

Quro Problem Solving

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A project submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering

Department of Software Engineering DAFFODIL INTERNATIONAL UNIVERSITY

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Letter of Approval

This Project titled "Quro", submitted by Mahmudul Hasan, 151-35-1088 to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc in Software Engineering and approved as to its style and contents.

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Declaration

We hereby declare that we have taken this thesis under the supervision of Sheikh Shah Mohammad Motiur Rahman, Lecturer, Department of Software Engineering, Daffodil International University. We also declare that neither this thesis/project nor any part of this has been submitted elsewhere for award of any degree.

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Dedication

At first, I dedicate this work to Almighty Allah for His blessing that makes me attainable to finish this with success. Almighty Allah gave me the ability and confidence to done my project and this document. I also dedicate this work to my parents who invariably love me and pray for me and I also dedicate this work to my university and those who perpetually support me most.

Abstract

This project especially prepares for start-up and small company. This platform helps peoples to reach expert to solve their problems and pay them.

This platform always helps those, who don't have the ability to hire an expert. People can post their problem and also include reward amount for the solution so that people are interested to provide solutions to their problem.

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Chapter 1

Introduction

1.1. Project Overview

Quro problem-solving platform for the small business, a start-up who don't have the ability to solve their problem and keeping specialist to solve. This platform keep solved problem privet to its owner, other users can't get the solution until owner shares the solution with them.

1.2. The Purpose of the Project

Quro problem-solving platform helps peoples to reach expert to solve their problems and pay them. This platform always helps those, who don't have the ability to hire an expert. People can post their problem and also include reward amount for the solution so that people are interested to provide solutions to the problem.

1.2.1. Background of the Project Effort

Every person or every business has to face its/his own problem, like them every small business and start-up company have its problem. Quro problem solving platform provides its user to reach expert in reasonable cost and both user of this platform will be benefited.

1.2.2. Beneficiaries and Benefits

- i. This project is mainly beneficiaries for small business and start-up.
- ii. This platform is fully functional, flexible and scalable. It is very easy to use.
- iii. This platform is open 24/7. So user can get help any time.
- iv. This project helps its user to reduce the employee cost when they need not to the expert.

1.2.3. Goals of the Project

The basic functionality of this platform is providing help to its user as easy as possible and save their time, money and labors. It helps user and solution provider to control their activities. User can report about spam post and solution.

1.3. Stakeholders

1.3.1. Admin

- i. View all posts and solutions.
- ii. Delete any posts and solutions.
- iii. Suspend any user account.
- iv. View user activity.
- v. View user reports about post and solution.

1.3.2. User

- i. View all posts.
- ii. Create post.
- iii. Delete post.
- iv. Update post.
- v. Reports on posts.
- vi. Give solutions.
- vii. Update solution.
- viii. Accept solution.
- ix. Request to share post solutions.
- x. Reports on post solutions.
- xi. Reject accepted solution.
- xii. Submit report against user.
- xiii. View other profile.
- xiv. Update user information.

1.4. Project schedule

1.4.1. Gantt Chart

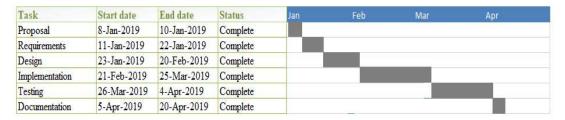


Figure 1.1 Gantt Chart

Chapter 2

Requirements Specification

2.1. Functionalities

Table 2.1: Functional Requirement

FRQ_ID	FRQ_Name	Description	Priority
FRQ001	Registration	This module will help the user to get registered themselves and provide the access into the platform	High
FRQ002	Login (User)	This module allows registered users to access into the platform and continues their activities.	High
FRQ003	Login (Admin)	This module allows admin to access into the platform.	High
FRQ004	Create post	This module allow user to post new post in the platform to get help.	High
FRQ005	Update post	This module allow user to update their posted post (Only post owner can do this).	High
FRQ006	Delete post	This module allows user and admin to delete post (Only post owner and admin can do this).	High
FRQ007	Post solution	This module allows users to provide solutions on post.	High
FRQ008	Accept solution	This module helps user to accept provide solution (Only post owner can do this).	High
FRQ009	Reject accepted solution	This help user to reject accepted solution if he did it by mistake (Only post owner can do this).	Medium
FRQ010	Submit report	This module helps users to submit reports against post, solution and user account.	High
FRQ011	Block user (Admin)	This module allows admin to block specific user account.	High
FRQ012	Delete solution	This help user to delete solution (Only solution provider can do this).	High

FRQ013	Update solution	This allow user to update solution after posted (Only solution provider can do this).	High
FRQ014	Transfer reward amount	This module provides functionality to transfer reward amount to solution provider account.	High
FRQ015	Update user information	This module provides functionality to update user profile and credit or debit card information.	Medium
FRQ016	Refund money	This will help user to get his money back.	High
FRQ017	HighFive	This module allows users to give high-five or remove it on other user post.	Medium
FRQ018	Share solution	This module allows user to share post solution with other user.	High
FRQ019	Request share solution	This module allows user to make a request to other user to share solution with him.	Low
FRQ020	Pin post	This will allow user to save any post on his account.	Low

2.2. Performance Requirement

2.2.1. Speed and Latency Requirement.

- i. Response of this platform within 2-6 seconds.
- ii. Display validation error within 1-3 seconds.
- iii. Fallback query.
- iv. Real-time data transaction within 1-3 seconds.

