**Project Report**

|  |  |
| --- | --- |
| **Product Name** | Applied Degree in Software Engineering |
| **Qualification Name (NICF)** | Applied Degree in Software Engineering |
| **Product Name** | Design, develop and test the Community portal website |
| **Module Name (NICF)** | NICF-Application Implementation |

|  |  |  |  |
| --- | --- | --- | --- |
| **Student Name** | | **Assessor name** | |
| Muhammad kemal | | Arvinder Kaur | |
| **Date issued** | **Completion date** | | **Submitted on** |
| 24-07-2023 | 24-07-2023 | | 24-07-2023 |
|  | |  | |
| **Project title** | Design, develop and test the Community portal website | | |

|  |
| --- |
| **Learner declaration** |
| I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.  Student signature :  Date : 24-07-2023 |

**AIM Project report**

**Content**

1. Project Background
2. Project Objective
3. Project Scope
4. Tools and Platform
5. Task 1
6. Task 2
7. Task 3
8. Task 4
9. Task 5
10. Task 6
11. Task 7
12. **Project Background**

ABC Jobs is a website similar to LinkedIn.com, a Community Portal website where the website is designed with an SDLC Model, which in this project uses the waterfall model. In this waterfall it is explained for Unit testing and UAT testing. For scheduling and planning, this application is made in the form of tables and gantt charts using the projectlibre application.

**Project Objectives**

* **Create a Community Portal**

Create a functional community portal with collaboration and networking opportunities for software developers like LinkedIn.com.

* **User Registration and Management**

 Implement a robust user registration system, enabling Software Programmers to register, receive registration confirmation emails, and manage their profiles.

* **User Search Function**

Create a search engine that enables users to locate other programmers based on criteria like First Name, Last Name, Company Name, City, and Country.

* **Login and Forget Password**

Offers a password retrieval feature for those who have forgotten their passwords and a secure login page for registered users to access their accounts.

* **User Profile Update**

 Enable Software Programmers to update their profile with relevant information.

* **Administrator Functionality**

Implement features for Administrators to manage user data and send bulk emails inviting programmers to register on the community portal.

* **Database Design**

Create an efficient and well-structured database to store user information, messages, threads, job opportunities, and responses.

* **Testing Phase:** Plan, design, and execute comprehensive tests to ensure the Portal's functionality, security, and user experience meet desired standards.

1. **Project Scope**

2.1 Features to Be Tested

1. Registration
2. Login
3. Forget the Password
4. Update Profile
5. Search Function
6. Other Profile View

2.2 Features Not to Be Tested

## Send Messages

## Read Messages

## Post a thread in Message Board

## List threads in Message Board

## Read A Thread

## List Job Opportunities & Responses

## Post Job Opportunities

1. Apply for Jobs

2.3 Deliverables

1. Briefly explain the different types of testing which you will undertake
2. Test Schedule Document
3. Phase test plan
4. Execute test scripts and verify the results
5. Prepare a Project Report as per the pre-defined template
6. Prepare a Project Presentation as per pre-defined template
7. Prepare a Testing Document
8. **Tools and Platform**
   1. Project Libre
   2. Microsoft Word
   3. Microsoft PowerPoint
   4. Chrome
9. **Task 1 : Write a brief requirement specification for the Community Portal.**
10. Functional Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| No | Requirements | Web Page / Process | Field detail |
|  | Users can register their data on the register page. | Registration | Logo, Registration Image, Form Fields, Hyperlinks, Buttons, Copyright. |
|  | Users can get a confirmation message after registration. | Registration Confirm | Button, Message field. |
|  | Users can log in with data already in the database. | Login | Logo, Login Image, Text Fields, Hyperlinks, Buttons, Copyright. |
|  | Users can forget passwords to change passwords so users can re-enter the system. | Forget Password | Logo, Input Fields, Button, Copyright. |
|  | Users can Update Profiles when successfully logged into the system. Users can add Education and Experience. | Update Profile | Biodata Section, Education Section, Experience Section, Button, Name Section, Background Image, Footer, and Copyright. |
|  | Users can search for other users. | Search | Search Field, Search Button, Search Results Page, Profile Preview Section. |
|  | Users can see the search result. | Search Result | List of Profiles, See Profile Button. |
|  | Users can view other users’ profiles. | Others Profile | Others Profile Preview Section. |
|  | Users can Read and react to a thread. | Homepage | Thread section, My Profile Section, Footer Section |

1. Non-Functional Requirements

|  |  |  |
| --- | --- | --- |
| No | Requirements | Purpose |
| 1 | Performance | Ensure the Community Portal operates efficiently and responds quickly to user actions. |
| 2 | Availability | Ensure the Community Portal is accessible to users with minimal downtime. |
| 3 | Security aspects | Protect user data, prevent unauthorized access, and ensure data privacy. |
| 5 | Database backup | Regularly backup the database to prevent data loss and enable recovery in case of failures. |

