

# Project Report

Product Name	Advanced Certificate in Web Development
Qualification Name (ITSF)	NICF-Advanced Certificate in Infocomm Technology (Software & Applications)
Product Name	Web Development Foundations
Module Name (ITSF)	NICF -Web Development Foundations

Student name		Assessor name	
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Date issued	Completion date		Submitted on
18 May 2022	14 June 2022		14 June 2022

Project title	Design, Develop, Implement & Document Community Portal Website
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Learner declaration	
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.	
Student signature:	Date:

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## 1 Project Background

Over the years, ABC Job Center has helped millions of people find jobs and has equipped hundreds of thousands of employers with the talent they need.

As an industry leader, ABC Job Center works with companies big and small, providing cutting-edge solutions for everything from recruiting to employment screening and human capital management.

## 2 Project Objectives

ABC Jobs Pte Ltd wants to develop a community portal for Software Developers, similar to LinkedIn.com.

### 2.1 Project Scope

The scope of the project is to design a Community Portal Similar to LinkedIn.com. Users will be able to register in the portal using the Registration Page. Users of the portal can search for other users using various parameters such as First Name, Last Name, Company Name, City & Country. Users will be able to view the Public Profile of users after searching them. The portal allows users to login, request for forgotten password and update their profile information

The overview of the project is as below.

There are 2 types of users in this Community portal. They are

1. Software Programmer
2. Administrator

Software Programmer should be able to perform following functions in the portal

1. Allow the programmers to register in the portal, show a thank you page & send a registration confirmation email.
2. Search & Find Other Programmers after login and view their profile.
3. Provide Login Page
4. Provide password retrieval functionality.
5. Update their Profile after logging in.

Administrator should be able to perform following functions in the portal

1. Administer user data.
2. Send bulk email inviting programmers to register on the community portal

The following is out of scope

1. Database replication

## 2.2 Tools and Platforms

MySQL Server	MySQL is an open-source relational database management system (RDBMS) with a client-server model. RDBMS is a software or service used to create and manage databases based on a relational model.
MySQL Workbench	MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modelling, SQL development, and comprehensive administration tools for server configuration, user administration, backup, and much more.
phpMyAdmin	phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web.
JDK 1.8	Java Development Kit 1.8
Apache Tomcat Server	Apache Tomcat is a free and open-source implementation of the Jakarta Servlet, Jakarta Expression Language, and WebSocket technologies. Tomcat provides a "pure Java" HTTP web server environment in which Java code can run.
Spring Framework	The Spring Framework is an application framework and inversion of control container for the Java platform.
diagrams.net/draw.io	diagrams.net/draw.io is an open source technology stack for building diagramming applications
Visual Studio Code	IDE for developing the HTML, CSS, JavaScript.
Eclipse IDE	IDE for Java, JSP development
Microsoft Word	Word processing application for creating this report.
Microsoft PowerPoint	Application for creating presentation slides.
Windows 10 Operating System	All the above-mentioned tools are executed within the Windows 10 operating system.

## 3 System Requirement Specification

### 3.1 Functional Requirement

Functionalities of the community portal

S/N	Page	Description
1	Community Portal Home Page	This is the landing page
2	Registration Page	New user register through this page
3	Registration Confirmation Page	A confirmation page for successful registration
4	Login Page	This page allows registered user to login
5	Forget Password Page	This page allows user to request to reset his/her password
6	Forget Password Change Password Page	This page shows a message to inform that a reset link has been sent
7	Forget Password Change Password Page	This page allows user to change password from the reset link email
8	Update Profile Page	This page allows user to update his/her profile information
9	Search Users Page	A function to allow login user to search for other registered members

S/N	Page	Description
10	List Search Results	The result for the search for registered members
11	Public Profile Page	This page shows the public profile information of a selected registered member
12	Send Message	Send a message to another member
13	Read Message	Read a message from a member
14	List Message Board (Thread)	List the thread discussions
15	Post A Thread	Post a thread discussion topic
16	Read A Thread	Read a thread discussion topic
17	Post A Job	Post a new job posting
18	Apply A Job	Apply a job from the list of job postings
19	List Job Opportunities and Responses	Display the list of job postings and the number of applicants

#### Administrative functionalities of the community portal

S/N	Page	Description
1	Administer User Data	Administrative function to list user account information and to request to reset user account password.
2	Send Bulk Email	Import a list of emails and use them to send invitations

### 3.2 Non-Functional Requirement

1. System must be able to scale when traffic volume increase.
2. System must be available 24/7 with at least 99.9% uptime.
3. Each page must load within 3 seconds.
4. All data store must be secured.
5. Each page must load within 2 seconds.
6. Daily system maintenance must finish within 3 hours so data is available by 8 a.m. local time after an overnight update.

### 3.3 Technical Requirement

1. Software
  - a. MySQL Relational Database System
  - b. MySQL Server
  - c. MySQL Workbench
  - d. phpMyAdmin

- e. JDK 1.8
  - f. Apache Tomcat Server
  - g. Spring Framework
  - h. Microsoft Word
  - i. Microsoft PowerPoint
  - j. Programming Languages: HTML, CSS, JavaScript, jQuery, Structured Query Language
2. Hardware
- a. Client (User) – Windows 10 and above. Mac 10.11 and above
  - b. Server – Windows Server, MySQL Server

## **4 Task 1**

### **Task Statement:**

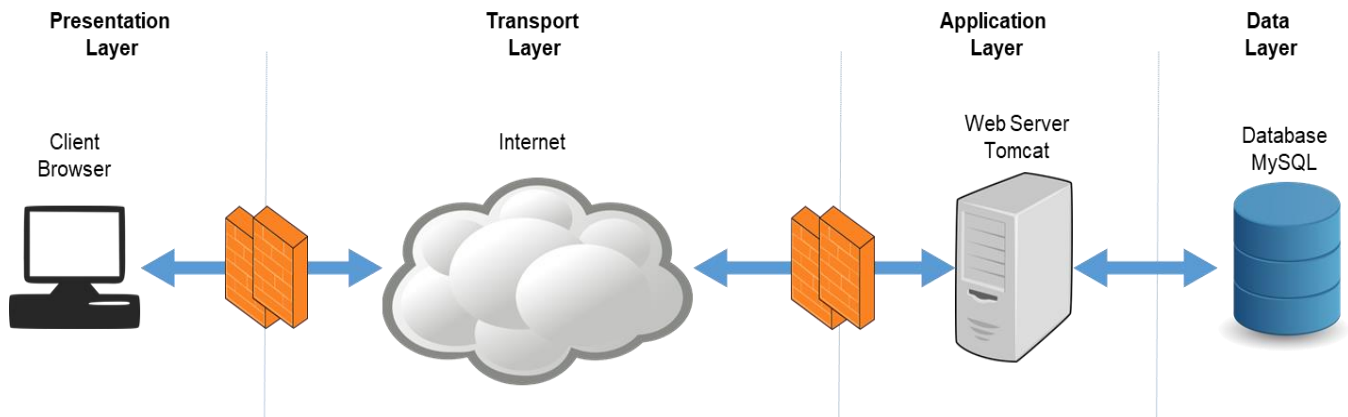
Create the following items in “Technical Design” Section in Project Report

1. Architecture of the System
  - a. Draw the Block diagram of the system
  - b. Explain the Architecture of the application
2. System
  - a. List down all the Modules to be developed
  - b. List down all the pages in each of the module and briefly describe the purpose
  - c. Note down which are Create, Edit & View Pages
  - d. Create the Sitemap of Public & Private Site
3. Technical Environment Requirements
4. System Integration Requirements
5. Portability Requirements
6. Maintainability Requirements
7. Performance Requirements
8. Security Requirements
  - a. List down the Security Access for different kind of users
  - b. Briefly explain Login & Logout mechanism

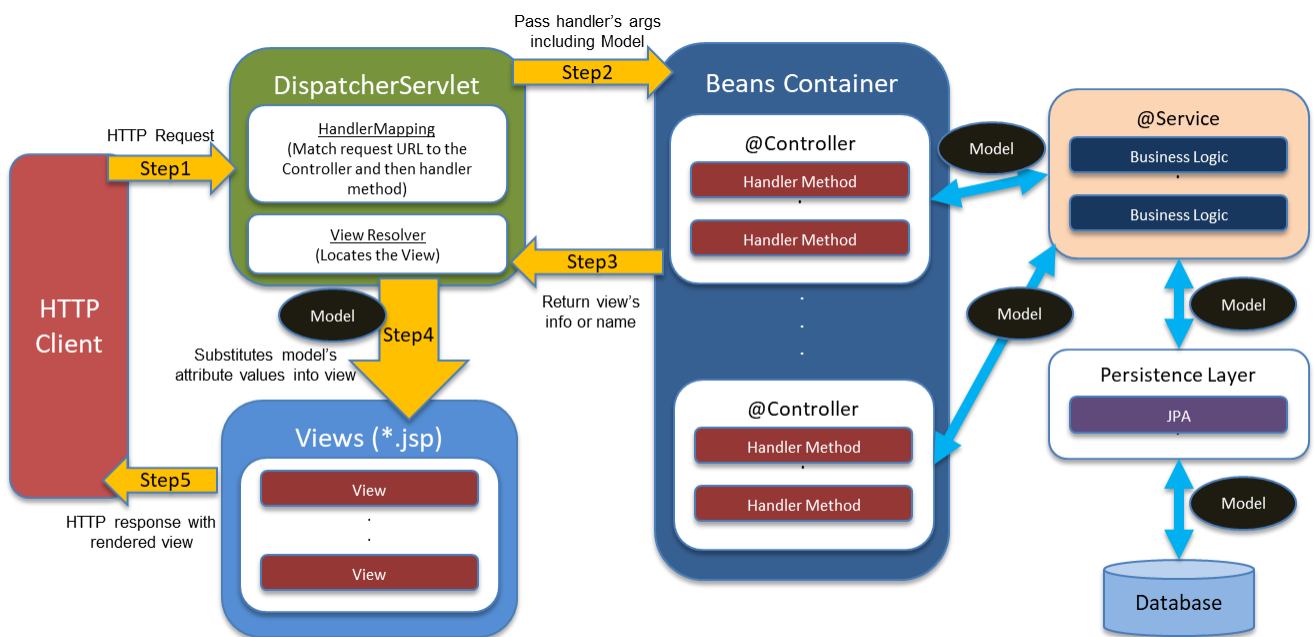
### **Solution:**

## 4.1 Architecture of the System

### 4.1.1 System Architecture



### 4.1.2 Application Architecture



The application architecture is based on the concept of the Front Controller as in the typical Spring Model View Controller architecture. The DispatcherServlet plays the role of the Front Controller in the architecture.

The request comes in from the HTTP client. The DispatcherServlet will pass the request to the appropriate handler method according to the request mapping. The controller uses the service controllers to perform business logics which interact with the database via the JPA persistence layer. The controller will return the view name to the DispatcherServlet who will return the rendered view via the View Resolver.

## 4.2 System

Two modules are to be developed in this project. The two modules are

1. Community Portal Module – This is a public module whereby the general public can access.

2. Administrative Module – This is a restricted module whereby only the administrator can access to perform administrative functions.

#### 4.2.1 Community Portal Module

The table shows the pages in the community portal module where the software developers can access.

S/N	Page	Description	Page Type
1	Community Portal Home Page	This is the landing page	
2	Registration Page	New user register through this page	Create
3	Registration Confirmation Page	A confirmation page for successful registration	View
4	Login Page	This page allows registered user to login	View
5	Forget Password Page	This page allows user to request to reset his/her password	Edit
6	Forget Password Change Password Page	This page shows a message to inform that a reset link has been sent	View
7	Forget Password Change Password Page	This page allows user to change password from the reset link email	Edit
8	Update Profile Page	This page allows user to update his/her profile information	Create for new profile Edit for update profile
9	Search Users Page	A function to allow login user to search for other registered members	View
10	List Search Results	The result for the search for registered members	View
11	Public Profile Page	This page shows the public profile information of a selected registered member	View
12	Send Message	Send a message to another member	Create
13	Read Message	Read a message from a member	View
14	List Message Board (Thread)	List the thread discussions	View
15	Post A Thread	Post a thread discussion topic	Create
16	Read A Thread	Read a thread discussion topic	View



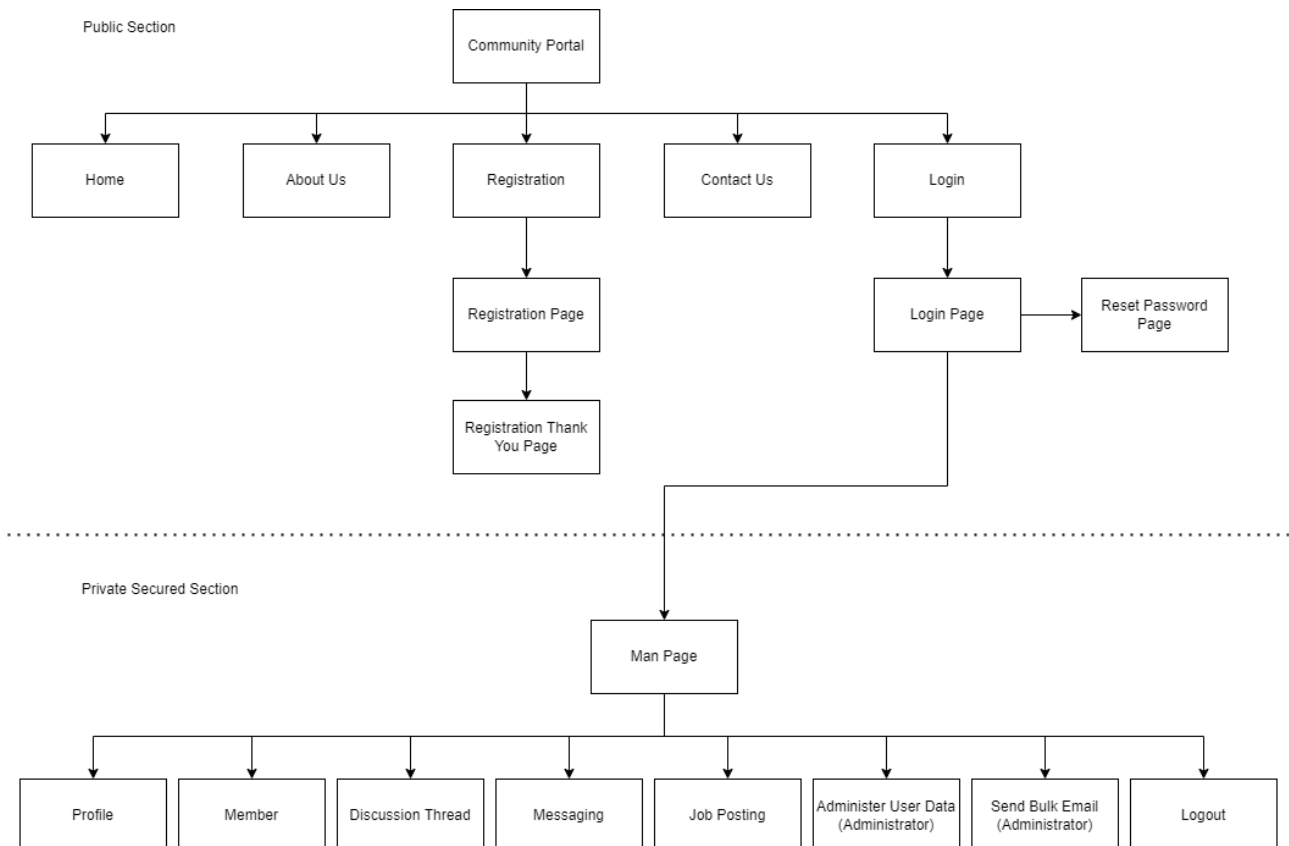
S/N	Page	Description	Page Type
17	Post A Job	Post a new job posting	Create
18	Apply A Job	Apply a job from the list of job postings	Create
19	List Job Opportunities and Responses	Display the list of job postings and the number of applicants	View

#### 4.2.2 Administrative Module

The table shows the pages in the administrative module where the administrator is given access.

