# **Project Report**

Project Title	Problem Manage a Server Outage Scenario & an Issue & Change Request Management System
Qualification Name (NICF)	Advanced Certificate in Software Applications (Development and Deployment)
<b>Product Name</b>	
Module Name (NICF)	

Student name		Assessor name		
Chathushi Jayarathna		Ms. Arvinder Kaur		
Date issued Comp		oletion date	Submitted on	
10/10/2022	27/10	)/2022	27/10/2022	

Project title Stud	ent Registration Form Development
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# **Learner declaration**

Student signature: Chathushi Date:27/10/2022

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# 1. Project Background

ABC Jobs Pte Ltd is a career guidance organization that gives tasks to individuals. That organization needs to foster a community portal to spread its name to additional clients

ABC Jobs Pte Ltd suggests occupations and recruits laborers. With this community portal, clients can enlist for themselves and quest the most prominent positions in their occupations. Likewise, clients can make networks with other clients by interfacing with them in their local area. Likewise, the gateway is principally utilized for proficient collaborating and vocational development

The primary motivation behind this task is to design and develop the community portal as they wish. Locally community portal clients will actually want to enroll and look for another client. After they can log in, reset their password, and update their profile. User details are stored in a database. This ABC Community portal entryway is very valuable to the client side since clients do not have to go to ABC Jobs organization to look through positions, they can look online with the local area gateway. Likewise, clients should need to safeguard a client profile to acquaint themselves. This people group entryway has private and public modules. Confidential modules approach for the administrators and public modules approach programming software engineers.

For this local community portal, we have carried out a java-based web application with a spring MVC structure for the client necessities, business needs, and cycles. Likewise, we want to design, make, plan and execute the tests for this undertaking. As a component of this task, we really want to recognize this problem and oversee it across its lifecycle

# 2. Project Objectives

## ✓ Scope of the project

- Explain principles of problem management across its lifecycle.
- Use various tools, process and technologies to facilitate problem identification, investigation, analysis & resolution
- Explain various steps to investigate & diagnose problems.
- Prioritize & Categorize change requests.
- Prepare a solution to address the root cause of the problem.
- Document & monitor the problems
- Explain best practices in documenting problems.

#### 2.1 Tools & Platforms used

 Eclipse IDE for Enterprise Java and Web Developers - 2022- 03 - To implement application

```
| Project price | Controlled |
```

Figure 1:Screenshot of Eclipse IDE

# MySQL Workbench 8.0 CE - To create ate database

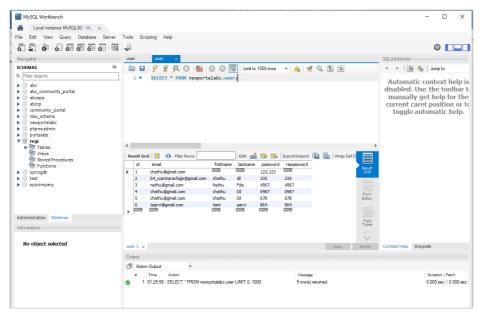


Figure 2:Screenshot of MySQL Workbench

# Microsoft Word - To create e project report

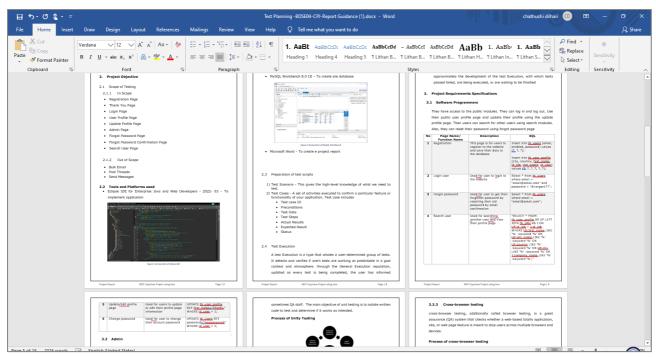


Figure 3:Screenshot of Microsoft Word

Microsoft PowerPoint – To create project presentations

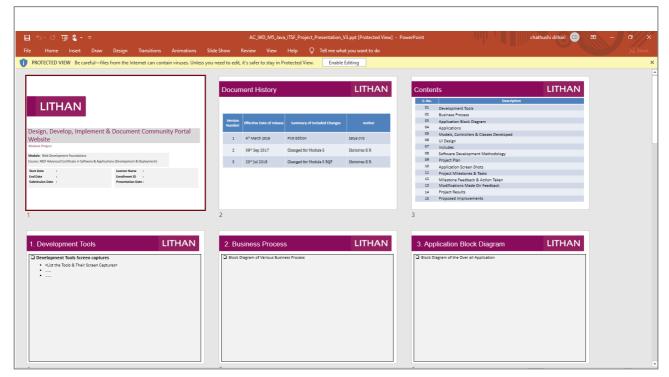


Figure 4:Screenshot of Microsoft PowerPoint

# Diagram.net - To create flow charts, site map

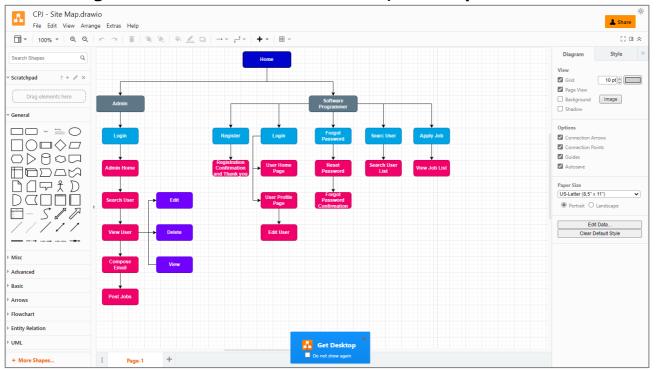


Figure 5:Screenshot of Drawio

## 3. Project Requirements Specifications

# 3.1 Functional Requirements

## ✓ Users (Software Programmer)

- Registration This page is for users to register to the website and save their data to the database
- Login Used a for a user to log into the website
- Forgot Password users for a user to get their forgotten password by resetting their old password by email confirmation
- Search user Used for searching for another user and viewing their profile page
- Edit Profile Used for a user to update or edit their profile page information
- Apply Job Used for a user to apply to a job that exists on the website

