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Research Network Platform

Cyber Security Center, DIU

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

Department of Software Engineering
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I. Declaration

I hereby declare that I have taken this project under the supervision of **Md. Maruf Hassan**, **Assistant Professor**, Department of Software Engineering, Daffodil International University. I also declare that neither this report nor any part of this has been submitted elsewhere for award of any degree.

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APPROVAL

This Project titled “Research Network Platform For Cyber Security Center, DIU”, submitted by Sazal Ahamed, 143-35-836 and Md. Kamrul Hasan, 143-35-808 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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IV. Executive Summary

Research Network Platform for cyber security center is a web based application. This system allows the researcher to gain higher knowledge by connection with supervisor. In this system is more helpful for any research institute, might be any particular research group. Here actually supervisor is able to be post about research topic and researcher can chose any topic if he has enough knowledge about that particular area. Here is more important that Supervisor is able to track in live what is doing researcher. Mainly this system is more important for both Researcher and Supervisor. As researcher can easily find his area at the same way supervisor can pick qualified researcher what for searching. Here admin can monitor all system what has in my system. By using this system researcher are able to increase their scientific knowledge.

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Chapter I

Introduction

1.1. Project Overview

Research Network Platform is a web based application. The application is basically much effective and efficient for any research institute. In this system has various type of user. Respectively Admin, Supervisor, Researcher, Training & Awareness Coordinator and Service & Innovation Coordinator. In this system these entire role has specific functionality. Supervisor is able to maintain research topic, maintain researcher's query and same way supervisor can response also he can confirm researcher for specific research topic and able to monitoring all research updates. In this system Supervisor and Researcher are able to chatting between them. Training & Awareness Coordinator coordinates training program, workshop, and seminar about Cyber Security Center, DIU. Admin can control all system. He can maintain all thing ultimately where necessary any approval.

1.2. Project Purpose

1.2.1. Background

In this modern era especially in technology era research is more important thing which is rapidly increasing. So I consider that for research must need this kind of platform like where supervisor and researcher can maintain full research procedure. In manually maintain is too much clumsy for researcher and supervisor. By using this system they can solve those issue.

1.2.2. Benefits & Beneficiaries

Benefits:

- Increase collaboration between Supervisor & researcher.
- It's Time Consuming.
- Supervisor can handle project easily.

Beneficiaries:

- Research Lab Institute.
- Cyber Security Center, DIU.
- Supervisor.
- Researcher.

1.2.3. Goals

Most of the time supervisor and researcher face problem to manage research activity. I propose this system to solve those identified problem:

- Build research network platform to discover scientific knowledge
- Increase connectivity between supervisor to researcher
- Reduce time and make opportunity by online communication
- Usability
- To provide cyber security training program under cyber security center.

The main purpose of this project is to reduce these problems and make system more reliable, trustworthy and increase supervisor and researcher's satisfactions.

1.3. Stakeholders

A stakeholder is a party that has an interest in a company and can either affect or be affected by the business. The primary stakeholders in a typical corporation are its investors, employees, customers and suppliers.

- **Research Coordinator (Admin).**
- **Supervisor**
- **Researcher**
- **Training & Awareness Coordinator**
- **Service & Innovation Coordinator.**

1.4. Proposed System Model

A software process model is a simplified representation of a software process. Each model represents a process from a specific perspective.

1.4.1. Agile-Model

Our proposed system model is agile model which is an incremental process of software development. Each iteration lasts one to three weeks on average. Engineering actions are carried out by cross functional teams. In software development the term ‘agile’ means the ability to respond to changes-changes from requirements, technology and people.

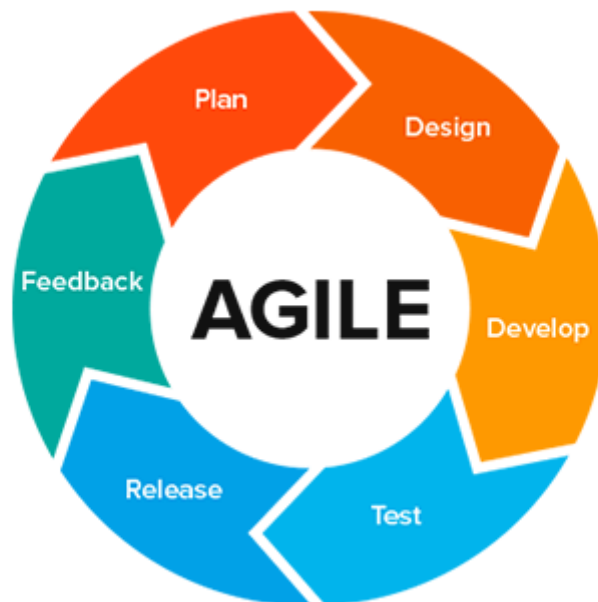


Figure 1 : Agile-Model

1.5. Project Schedule

In project management, a schedule is a listing of project's milestones, activities, and deliverables, usually with intended start and finish dates. A schedule is commonly used in the project planning and project portfolio management parts of project management.