S/N	Page	Description	Page Type
1	Administer User Data	Administrative function to list user account information and to request to reset user account password.	View, Create
2	Send Bulk Email	Import a list of emails and use them to send invitations	Create, View

#### 4.2.3 Sitemap



### **4.3 Technical Environment Requirements**

#### **1. Software**

- a. MySQL Relational Database System
- b. MySQL Server 8.0.29
- c. MySQL Workbench 8.0.29
- d. phpMyAdmin
- e. JDK 1.8
- f. Apache Tomcat Server 9.0.59
- g. Spring Framework 5.x
- h. Microsoft Word
- i. Microsoft PowerPoint
- j. Programming Languages: HTML, CSS, JavaScript, jQuery, Structured Query Language

#### **2. Hardware**

- a. Client (User) – Windows 10 and above. Mac 10.11 and above
- b. Server – Windows Server, MySQL Server
- c. Firewall with port numbers 8080, 3306 accessible

### **4.4 System Integration Requirements**

#### **4.4.1 Database**

JDBC Connector 8.0.29 - Connection to MySQL database using JDBC connections.

#### **4.4.2 Mail Server**

Javax Mail API - Sending of registration confirmation email, reset password link email and bulk invitation emails require a mail server.

### **4.5 Portability Requirements**

#### **4.5.1 Server**

The backend server code is written in Java hosted in Tomcat on Windows platform. The code can be ported to Linux platform that provide the same stack of server software.

#### **4.5.2 Client**

The front end runs on browser. Therefore, it must be compatible with different browser applications not limited to Chrome, Safari, Edge and Firefox browsers. All devices – Desktop, Tablets or Mobile that can run the browser application will be able to access the system.

### **4.6 Maintainability Requirements**

#### **4.6.1 Database**

Backup script to back up the database every 6 hours. Restore script to restore the database in event of failure.

Database maintenance must finish within 3 hours so data is available by 8 a.m. local time after an overnight update.

#### **4.6.2 Application**

Application update must finish within 3 hours so system is available by 8 a.m. local time after an overnight update.

### **4.7 Performance Requirements**

System must be able to scale when traffic volume increase with up to 1000 concurrent users. System must be available 24/7 with at least 99.9% uptime.

Each page must load within 3 seconds.

### **4.8 Security Requirements**

#### **4.8.1 Client-Server Communication**

For secured communication between the client and server, we will use HTTPS over SSL/TLS.

#### **4.8.2 Spring Security**

Spring Security is a framework that focuses on providing both authentication and authorization to Java applications.

In order to access the system, login is required. Spring Security will provide the authentication feature.

The permission to access the application function is restricted by roles – Member or Administrator. This will be handled by Spring authorization feature.

#### **4.8.3 Password**

Passwords should not be stored in the clear in the database. Passwords are stored with irreversible cryptographic functions.

Request to reset password are to be time constraint. Reset request that has expired should not proceed with the password change.

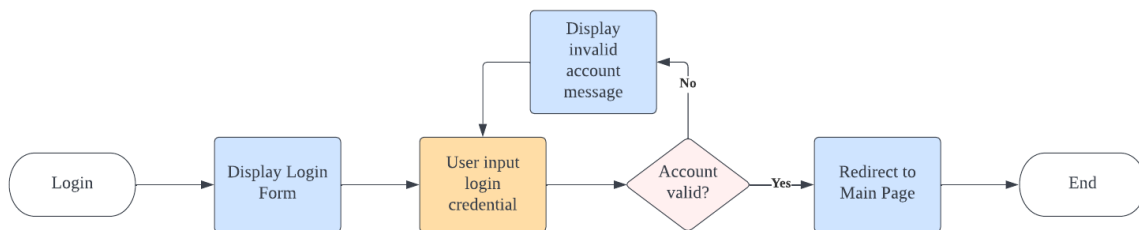
#### 4.8.3.1 List down the Security Access for different kind of users

S/N	Page	Visitor	Registered Member	Administrator
1	Community Portal Home Page	✓	✓	✓
2	Registration Page	✓	✓	✓
3	Registration Confirmation Page	✓	✓	✓
4	Login Page	✓	✓	✓
5	Forget Password Page	✓	✓	✓
6	Forget Password Change Password Page	✓	✓	✓
7	Update Profile Page		✓	
8	Search Users Page		✓	
9	List Search Results		✓	
10	Public Profile Page		✓	
11	Send Message		✓	
12	Read Message		✓	
13	List Message Board (Thread)		✓	
14	Post A Thread		✓	
15	Read A Thread		✓	
16	Post A Job		✓	
17	Apply A Job		✓	
18	List Job Opportunities and Responses		✓	
19	Administer User Data			✓

S/N	Page	Visitor	Registered Member	Administrator
20	Send Bulk Email			✓

#### 4.8.3.2 Briefly explain Login & Logout mechanism

##### Login



##### Logout



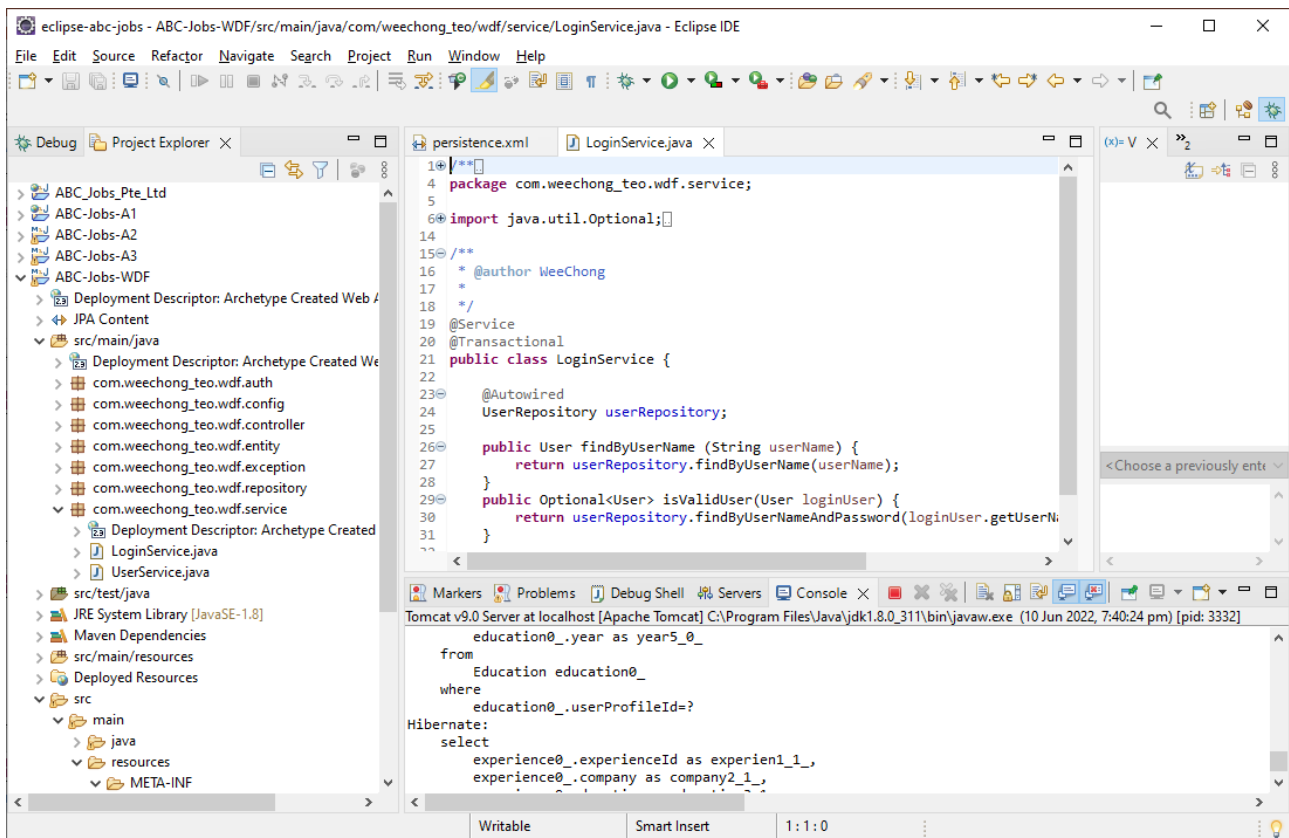
When a user login to the system, a session is created between the client and server. Only after this can multiple requests be sent to the server. Once a user logout, the session will be invalidated to prevent any further client request to the server.

## 5 Task 2

### Task Statement:

1. Install Eclipse in your laptop
2. Provide screen capture of eclipse IDE
3. Include it as part of Project Presentation

### Solution:



## 6 Task 3

### Task Statement:

1. Provide description of 3 features in IDE along with the screen capture of their use.
2. Include it as part of Project Presentation

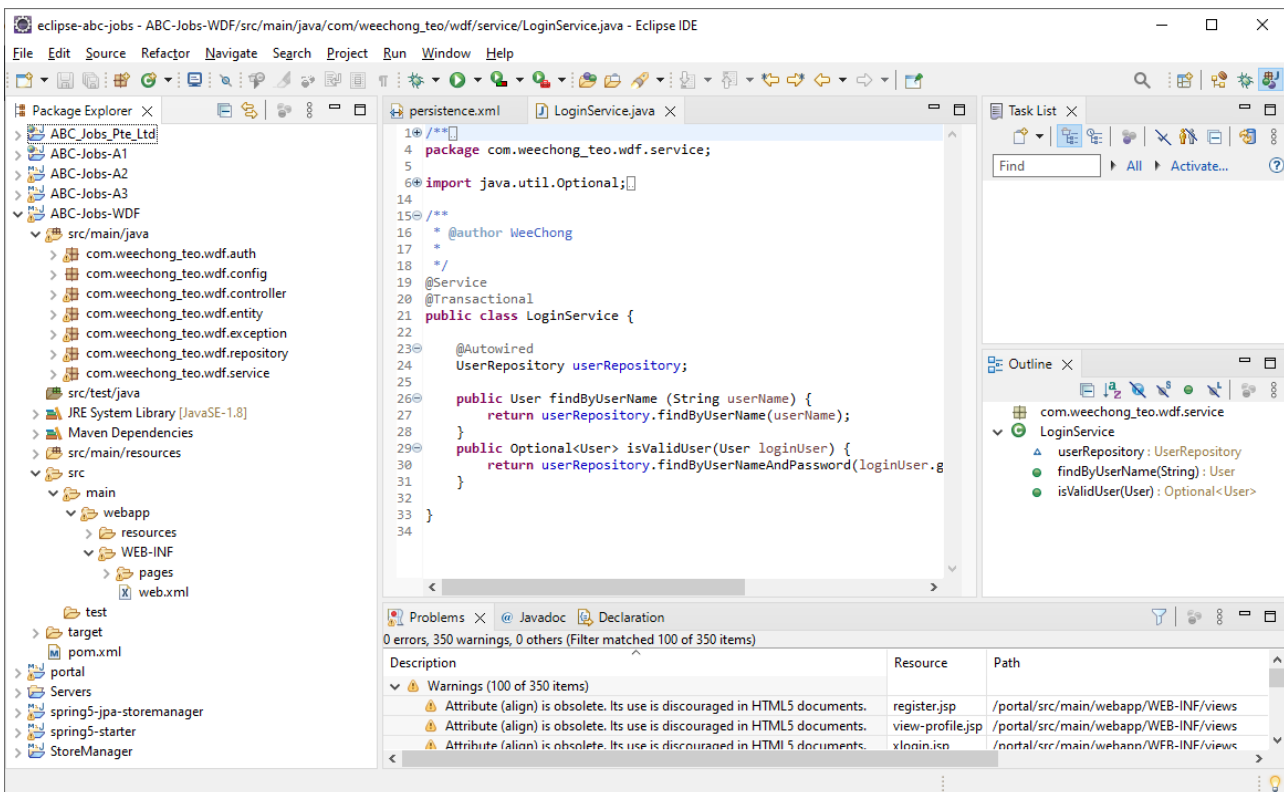
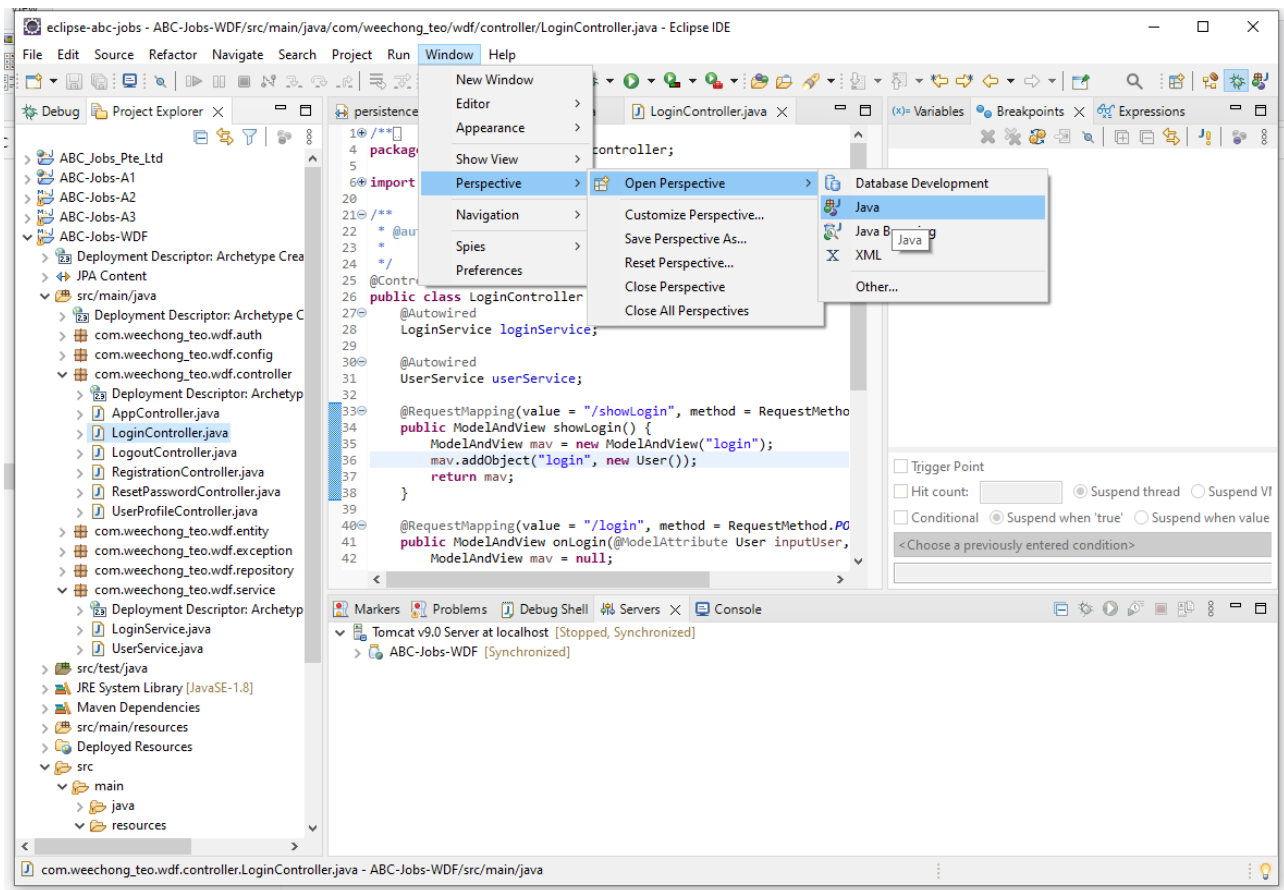
### Solution:

#### 6.1 Java Perspective

The java perspective offers developer to view the code organized in java packages.