2.2.2. Precision or Accuracy Requirement.

i. Every account should get that data which it's have access.

2.2.3. Capacity Requirement

- i. Unlimited users to be registered.
- ii. Unlimited transaction.
- iii. Unlimited post.
- iv. Unlimited disk space.

2.3. Dependability Requirements

2.3.1. Reliability Requirements

- i. The User registration module should register a new user and update database with given input.
- ii. Log in should perform when the correct user name and password is given.
- iii. User who creates a post should receive all the solution which is in the post.
- iv. User who has the access to the others post solution should receive all the solution.
- v. Mention user should get the mention solution but not other users.
- vi. Broadcast every update data all over the platform.
- vii. Protect user's individual data.

2.3.2. Availability Requirements

- i. The system should available 24 hours a day and 7 days a week.
- ii. The system should perform activities immediately upon user request.
- iii. The system should run in any web browser.

2.4. Maintainability and Supportability Requirements

2.4.1. Maintenance Requirements

- i. Modify the system when needed.
- ii. Fix the system's bugs.
- iii. Weekly system backup.
- iv. Fix accidental data mistakes by user.

2.4.2. Supportability Requirements

i. Provide documentation for user guidance.

2.5. Security Requirements

2.5.1. Access Requirements

- i. Only registered user can login to the system.
- ii. Only Admin can block user.
- iii. Registered user can delete own posts and solutions.And Admin can delete any kind of post and solution.
- iv. Registered user can reports any post, solution and account.

2.6. Usability and Human-Interaction Requirements

2.6.1. Ease of Use Requirements

- i. User friendly interface.
- ii. The system maintenance should not be complex.

2.6.2. Understandability Requirements

i. The user could understand the system.

2.6.3. Accessibility Requirements

- i. The system should accessible from any devices.
- ii. User can create account any time.

Chapter 3

System Analysis and Design

3.1. Use Case

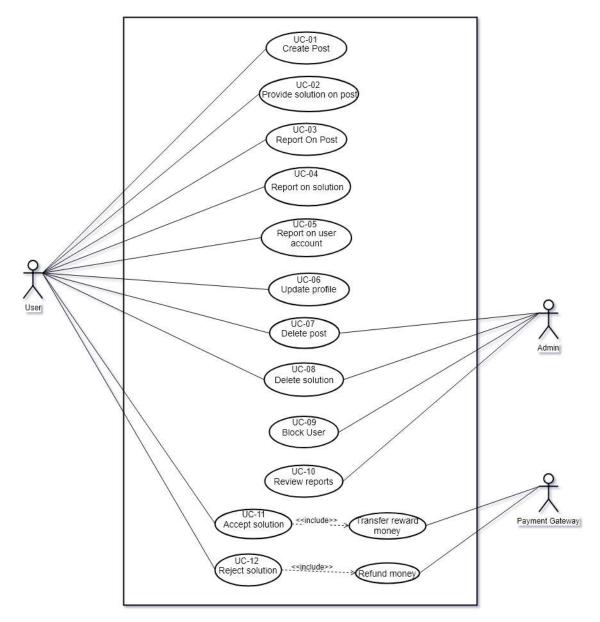


Figure 3.1: Use Case

3.2. Use Case Description

Table 3.1: Use Case Description (create post)

Use Case Name:	Create Post	
Scenario:	User submits their problem.	
Brief Description:	User submits any problem with or without reward money to get solution.	
Actor:	User	
Precondition:	User has to login the platform.	
Flow of events:	User	
	Created posts will be direct store in database and display in index and user profile page.	
Exception	If user post did not match our conditions then it will show error	
Condition:	messages.	

Table 3.1: Use Case Description (Provide solution on post)

1000	5.1. Ose Case Description (1 Tovide solution on post)	
Use Case Name:	Provide solution on post.	
Scenario:	User can submit solutions in post.	
Brief Description:	User can submits solution in other user post, no limit.	
Actor:	User	
Precondition:	User has to login the platform.	
Flow of events:	User	
	Submitted solutions in post will be direct store in database and	
	display in single page.	
Exception	If user post a blank solution then it will shows error messages.	
Condition:		

Table 3.2: Use Case Description (Report on post)

Use Case Name:	Report on post.
Scenario:	User can submit report on post.
Brief Description:	User can submit report on other user post.
Actor:	User
Precondition:	User has to login the platform.
Flow of events:	User
	Submit report on post will be direct store in database.
Exception	If user submits a blank report on post then it will show error
Condition:	messages.

Table 3.3: Use Case Description (Report on solution)

Use Case Name:	Report on solution.	
Scenario:	User can submit report on user post solution.	
Brief Description:	User can submit report on other user solution. If it violate community rules.	
Actor:	User	
Precondition:	User has to login the platform.	
Flow of events:	User	
	Submit report on post solution will be direct store in database.	
Exception Condition:	If user submits a blank report then it will show error messages.	

