

Software Testing Document
for
Student Networking Website

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1 Introduction

1.1 System overview

The website centers around creating a social space for students to write blogs on almost any interest of their own. Every blog post will have a like and dislike button and a comment section allowing discussions under that blog. The website will have a landing portal(home page) which will have links to register and a login page. The website will not allow any unregistered users to post blogs or like, dislike or comment on the blogs. While registering, students will be asked to fill details appropriate for the website to increase connectivity. There will be a profile page displaying all the details of a student like his/her name, their bio, skill-set, stream of education, experience(if applicable, in internships). Said profile page will also allow users to connect other social media accounts like Facebook, Instagram, LinkedIn and also display their Github profile.

Our website contains many forms for clients to fill. As we cannot control the input, we have proper validation code to ensure correct information gets sent to the database and that the new information gets displayed on the website. The focus of testing will be these forms as, if some malicious data gets entered into the forms it could affect the normal working of the database.

1.2 Test approach

To check if the website is able to stop incorrect input from getting to the database, we will be testing the forms manually. Repeated testing will be done to ensure that the website is able to work regardless of different types of input. We will be going through the forms on the website such as Sign up, Login, Create profile, Add education, Add experience, posts and testing them manually with valid as well as invalid data. The constraints we will be facing is the deadline of submission.

1.2.1 Unit Testing

Unit testing, a testing technique using which individual modules are tested to determine if there are any issues by the developer himself. It is concerned with functional correctness of the standalone modules. Unit Testing is done during the development (coding phase) of an application by the developers.

Unit Tests isolate a section of code and verify its correctness. A unit may be an individual function, method, procedure, module, or object.

1.2.2 White Box testing

White Box Testing is software testing technique in which internal structure, design and coding of software are tested to verify flow of input-output and to improve design, usability and security. In white box testing, code is visible to testers so it is also called Clear box testing, Open box testing, Transparent box testing, Code-based testing and Glass box testing. White box testing techniques analyze the internal structures, the used data structures, internal design, code structure and the working of the software rather than just the functionality as in black box testing. It is also called glass box testing or clear box testing or structural testing.

1.2.3 Black Box testing

Black box testing is a method of software testing that tests the functionality of an application as opposed to its internal structures of working. Specific knowledge of application's code/internal structure and programming knowledge in general is not required. The tester is only aware of what the software is supposed to do, but not how i.e. When he/she enters a certain input, he/she gets a certain output; without being aware of how the output was produced in the first place. Test cases are built around specifications and requirements i.e. what the application is supposed to do. It uses external descriptions of the software, including specifications, requirements and design to derive test cases.

2 Test plan

The objectives supported by the Test Plan are:

- To test the project such that it meets the business and user requirements.
- The Test Plan should find defects which may get created by the programmer while developing the software.
- To make sure that the end result is correct.
- Testing can be helpful in gaining confidence in and providing information about the level of quality.

The major functions and scopes that would be tested are:

1. Login Module
2. Registration Module

Following points to be considered while testing:

- Perform unit testing on individual modules
- Integrate the modules to perform the integration testing after successful completion of unit testing.
- Then, the system as a whole will be tested and we will perform the system testing.
- Different scenarios that can occur once the project will be deployed has been considered for ensuring effective testing of the software.

The testing of the website will cover how the website is able to handle different types of inputs, showing messages: error and success as well as the data displayed on the website. Repeated manual testing of the forms will be done changing the input at every iteration. The items that will be tested are the forms as well as other functionality like deleting posts, comments and editing profile. Dummy data will be used to test forms as well as deleting that dummy data from the website.

2.1 Features to be tested

Features to be tested	Scenarios
User Login Module	1) Creating a new user 2) Proper Login
Posting module	1) Able to write posting 2) Able to comment 3) Adding the posts to the database
Profile module	1) Able to edit profile 2) Able to add education 3) Able to add experience

2.2 Features not to be tested

Feature	Reasons
Storage	Assumed to be infinite
Connection to database	1) Sometimes blocked by firewalls 2) Disrupted due to slow internet connections