The Package Explorer view allows you to browse the structure of your projects and to open files in an editor via a double-click on the file.

The Outline view shows the structure of the currently selected java source file.

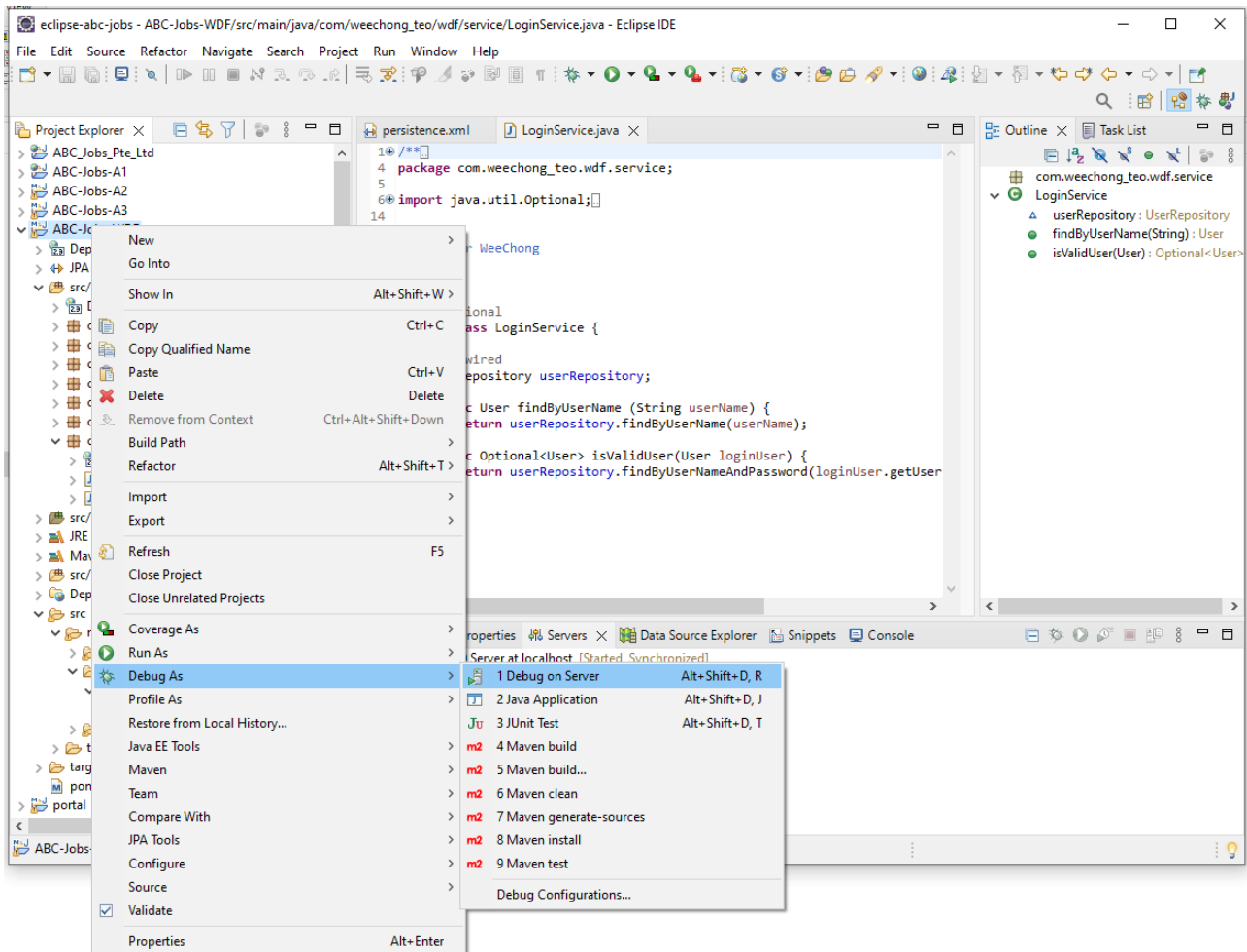


## 6.2 Debugger

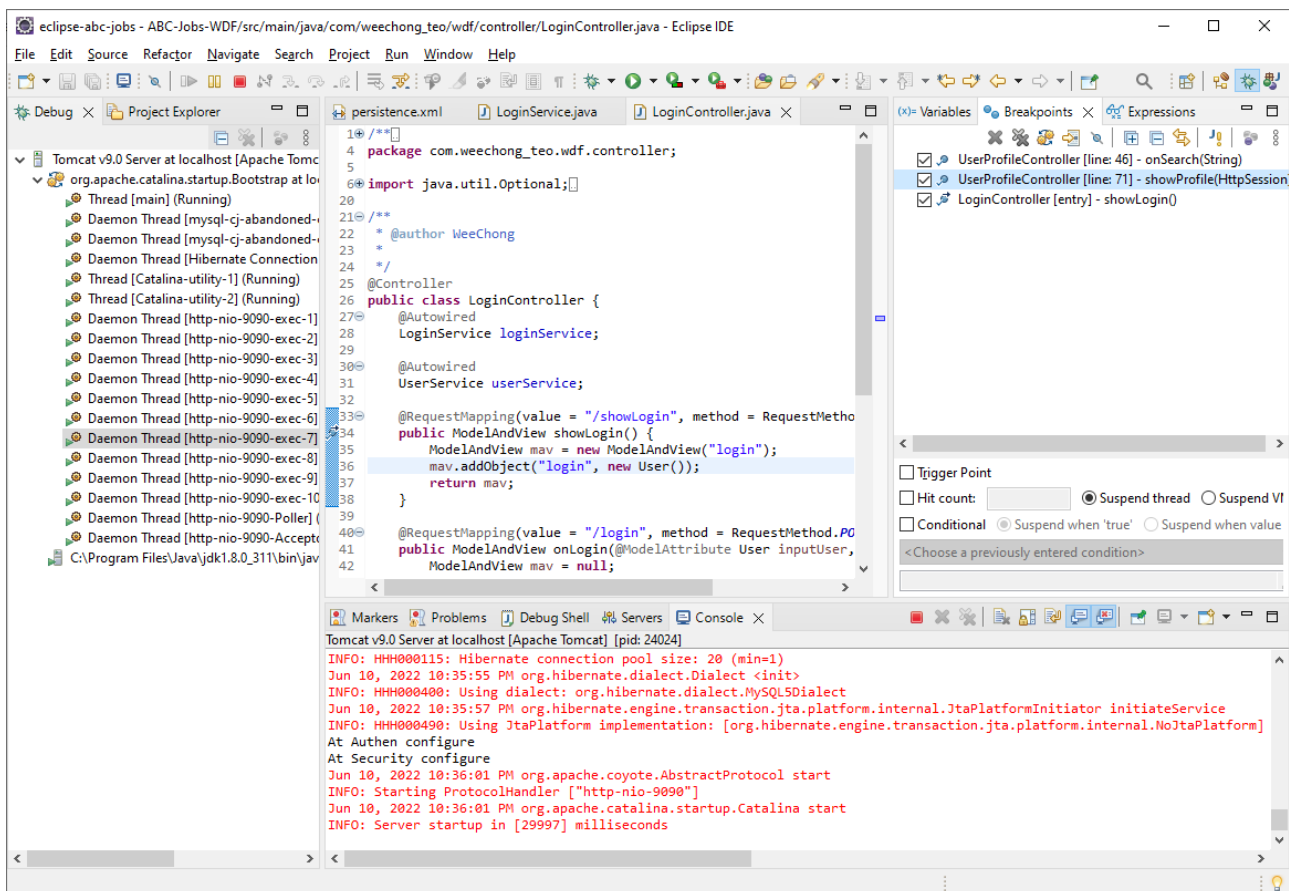
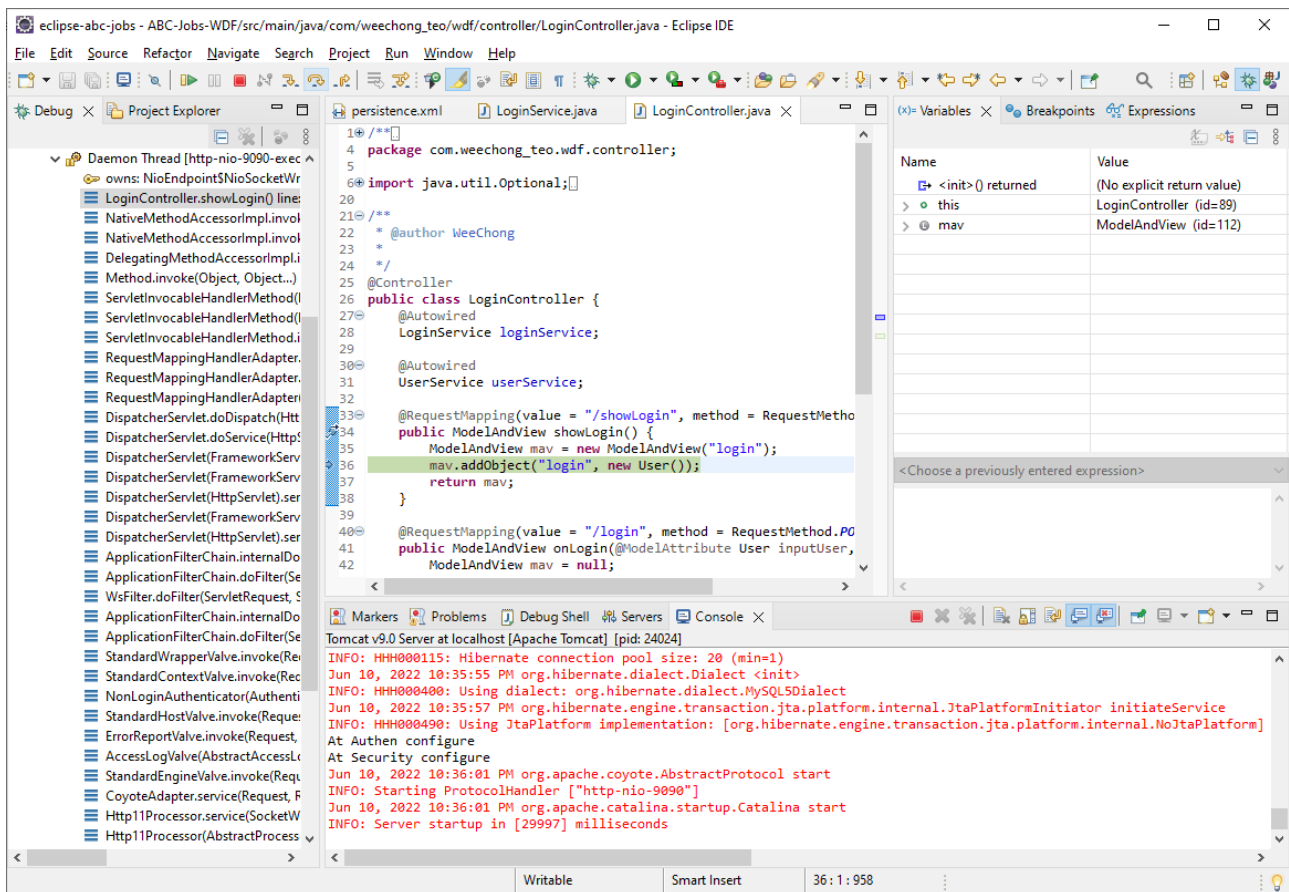
Eclipse allows you to start a Java program in Debug mode.

Eclipse provides a Debug perspective which gives you a pre-configured set of views. Eclipse allows you to control the execution flow via debug commands.

The debugger allows you to control and trace through the execution flow with breakpoints. The Variables view displays fields and local variables from the current executing stack.



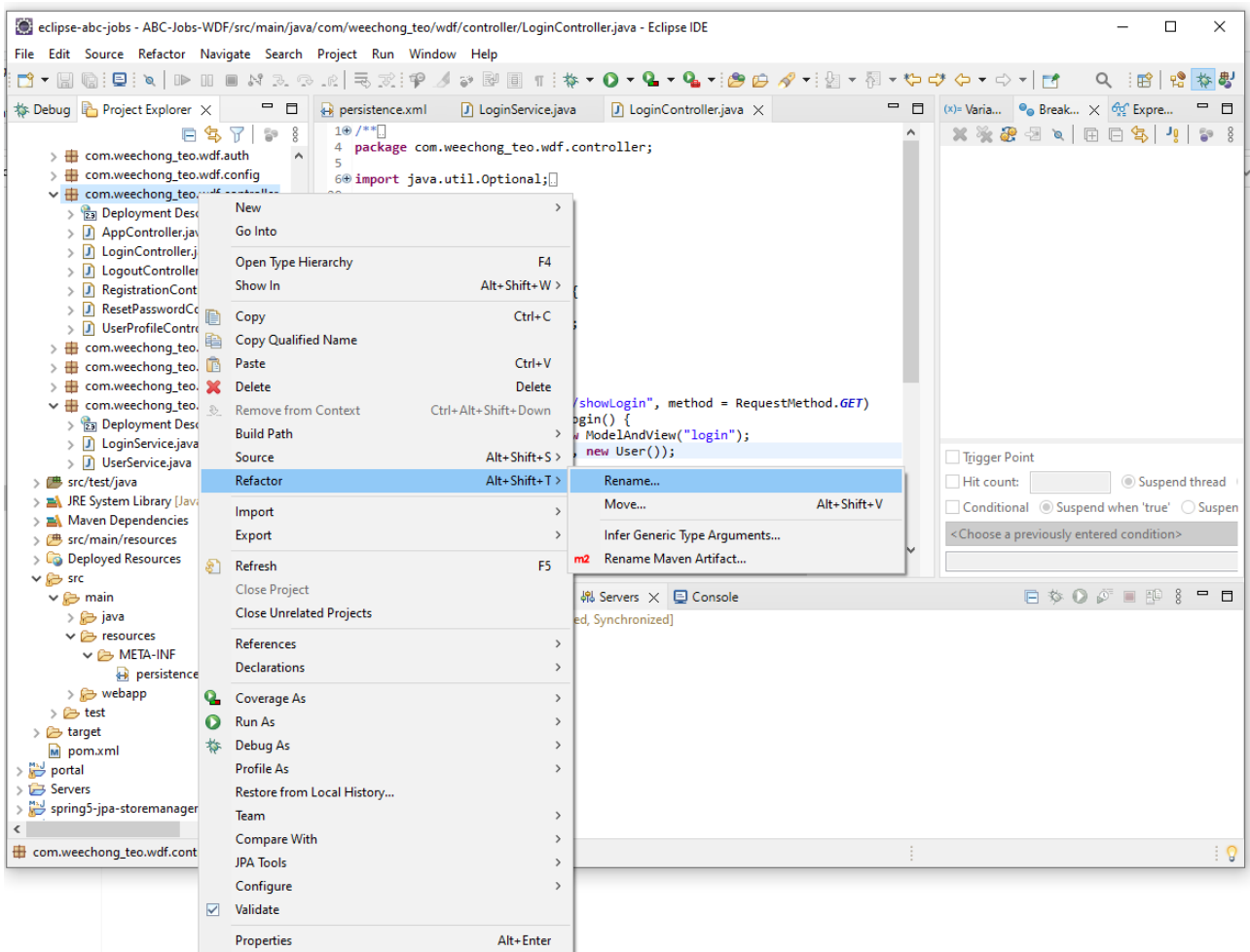




## 6.3 Refactoring

Eclipse supports several refactoring activities, for example, renaming or moving.