Table 3.4: Use Case Description (Report on user account).

Use Case Name:	Report on user account.	
Scenario:	User can submit report on user account.	
Brief Description:	User can submit report on other user account.	
Actor:	User	
Precondition:	User has to login the platform.	
Flow of events:	User	
	Submit report on post will be direct store in database.	
Exception Condition:	If user submit a blank report on user account then it will show error messages.	

Table 3.5: Use Case Description (Update profile).

Use Case Name:	Update profile.	
Scenario:	User can update profile.	
Brief Description:	User can update his/here account information any time.	
Actor:	User	
Precondition:	User has to login the platform.	
Flow of events:	User	
	Update information will be store in database and display in user profile page.	
Exception Condition:	If user provided information is not correct then it will show error messages.	

Table 3.6: Use Case Description (Delete post).

Use Case Name:	Delete post.
Scenario:	User can delete post.
Brief Description:	User can delete post any time. It will be removed from platform permanently. And it cannot be reversible.
Actor:	User, Admin
Precondition:	User has to login the platform.
Flow of events:	User, Admin
	Delete post from database permanently.
Exception	
Condition:	

Table 3.7: Use Case Description (Delete solution).

Use Case Name:	Delete solution.	
Scenario:	User can delete solution.	
Brief Description:	User can delete post solution any time. It will be removed from platform permanently. And it cannot be reversible.	
Actor:	User, Admin	
Precondition:	User has to login the platform.	
Flow of events:	User, Admin	
	Delete post solution from database permanently.	
Exception		
Condition:		

Table 3.8: Use Case Description (Block user).

Use Case Name:	Block user.	
Scenario:	Admin can block user account.	
Brief Description:	Admin can block user account if user violates community rules. Admin also can unblock user account.	
Actor:	Admin	
Precondition:	User has to login the platform.	
Flow of events:	Admin	
	Update user account status in database. And this account will not be visible to other user.	
Exception		
Condition:		

Table 3.9: Use Case Description (Review reports).

Use Case Name:	Review reports	
Scenario:	Admin can view user reports.	
Brief Description:	Admin can view user submitted reports and take action.	
Actor:	Admin	
Precondition:	User has to login the platform.	
Flow of events:		
Exception		
Condition:		

Table 3.10: Use Case Description (Accept solution).

Use Case Name:	Accept solution.	
Scenario:	User can accept provided solution.	
Brief Description:	User can accept solution which is submitted by other user it the problem was solved, at a time user can accept only one solution.	
Actor:	User, Payment Gateway	
Precondition:	User has to login the platform.	
Flow of events:	User	
	After accept a solution, reward amount will be transfer to the solution provider account.	
	Payment Gateway	
	Transfer reward amount request will be received and perform transfer. Return success or failed response.	
Exception Condition:		

Table 3.11: Use Case Description (Reject solution).

Use Case Name:	Reject solution.	
Scenario:	User can reject provided solution.	
Brief Description:	User can reject the accepted solution which was accepted by him/her.	
Actor:	User, Payment Gateway	
Precondition:	User has to login the platform.	
Flow of events:	User	
	After reject a solution, reward amount will be refund from the solution provider account.	
	Payment Gateway	
	Refund reward amount request will be received and perform refund. Return success or failed response.	
Exception		
Condition:		