1. Technical requirements

Hardware

* Processor : 11th Gen Intel(R) Core(TM) i3-1115G4 @ 3.00GHz 2.19 GHz
* Memory : 4 GB
* OS: Windows 10 / 11
  + - * Database server – MySQL server
      * Firewall settings - Port 9091 -- Http

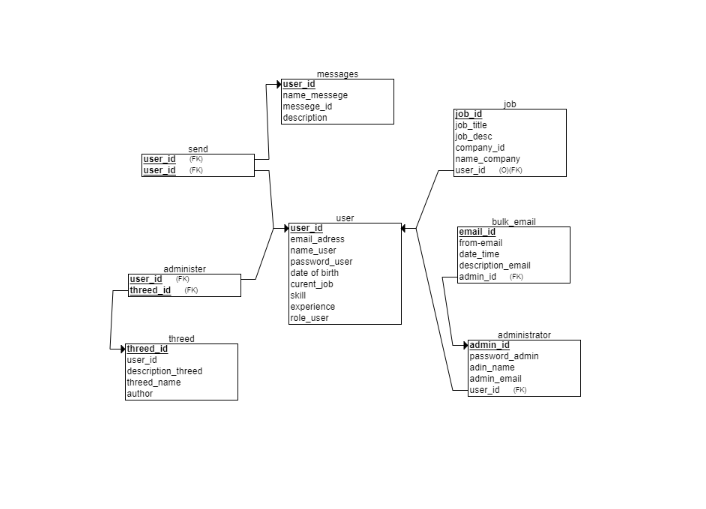
- Port 3306 – Database

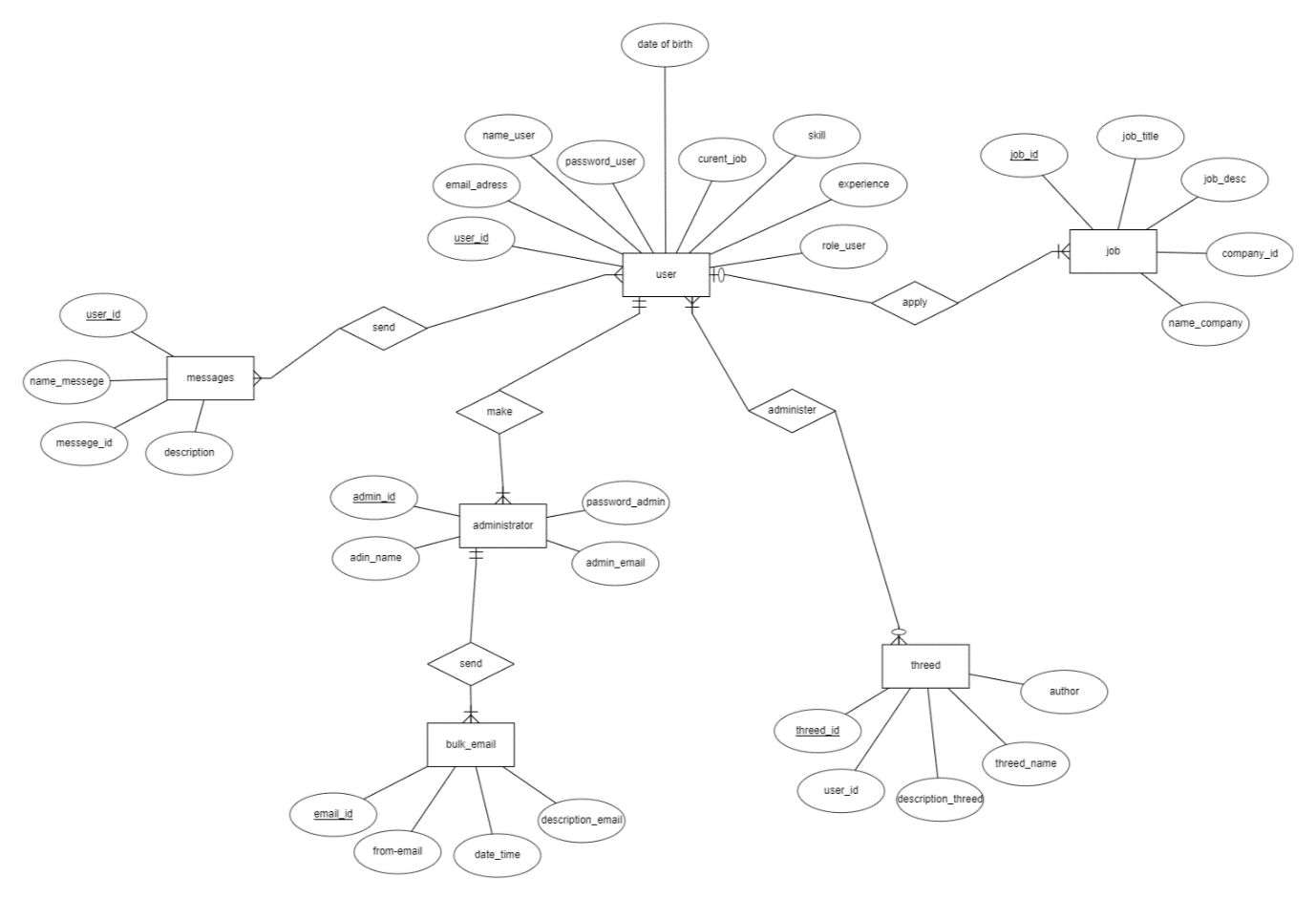
Software

* Eclipse IDE: Download and install Eclipse IDE for Java EE Developers. Ensure a version that supports Java EE development, including the necessary tools and plugins for Spring MVC development. (Eclipse Version: 4.26.0)
* Spring Framework: Download and include the Spring framework libraries in your project. (Spring framework 5.2.10)
* Apache Tomcat: Install a servlet container like Apache Tomcat on your machine. We need it to deploy and run the Spring MVC application. Ensure that the servlet container is compatible with the version of the Spring framework you're using. (Apache Tomcat 9.0)