For example, to use the Rename refactoring, you can right-click on your class (in the editor or Package Explorer) and select Refactor -> Rename to rename your class. Eclipse will make sure that all calls in your Workspace to your class or method are renamed.



## 7 Task 4

### Task Statement:


Create the following items in “Coding & Documentation Standards” Section in Project Report

1. List 5 Coding Standards & Conventions to be used and explain shortly.
2. Describe briefly documentation tool, you will be using and its configuration.

### Solution:

#### 7.1 Coding Standards & Conventions

Naming conventions make programs more understandable by making them easier to read. They can also give information about the function of the identifier and can be helpful in understanding the code.

Identifier Type	Rules for Naming	Examples
Packages	<p>The prefix of a unique package name is always written in all-lowercase letters and should be one of the top-level domain names.</p> <p>Subsequent components of the package name vary according to project requirements. Such conventions might specify that certain directory name components be project, functions, or other names.</p>	<p>com.weechong_teo.wdf.entity com.weechong_teo.wdf.controller</p> 
Classes	<p>Class names should be nouns, in mixed case with the first letter of each internal word capitalized.</p>	<p>class User class UserProfile</p> <pre>public class User {</pre>
Interfaces	<p>Interface names should be capitalized like class names.</p>	<p>interface EducationRepository</p> <pre>public interface EducationRepository</pre>
Methods	<p>Methods should be verbs, in mixed case with the first letter lowercase, with the first letter of each internal word capitalized.</p>	<p>getPassword() setPassword()</p> <pre>public String getPassword() {     return password; }  public void setPassword(String password) {     this.password = password; }</pre>
Variables	<p>Except for variables, all instance, class, and class constants are in mixed case with a lowercase first letter. Internal words start with capital letters.</p>	<p>username password</p> <pre>private String userName; private String password;</pre>

## 7.2 Javadoc

Javadoc is a documentation generator for the Java language for generating API documentation in HTML format from Java source code.

The basic structure of writing document comments is to embed them inside `/** ... */`.

### 7.2.1 Class Declaration

```
/**
 * @author WeeChong
 *
 */
@Controller
public class RegistrationController {
```

### 7.2.2 Method

```
/**
 * Show registration form
 *
 * @return ModelAndView object
 *
 */
@RequestMapping(value = "/showRegister", method = RequestMethod.GET)
public ModelAndView showRegister() {
    ModelAndView mav = new ModelAndView("register");
    mav.addObject("user", new User());
    return mav;
}
```

### 7.2.3 Variables

```
/**
 * Password of the registered user
 */
@Column(name="password")
private String password;
```

## 8 Task 5

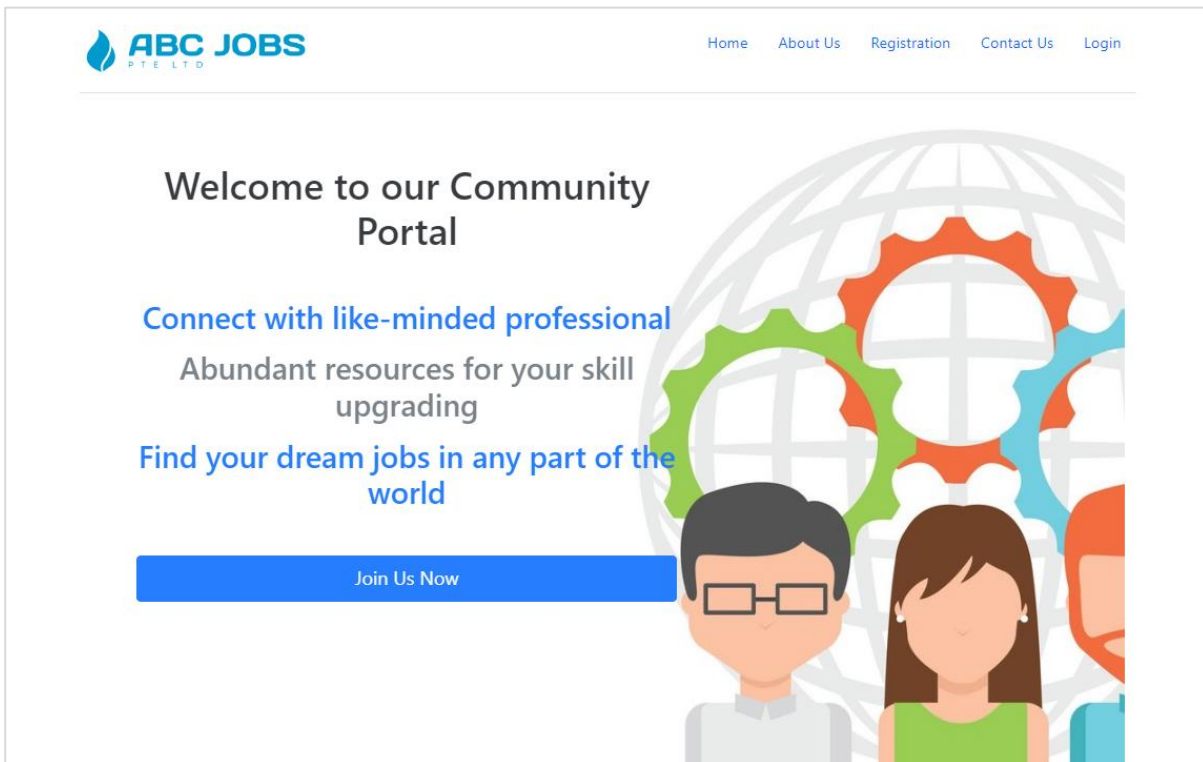
### Task Statement:

1. Develop the following pages in HTML (Developed in Module 3)
  - a. Home Page
  - b. Create / Edit Page
  - c. Listing Page
  - d. Login / Logout pages
  - e. Forget Password screen

- f. Administration Page
- 2. Templatize them by separating Headers / Footers and including them using Server Side includes.
- 3. Provide the screen capture in Project Presentation


**Solution:**

## 8.1 Home Page



## 8.2 Create/Edit Page

### 8.2.1 Registration



HomeAbout UsRegistrationContact UsLogin

## Registration

Email address

Password


Confirm Password

By clicking the submit button below, I hereby agree to and accept the terms and conditions.


Submit

[Already have an account? Login here.](#)

### 8.2.2 Update Profile



MainProfileSearchLogout



Full Stack Developer  
Google

Message

User Information

First NameLast Name

GenderDate of Birth

CityCountry

Education

Experience

Skill

## User Information

## New Education

## New Experience

Duration

Position

Company

## New Skill

Year of Achievement


Achievement Description

Institute



## 8.3 Listing Page

### 8.3.1 Search



[Main](#) [Profile](#) [Search](#) [Logout](#)

---


## Search

Please input your search text

Searching for ...

Submit

## 8.4 Login/Logout Page



[Home](#) [About Us](#) [Registration](#) [Contact Us](#) [Login](#)

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## Login

Email address

Password

[Forgot password? Reset password here.](#)

Login

[No account yet? Create one here.](#)

## 8.5 Forget Password Page






### Reset Password

Please input your email to receive the reset link.



## 8.6 Administration Page

### User List

#	UserName	Email Confirmed	Status	Created Date	Reset	Action
163	a@w.com	0	0	2022-06-09 22:04:58.0	reset	
164	monica@gmail.com	0	0	2022-06-09 22:14:36.0	reset	
165	chawu9799@gmail.com	0	0	2022-06-10 11:26:35.0		
166	john@gmail.com	0	0	2022-06-10 15:33:02.0		
167	ken@email.com	0	0	2022-06-10 17:09:21.0	reset	

## 9 Task 6

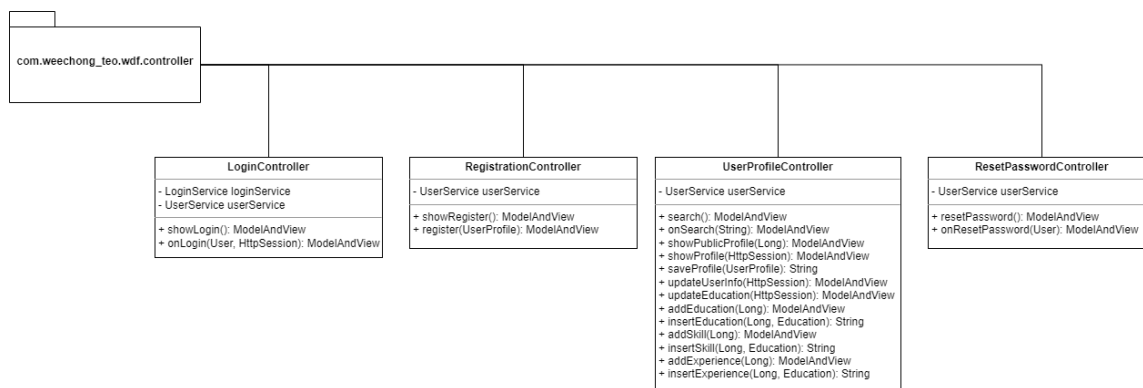
### Task Statement:

1. Create the required classes in Java
2. Include Data Access Layer classes
3. Include samples as part of Project Report

### Solution:

#### 9.1 Java Packages and Classes

##### 9.1.1 Controller Classes



```
import java.util.Optional;

/**
 * @author WeeChong
 */
@Controller
public class LoginController {
    @Autowired
    LoginService loginService;

    @Autowired
    UserService userService;

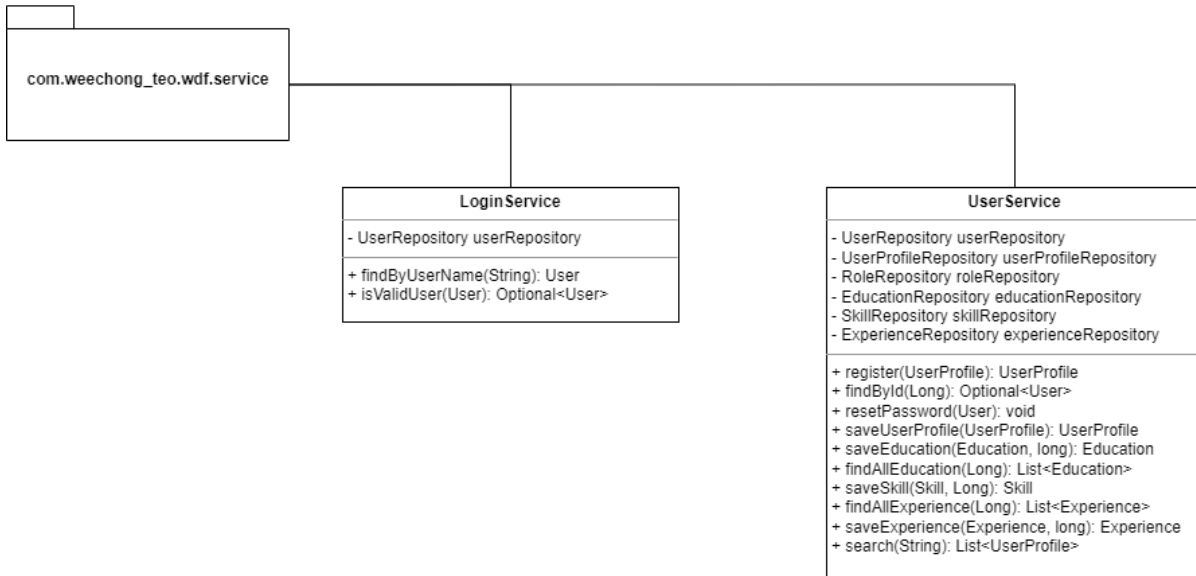
    @RequestMapping(value = "/showLogin", method = RequestMethod.GET)
    public ModelAndView showLogin() {
        ModelAndView mav = new ModelAndView("login");
        mav.addObject("login", new User());
        return mav;
    }

    @RequestMapping(value = "/login", method = RequestMethod.POST)
    public ModelAndView onLogin(@ModelAttribute User inputUser, HttpSession session) {
        ModelAndView mav = null;

        Optional<User> loginUser = loginService.isValidUser(inputUser);

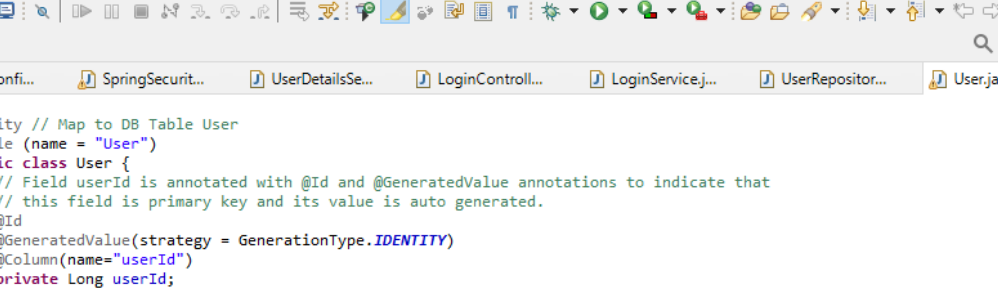
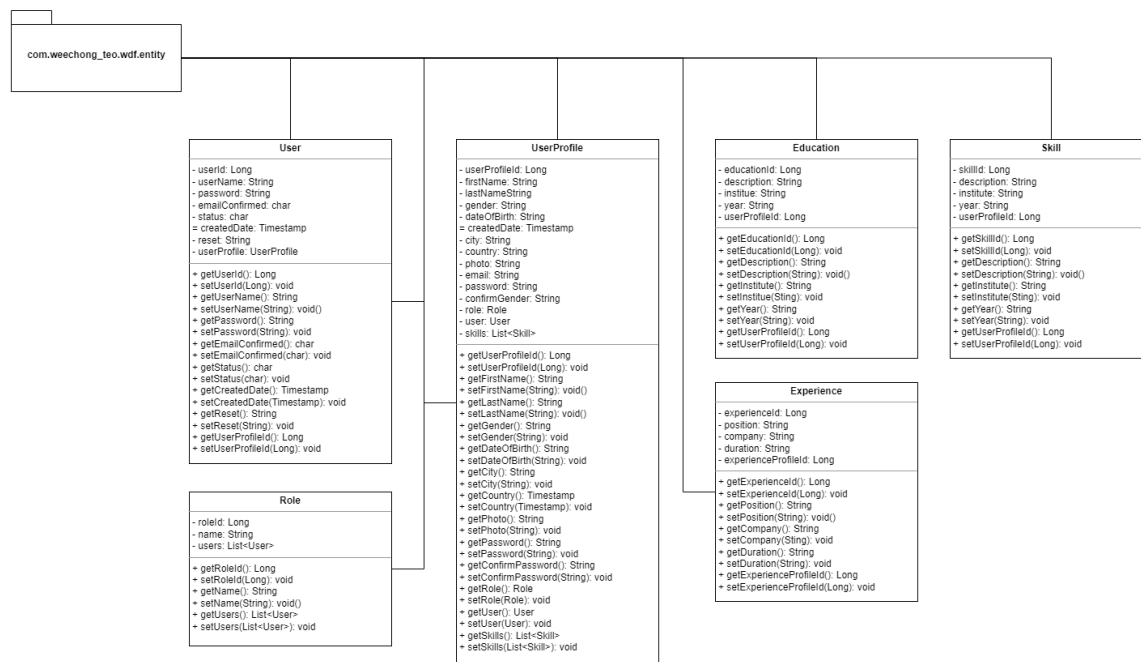
        if (loginUser == null || !loginUser.isPresent()) {
            mav = new ModelAndView("login");
            mav.addObject("errMsg", "Oops! Your email or password is incorrect!");
        } else {
            Optional<User> user = userService.findById(loginUser.get().getUserId());
            mav = new ModelAndView("mainPage");
            mav.addObject("loginUser", user.get());
            session.setAttribute("login_email", user.get().getUserName());
            session.setAttribute("login_id", user.get().getUserId());
        }
    }
}
```