3.3. Activities Diagram

3.3.1. User Activities Diagram

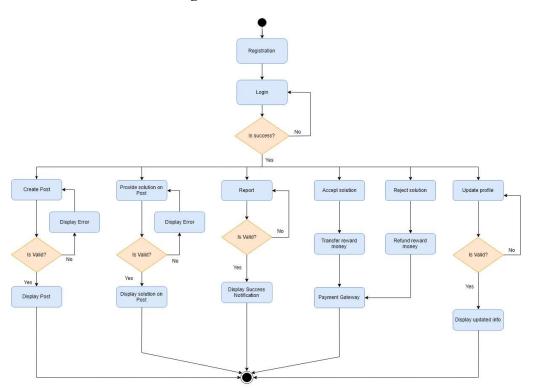


Figure 3.2: User Activities Diagram

3.3.2. Admin Activities Diagram

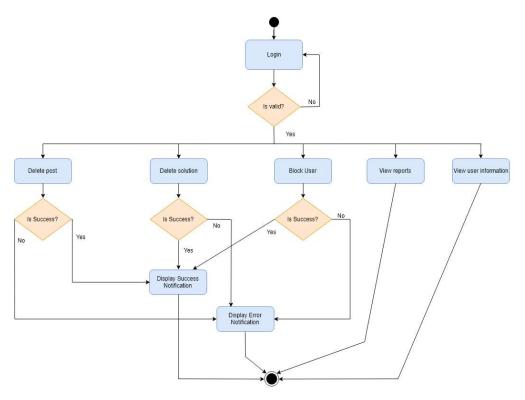


Figure 3.3: Admin Activities Diagram

3.4. Sequence Diagram

3.4.1. User Perspective Sequence:

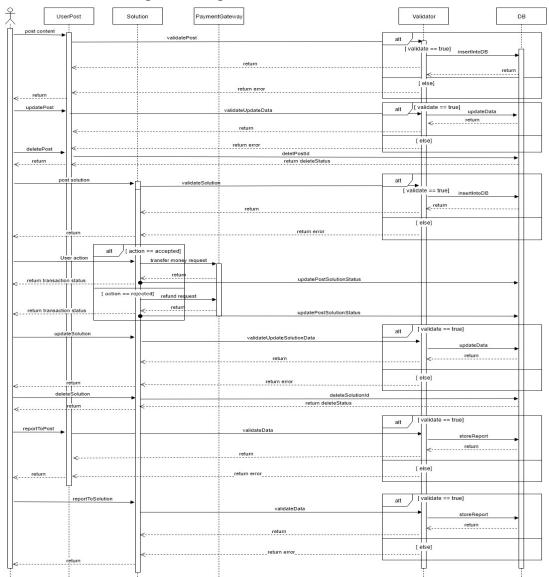


Figure 3.4: User Perspective Sequence Diagram

Reports Validator DB valid == true] validateRequest

3.4.2. Admin Perspective Sequence:

Figure 3.5: Admin Perspective Sequence Diagram

3.5. Data Flow Diagram (DFD):

3.5.1 Level 0 DFD

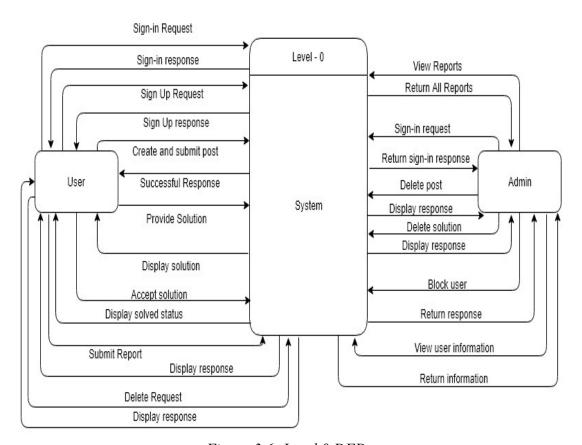


Figure 3.6: Level 0 DFD

3.5.2 Level 1 DFD: User Perspective

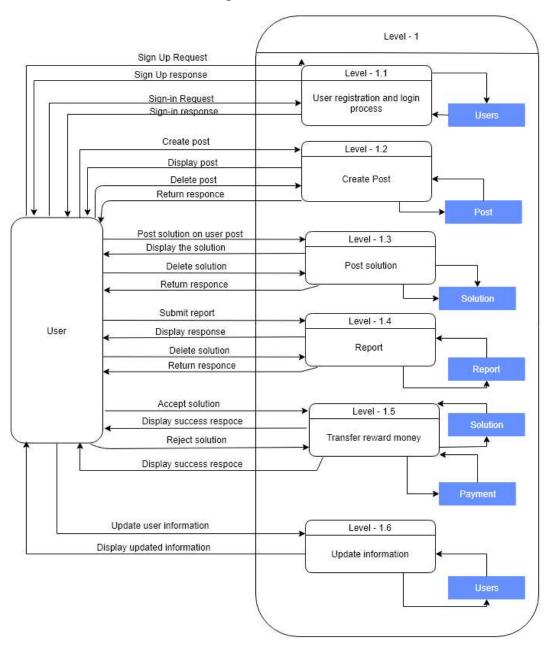


Figure 3.7: User Perspective Level 1 DFD

3.5.3 Level 1 DFD: Admin Perspective

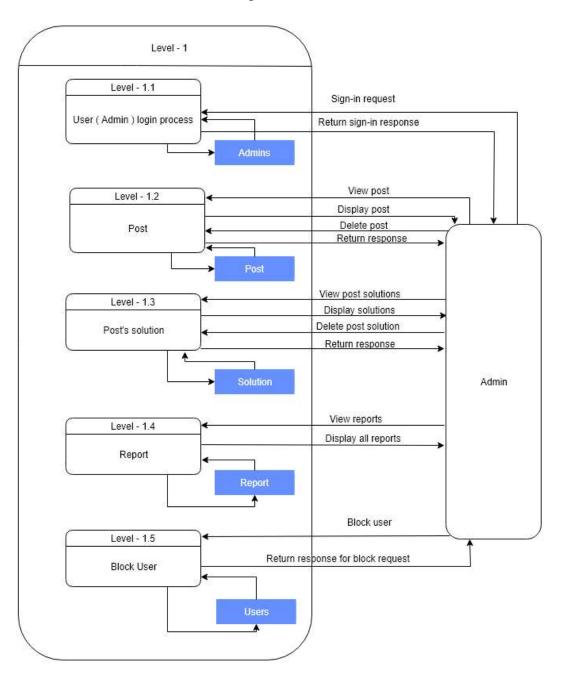


Figure 3.8: Admin Perspective Level 1 DFD

Chapter 4

Design and Development

4.1. Design and Implementation Constraints

4.1.1. System Language

- i. Laravel 5.7
- ii. HTML5
- iii. CSS3
- iv. Vuejs
- v. Bootstrap
- vi. Redis
- vii. Socket.io