* Maven or Gradle: A build automation tool like Maven or Gradle can simplify the project setup and manage dependencies effectively.
* Java Development Kit (JDK): Install the latest version of JDK on your system. Eclipse requires a compatible JDK to run. (JDK 18.0.2)

Database

* MySQL WorkBench 8.0. (MySQL Server 8.0.31)

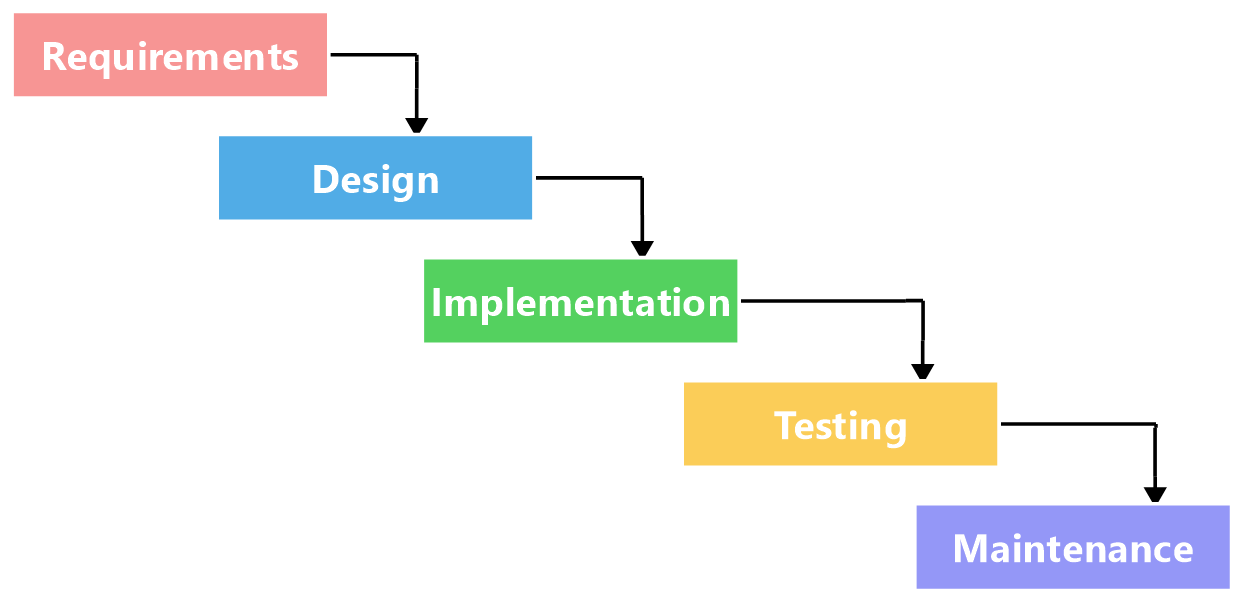




**Task Statement: Justify the chosen SDLC methodology with pros and cons**

**Waterfall Model**:

The waterfall model divides project activities into linear sequential phases, each of which is dependent on the deliverables of the previous one and corresponds to task specialization. This method is common in certain areas of engineering design.