## 9.1.2 Service Classes



```
1  /**
4  package com.weechong_teo.wdf.service;
5
6  import java.util.Optional;
14
15  /**
16   * @author WeeChong
17   *
18   */
19  @Service
20  @Transactional
21  public class LoginService {
22
23      @Autowired
24      UserRepository userRepository;
25
26      public User findByUserName (String userName) {
27          return userRepository.findByUserName(userName);
28      }
29      public Optional<User> isValidUser(User loginUser) {
30          return userRepository.findByUserNameAndPassword(loginUser.getUserName(), loginUser.getPassword());
31      }
32  }
33
34
```

### 9.1.3 Entity Classes

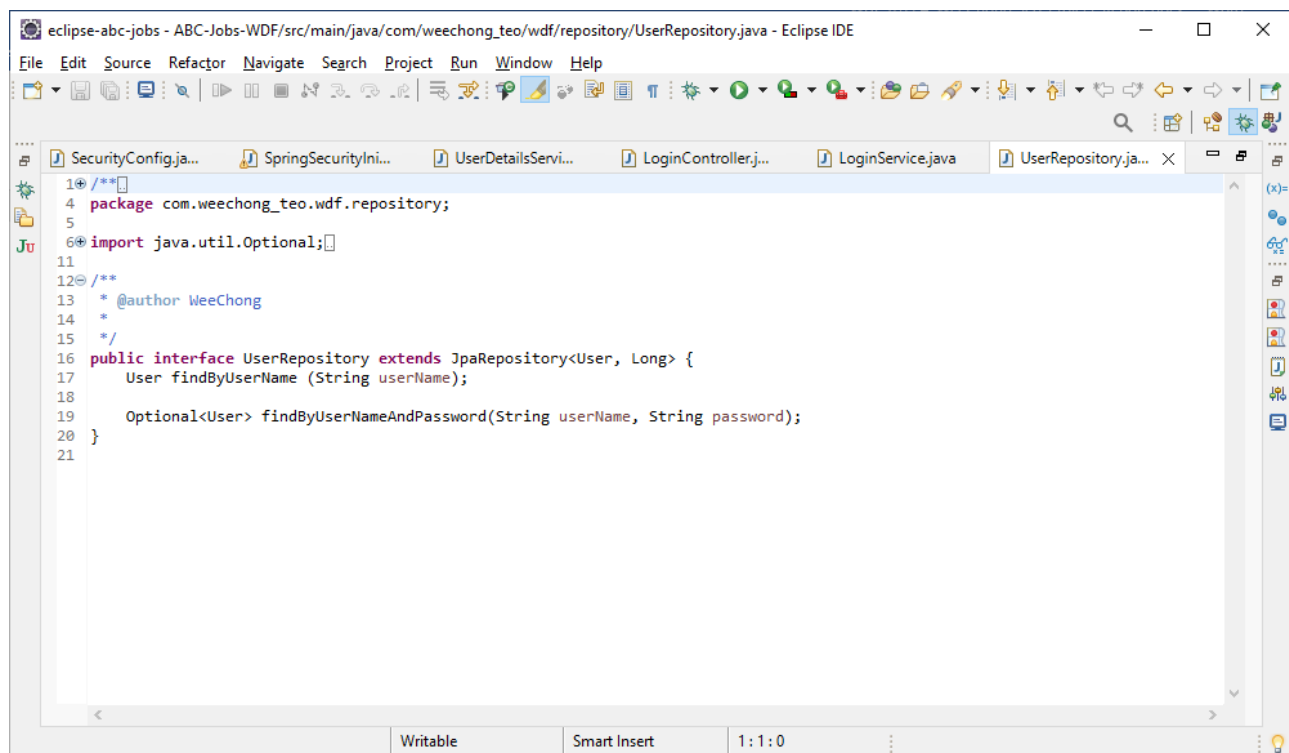
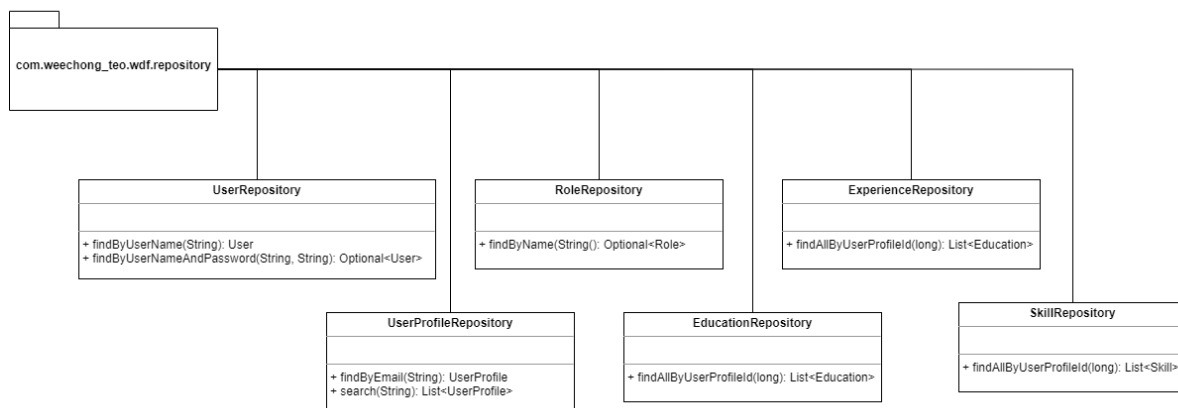


The screenshot shows the Eclipse IDE with the following details:

- Title Bar:** eclipse-abc-jobs - ABC-Jobs-WDF/src/main/java/com/weechong\_teo/wdf/entity/User.java - Eclipse IDE
- Menu Bar:** File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, Help
- Toolbar:** Standard Eclipse development tools including Save, Undo, Redo, Run, and others.
- Project Explorer:** Shows a project named 'abc-jobs' with a package 'com.weechong\_teo.wdf.entity' containing several Java files: SecurityConf..., SpringSecurit..., UserDetailsSe..., LoginControll..., LoginService.j..., UserRepositor..., and User.java (selected).
- Editor:** Displays the content of 'User.java'. The code is as follows:

```
29
30 @Entity // Map to DB Table User
31 @Table (name = "User")
32 public class User {
33     // Field userId is annotated with @Id and @GeneratedValue annotations to indicate that
34     // this field is primary key and its value is auto generated.
35     @Id
36     @GeneratedValue(strategy = GenerationType.IDENTITY)
37     @Column(name="userId")
38     private Long userId;
39
40
41     @Column(name="userName")
42     private String userName;
43
44     @Column(name="password")
45     private String password;
46
47     @Column(name="emailConfirmed")
48     private char emailConfirmed = '0';
49
50     @Column(name="status")
51     private char status = '0';
52
53     @Column(name="createdAt")
54     @CreationTimestamp
55     private Timestamp createdAt;
```

### 9.1.4 Repository Classes



## 10 Task 7

### Task Statement:

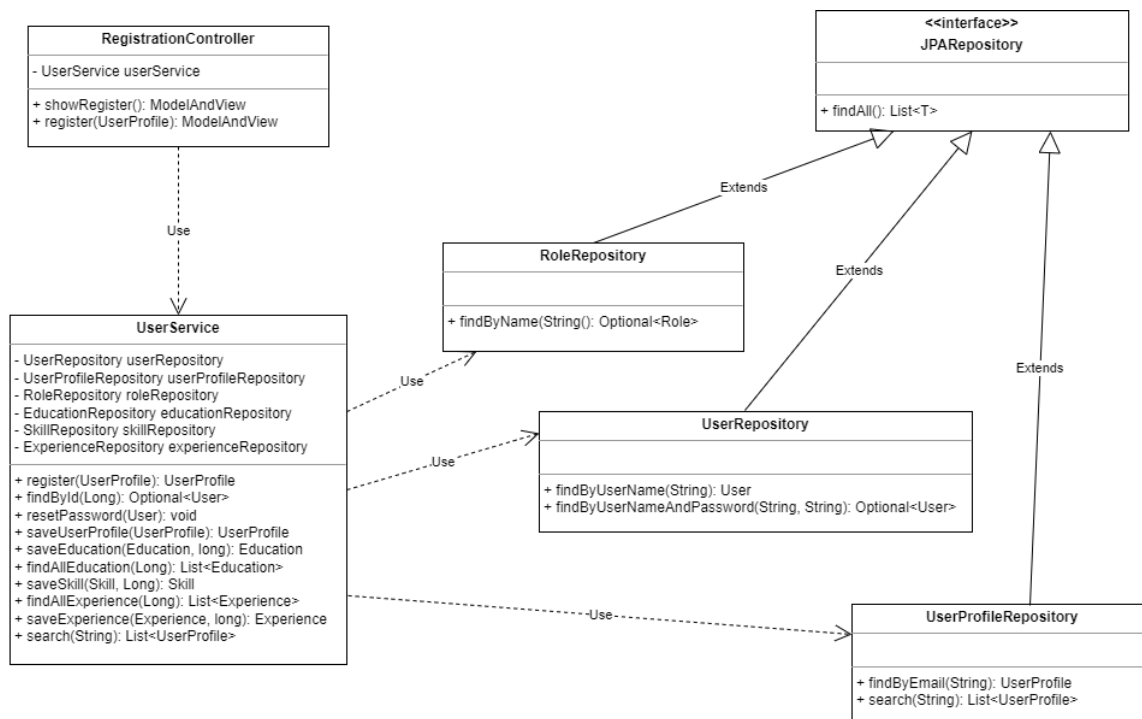
Provide screen capture of developed pages and hosted application in Project Presentation

1. Use Queries, Procs Developed in Module 4
2. Develop the Models, Views, Controller (at least for one of the functionalities, better if you can use for all the functionality)
3. Develop Home Page & Integrate with Login System
4. Develop Registration Form & Registration Thank You

5. Develop Forget Password mechanism
6. Develop Landing Page post login
7. Develop Search Box for Users
8. Develop View Search Results
9. Develop View Profile Page
10. Develop Edit Profile Functionality

## Solution:

### 10.1 Registration



## Registration

By clicking the submit button below, I hereby agree to and accept the terms and conditions.

Submit

[Already have an account? Login here.](#)

Register with following information.

Email: ken@email.com

Password: 123

## Registration Successful

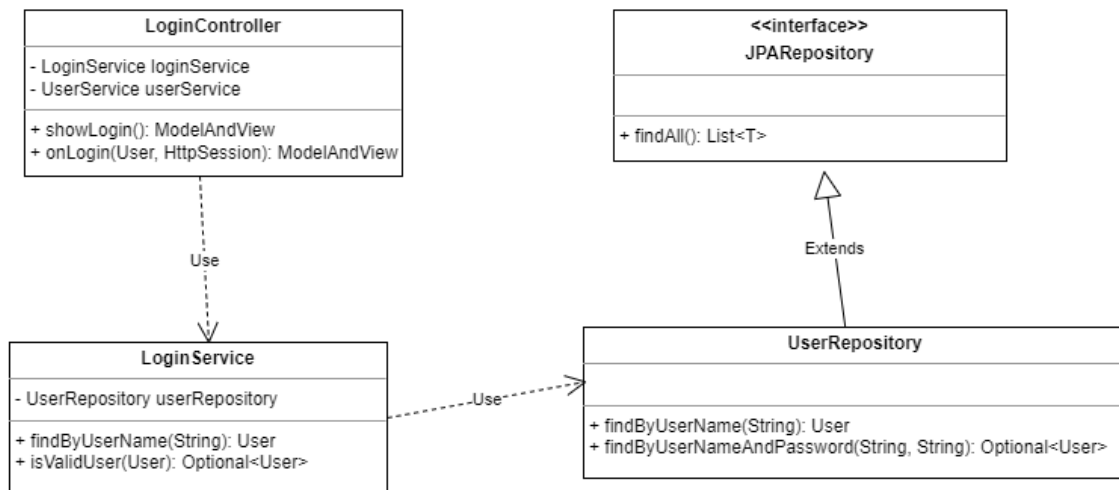
Thank you for registering with us.


Please check your inbox for the confirmation email.

Registration successful message is displayed to notify the completion of registration.



## 10.2 Login




[Home](#)
[About Us](#)
[Registration](#)
[Contact Us](#)
[Login](#)

---

## Login

Email address

ken@email.com

Password

...

[Forgot password?](#) [Reset password here.](#)

Login

[No account yet? Create one here.](#)

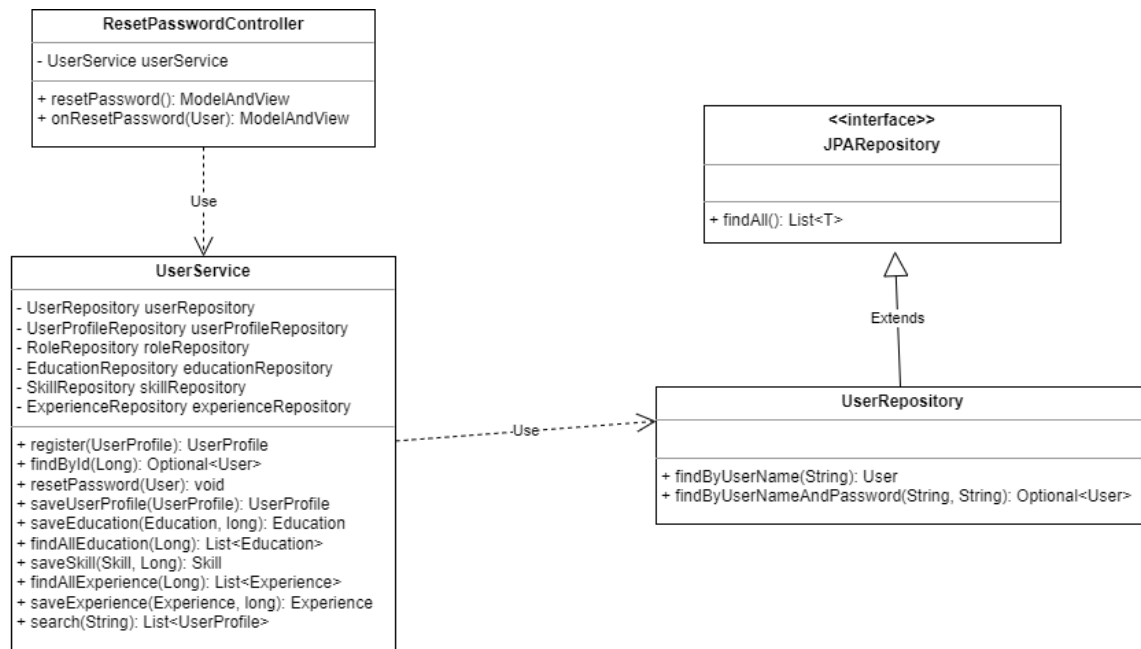
Login using [ken@email.com](#) with password 123.