4.1.2. Database Design or Architecture

i. MySQL

4.2. Development Tools and Technology

4.2.1. User Interface Technology

- i. We are using Laravel 5.7 which is build on PHP 7.2
- ii. Slick slider v1.8.1

4.2.2. Implementation Tools and Platforms

- i. Server name: host
- ii. Apache version 2.4.37
- iii. PHP version 7.2.14
- iv. MySQL version 10.1.37-MariaDB
- v. Perl version 8.41

4.3. Class Diagram

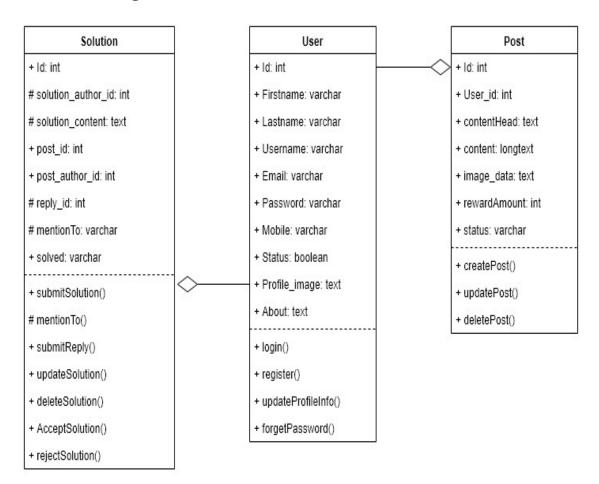


Figure 4.1: Class Diagram

4.4. Database Design

4.4.1. Entity Relationship Diagram (ERD)

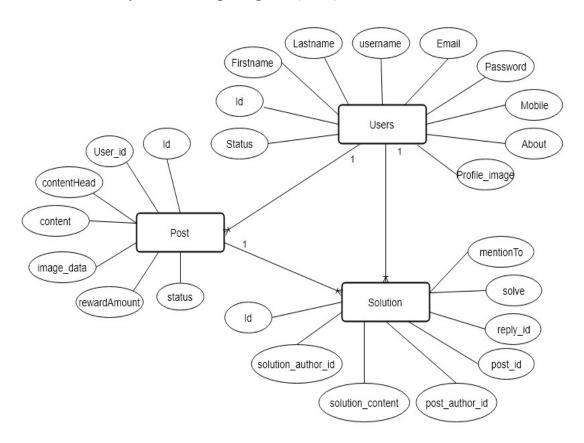


Figure 4.2: ERD Diagram

Chapter 5

System Testing

5.1. Testing Features

5.1.1. Features to be tested

- i. Sign up
- ii. Sign in
- iii. Create post
- iv. Submit solution on post
- v. Reply on solution
- vi. Accept or Reject solution
- vii. Delete post or solution
- viii. Submit report
- ix. Transfer reward money

5.1.2. Features not to be tested

- i. View other user profile
- ii. Update profile information
- iii. Pined post
- iv. Share solution on specific user

5.2. Testing Strategies

A testing strategy is a general approach to the testing process rather than a method of designing specific testing systems or components. Depending on the type of system to be tested and the development process used, different testing strategies can be adopted.

5.2.1. Test Approach

- i. The system will manually tested
- ii. The system testing is based on user acceptance

5.2.2. Pass/Fail Criteria

- i. Component Pass/Fail criteria The test will pass if the case meets the object design requirement or fail if not.
- ii. Integration Pass/Fail criteria The test will pass if the case meets the object design and the system architecture requirement or fail if not.
- iii. System Pass/Fail criteria The test will pass if the case meets the functional and non-functional requirements or fail if not.

5.2.3. Testing Schedule

Table 5.1: Testing Schedule

Test Phase	Time	Owner
Test Plan Creation	1 weeks	Mahmudul Hasan
Test Specification Creation	2 weeks	Mahmudul Hasan
Test Specification Team Review	2 weeks	Mahmudul Hasan
Component Testing	2 weeks	Mahmudul Hasan
Integration Testing	1 weeks	Mahmudul Hasan
System Testing	2 weeks	Mahmudul Hasan

5.3. Test Cases

5.3.1. Test Case Module-01: Sign up

Table 5.2: Test Case Module-1: Sign up

Test Case ID: TC01	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 26-03-2019
Module Name: Sign up	Test Execute by: Mahmudul Hasan
Description: Registration of a new	Test Execute Date: 26-03-2019
User	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	Enter empty value in email and password fields	Null	Display Exception	Pass	Display Exception
02	Enter correct value for email & password	Email address and password	Accept and redirect to user profile page	Pass	Accept and redirect to user profile page
03	Enter password less than 6 characters	12@45	Display error message "Password length must be greater than or equal 6 characters"	Pass	Display error message "Password length must be greater than or equal 6 characters"
04	Click Sign up button without correct input	Null	Display Exception	Pass	Display Exception
05	Click Sign up button without confirm password	Null	Display Exception	Pass	Display Exception
06	If entered email is already registered	Null	Display Exception	Pass	Display Exception