#### ✓ Administrator

- Login Used for admin to log in as an administrator of the website
- Dashboard Administrator page to manage all the users of the website, this page includes add, view list user, edit user, delete user, send bulk email, posting jobs, and accepting users to the job functionality.
- Add user Used for adding a new users to the application from the admin side
- Edit user Used for editing user data
- Delete user Used for deleting user data
- Job posting Used for posting jobs opportunity to the software programmers/user of the website
- Bulk Mail Used for sending bulk emails

# 3.2 Non-functional requirements

#### √ Safety requirements

The database has the personal facts of users, due to that it secures with a robust password. also, the passwords of users are encrypted and stored in a database

#### ✓ Performance attributes

Availability - The network Portal is operational 24 hours a day

- **Correctness** The consequences users are seeking out in a search function much like the results users need t get. additionally, whilst the user logged into the community portal correct user web page is showing
- **Maintainability** The community portal is frequently monitored and maintained through the Admin
- **Usability** ABC network portal can include a bulky quantity of users and has a huge capacity to stock user records

## ✓ Performance Requirements

- Concurrent quantity of customers 100
- Loading time 15sec

## √ Security Requirements

.permit all()	.hasAnyRole	.hasRole("Admin")	<pre>.hasRole(Softwere programmer)</pre>
Index.jsp	Index.jsp	Adminwelcome.jsp	Registration.jsp
Registration.jsp	Registration.jsp	index.jsp	ViewProfile.jsp
Home.jsp	Home.jsp		Forgotpassword.jsp
EditProfile.jsp	EditProfile.jsp		

# Task 1

# 4. Problem Management

Problem management is the arrangement of cycles and exercises liable for dealing with the lifecycle of all issues that could occur in an IT administration. It likewise utilizes safeguard strategies to distinguish fundamental causes and keep issues from happening. In the event that an issue or episode has proactively happened, issue the board looks to keep them from occurring from now on. It additionally includes recognizing the most ideal way to take out the main driver. In any case, assuming it's an undeniable issue, a viable issue the executives' cycle will assist with limiting the effect on business.

It isn't just about finding and fixing episodes, however recognizing and understanding the hidden reasons for an occurrence as well as distinguishing the best technique to dispense with that main driver. Also, pinpointing the reason has no worth to an association in the event that it's a cut-off process finished by a siloed group, so the issue the executives ought to be steady and broadly rehearsed across numerous groups, including IT, security, and programming designers. An episode might be over once the assistance is ready once more, however until the fundamental causes and contributing elements are tended to, the issue remains.

# 4.1 Phases of Problem Management



Figure 6:Phases of problem Management

#### i. Problem Identification

A problem may be detected inside an incident report or an evaluation of an existing incident. when the reason for an occurrence or collection of incidents is uncertain, it's far most probably. with a purpose to prevent future carrier interruptions, proactive hassle detection may be very important.

Problem identification activities pick out and log troubles by way of;

- Appearing trend analysis of incident records.
- Detecting duplicate and routine issues.

- For the duration of major incident management, identifying a risk that an incident ought to recur.
- Analyzing information acquired from suppliers and partners.
- Analyzing records acquired from internal software program developers, test teams, and project teams.

#### ii. Problem Control

when evaluating incidents, it is full-size to take into account that they will have interrelated reasons, which may additionally have complex relationships. Problem control includes,

- Prioritization
- Investigation
- Analysis
- Documenting known errors
- Workarounds

#### iii. Error Control

This phase can control recognized errors. these acknowledged errors are often reconsidered to account for the impact they invent, and to test the efficiency of workarounds. it can perceive the capability permanent solution. whilst the solutions require change control, this has to be tested from the perception of fee, risk, and advantages

# **Principles of Problem Management**

#### ✓ Problem Identification

A problem may be detected within an incident file or an analysis of an existing incident. When the motive for a prevalence or collection of incidents is uncertain, it's far most probable. In an effort to prevent future service interruptions, proactive problem detection could be very critical.

# ✓ Problem Logging

It is important to document troubles for later reference. Details about the problem, inclusive of its kind, description, associated occasions, category, consumer records, repute, resolution, and closure, need to be recorded. To tag recognized problems and manage them in a database, these facts are crucial.

## ✓ Problem Investigation

An investigation into the foundation cause of a problem additionally relies upon the severity and urgency of the problem. Commonplace investigation strategies encompass reviewing the regarded Error Database (KEDB) on the way to discover similar problems. Then, the great direction of motion is decided to solve the problem.

#### ✓ Resolution

As soon as resolved and the answer is determined, it is able to be implemented the usage of a standard exchange procedure. it's also important to make sure of service recovery. With the purpose to repair the problem permanently, a new change has to be raised. Alternate control handles the assessment, planning, and execution of changes.

## ✓ Evaluation

At some point at this level, it is critical to study the resolution of the problem, and its effect on the enterprise as well as perform a risk analysis. This guarantees that the problem control procedure is executed easily and always progressed for destiny. This overview is recorded as well as shared with relevant groups and people.