**Waterfall Model Strength**

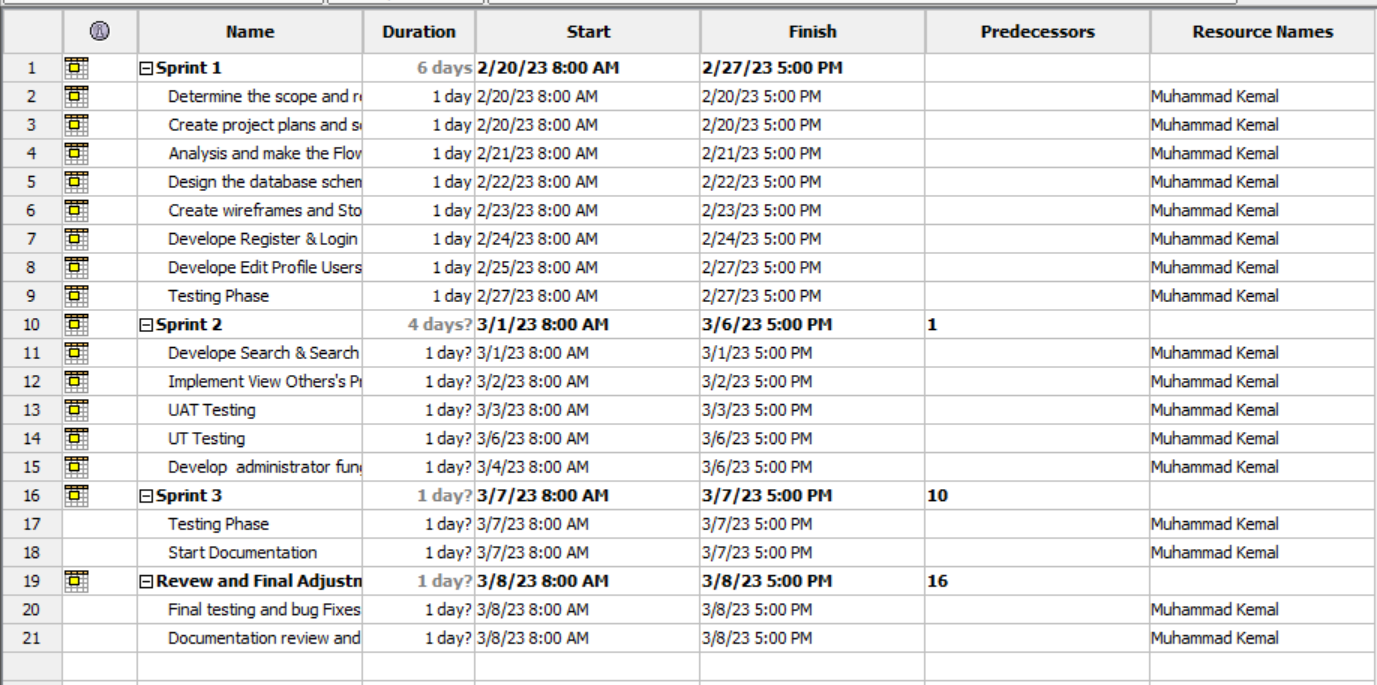
* **Easy to understand and use:** The Waterfall Model's straightforward and linear nature makes it easy for team members and stakeholders to understand and apply, making it accessible to those with limited experience in software development methodologies.
* **Provide structure for inexperienced staff:** With well-defined phases and sequential development, the Waterfall Model offers a structured framework that helps guide and support inexperienced team members through the development process.
* **Milestones are well understood:** The different phases of the model create clear milestones, allow the team to have a comprehensive understanding of the progress of the project and ensure that results are achieved systematically.
* **Establishing requirements stability:** The Waterfall Model emphasizes gathering comprehensive requirements early in the project, promoting stability within the project scope and reducing the possibility of significant changes later in the development process.
* **Suitable for management control (plan, staff, track)**: Due to its structured nature and clear milestones, the Waterfall Model facilitates effective management control, enabling better planning, staffing and tracking of project activities.
* **Performs well when quality is more important than cost or schedule:** The Waterfall Model's emphasis on testing and validation at every phase ensures a focus on quality outcomes, making it suitable for projects where ensuring a high level of quality is of the utmost importance, even if that may result in longer development times or higher costs.