1.5.1. Gantt Chart

Weeks	1	2	3	4	5	6	7	8	9	10	11	12
Works												
Analysis Phase												
Feasibility Study												
Project proposal												
Project UI												
Mid-term defense												
Implementation												
Testing												
Documentation												
Final defense												

Figure 2: Gantt chart

1.5.2. HR Planning for Development Phase

1. Project plan
2. Analysis
3. Requirement gathering
 - Brainstorming
 - Interview
 - Observation
 - Analysis
4. Design
 - System design
 - Database design
 - System user interface
5. Development
 - User Module
 - Event Module
 - Others
6. Testing
 - Test plan
 - Test Case
 - Test Execution

1.5.3. Release Plan

Release 1: beta v1.0 on 30/01/2019

Release 2: beta v1.1 on 25/02/2019

Release 3: beta v1.2 on 16/03/2019

Release 4: version 2.0 on 18/04/2019

Chapter II

Software Requirement Specification

2.1. Functional Requirements

Table 1: Functional Requirements

SRS No.	Name	Description	Priority
#01	Register Supervisor	Admin (Research Coordinator) can only add new supervisor.	High
#02	Publish/Reject Research Post	Admin can only publish/reject by reading the research topic.	High
#03	Monitor All Research Status	Monitor All Research Status	High
#04	Post A Research	Supervisor can post a new research topic.	High
#04	Give Appointment	Supervisor will give an appointment to research applicant (Researcher).	High
#05	Select Applicant	After appointment meeting, Supervisor will be able to select an applicant to research.	High
#06	Review & Leave feedback	Supervisor can review the research activity and submit a leave feedback to researcher (member).	High
#07	Member Registration	Interested person can apply in the system for member registration.	High
#08	Apply for Research	Member (Researcher) can apply for any project as an applicant.	High
#09	Chat	Supervisor and Researcher can chat regarding any research (Group Chat Enabled).	High

#10	Manage Training & Awareness Activity	Training & Awareness Coordinator can only make schedule for any training program, workshop, seminar and call for apply.	High
#11	Give Appointment For Admit	Training & Awareness Coordinator can only give an appointment to admit for non-member and member.	High
#12	Manage Service & Innovation Project	Service & Innovation Coordinator can through an innovation idea contest and provide service for corporate area.	High
#13	Join Contest	Member (Researcher) can apply for innovation contest.	High

2.2. Data Requirements

Table 2: Data requirements

No	Description	Priority
#01	Admin has to insert the login credentials accurately otherwise system will show an error with message.	High
#02	Admin has to create supervisor profile.	High
#03	Admin has to approve post of research topic.	Medium
#04	Admin has to approve new registered researcher's profile.	Medium
#05	Admin has to add the set of skill.	High

2.3. Performance Requirements

2.3.1. Speed and Latency Requirements

Table 3 Speed and Latency Requirements

No	Description	Priority
----	-------------	----------

#01	High performance host server.	High
#02	The system must have a high speed of manipulation data and reply to the user request.	Medium

2.3.2. Precision or Accuracy Requirements

Table 4: Precision or Accuracy Requirements

No	Description	Priority
#01	The input data should be validate when type of stakeholder provide data to the system	Medium
#02	All data should be in place accurately where it is associated	Medium
#03	Need to validate all the model of MySQL database.	Medium

2.3.3. Capacity Requirements

Table 5: Capacity Requirements

No	Description	Priority
#01	The web application size must able to load at hosting site.	Medium
#02	MySQL database size must be able to store the system data	High
#03	System should support unlimited user at the beginning version	Low
#04	System should support 1000 request per second.	Low

2.4. Dependability Requirements

2.4.1. Reliability Requirements

Table 6: Reliability Requirements

No	Description	Priority
#01	All confidential data must have to be encrypted.	Medium
#02	All data should collect from users by permission and by accepting privacy policy.	Low
#03	No one can use user's data for any other purpose except system needs.	Low