5.3.2. Test Case Module-02: Sign in

Table 5.3: Test Case Module-2: Sign in

Test Case ID: TC02	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 26-03-2019
Module Name: Sign in	Test Execute by: Mahmudul Hasan
Description: Test sign in process of	Test Execute Date: 26-03-2019
this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	Enter empty value in email and password fields	Null	Display Exception	Pass	Display Exception
02	Enter correct value for email & password	Email address and password	Accept and redirect to user profile page	Pass	Accept and redirect to user profile page
03	Click Sign in button without correct input	Null	Display Exception	Pass	Display Exception
04	If entered email & password is incorrect	Null	Display Exception	Pass	Display Exception

5.3.3. Case Module-03: Create post

Table 5.4: Test Case Module-3: Create post

Test Case ID: TC03	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 27-03-2019
Module Name: Post	Test Execute by: Mahmudul Hasan
Description: Test create post	Test Execute Date: 27-03-2019
process of this system	

Step	Test Cases	Test Data	Expected	P/F	Actual Result
			Result		
01	Enter empty	Null	Display	Pass	Display
	value in post		Exception		Exception
	input fields				
02	Enter space	Space	Display	Pass	Display
	value in post		Exception		Exception
	input fields				
03	Click Submit	Null	Display	Pass	Display
	button without		Exception		Exception
	valid input				
04	Click Submit	Title: Need help	Accepted	Pass	Accepted
	button with valid	about block IP			
	input	address country			
		base.			
		Body: I want to			
		block all IP			
		address without			
		Bangladesh.			

5.3.4. Case Module-04: Submit solution on post

Table 5.5: Test Case Module-4: Submit solution on post

Test Case ID: TC04	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 27-03-2019
Module Name: Solution	Test Execute by: Mahmudul Hasan
Description: Test solution on post	Test Execute Date: 27-03-2019
of this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	Enter empty value in solution	Null	Display Exception	Pass	Display Exception
					Exception
	fields				
02	Enter valid value	Ok	Accepted	Pass	Accepted
	in solution fields				
03	Click submit	Null	Display Exception	Pass	Display
	button without				Exception
	valid input				

5.3.5. Case Module-05: Reply on solution

Table 5.6: Test Case Module-5: Reply on solution

Test Case ID: TC05	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 28-03-2019
Module Name: Solution	Test Execute by: Mahmudul Hasan
Description: Test reply solution	Test Execute Date: 28-03-2019
on post of this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	Enter empty value in solution reply fields	Null	Display Exception	Pass	Display Exception
02	Enter valid value in solution reply fields	Ok1234	Accepted	Pass	Accepted
03	Click submit button without valid input	Null	Display Exception	Pass	Display Exception

5.3.6. Case Module-06: Accept or Reject solution

Table 5.7: Test Case Module-6: Accept or Reject solution

Test Case ID: TC06	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 29-03-2019
Module Name: Solution	Test Execute by: Mahmudul Hasan
Description: Test Accept or Reject	Test Execute Date: 29-03-2019
solution on post of this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	User can accept only one solution at a time.	Null	Accept one solution	Pass	Accept one solution
02	After accept solution user can reject solution	Null	Reject accepted solution	Pass	Reject accepted solution
03	Can not reject without accept solution	Null	Hide reject option	Pass	Hide reject option

5.3.7. Case Module-07: Delete post or solution

Table 5.8: Test Case Module-7: Delete post or solution

Test Case ID: TC07	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 01-04-2019
Module Name: Post, and Solution	Test Execute by: Mahmudul Hasan
Description: Test delete post or	Test Execute Date: 01-04-2019
solution on this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual Result
01	Delete user own	Null	Successfully	Pass	Successfully
	post or solution		deleted		deleted
02	Never display delete option on	Null	No delete option	Pass	No delete option
	other post and solution				

5.3.8. Case Module-08: Submit report

Table 5.9: Test Case Module-8: Submit report

Test Case ID: TC08	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 02-04-2019
Module Name: Report	Test Execute by: Mahmudul Hasan
Description: Test report to user post, user account, and solution	Test Execute Date: 02-04-2019
on this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual
					Result
01	Submit empty	Null	Display Exception	Pass	Display
	report				Exception
02	Without	Null	Display Exception	Pass	Display
	selecting				Exception
	category submit				
	report				
03	Provide valid	Category:	Accepted	Pass	Accepted
	data in report	It is			
	form fields and	threatening.			
	submit	Details: It			
		violating			
		community			
		rules			

5.3.9. Case Module-09: Transfer reward money

Table 5.10: Test Case Module-9: Transfer reward money

Test Case ID: TC09	Test Design by: Mahmudul Hasan
Test Priority: High	Test Design Date: 03-04-2019
Module Name: Payment Gateway	Test Execute by: Mahmudul Hasan
Description: Test payment	Test Execute Date: 03-04-2019
gateway based on accept or reject	
solution on this system	