**Waterfall Model Weakness:**

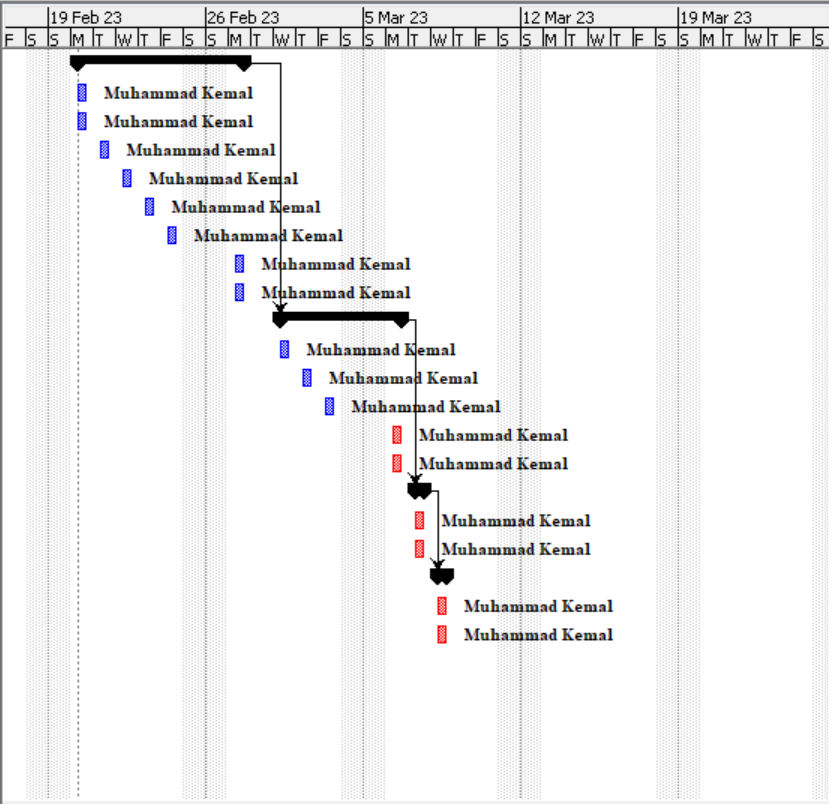
* **All requirements must be known in advance:** The Waterfall Model assumes that all requirements can be collected and defined at the project's outset. This can be a significant drawback as it may be challenging to accurately anticipate and capture all requirements, leading to potential changes or additions later in the development process.
* **Submissions for each phase are considered frozen:** Once the phase is completed and its submissions are made, submissions are considered final and frozen. This lack of flexibility can become a problem if changes are needed later, as it may be necessary to revisit earlier stages and can lead to additional costs and delays.
* **Can give the wrong impression of progress:** The linear nature of the Waterfall Model can give the illusion of progress because the deliverables are generated at each phase. However, substantial progress may only be made later, potentially leading to misjudgments about the project's overall status.
* **Does not reflect the problem-solving nature of software development – iteration phase:** Software development often involves an iterative and incremental approach to address complex problems and evolving needs. The rigid sequential nature of the Waterfall Model may not align with the iterative nature of software development, potentially leading to inefficiencies and missed opportunities for improvement.
* **Integration is done at the end:** Integration of components and modules is usually delayed until the end of the development process in the Waterfall Model. This can pose challenges in identifying and resolving integration issues, as they may only emerge at the later stages of the project.
* **Few opportunities for customers to review the system:** The Waterfall model generally provides limited opportunities for customers to review and provide feedback on products as they develop to the final stages. This lack of initial customer engagement can result in a mismatch between the final product and customer expectations.

**Project Plan**

Gantt Table



Gantt Chart



1. **Task 2: Briefly explain different types of testing and how they will help to create a better system**

**Task Statement: Explain the benefits of 4 testing methods under functional and non-functional category**

1. **Functional Testing**
   1. **UAT Test (User Acceptance Testing):**

User Acceptance Testing (UAT) is a functional testing method. This involves the end user testing the software to verify if it meets their requirements and expectations. UAT ensures systems are aligned with business requirements and ready for production deployment.

* 1. **Compatibility Testing (Cross-Browser Testing):**

Compatibility testing, specifically Cross-Browser Testing, is a functional testing method. It ensures the software functions as intended across various web browsers and versions. This test helps verify that application functionality remains consistent regardless of the browser the end user is using.

1. **Non-Functional Testing**
2. **Performance Testing:**

A non-functional testing technique is performance testing. It assesses system performance under various circumstances, including load, stress, and scalability. The software must support the anticipated user load and provide a responsive and reliable user experience.

1. **Portability Testing (Multiple Devices / Platforms):**

Portability testing is a non-functional testing methodology determining the ease or difficulty of moving a software component or application from one environment to another. The test results obtained from Portability Testing help determine how easily a software component from one environment can be used in another environment. The term ‘environment’ refers to moving from one operating system to another operating system, one browser to another browser or from one database version to another database version.