# 4.2 Problem Management Examples

# 4.2.1 Problem Identification

When the user clicks on the forgot password link on login page, the user will be redirected to the index page instead of the forgo password page

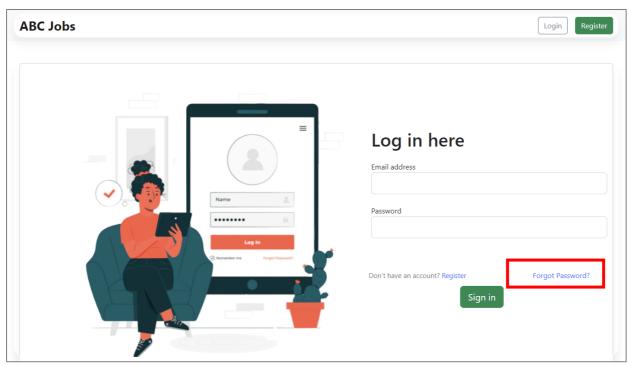


Figure 7:Problem Identification - Screenshot of login

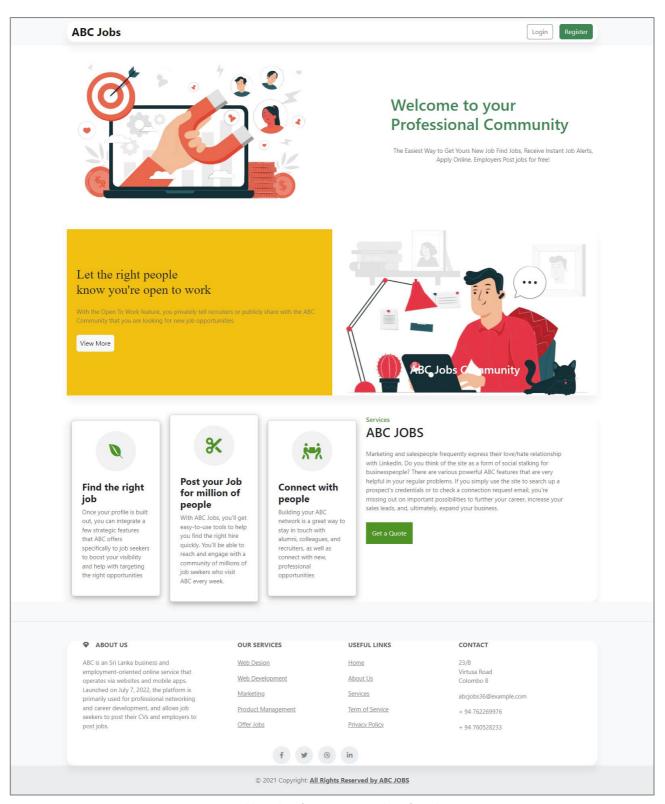


Figure 8:Problem Identification - Screenshot of Landing Page

# 4.2.2 Problem Logging

No	Class	Problem	
01	MainController.java	Wrong Mapping	
		"@RequestMapping("/forgotpassform")	
		<pre>public String index() {</pre>	
		return "index";	
		}"	

## 4.2.3 Problem Investigation

#### 4.2.4 Resolution

Change the path in MainController.java as,

```
@RequestMapping("/forgotpassform")
    public String forgotpassform() {
        return "forgotpassform";
}
```

# Task 2

- 5. Various tools, process & technologies to facilitate problem identification, investigation, analysis & resolution
  - ✓ Problem Identification

Techniques = Issue Tracking System

Tool = Excel Sheet

Using an Excel sheet to make a tracking document template is an important tool for problem identification.

#### Process:

- Receive a problem report
- Verify the problem
- Logging the problem issue
- Resolving the problem
- When it's resolved, it will be remarked as resolved in the issue tracking system

Issue Identification and Tracking Document										
Created By: Ch		Chath	Chathushi		Last Update By: Chathushi					
Date	Created:		19 Oct 2022	ober	Last Rev October	ision Dat 2022	e:			
Issu e No.	Issue Description	Issu e Typ e	Ident ified By	Date Identi fied	Issue Assign ed To	Target Resolu tion Date	Priori ty	Status	Date Reso Ived	Resolutio n Descripti on
1	Thank you, page is not showing,	Tec hnic al Issu es	Soft ware Test er Tea m	19 Octob er 2022	Softwa re Develo pment Team	20 Octobe r 2022	Low	Resolve d	19 Octo ber 2022	Correctin g the letters from code in MainCont roller
2	When the user clicks on forgot password link on login page, the user will be redirected to the index page instead of forgot password page	Tec hnic al Issu es	Soft ware Test er Tea m	19 Octob er 2022	Softwa re Develo pment Team	20 Octobe r 2022	Medi um	Resolve d	19 Octo ber 2022	Correctin g the code in MainCont roller.jav a
3	User registration data is not stored in database	Tec hnic al Issu es	Soft ware Test er Tea m	19 Octob er 2022	Softwa re Develo pment Team	22 Octobe r 2022	High	Resolve d	21 Octo ber 2022	Correctin g the code in controller and dao class

# ✓ Problem Investigation

Techniques = Root Cause Analysis

Tool = Fish Bone

Process:

- Define the problem statement
- Find the root cause
- Fix the root cause
- Finalize solution

#### ✓ Problem Resolution

Techniques = Known Error Database

Tool = Excel Sheet

Using an Excel sheet to make a tracking document template is an important tool for problem identification.