Step	Test Cases	Test Data	Expected Result	P/F	Actual
					Result
01	User accept solution	Null	Display transaction successful	Pass	Display transaction successful
02	User reject solution	Null	Display refund successful	Pass	Display refund successful

Chapter 6

User Manual

6.1. User Sign in Page

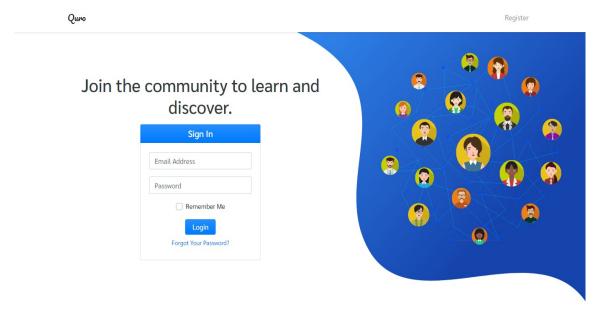


Figure 6.1: Sign in page

6.2. User Register Page

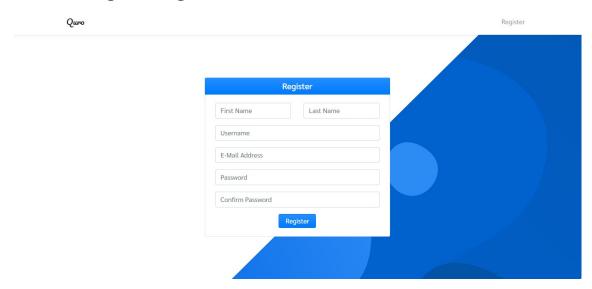


Figure 6.2: User register page

6.3. Index page

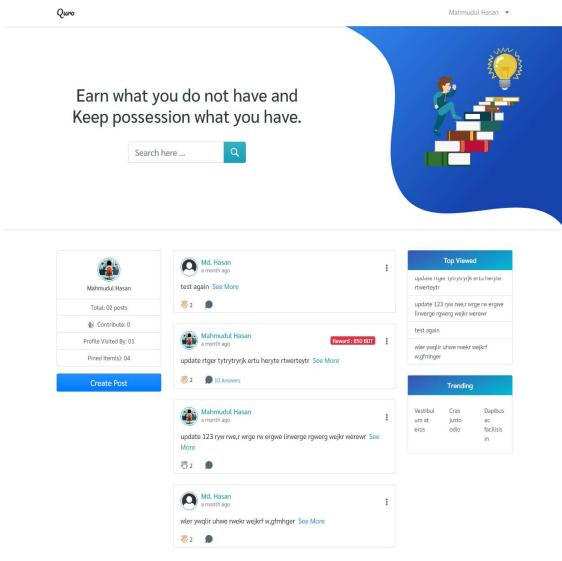


Figure 6.3: Index page

6.4. Single-post page

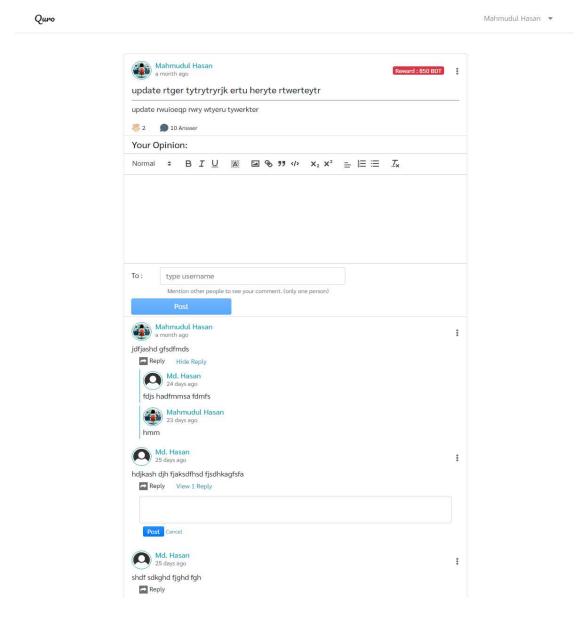


Figure 6.4: Single-post page

6.5. Create post

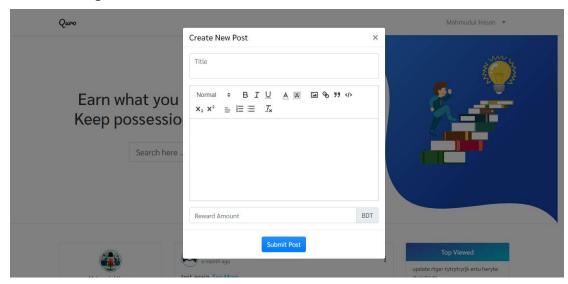


Figure 6.5: Create post

6.6. User profile page (own)

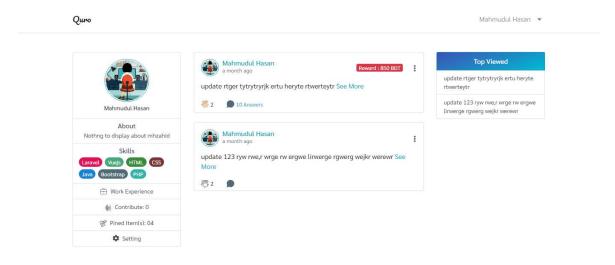


Figure 6.6: User profile

6.7. Profile setting (info)

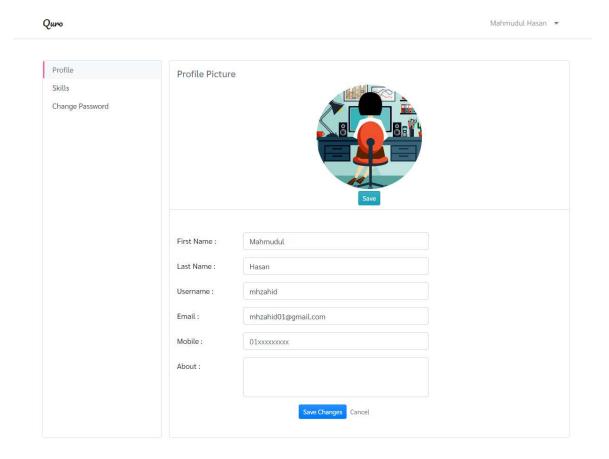


Figure 6.7: Profile info setting

6.8. Profile setting (skills)

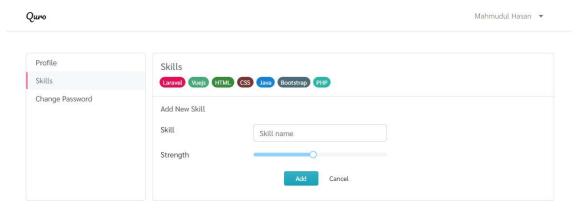


Figure 6.8: Profile skills setting

6.9. Setting (Change password)

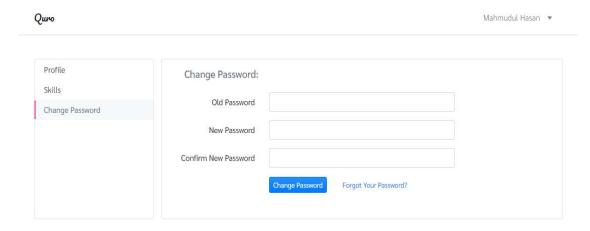


Figure 6.9: Setting (Change password)

6.10. Other user profile

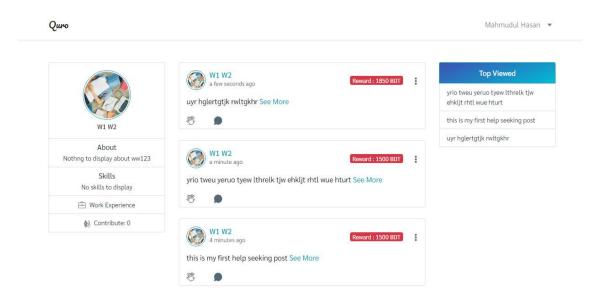


Figure 6.10: Other user profile

6.11. Logout

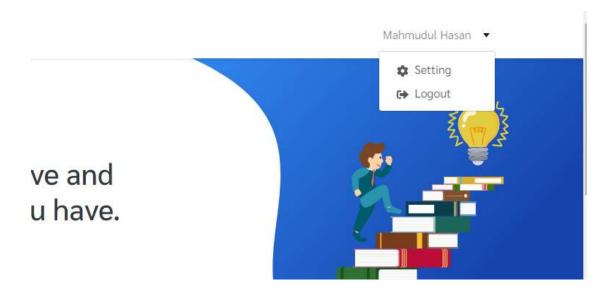


Figure 6.11: Logout

Chapter 7

Project Summary

7.1. Repository Link

https://github.com/mhzahid/quro

7.2. Obstacles & Achievements

Throughout this project, I have learned about redis and socket.io and how to provide real-time data to the user. How to manage a large amount of data. How to share data on request with real-time filtering. And I also learned about online money transfer provider "stripe".

7.3. Future Scope

There were some features I wanted to implement but I was unable to implement them for now but in future there are some features to make this project more helpful. Features are given below:

- i. Audio call
- ii. Video call
- iii. White board
- iv. Following

Conclusion

Quro helps peoples to reach expert to solve their problems and pay them. A start-up company or a small business company cannot afford the expense of an individual problems expert. In this platform, we offer them a cut of cost solution and they can get a solution from worldwide. And it will help also freelance expert to invest their lazy time to make money.

Every year, new entrepreneurs are coming to the market place and they will continue to come. They face different types of problems as their approaches are different. So, in order to give a better solution to their problems, we are providing a relevant solution which will help them to get a better outcome.

Appendices

May include any supporting material which is not essential for the main body of the report. These could be:

- i. Questionnaire designed for use
- ii. Diagrams
- iii. Details of requirements
- iv. User manual/guide
- v. User evaluation of the system
- vi. Test plans and results
- vii. Tables of contents