2.4.2. Availability Requirements

Table 7: Availability Requirements

No	Description	Priority
#01	The system should work 24 hours a day	Medium
#02	The system should provide the desired data to the user in time	Low

2.4.3. Robustness or Fault-Tolerance Requirements

Table 8: Robustness or Fault-Tolerance Requirements

No	Description	Priority
#01	If the system has been crashed, it should not be more than an hour.	Low
#02	System must be responsible and should be cross browser supported	Low

2.5. Maintainability and Supportability Requirements

2.5.1. Maintenance Requirements

Table 9: Maintenance Requirements

No	Description	Priority
#01	The system maintenance should be quick.	Low

2.5.2. Supportability Requirements

Table 10: Supportability Requirements

No	Description	Priority
#01	The system support latest laravel, reactjs and mysql version.	Medium
#02	Should support all the browsers and screen size.	Low
#03	Should support latest and popular cloud services.	Low

2.5.3. Adaptability Requirements

Table 11: Adaptability Requirements

No	Description	Priority
#01	The system should adapt all upgrading version and time.	Low
#02	New version of system should support latest laravel version.	Low

2.6. Security Requirements

2.6.1. Access Requirements

Table 12: Access Requirements

No	Description	Priority
#01	All the users access have to be limited with their use case boundaries	Low
#02	Users need to be authorized first to access data.	Medium
#03	Only Admin (Research Coordinator) will be able to enter the system to make maintenance.	Low
#04	Researcher's boundaries should be limited.	Low

2.6.2. Integrity Requirements

Table 13: Integrity Requirements

No	Description	Priority
#01	Only authorized user can access of system data with their respective accessibility and authorization.	Low
#02	Only admin can create supervisor profile, approve research for system visible, approve researcher registration by payment verify.	High

2.6.3. Privacy Requirements

Table 14: Privacy Requirements

No	Description	Priority
#01	The user data must not be visible for public	High
#02	The user data should not contain any private issues	Medium
#03	All the confidential data should be encrypted.	Medium

2.7. Usability and Human-Interaction Requirements

No visible usability and Human-Interaction requirements.

2.8. Look and Feel Requirements

2.8.1. Appearance Requirements

Table 15: Appearance Requirements

No	Description	Priority
#01	The user interface must be attractive.	High
#02	The user interface must be user friendly.	Medium
#03	The user interface must be user interactive.	Medium

2.8.1. Style Requirements

Table 16: Style Requirements

No	Description	Priority
#01	The interface color should be flat or material.	Medium