1. **Task3 Propose relevant tests suitable for the Project Scenario**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1.  Functional Testing - UAT test cases | | |  |  |
| Test Id | **Test Scenario** | **Test Objective** | **Technique** | **Expected Result** |
| 1 | TS001 | Identify whether the user can log in to the portal with registered credentials. | Functional Testing | After authentication, the user will be authenticated to the portal and given member or user authorization as default. |
| 2 | TS002 | Identify whether the user can successfully register or not. | Functional Testing | After registration, they can use the registered credentials to authenticate to the User to the System. |
| 3 | TS003 | Identify whether the user can successfully use forgot password feature. | Functional Testing | The Reset Password Page should allow the user to enter a new password and confirm the password change. |
| 4 | TS004 | Make sure users can accurately edit their profile information. | Functional Testing | The database should correctly store the modified data. |
| 5 | TS005 | Find different programmers by using the search function. | Functional Testing | The profile displayed must match the search parameters entered (eg, First Name, Last Name, and City). |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2.  Compatibility - Cross-browser testing/responsiveness | | | |  |
| Test Id | **Test Scenario** | **Test Objective** | **Technique** | **Expected Result** |
| 6 | TS006 | Identify if the Result portal works as intended on Google Chrome. | Cross-browser Testing | The look and feel are working as intended on Google Chrome. |
| 7 | TS007 | Identify if the Result portal works as intended on Microsoft Edge. | Cross-browser Testing | The look and feel are working as intended on Microsoft Edge. |
| 8 | TS008 | Identify if the result portal works as intended on Mozilla Firefox. | Cross-browser Testing | The look and feel are working as intended on Mozilla Firefox. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3. Performance Efficiency - Load Testing/Stress Testing | | | |  |
| Test Id | **Test Scenario** | **Test Objective** | **Technique** | **Expected Result** |
| 9 | TS009 | Identify if the index load time is within 10 – 15 | Performance Testing | The index page will load in less than 15 seconds |
| 10 | TS010 | Identify if the login page load time is within 10 – 15 | Performance Testing | The login page will load in less than 15 seconds |
| 11 | TS011 | Identify if the register page load time is within 10 – 15 | Performance Testing | The register page will load in less than 15 seconds |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4.  Portability - Multi platforms (different platforms, different devices) | | | | |
| Test Id | **Test Scenario** | **Test Objective** | **Technique** | **Expected Result** |
| 12 | TS012 | Identify whether the portal functionality works as intended using various platforms and Dekstop. | Portability Testing | The portal should have a responsive look and feel with a Dekstop view. |
| 13 | TS013 | Identify whether the portal functionality works as intended using various platforms and Tablets. | Portability Testing | The portal should have a responsive look and feel, which scales down to a Tablet view. |
| 14 | TS014 | Identify whether the portal functionality works as intended using various platforms and Mobile. | Portability Testing | The portal should have a responsive look and feel, which scales down to a mobile view. |

1. **Task 4: Optimal Scheduling**

**Task Statement: Identify the appropriate method to compute the testing schedule duration and prepare the test schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| **Web page** | **Weighting** | **Functional Points (FP)** | **Total** |
| Registration | 3 | 5 | 15 |
| Login | 1 | 3 | 3 |
| Reset Password | 1 | 1 | 1 |
| Profile | 3 | 3 | 9 |
| Update Profile | 3 | 4 | 12 |
| Search Users | 3 | 3 | 9 |
| See Profile Other Users | 3 | 4 | 12 |
| Log Out | 1 | 1 | 1 |
|  |  | Total functional points | 62 |
|  |  | Estimated person hour per FP | 1 |
|  |  | Total hours needed | 62 |
|  |  | Total days needed (8 Hours) | 7.75 |

Test Schedule :

|  |  |  |
| --- | --- | --- |
| Test Schedule ID : | TSCH01 |  |
| Product ID / Name : | ABC Jobs |  |
| Product Version or Build : | 0.0.1 |  |
| Present Owner : | Muhammad Kemal | Software Engineer |
| Created On : | 21 July 2023 |  |
| Review On : | 24 July 2023 |  |
| Review By : | Muhammad Kemal | QA Manager |
| Review Comments : | Great |  |
| Current Version : | 1.0.0 |  |
| Change Details : | Send Email Feature |  |
| Current Status : | Complete |  |
| Signing Off Authority : | Muhammad Kemal | Software Engineer |

1. **Task 5:** **Phase Test Plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Task | Start | End | Person Days | Resource |
| 1 | Prepare Test Plan | 17-7-2023 | 17-7-2023 | 1 | Project Manager |
| 2 | Review Test Plan | 17-7-2023 | 17-7-2023 | 1 | Quality Assurance |
| 3 | Prepare Test Scripts | 18-7-2023 | 18-7-2023 | 1 | Software Engineer |
| 4 | Review Test Scripts | 19-7-2023 | 19-7-2023 | 1 | Quality Assurance |
| 5 | Set up Test Environment | 19-7-2023 | 19-7-2023 | 1 | Software Engineer |
| 6 | Maintain Test Environment | 19-7-2023 | 19-7-2023 | 1 | Software Engineer |
| 7 | Establish Test Procedures | 20-7-2023 | 20-7-2023 | 1 | Quality Assurance |
| 8 | Promote Software from Development to Test Environment | 20-7-2023 | 20-7-2023 | 1 | Software Engineer |
| 9 | Execute Testing/Record Faults | 22-7-2023 | 22-7-2023 | 1 | Tester |
| 10 | Re-execute Tests as Needed | 22-7-2023 | 22-7-2023 | 1 | Tester |
| 11 | Provide Support/Resolve Faults | 22-7-2023 | 22-7-2023 | 1 | Tester |
| 12 | Promote Software from Test to Development Environment | 23-7-2023 | 23-7-2023 | 1 | Software Engineer |
| 13 | Certify Application for Release to Beta Test Group | 24-7-2023 | 24-7-2023 | 1 | Project Manager |