2.3 Testing tools and Environment

2.3.1 Testing Staff

Personnel	Count
Test Lead	1
Software Tester	2

Task name	Milestone	Required Time	Start date	End date
Information Gathering		2	10-03-2022	12-03-2022
Test Planning		3	12-03-2022	15-03-2022
Build Test Plan		1	15-03-2022	16-03-2022
Define Metric Objectives		1	16-03-2022	17-03-2022
Review/Approve Plan	Milestone	1	17-03-2022	18-03-2022
Test Case Design		6	18-03-2022	24-03-2022
Design Unit Tests		2	24-03-2022	26-03-2022
Design System/Integration Tests		2	26-03-2022	28-03-2022
Design Acceptance/Regression Tests		1	28-03-2022	29-03-2022
Review/Approve Design	Milestone	1	29-03-2022	30-03-2022
Test Execution/Evaluation		5	30-03-2022	04-04-2022
Conducting Unit Testing	Milestone	2	04-04-2022	06-04-2022
Conducting System Testing	Milestone	2	06-04-2022	08-04-2022
Conducting Acceptance Testing	Milestone	2	08-04-2022	10-04-2022
Conducting Regression Testing	Milestone	1	10-04-2022	11-04-2022
Review/Approve Final Test Result	Milestone	1	11-04-2022	12-04-2022

Figure 1: Testing schedule

2.3.2 Testing Schedule

2.3.3 Testing Environment

Operating system

1. Microsoft Windows (7 or above)

List of devices

1. Laptop/PC

Browser requirement

1. Google Chrome
2. Mozilla Firefox
3. Safari
4. Microsoft Edge

Server: Localhost

Editor: Visual Studio Code/Sublime Text

Documentation: MS Office, Overleaf

Workstation:

1. CPU: 3.6GHz Intel i3 Processor or higher
2. RAM: 4 GB or higher
3. Disk Space: 1 GB or higher

3 Test cases

The components that will be tested are sign up form, login form, create profile form, add post form and add comment form. The pass/fail criteria will change for every form because of its varying inputs.

3.1 Test Case 1: New User Registration

Test Id	Purpose	Input	Expected Output	Test Status
1.1	Validating user-name entered	Cannot be blank	If validated, user is allowed to register.	Pass- User successfully registered
1.2	Validating email entered	Has to be in the email format, with @ and a domain eg. .com, .co.in	If validated, user is allowed to register	Pass- User successfully registered
1.3	Validating password entered	Cannot be blank. Password should be confirmed by the user and must be the same	If validated, user is allowed to register	Pass- User successfully registered

3.2 Test Case 2: User Login

Test Id	Purpose	Input	Expected Output	Test Status
2.1	Validating credentials entered	Cannot be blank	If validated, user is allowed to submit Login form	Pass- User was able to submit the credentials

2.2	Verifying email and password	User must enter correct email ID and corresponding password	User will be logged in to the website	Pass- User logged in successfully
1.3	Validating password entered	User entered incorrect email or incorrect password	User is not allowed to login and error message is displayed	Pass- User not allowed to login

3.3 Test Case 3: Adding post and liking post

Test Id	Purpose	Input	Expected Output	Test Status
3.1	Validating content entered	Content cannot be blank	If validated, the post is saved in the database and displayed on the website.	Pass- Post saved in the database and displayed
3.2	Liking and disliking the post	Users are allowed to like or dislike a post if logged in.	User cannot dislike if there are no likes to the post	Pass-User cannot like if not logged in. Like counter remains at 0 even if users tried to dislike.

3.4 Test Case 4: Adding education

Test Id	Purpose	Input	Expected Output	Test Status
4.1	Adding degree	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.2	Adding university	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.3	Adding grade	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.4	Choosing field of education	Cannot be blank and has to be chosen from the list provided	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.4	Adding location	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.5	Adding start date	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.6	Choosing if it is current place of study	Nil	Nil	Pass - User successfully added education record

4.7	Adding end date	Cannot be entered if it is current place of study. Cannot be blank if it is not current place of study.	If validated, user is allowed to add education record.	Pass - User successfully added education record
4.8	Adding description	Cannot be blank	If validated, user is allowed to add education record.	Pass - User successfully added education record

3.5 Test Case 5: Adding comments and liking comments

Test Id	Purpose	Input	Expected Output	Test Status
5.1	Validating content entered	Content cannot be blank	If validated, the comment is saved in the database and displayed on the website.	Pass- Comment saved in the database and displayed
5.2	Liking and disliking the comment	Users are allowed to like or dislike a comment if logged in.	User cannot dislike if there are no likes to the comments	Pass - User cannot like if not logged in. Like counter remains at 0 even if users tried to dislike.