Chapter III

System Analysis

3.1. Use Case Diagram

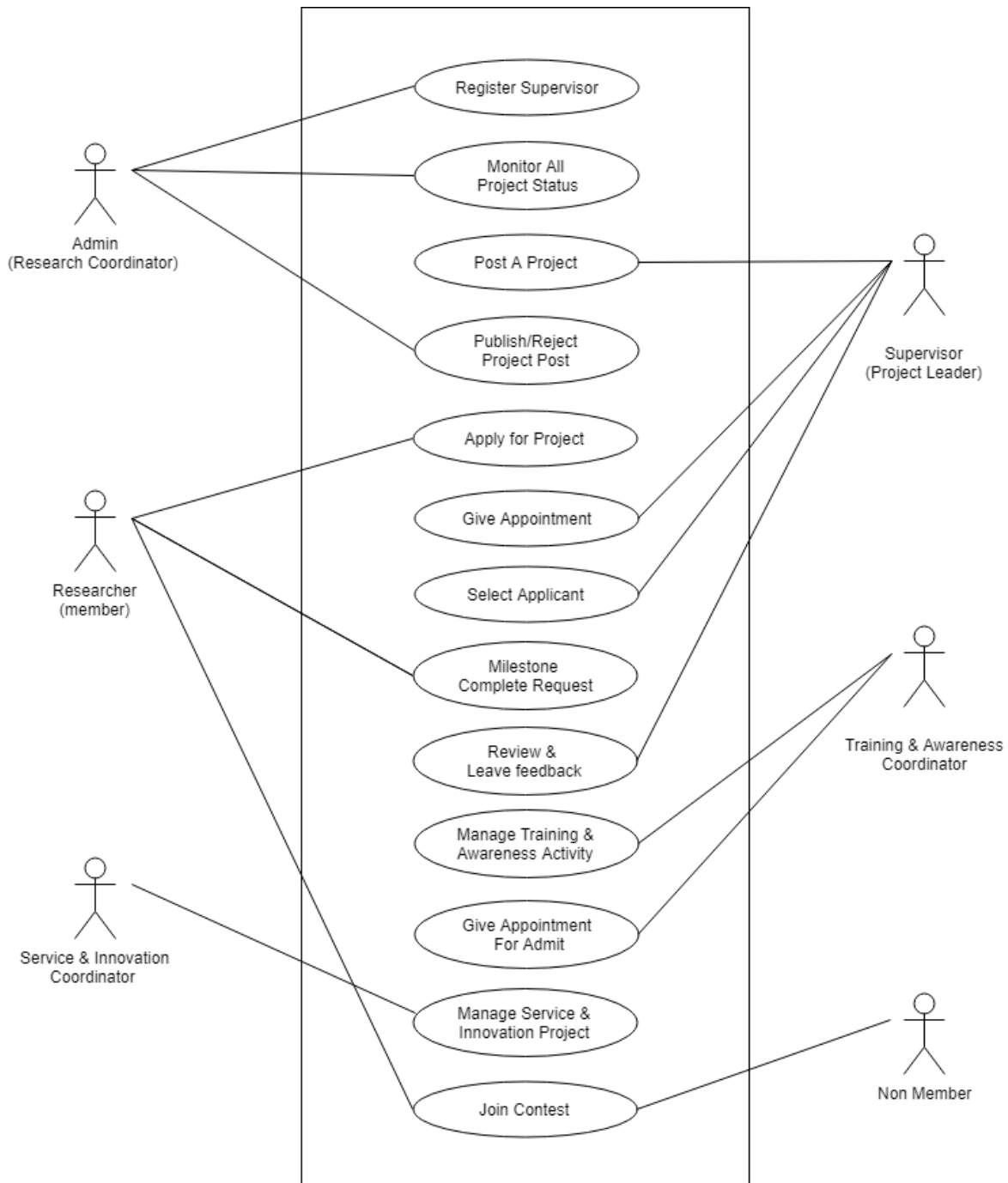


Figure 3: Use Case Diagram

3.2. Use Case Description

3.2.1. Register Supervisor

Table 17: Register Supervisor

Use Case Name:	Register Supervisor
Scenario :	Admin can register supervisor.
Brief Description:	When need any supervisor in research lab then admin can create supervisor profile.
Actor:	Admin(Research Coordinator)
Precondition:	Admin can create supervisor profile when supervisor has relevant knowledge.
Post condition:	After confirming register, a supervisor can post a research topic into our research network.
Main Success Scenario	1. Supervisor profile must be available in system. 2. He has to complete his profile. 3. He has to define his research area. 3. Posts have to be added to system.
Failure Scenario	1. Profile will not create. 2. Supervisor will not able to access the system.

3.2.2. Monitor Status

Table 18: Monitor Status

Use Case Name:	Monitor Status
Scenario :	Here admin can see all/the research which is waiting for approve
Brief Description:	By visiting all research route, firstly there will be visible which research post is pending for approve.
Actor:	Admin(Research Coordinator)
Precondition:	The user should be defined as admin role.
Post condition:	Admin needs to go all research route.
Main Success Scenario	1. Admin will able to see all the pending research. 2. Admin will collect user data properly and provide them to the authority. 3. For changing any information admin must need to notify users.
Failure Scenario	1. System will not show the pending research. 2. Admin should provide all the information properly. 3. Admin cannot give any confirmation without the decision of the authority.

3.2.2. Post New Research

Table 19: Post New Research

Use Case Name:	Post New Research
Scenario :	Here supervisor will post new research.
Brief Description:	Here supervisor can add new research topic to system and edit.
Actor:	Supervisor
Precondition:	The user should be defined as supervisor. And desired research information should be available.
Post condition:	The research post has to approve by admin.
Main Success Scenario	1. A new research topic will be created for our research network. 2. It will visible as pending research.
Failure Scenario	1. The Post will not create.

3.2.3. Publish/Reject Research Post

Table 20: Publish/Reject Research Post

Use Case Name:	Publish/Reject Research Post
Scenario :	Here admin can approve for publishing or reject any pending research post. After placing orders by customers staff can manage orders.
Brief Description:	By visiting all research route, firstly there will be visible which research post is pending for approve. If admin click on publish button, finally it will publish for my feed panel.
Actor:	Admin(Research Coordinator)
Precondition:	A research post needs to be posted by supervisor as pending status.
Post condition:	Admin must click on publish button.
Main Success Scenario	1. The post will visible on my feed panel or application front page. 2. Researcher will able to see these research post.
Failure Scenario	1. The post will not visible on my feed panel.