1. **Task 6 : UNIT and UAT Test Scripts**

**Task Statement : Prepare the test scripts with use case, scenario, test description, pre-conditions, test data, and expected output**

Test Scenario :

|  |  |  |  |
| --- | --- | --- | --- |
| Requirements | Test Scenario ID | Test Scenario | Number of test cases |
| Functional Testing | TS001-UAT  testing | Verify that users can validate their email and register their information. | 1 |
| TS002-UAT  testing | Verify the website's ability to change passwords. | 1 |
|  | TS003-UAT testing | Verify that after logging in, the user may search for, locate, and browse the profiles of other software engineers. | 1 |

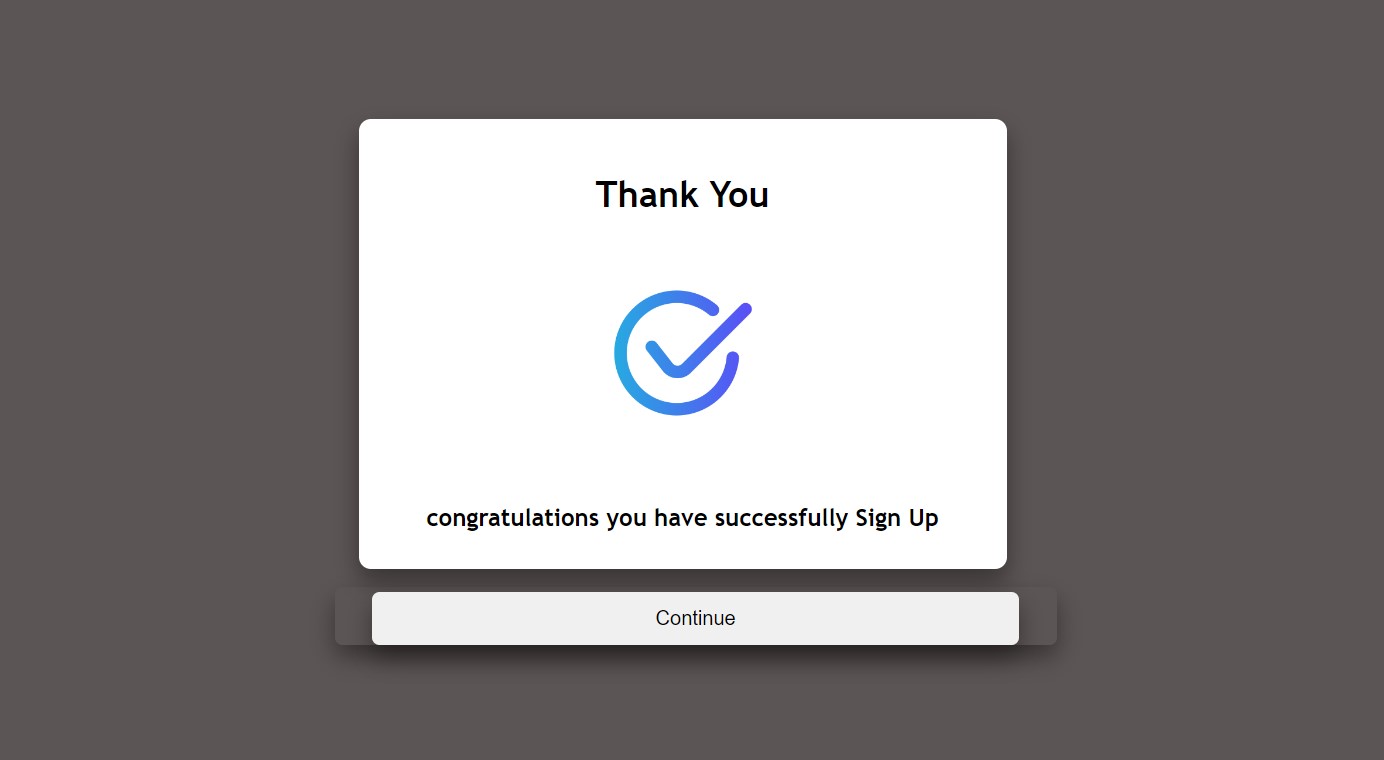
Scenario 1 : Unit Testing

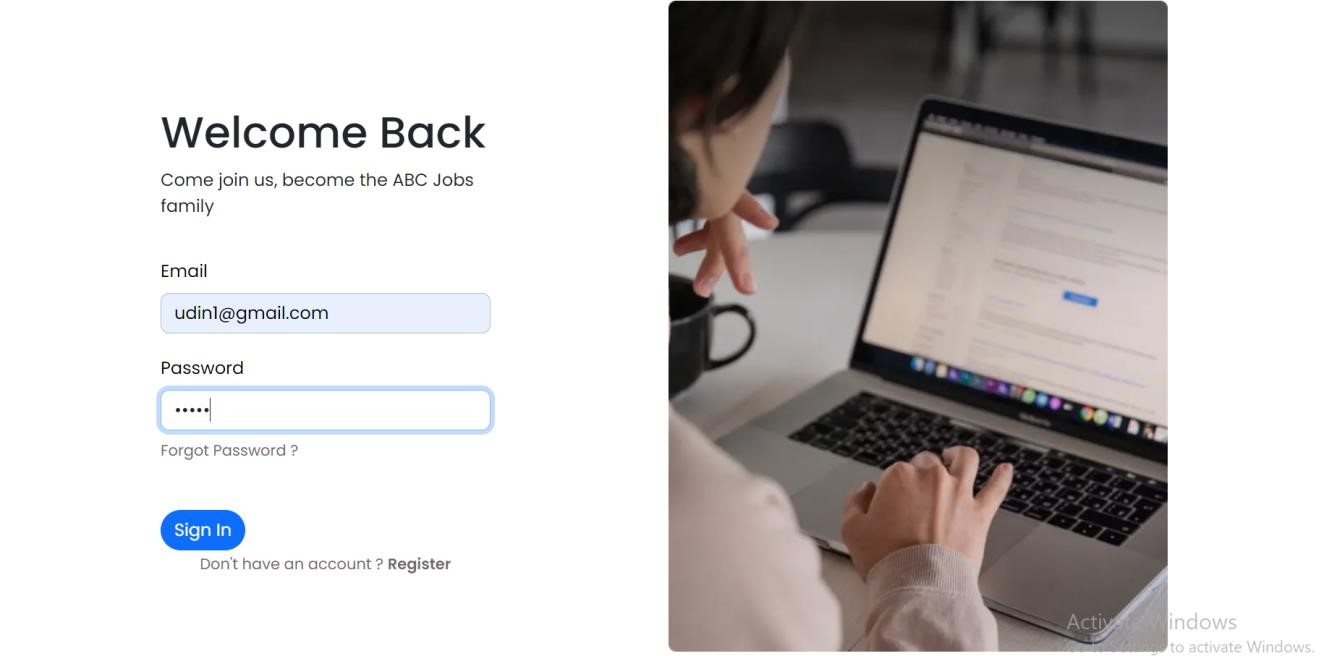
|  |  |
| --- | --- |
| Test Scenario | Verify that users can validate their email and register their information. |
| TS001 |
| Test Cases | UAT Testing |
| UATC01 | Verify that the signup and email confirmation are functional. |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenari o ID** | **Test**  **Case ID** | **Test Case** | **Preconditions** |  | **Test Step** | **Test Data** | **Expected Results** | **Actual Results** | **Pass**  **/ Fail** |
| **TS001** | UAT  C01 | Verify that the signup  and email confirmat ion are  operation al. | 1. The website is designed and developed  2.Unit testing and system  testing is done  3.All the major errors has  resolved and documented  4.The website is configured to  Google Chrome by Apache  Tomcat Server. | 1.  