4 Test Logs

4.1 Log in functionality

Test Execution Steps						
Sr. no.	Action	Input	Expected Output	Actual Output	Browser	Result
1	Open website		Highlight Registration Page	Highlight registration Page	FireFox	Pass
2	Not entering username		Pop up alerting user to enter username	Pop up alerting user to enter username	FireFox	FireFox
2	Entering invalid email	Email: Xyzxyz.com	Error message showing invalid email is entered	Error message showing invalid email is entered	FireFox	Pass
3	Entering password and not re-entering password to confirm	Pw: password Confirm PW: pass	Error message showing passwords do not match	Error message showing passwords do not match	FireFox	Pass
4	Entering right credentials	User: rajas Email: rajas.bondale@soma iya.edu Pw: password@123 CPW: password@123	User is redirected to dashboard page	User is redirected to dashboard page	FireFox	Pass

Figure 2: Registration

Test Scenario ID	Student Networking Site Test Cases						
Test Case description	Testing commenting and liking functionality					Test priority	Medium
Test Execution steps							
Sr. no.	Action	Input	Expected Output	Actual Output	Browser	Result	
1	Open website		Highlight comments page	Highlight comments page	Firefox	Pass	
2	Leaving comment blank		Pop up alerting to enter data	Pop up alerting to enter data	Firefox	Pass	
3	Disliking a comment that has 0 likes		Likes remain at 0	Likes remain at 0	Firefox	Pass	

Figure 6: Adding a comment and liking it

Test scenario ID	Student Networking Site Test Cases						
Test Case description	Testing user login functionality					Test Priority	High
Test Execution Steps							
Sr. no.	Action	Input	Expected Output	Actual Output	Browser	Result	
1	Open website		Highlight Login Page	Highlight Login Page	FireFox	Pass	
2	Entering invalid email	Email: Xyzxyz.com	Error message showing invalid email is entered	Error message showing invalid email is entered	FireFox	Pass	
3	Entering unregistered email and password	Email: xyz@xyz.com Pw: *****	Error message showing invalid credentials are entered	Error message showing invalid credentials are entered	FireFox	Pass	
4	Entering registered email and password	Email: rajas.bondale@somaiya.edu Pw: password@123	User is redirected to dashboard page	User is redirected to dashboard page	FireFox	Pass	

Figure 3: Login

Test Scenario ID	Student Networking Site Test Cases						
Test Case description	Testing posting and liking functionality					Test priority	Medium
Test Execution steps							
Sr. no.	Action	Input	Expected Output	Actual Output	Browser	Result	
1	Open website		Highlight posts page	Highlight posts page	Firefox	Pass	
2	Leaving post blank		Pop up alerting to enter data	Pop up alerting to enter data	Firefox	Pass	
3	Disliking a post that has 0 likes		Likes remain at 0	Likes remain at 0	Firefox	Pass	

Figure 4: Adding a post and liking it

Test Execution Steps						
Sr. no.	Action	Input	Expected Output	Actual Output	Browser	Result
1	Open website		Highlight Dashboard Page	Highlight Dashboard Page	FireFox	Pass
2	Navigating to Add Education Form		Add Education Form	Add Education Form	FireFox	Pass
3	Leaving a field blank except End date		Pop up alerting user to enter information	Pop up alerting user to enter information	FireFox	Pass
4	Leaving End date blank if current place of study is not clicked	Degree: Btech, Univ Name: KJSCE, Grade: 9.3, Study: Arts, Location: Mumbai, India, Start date: 03/04/2021, End date: ""	Pop up alerting user to enter End date	Pop up alerting user to enter end date	FireFox	Pass

Figure 5: Adding education record

5 System Architecture

Action	Date	Observed results	Position of output
New user registration	04/04/2022	Passed the test results	NA
User login	05/04/2022	Passed the test results	NA
Adding a post and liking/disliking	07/04/2022	Passed the test results	NA
Adding education record	09/04/2022	Passed the test results	NA
Adding a comment and liking/disliking	11/04/2022	Passed the test results	NA

The Test Cases implemented and the Test Logs conducted gave us insights of the application. All of the testcases passed for the following functionalities:

1. New user registration
2. User login
3. Adding a post and liking/disliking
4. Adding education record
5. Adding a comment and liking/disliking