#### Process:

- Adding known error records
- Create a known error record with the symptoms and resolution details
- Accessing known error records
- Search KEDB and apply fix
- Deleting known error records
- Permanent solution implemented

#### Task 3

## 6. Investigate & Diagnose problems.

# **6.1 Investigate Problem**

We narrow the problem causes into the Controller and Security Configuration class

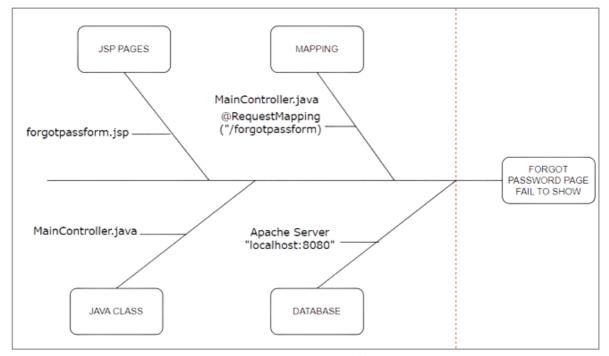


Figure 9:Investigation Problem

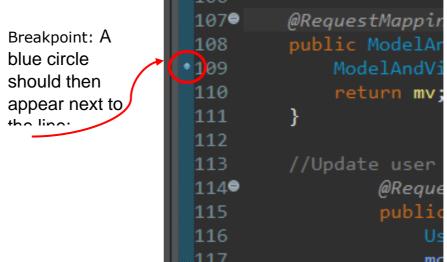
# **6.2** Diagnose the Problem

Identify the root of the problem by removing the error (Debugging)

# Step 1 - Set Breakpoints

```
| 106 | 107 | 108 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109
```

Figure 10:Screenshot of debugging in eclipse step 1



Step 2 - Start the program in Debug mode

(Right click on project→Debug as→Debug as server)

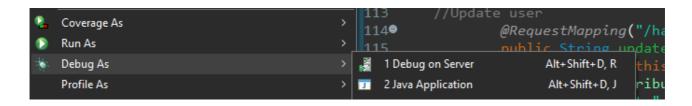


Figure 11:Screenshot of debugging in eclipse step 2

**Step 3** – Showing debugger details in the console

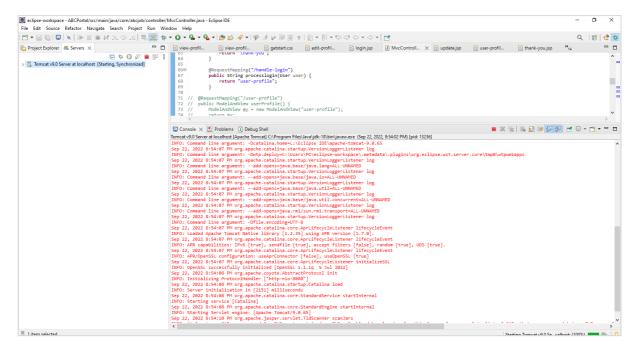


Figure 12:Screenshot of debugging in eclipse step 3

**Step 4** - Controlling the program executionThe call stack indicates the parts of the program which can be currently executed and the way they relate to each other. The present-day stack is displayed inside the Debug view

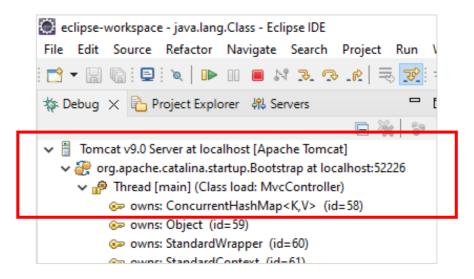


Figure 13:Screenshot of debugging in eclipse step 4

Step 5 - Breakpoints view and deactivating breakpoints

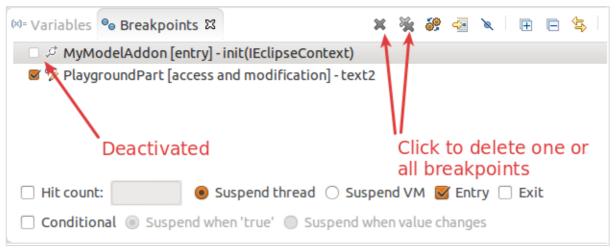


Figure 14:Screenshot of debugging in eclipse step 5

# **Step 6** -Evaluating variables in the debugger

The variables view shows fields and nearby variables from the contemporary executing stack.



Figure 15:Screenshot of debugging in eclipse step 6

# **Step 7** – Use the drop-down menu to display static variables

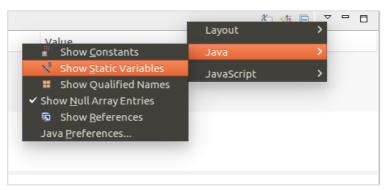


Figure 16:Screenshot of debugging in eclipse step 7

# **Step 8** - Changing variable assignments in the debugger

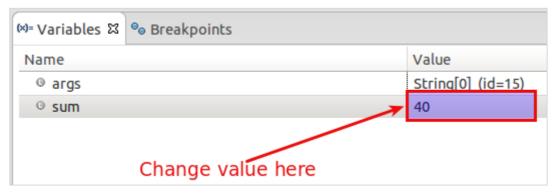


Figure 17:Screenshot of debugging in eclipse step 8

# **Step 9** -Controlling the display of the variables with detail formatter

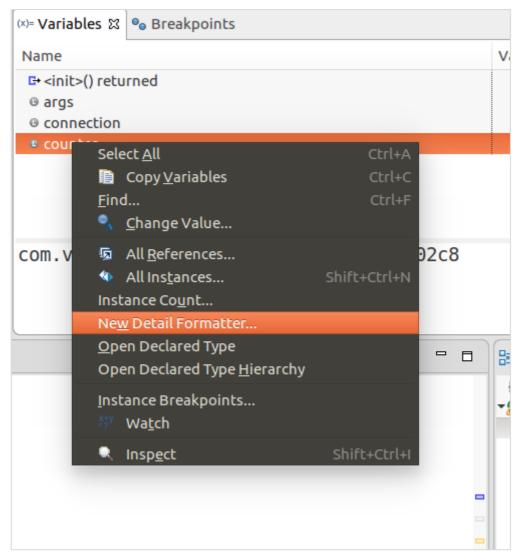


Figure 18:Screenshot of debugging in eclipse step 9

## Task 4

# 7. Explain and Prioritize

# 7.1 Prioritize and Categories problems:

## **Tier 1: Low-priority issues**

Thank you, the page is not showing.