2.  3.  4.  5. | Go to  Google Chrome. Enter URL www.ABC  Portal.co m  Click “Sign Up”in website home page  Enter all fields and  submit  Click confirmati on | First Name= Udin  Last Name=  Anjay  City = Seattle  Email= udin1@gmail.co m  Password=”udin  1” | User should land to login page | As expected, | Pass |

**TC001**









**Scenario 2 : UAT Testing**

Test cases:

|  |  |
| --- | --- |
| Test Scenario | Check change password functionality in the website |
| TS002 |
| Test Cases | UAT Testing |
| UATC01 | Check that password functionality is working correctly |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenari o ID** | **Test**  **Case ID** | **Test Case** | **Preconditions** | **Test Step** | **Test Data** | **Expected Results** | **Actual Results** | **Pass**  **/ Fail** |
| **TS002** | UAT  C02 | Check that  password  functional ity is  working correctly | 1. The website is designed and developed  2.Unit testing and system  testing is done  3.All the major errors has  resolved and documented  4.The website is configured to  Google Chrome by Apache  Tomcat Server.  5. User has successfully  registered and login to the website | 1. Go to   Google  Chrome.   1. Enter URL www.ABC   Portal.co m   1. Click “Sign in” in   website home page 4. Click  “Forgot  Password  ?” in the  Login Page  5. Enter  registered email Enter new password | Registered email  =  Udin1@gmail.co m Old password  =  “udin1”  New password = udinanjay | User should land to login page and login  with new passwor | As expected, | Pass |