3.2.4. Apply for Research

Table 21: Apply for research

Use Case Name:	Apply for research
Scenario :	Here researcher will able to apply for any research topic.
Brief Description:	Here if any researcher have interest for doing any research, then the researcher will able to apply for the research by clicking the apply button.
Actor:	Researcher
Precondition:	The user should be as researcher role.
Post condition:	The researcher must click on apply button for any specific research.
Main Success Scenario	1. The researcher will be visible for the specific research as an applicant. 2. Supervisor will able to see the list of applied researcher.
Failure Scenario	The applied module will not success for being a applicant.

3.2.5. Give Appointment

Table 22: Give Appointment

Use Case Name:	Give Appointment
Scenario :	Here supervisor will able to give appointment for meeting.
Brief Description:	Here a supervisor can set an appointment schedule for taking an interview for any applicant who applied as researcher role.
Actor:	Supervisor
Precondition:	1. The user should be as Supervisor role. 2. Another thing, there should be one or more applicant by applying for the posted research.
Post condition:	1. The supervisor must click on interview button for any applied researcher. 2. The supervisor will select the time and date for meeting.
Main Success Scenario	1. The researcher will notify for meeting as interview purpose. 2. The appointment schedule will visible for both stakeholder.
Failure Scenario	The appointment will not generate for this system.

3.2.6. Select Applicant

Table 23: Select Applicant

Use Case Name:	Select Applicant
Scenario :	Here supervisor will able to select applicant finally after meeting.
Brief Description:	After meeting if it seems the applicant have proper skill to work on research, in that case the supervisor will select the applicant from interview panel to start the research.
Actor:	Supervisor
Precondition:	1. The applicant status must be on interview panel for posted research. 2. Only the supervisor of the specific research can take the action.
Post condition:	The supervisor must click on award button for the specific applied researcher.
Main Success Scenario	1. The researcher will awarded. 2. The system will notify him as an awarded researcher. 3. Supervisor and researcher can chat each other privately by using this system under the running research. 4. Group chat enabled.
Failure Scenario	The researcher will not awarded.

3.2.7. Review & Leave Feedback

Table 24: Review & Leave Feedback

Use Case Name:	Review & Leave Feedback
Scenario :	Here supervisor will able to mark a research project as finished.
Brief Description:	When a research will complete according the given assignments by supervisor to researcher, then the supervisor can mark it as completed for that specific research and also will able to provide a leave feedback for researcher.
Actor:	Supervisor
Precondition:	1. If the appointed researcher do all the assignments correctly and he/she make it done finally without any issue. 2. Only the supervisor will go for making the research as completed, when the appointed researcher will inform him/her by using the chat function.
Post condition:	The supervisor must provide a leave feedback for researcher profile rating.
Main Success Scenario	1. The research will complete finally. 1. The researcher profile rating will increase. 2. Researcher's skill will verified. 3. Our main goal of the research network platform will complete in this stage.

Failure Scenario	The research will not complete.
------------------	---------------------------------

3.2.8. Manage Training & Awareness Activity

Table 25: Manage Training & Awareness Activity

Use Case Name:	Manage Training & Awareness Activity
Scenario :	Training & Awareness Coordinator will able to manage training, workshop and seminar regarding Cyber Security Center, DIU.
Brief Description:	Training & Awareness Coordinator will able to add new schedule for technical training or vendor training and T&A Co can also call for join the training course. T&A Co will also able to announce for workshop and seminar. Anyone can join these programs.
Actor:	Training & Awareness Coordinator
Precondition:	1. The user should be as training & awareness coordinator role.
Post condition:	T&A Co will must add one or more schedule for training, workshop or seminar.
Main Success Scenario	1. Activity will create successfully. 2. The activity will visible on public website panel, so that anyone can see. 3. These will publish on Cyber Security Center, DIU.