## Main Page

Hi there, you are logged in using ken@email.com

Successful login will proceed to the Main page as shown above.

### 10.3 Reset Password



## Reset Password

Please input your email to receive the reset link.

Email address  
ken@email.com

Submit

Reset with [ken@email.com](mailto:ken@email.com).

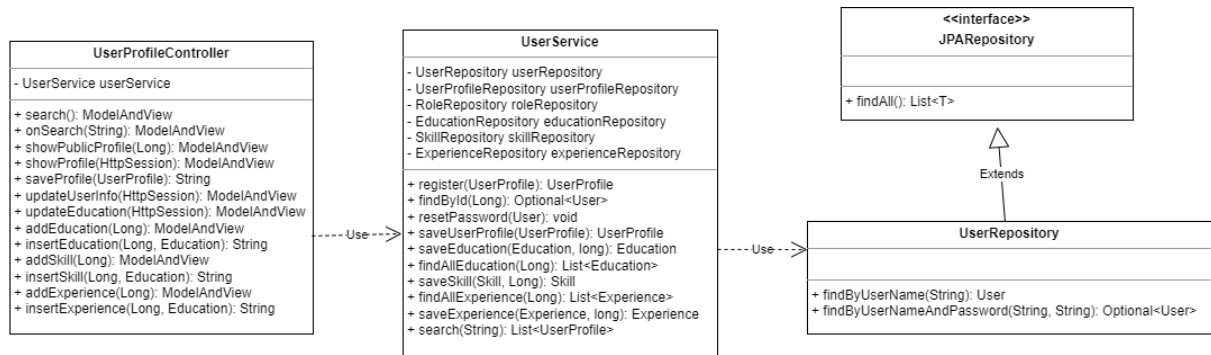
## Reset Password


**We have emailed you the link to reset your password.**

Please follow the instruction in the email.

Reset successful message.

## 10.4 Search




[Main](#)
[Profile](#)
[Search](#)
[Logout](#)

## Search

Please input your search text

Searching for ...

singapore

Submit

Search using Singapore as search text.

## Search

Please input your search text



#	Name	City	Country
124	<a href="#">Austin Kool</a>	Singapore	Singapore
125	<a href="#">Monica Goh</a>	Singapore	Singapore
127	<a href="#">John Kool</a>	Singapore	Singapore

Search result screen.

### 10.5 View Profile



**Monica Goh**

Full Stack Developer  
Google

#### User Information

First Name	Monica	Last Name	Goh
Gender	Female	Date of Birth	01-01-1999
City	Singapore	Country	Singapore

#### Education

1999	Master in BA	NTU
2000	Master of Science	NUS
2020	ACWD	Lithan

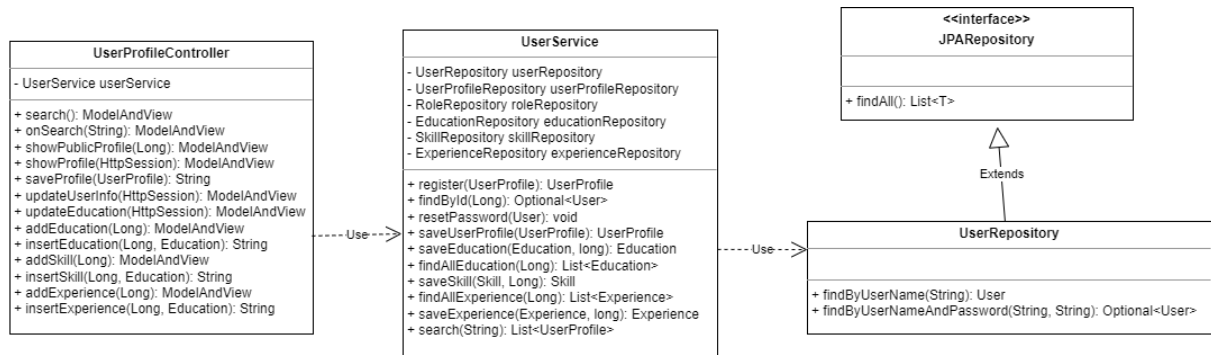
#### Experience

1990-Present	Full Stack Developer	Google
--------------	----------------------	--------

#### Skill

2000	Cooking	Cookhouse
2020	Software Testing	Software House

## 10.6 Update Profile



[Main](#)
[Profile](#)
[Search](#)
[Logout](#)

User Information

First Name

Ken

Last Name

Goh

Gender

Male

Date of Birth

22-10-1998

City

Tokyo

Country

Japan

Education

2020

Master of Science

NUS

Experience

2020-Present

Full Stack Developer

Google


Skill

2021

Google Cloud Digital Leader Certification

WhizLabs

### 10.6.1 Update User Information



[Main](#) [Profile](#) [Search](#) [Logout](#)

---

## User Information

First Name  
Ken

Last Name  
Goh

Gender  
Male


Date of Birth  
22-10-1998

City  
Tokyo

Country  
Japan

Submit

### 10.6.2 Add Education



[Main](#) [Profile](#) [Search](#) [Logout](#)

---

## New Education


Year of Achievement  
2020

Achievement Description  
Master of Science

Institute  
NUS

Submit

### 10.6.3 Add Experience



[Main](#) [Profile](#) [Search](#) [Logout](#)

---

## New Experience


Duration  
2020-Present

Position  
Full Stack Developer

Company  
Google

Submit

### 10.6.4 Add Skill



[Main](#) [Profile](#) [Search](#) [Logout](#)

---

## New Skill

Year of Achievement  
2021

Achievement Description  
Google Cloud Digital Leader Certification

Institute  
WhizLabs

Submit



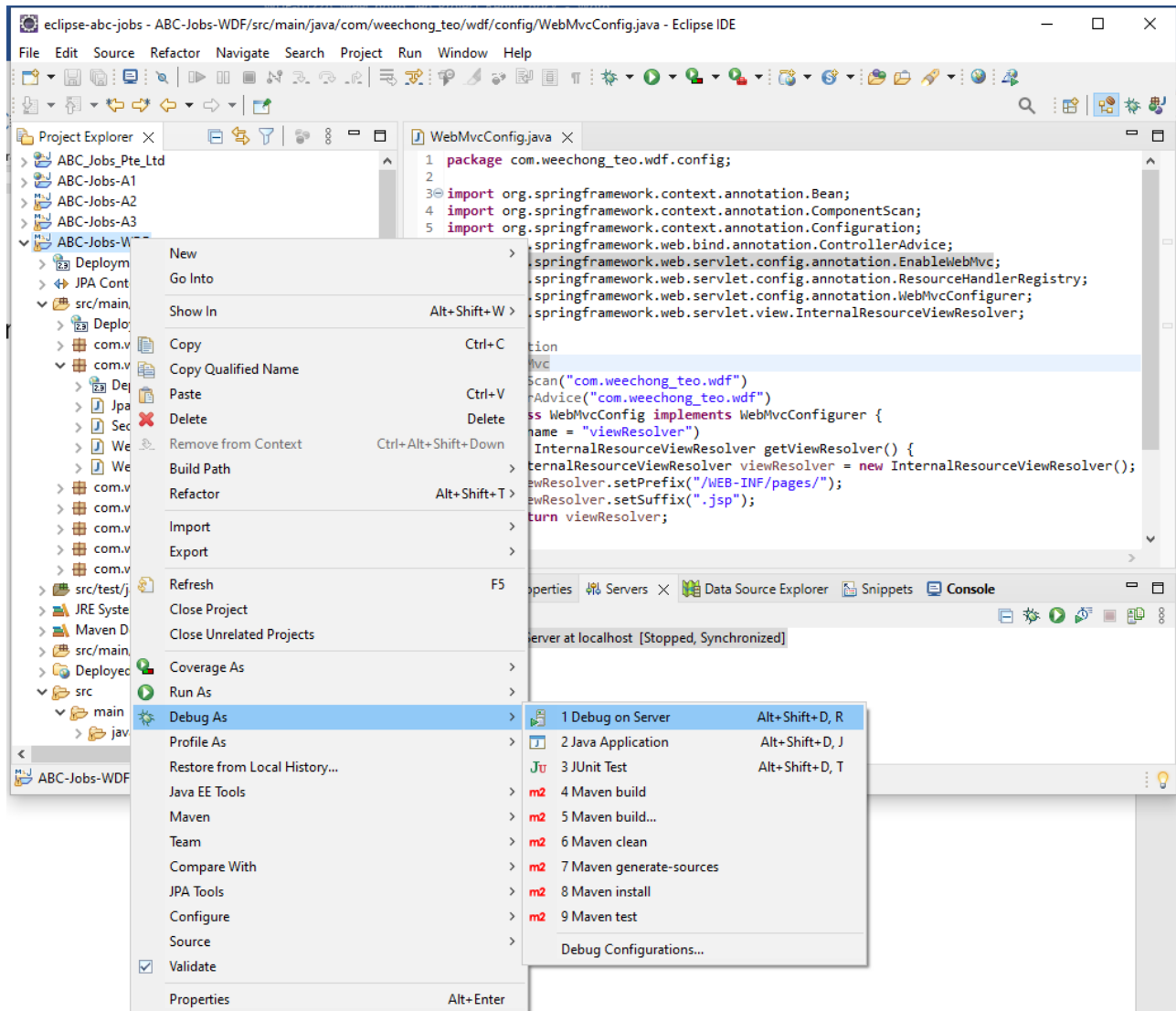
## 11 Task 8

### Task Statement:

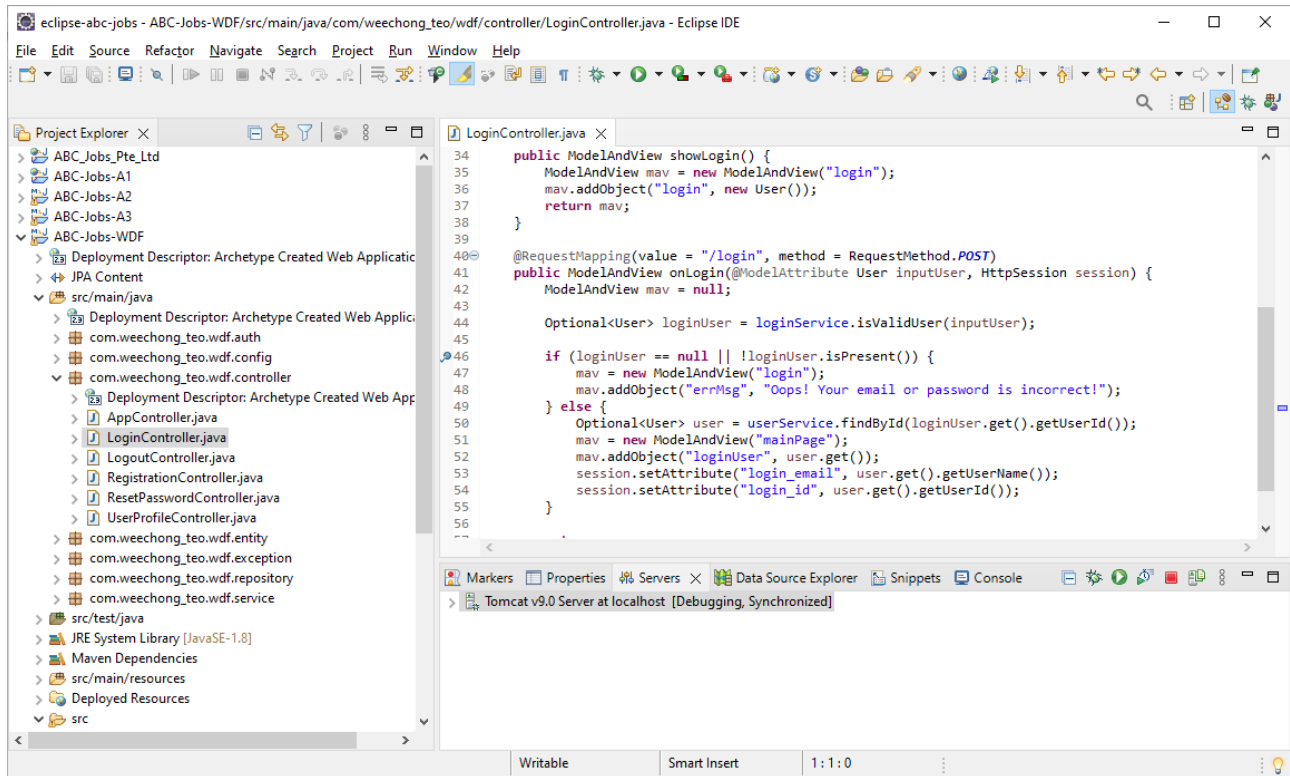
1. Debug the application in Eclipse
2. Provide the screen capture of your application code in Eclipse Debug Mode include it as part of Project Presentation

