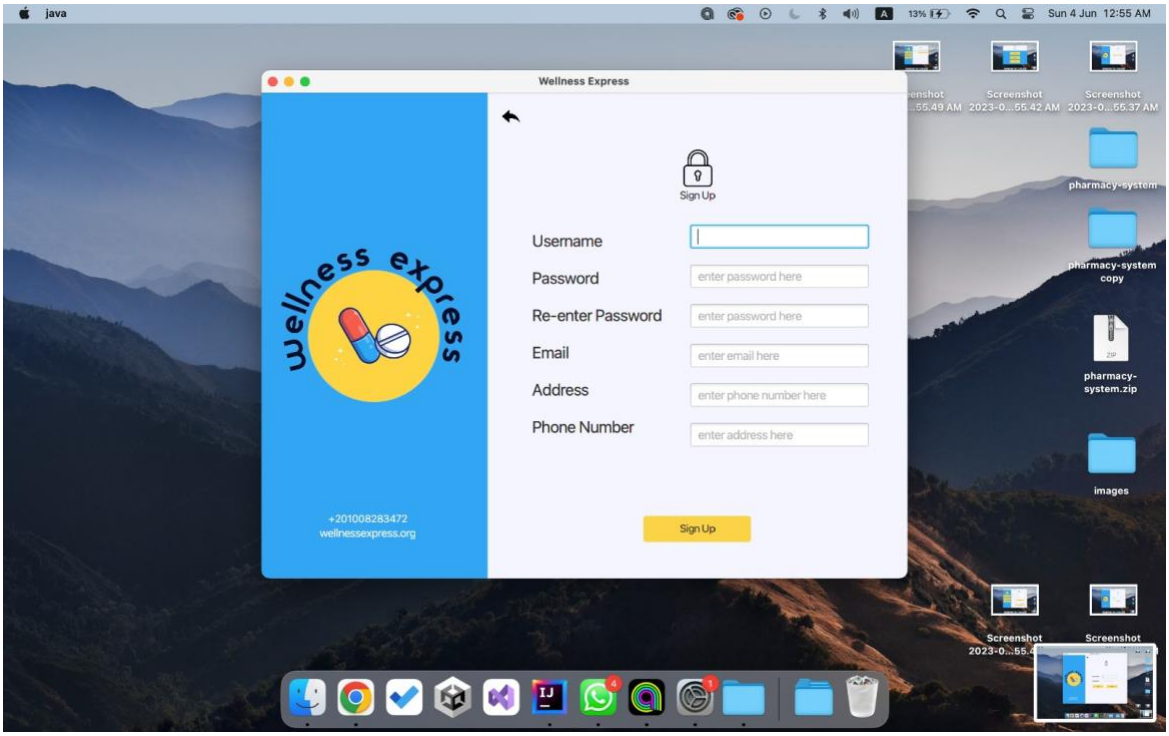
5) Unit Testing using Junit:
   - Testing the authentication methods in the three cases: correct credentials, wrong password, and wrong email.

```
class AuthServiceTest {

    no usages  new *
    @Test
    void employeeLoginWithCorrectCredentials() throws Exception {
        assertInstanceOf(Employee.class, AuthService.employeeLogin( email: "ahmedmah
    }

    no usages  new *
    @Test
    void employeeLoginWithWrongPassword() {

        Exception e = assertThrows(Exception.class,()-> AuthService.employeeLogin(

        assertEquals( expected: "Wrong password!", e.getMessage());
    }

    no usages  new *
    @Test
    void employeeLoginWithNonExistingEmail() {

        Exception e = assertThrows(Exception.class,()-> AuthService.employeeLogin(

        assertEquals( expected: "This email does not exist", e.getMessage());
    }

    no usages  new *
    @Test
    void clientLoginWithCorrectCredentials() throws Exception{
        assertInstanceOf(Client.class, AuthService.clientLogin( email: "mohamed.hagr
```

6) Graphical User Interface:






java
Sun 4 Jun 12:55 AM
Wellness Express
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Username
Password
enter password here
Re-enter Password
enter password here
Email
enter email here
Address
enter phone number here
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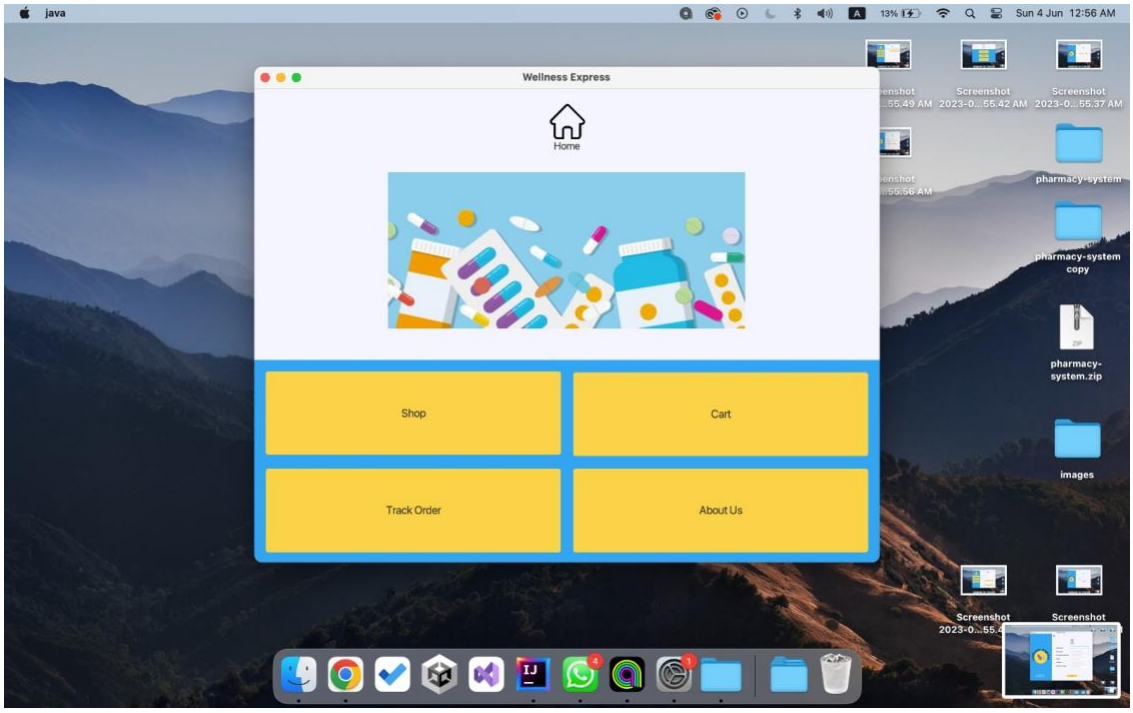
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Wellness Express
Home
Shop
Cart
Track Order
About Us
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pharmacy-system.zip
images
Screenshot

7) Exception handling:

```
@FXML
void LoginBtnClicked(ActionEvent event) throws Exception {

    try
    {
        clientLogin(EmailTxt.getText(), PassTxt.getText());
        Node source = (Node)  event.getSource();
        Stage stage  = (Stage) source.getScene().getWindow();
        stage.close();

        FXMLLoader fxmlLoader = new FXMLLoader(PharmacyApplication.class.getResource('
        Scene scene = new Scene(fxmlLoader.load());
        stage.setTitle("Wellness Express");
        stage.setScene(scene);
        stage.show();
    }
    catch(Exception ex)
    {
        CredLabel.setVisible(true);
    }
}
```