## **Tier 2: Medium priority issues**

When the user clicks on forgot password link on the login page, the user will be redirected to the index page instead of forgot password page

#### **Tier 3: High-Priority Issues**

User registration data is not stored in a database

## 7.2 Problems Categories Diagram

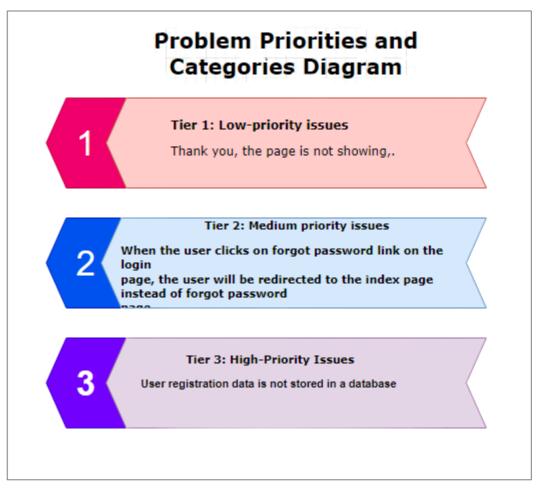


Figure 19:Problem Priorities and Categories Diagram

#### Task 5

# 8. Problem Management Solution

Solution for forgot password page display data failure

- Using the fishbone tool, we discover the root cause (root cause analysis)
- Test the code once more
- Add the problem to regarded error database
- Debug the code using breakpoints
- Thinking of the solution for the root cause
- Regulate the root cause problem
- After rerunning the application on debug mode
- If the problem is resolved, update the known error database

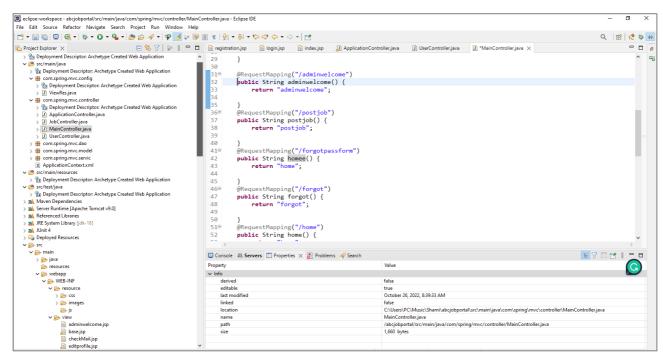


Figure 20:Screenshot of MainController.java before fixing the problem

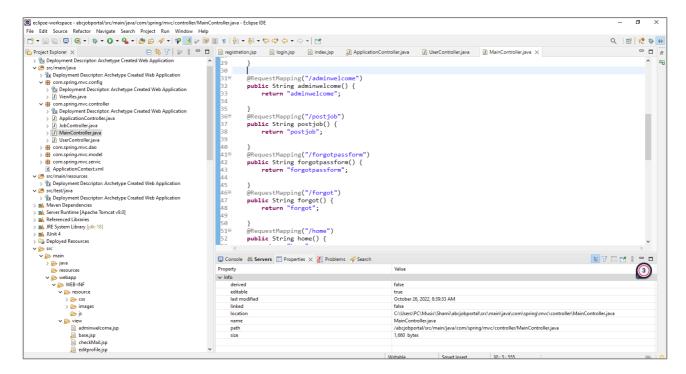


Figure 21:Screenshot of MainController.java after fixing the error

After modifying, then re-debug to check if the problem is solved

Issue No.	Issue Description	Issue Type	Root Cause	Workaroun d	Status	Date Resolve d
1	Thank you, page is not showing,	Technic al Issues	In getmapping method or uppercase lowercase mis correction	Correcting the letters from code in MainControl ler.java	Resolved	19 October 2022
2	When the user clicks on forgot password link on login page, the user will be redirected to the index page instead of forgot password page	Technic al Issues	Wrong mapping in MainControll er.java class	Correcting the code in MainControl ler.java	Resolved	19 October 2022
3	User registration data is not stored in database	Technic al Issues	Dao class is not mentioned in controller class correctly	Correcting the code in controller and Dao class	Resolved	22 October 2022
4	Attached files not showing in bulk mails	Technic al Issues			Incomplete	

#### Task 6

## 9. Systems will be implemented

ABC community portal is a platform that offers job opportunities to people. Users cans register to this ABC Jobs community portal and log in. After they can search for users, search for jobs and apply for them and update their profile

# ✓ Registration

In the registration function, users can register into the ABC community portal. That data is stored in the database and the password will be encoded