### Solution:

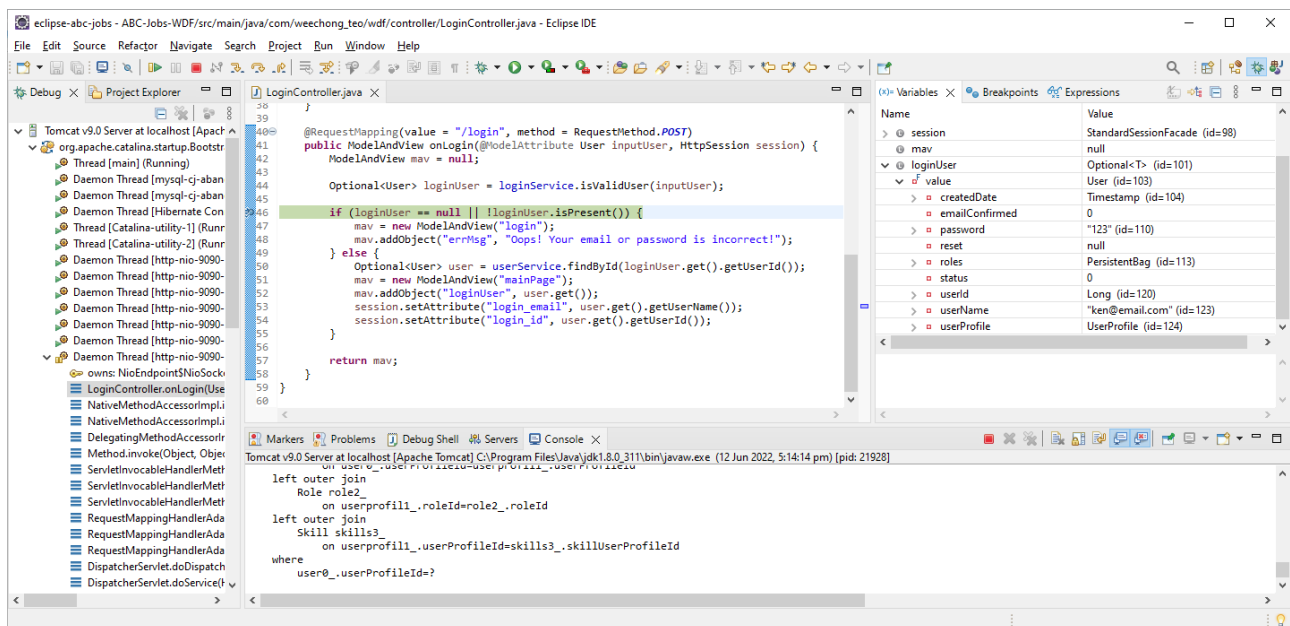
#### 11.1 Starting the Debugger



## 11.2 Set Breakpoints



## 11.3 View Variables



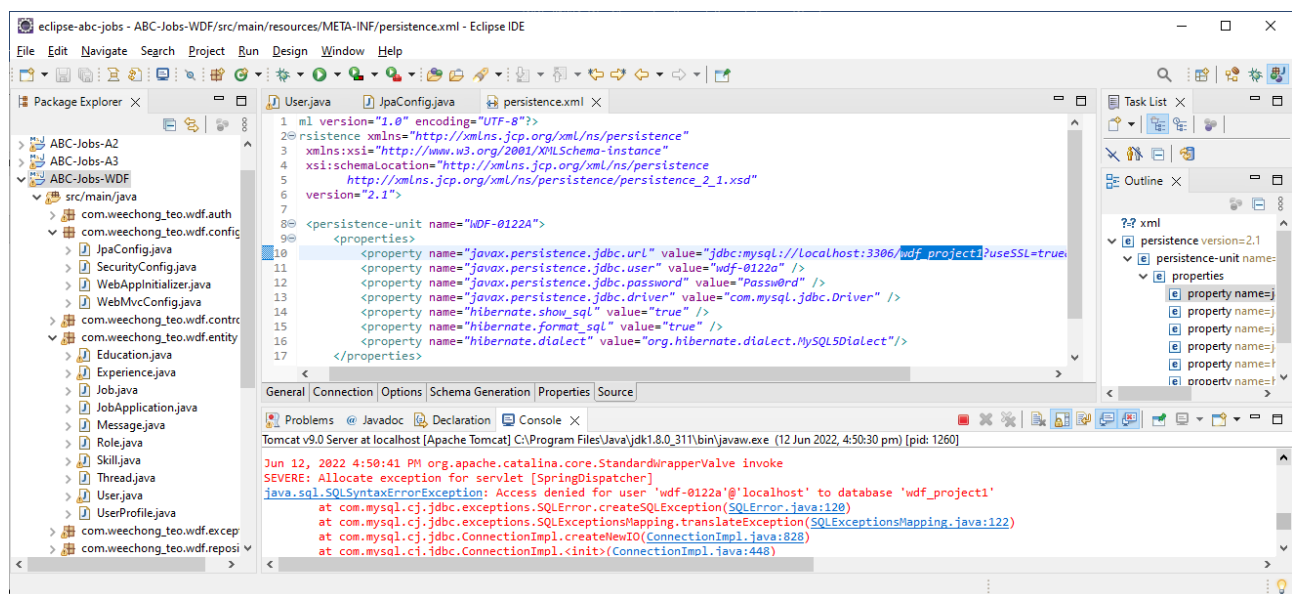
## 12 Task 9

**Task Statement:**

1. Provide screen capture of 3 Errors you encountered while developing the application.
2. How did you handle those 3 errors (Write in short bullet points)
3. Include it as part of Project Presentation

**Solution:**

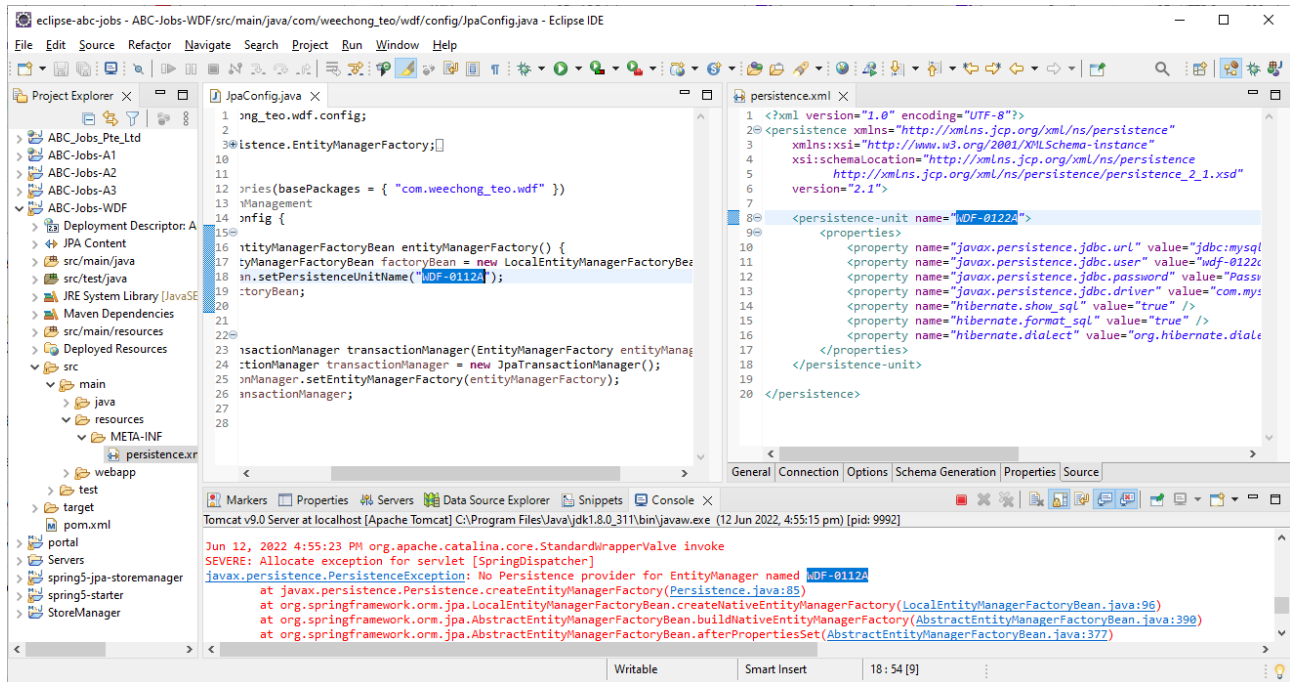
## 12.1 Incorrect Persistence Configuration



The name of the database was incorrectly configured in the *persistence.xml*.

Changing the database name to the correct name resolve the problem.

## 12.2 Incorrect Persistence Provider



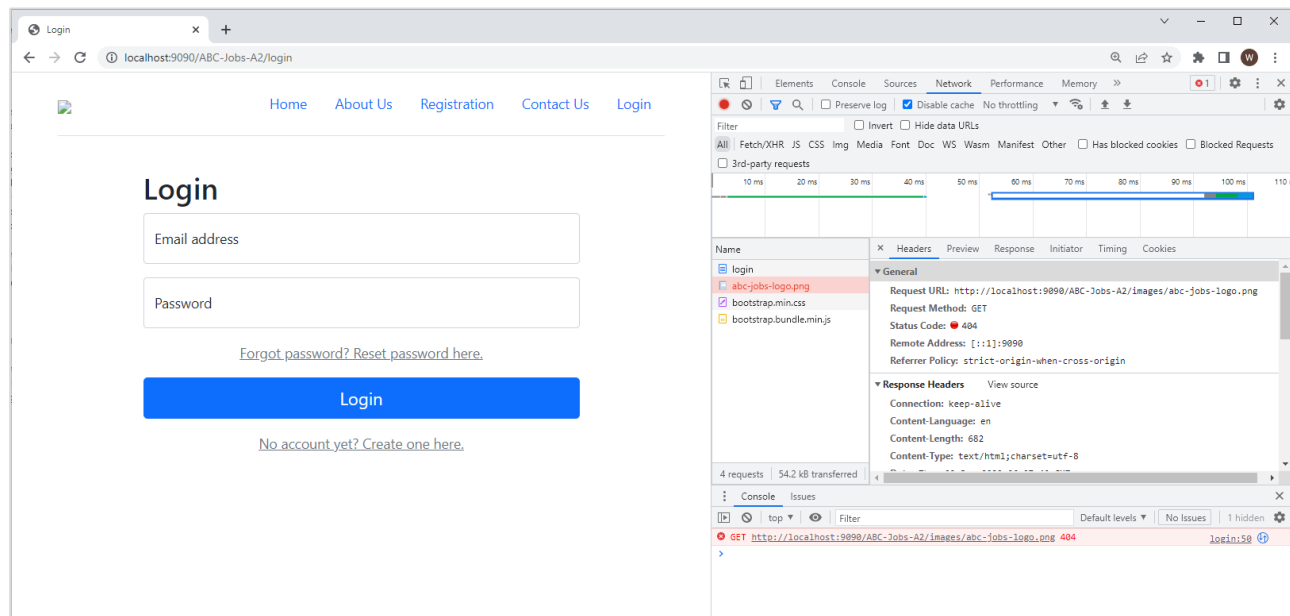
Due to typo error, the Persistence provider cannot be connected.

Update the following line in *JpaConfig.java* file resolved the problem.

```
factoryBean.setPersistenceUnitName("WDF-0122A");
```

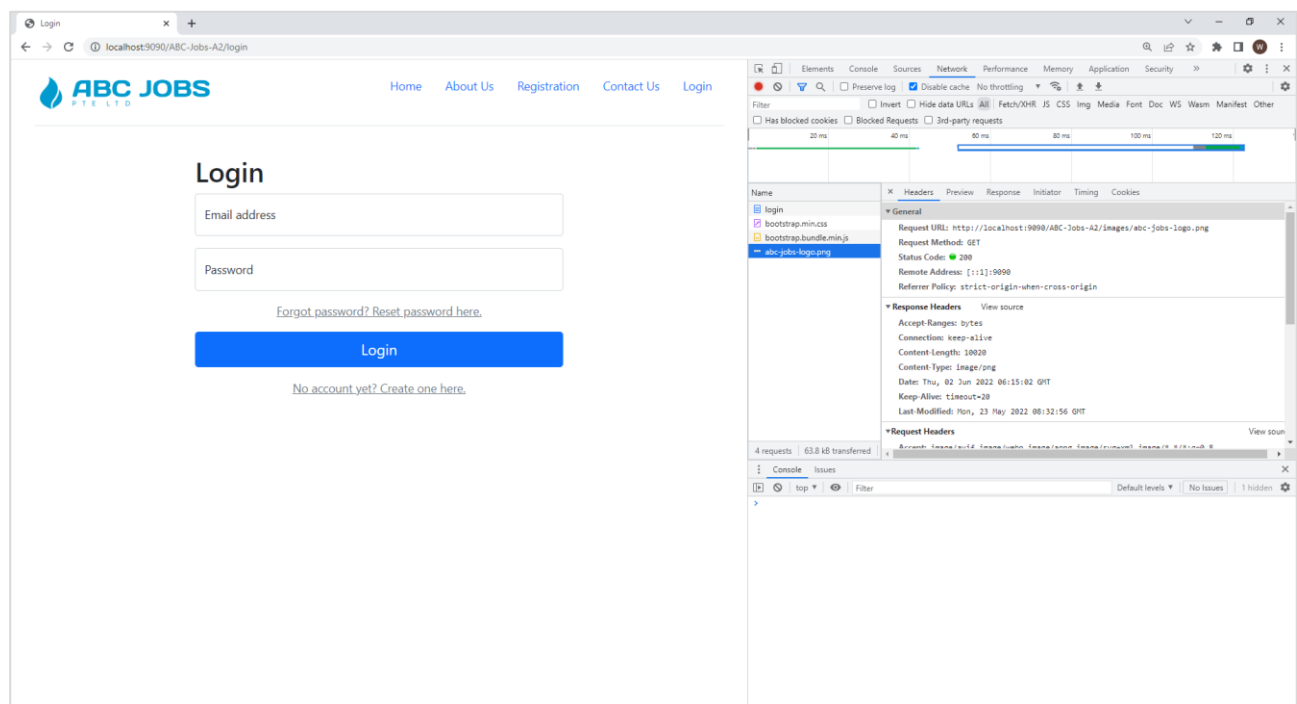
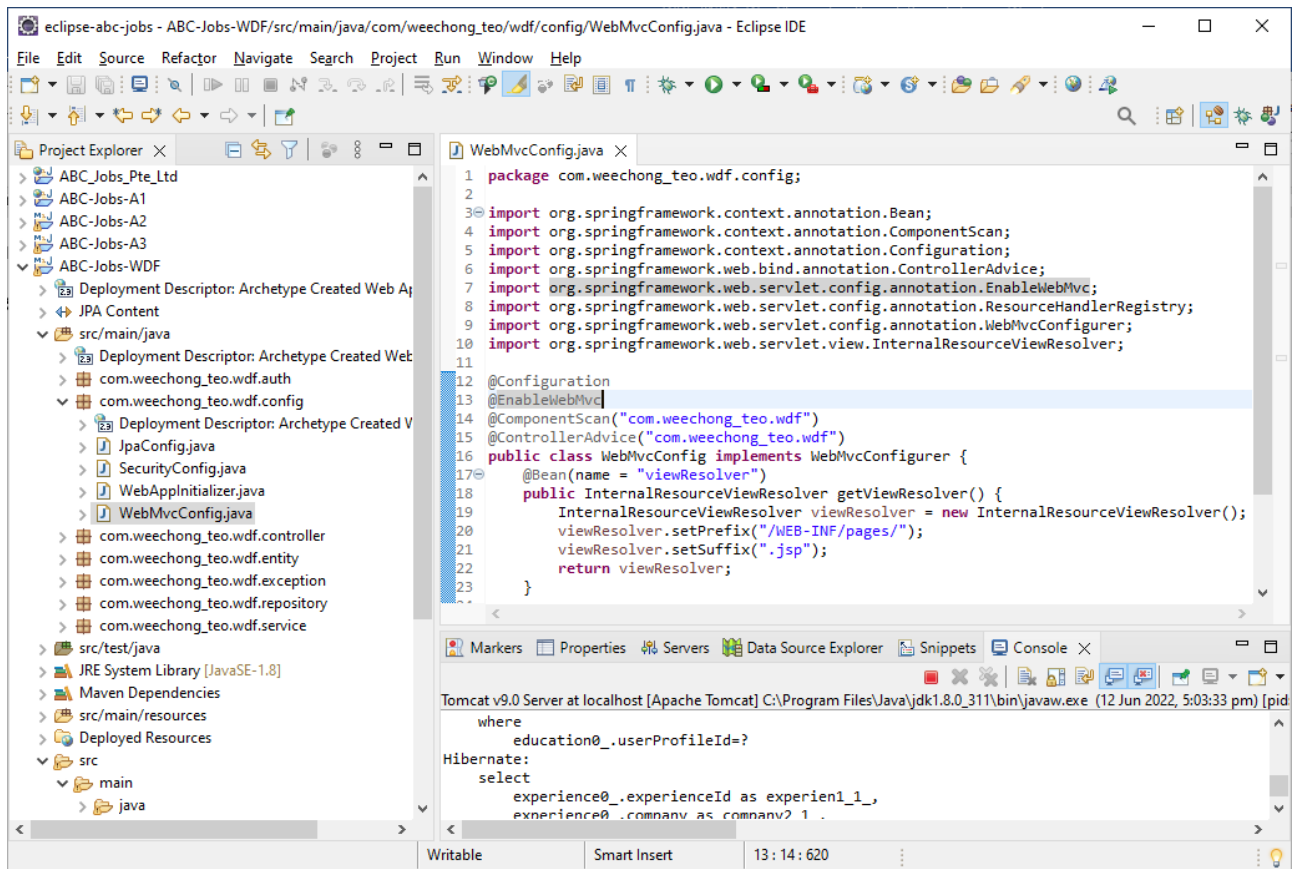
## 12.3 Unable to load static resources

Static image such as the logo is not displayed as shown below.