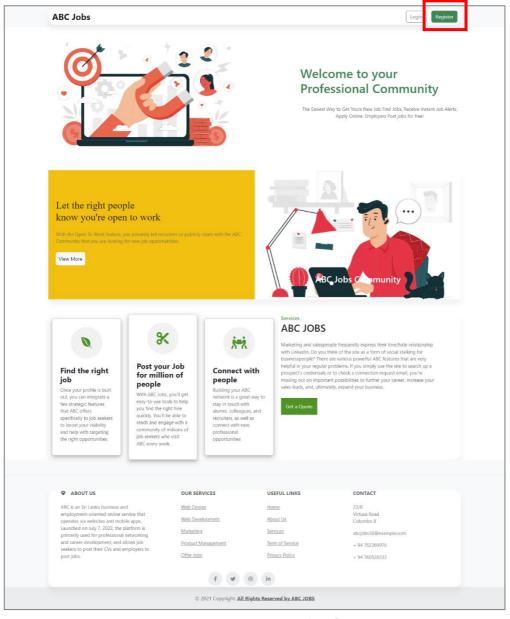


Figure 22:Registration Process - Screenshot of Home Page

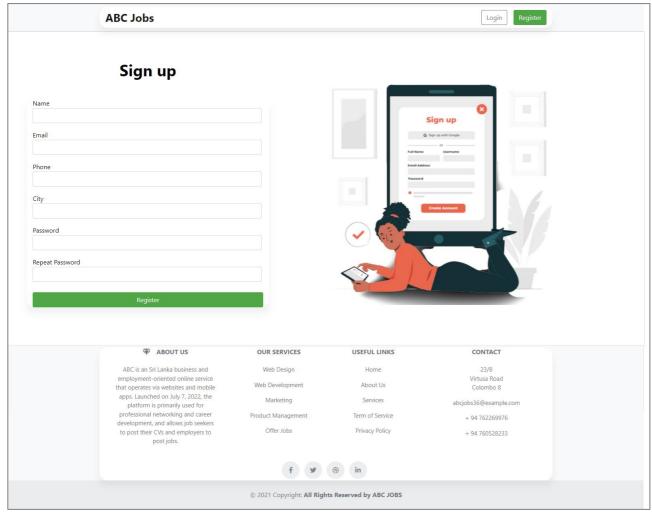


Figure 23:Registration Process-Screenshot of Registration Page

# ✓ Login

Login characteristic identity implemented and working perfectly. The roles of the user and admins are handled in the roles handler class. With the assistance of the spring security, login feature is working smoothly. So, users can log in effortlessly

# User Login

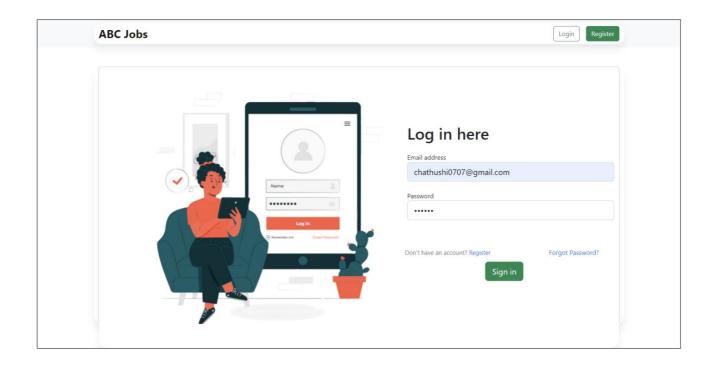


Figure 25:Login Process-Screenshot of User Login

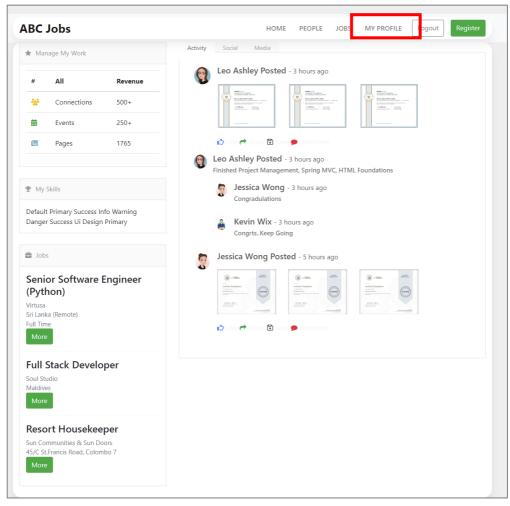


Figure 24:Login Process - Screenshot of User Home Page

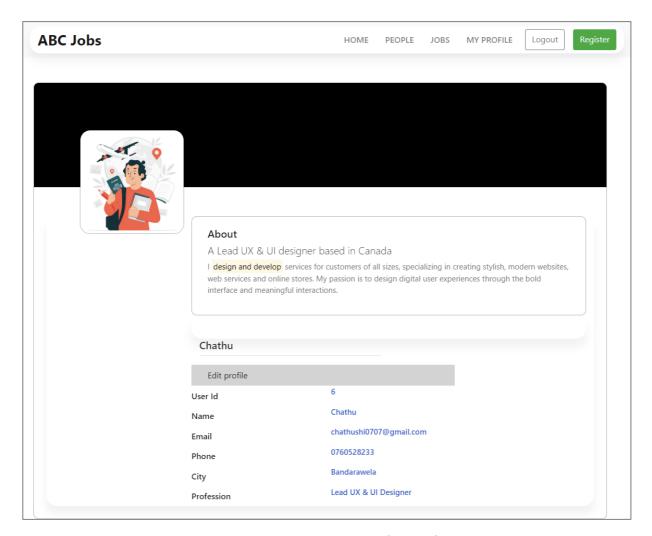


Figure 26:Login Process - Screenshot of User Profile Page

# **User Search User Page**

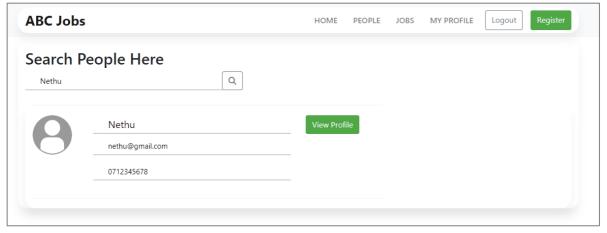


Figure 27:Search User - Screenshot of User Search User

# ✓ Update Profile

Users can update their records using this update user function. After updating new data will updated on database

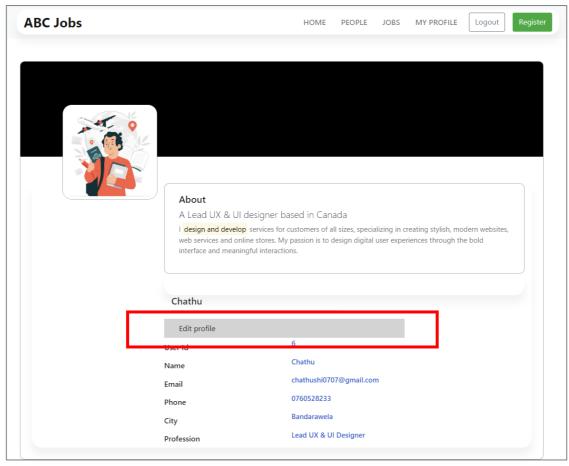


Figure 29:Update Profile - Screenshot of User Profile page with Edit Function

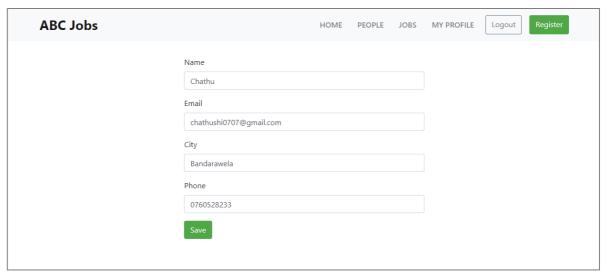


Figure 28:Update Profile - Screenshot of update profile page

# √ User – View Job

User can view all jobs

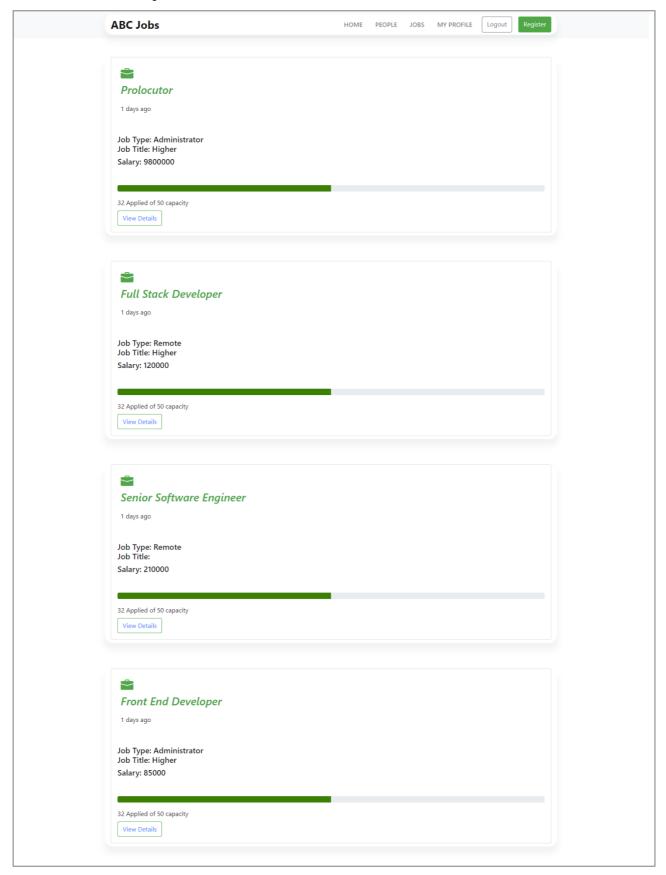


Figure 30: Screenshot of User - View Jobs

# ✓ User – Apply Job

User can apply any job



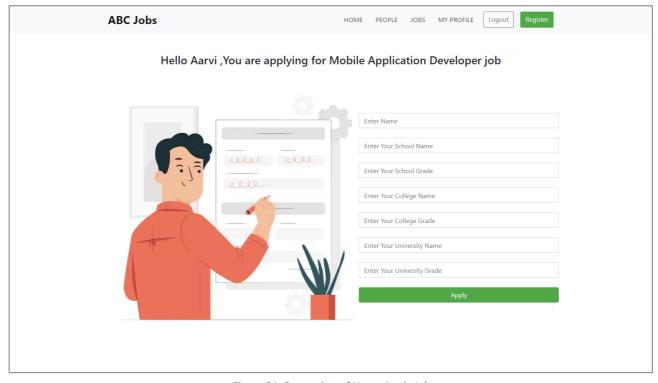


Figure 31: Screenshot of User - Apply Job

# ✓ Admin Login

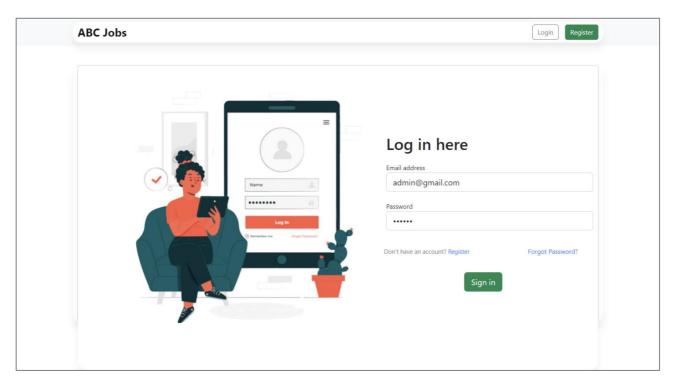


Figure 32:Login Process - Screenshot of Admin Login

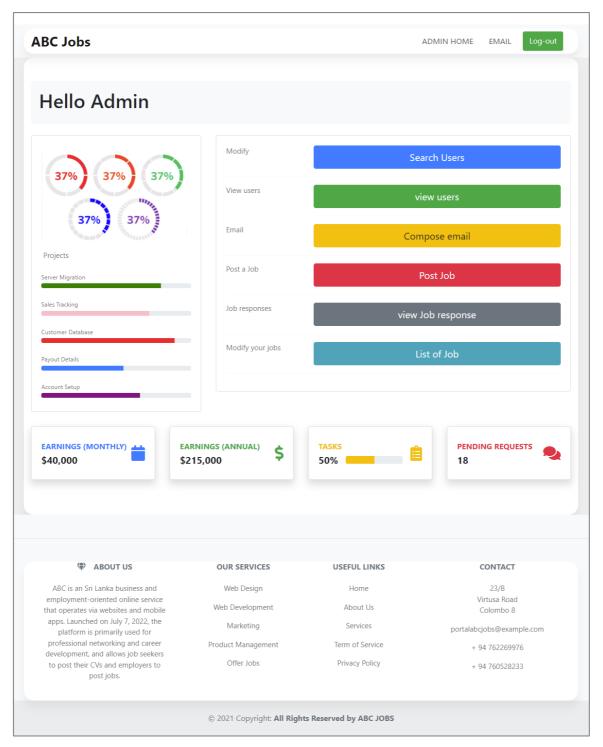


Figure 33:Login Process - Screenshot of Admin Profile Page

#### ✓ Search User

Search user function is need to search other users in the ABC community Portal. Also, admin can search the users