## Fixes to *WebMvcConfig* class.

The solution is to add the annotation `@EnableWebMvc` to *WebMvcConfig* `@Configuration` classes in order to enable MVC Java configuration.



## 13 Task 10

### Task Statement:

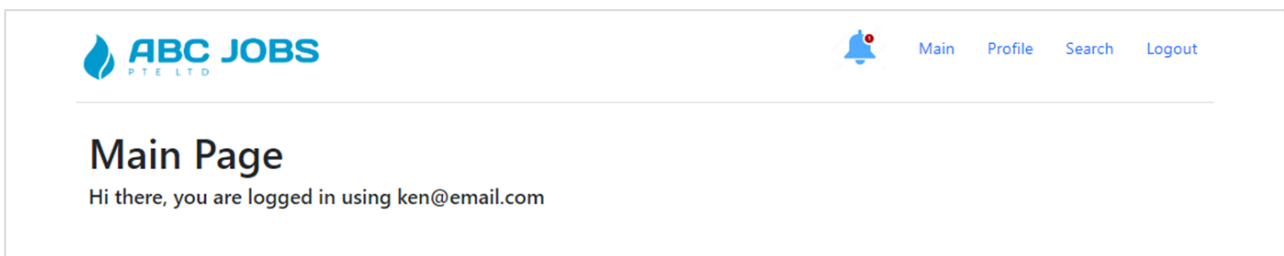
1. Propose & Document a new feature to the application
2. Develop the new feature and provide a report.
3. Include it as part of Project Report

### Solution:

#### 13.1 Alert Notification

An alert notification feature can be added to the system. This notification module can notify user the following events.

1. A new message has been received
2. A new thread has been posted
3. A new job posting has been placed
4. A new status to the user's job application



The notification bell icon is located at the navigational bar with a number to indicate the number of notifications. Clicking on the bell icon will open the list of alerts.

## 14 Task 11

### Task Statement:

Provide Unit Testing code & screen capture of Eclipse IDE in debug mode.

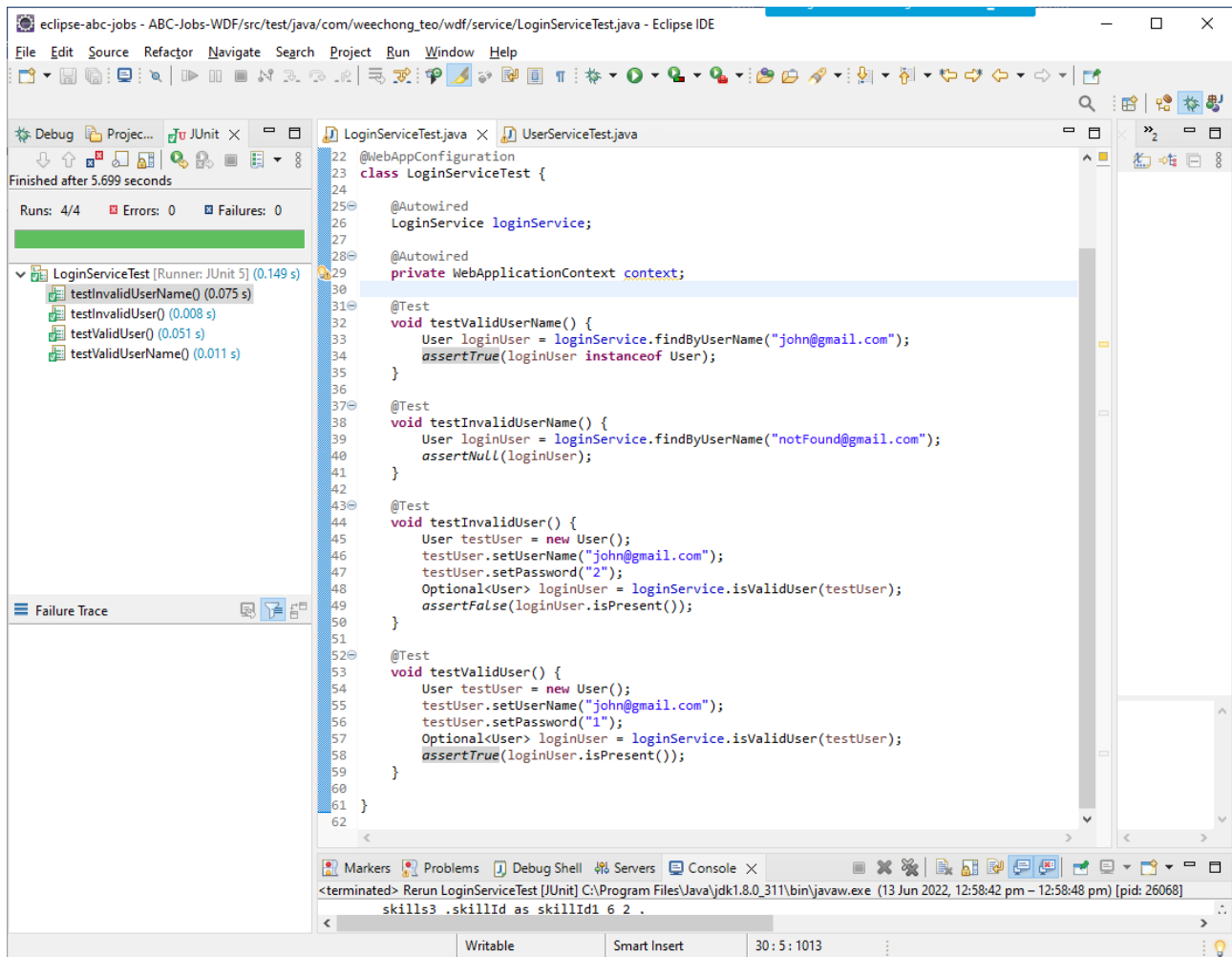
1. Develop and execute unit testing for individual modules (At least 3 Cases)
2. Create Test Cases for the Individual Modules (At least 3 cases in total) and document it in Project Report
3. List the bugs and document in Project Report
4. Fix the bugs as needed
5. Deploy to Lithan servers

### Solution:

## 14.1 Unit Testing

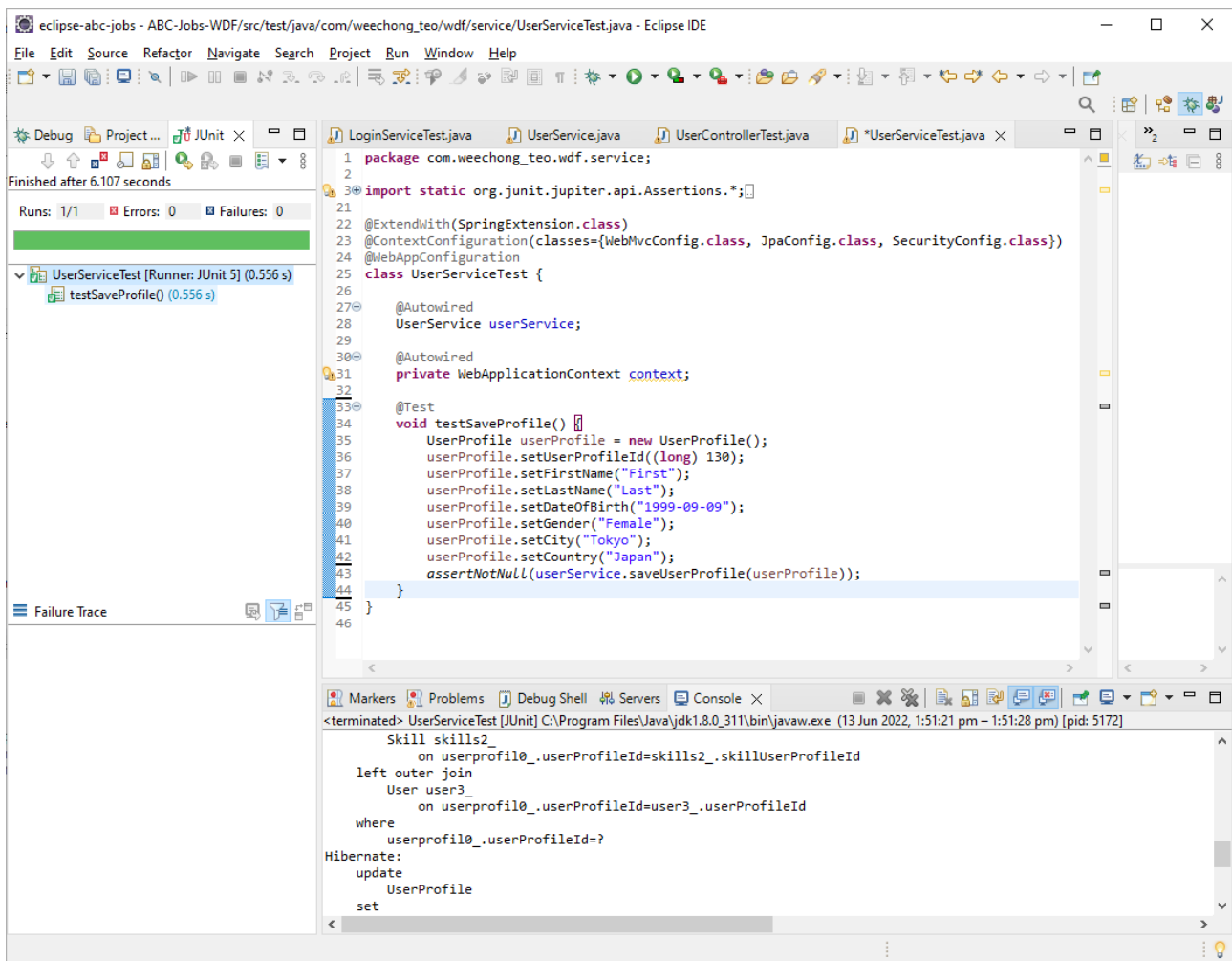
### 14.1.1 LoginServiceTest

1. testInvalidUserName – To test for invalid user name.
2. testInvalidUser – To test for invalid credential.
3. testValidUser – To test for valid credential.
4. testValidUserName – To test for valid user name.

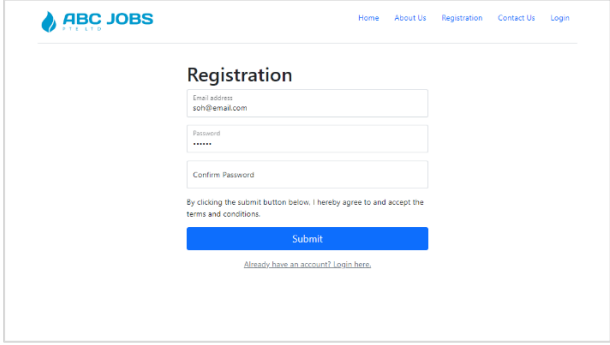


### 14.1.2 UserServiceTest

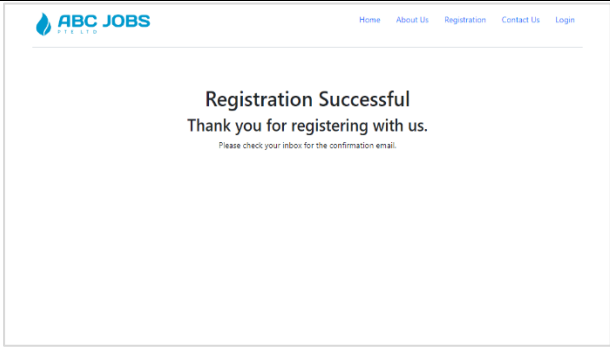
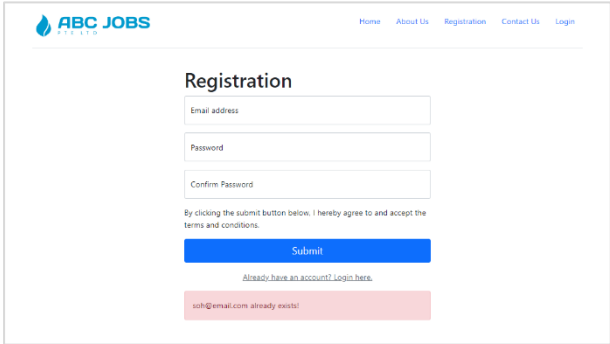
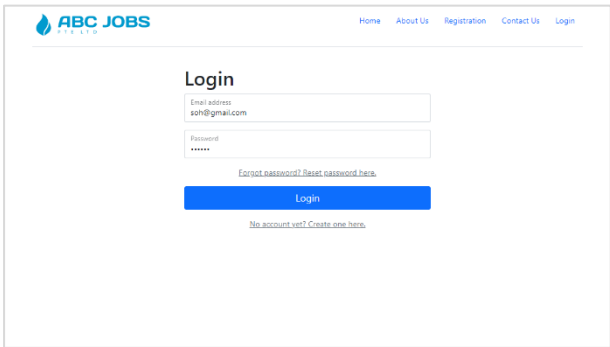
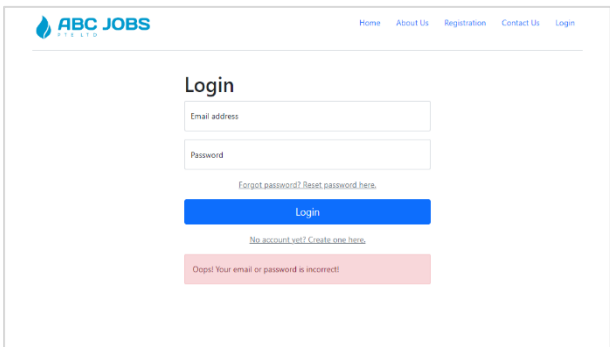
1. testSaveProfile – To test a user profile is created and saved.



## 14.2 Test Cases

S/N	Test Case	Expected Result	Actual Result	Outcome
1	<p>Register with a new email address.</p> <p>Test data</p> <p>Email: <a href="mailto:soh@email.com">soh@email.com</a>, Password: 123456</p> 	Successful	Successful	Pass



				
2	<p>Register with a new email address.</p> <p>Test data</p> <p>Email: <a href="mailto:soh@email.com">soh@email.com</a>, Password: 123456</p> 	Email Already Exists	Email Already Exists	Pass
3	<p>Login with Email: <a href="mailto:soh@email.com">soh@email.com</a>, Password: 123456</p> 	Successful	Successful	Pass
4	<p>Login with Email: <a href="mailto:soh@email.com">soh@email.com</a>, Password: xxx</p> 	Email or password is incorrect	Email or password is incorrect	Pass

## 14.3 List of Bugs

S/N	Problem	Cause and Fix
1	Encountered java.sql.SQLException.	<p>The name of the database was incorrectly configured in the persistence.xml.</p> <p>Changing the database name to the correct name resolve the problem.</p>
2	Encountered javax.persistence.PersistenceException.	<p>Due to typo error, the Persistence provider cannot be connected.</p> <p>Update the correct name in JpaConfig.java file resolved the problem.</p>
3	The logo is not displayed as shown below	<p>Static image such as the logo is not displayed.</p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>Override the addResourceHandlers() method in WebMvcConfig.java to define the type and location of the static resources</li> <li>add the annotation @EnableWebMvc to WebMvcConfig.java @Configuration classes in order to enable MVC Java configuration.</li> </ol>