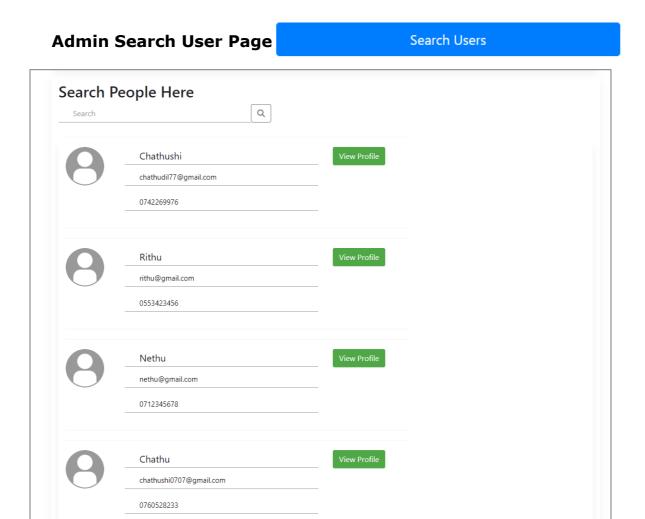


Figure 34:Search User - Screenshot of Admin Search User

View Users
 view users

Admin can view users, add users, delete and edit users



Figure 35:Screenshot of Admin - View Users

• Bulk Mail

Compose email

# Admins can send bulk mail to users

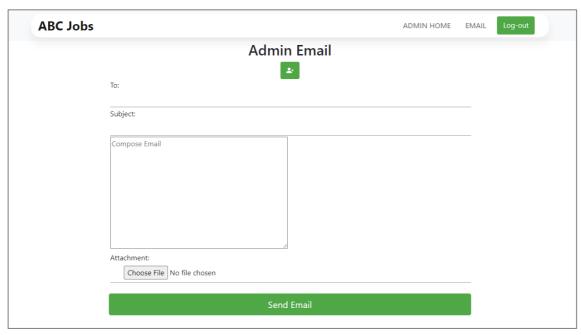


Figure 36:Screenshot of Bulk Mail Page

Post Job
 Admin can post job

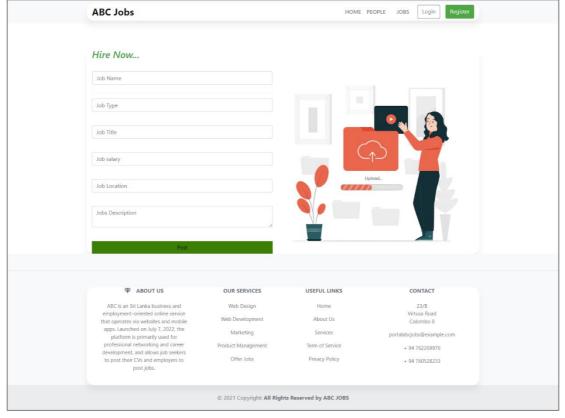


Figure 37:Screenshot of Post Job Page

# View Job Response

#### view Job response



Figure 38:Screenshot of View job response

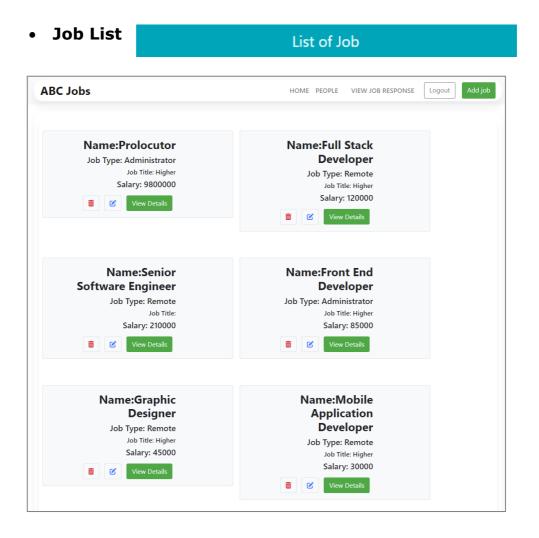


Figure 39:Screenshot of post job list

#### Task 7

# **10. Best Practices in Problem Management**

# √ Solved issues should be kept in Known Error Database

You have a 'Known Mistake' when you have scrutinized your insightful abilities and distinguished the underlying driver of the issue. Known issues, similar to episodes, ought to be kept in a different region from the issue. Basically, it empowers you to be more unique in your classification. This permits you to recategorize a error to something more proper after an investigation

# ✓ Clients should be separate from the person handling the incident

Keeping everything in a hold-all is enticing. While managing a call, search for an area that can act as an all-in-one resource. Isolating issues from incidents and logging them in their own devoted space, then again, can assist with working on your cycles.

#### √ Having a problem manager

Having somebody that is eventually responsible for Issue Management can vastly help to improve your overall process.

#### ✓ Let your operators contribute: Share knowledge

Having a manager is perfect, but collaboration is key. Invite your group to take advantage of their insight and experience by permitting them to add to problem management. This can add a fascinating variety to their roles, and can assist you with recognizing the main driver all the more rapidly in the event that you have sharp partners who are great at distinguishing issues.