Failure Scenario	The Activity will not awarded.
------------------	--------------------------------

3.2.9. Manage Service & Innovation

Table 26: Manage Service & Innovation Project

Use Case Name:	Manage Service & Innovation Project
Scenario :	Service & Innovation Coordinator will able to manage commercial services and manage innovation projects from Cyber Security Center, DIU.
Brief Description:	Service & Innovation Coordinator will offer to work on commercial services for only who have membership of Cyber Security Center, DIU. Sometimes S&Inno Co will give opportunity to work on innovation project or can through an innovation project contest for finding the talented team from our researchers or students (non-member).
Actor:	Service & Innovation Coordinator
Precondition:	1. The user should be as service & innovation coordinator role.
Post condition:	S&Inno Co will must manage those activity.

Main Success Scenario	1. Our provided services will visible our public. 2. The completed innovation project will visible on public website panel, so that anyone can see. 3. These will publish on Cyber Security Center, DIU.
Failure Scenario	The Activity will not awarded.

3.3. Activity Diagram

3.3.1. Research Coordinator (Admin)

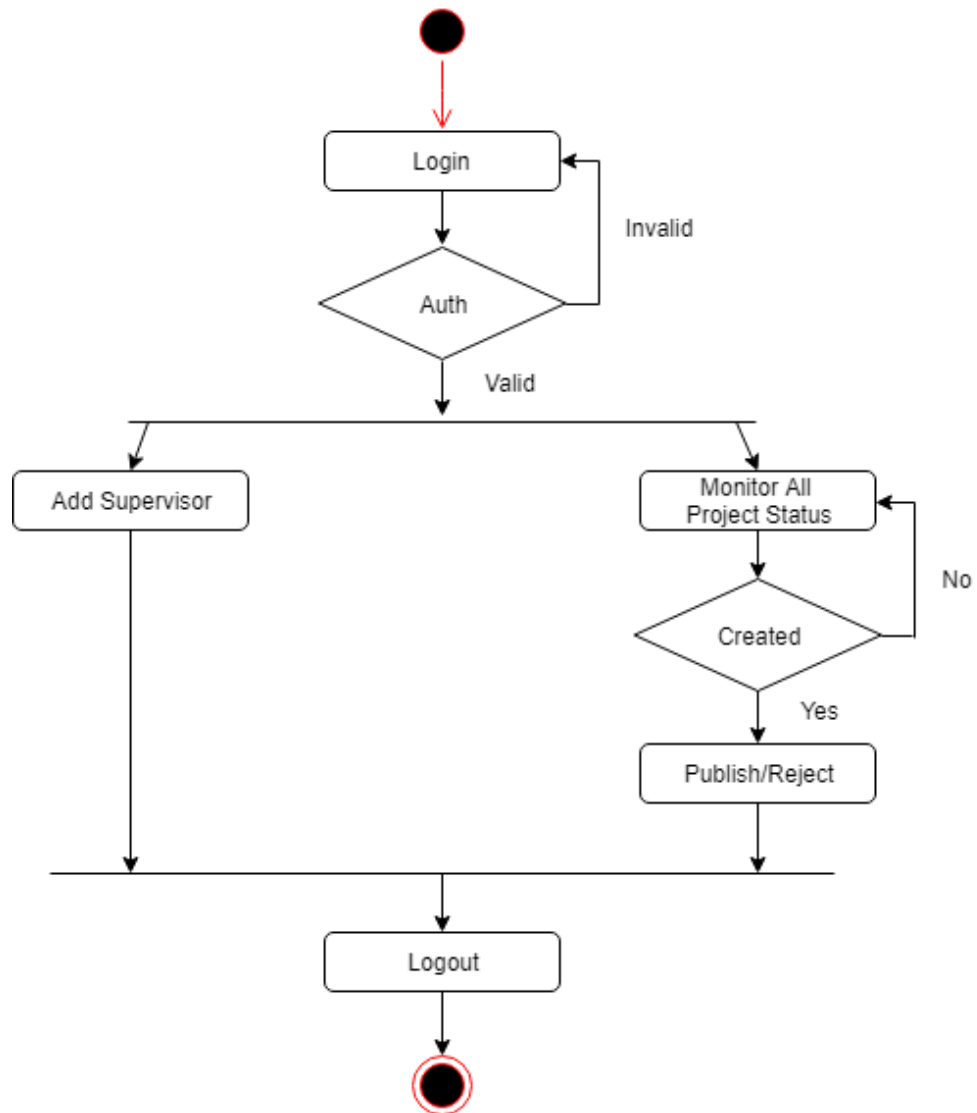


Figure 4: Activity Diagram for Research Coordinator (Admin)

3.3.2. Supervisor

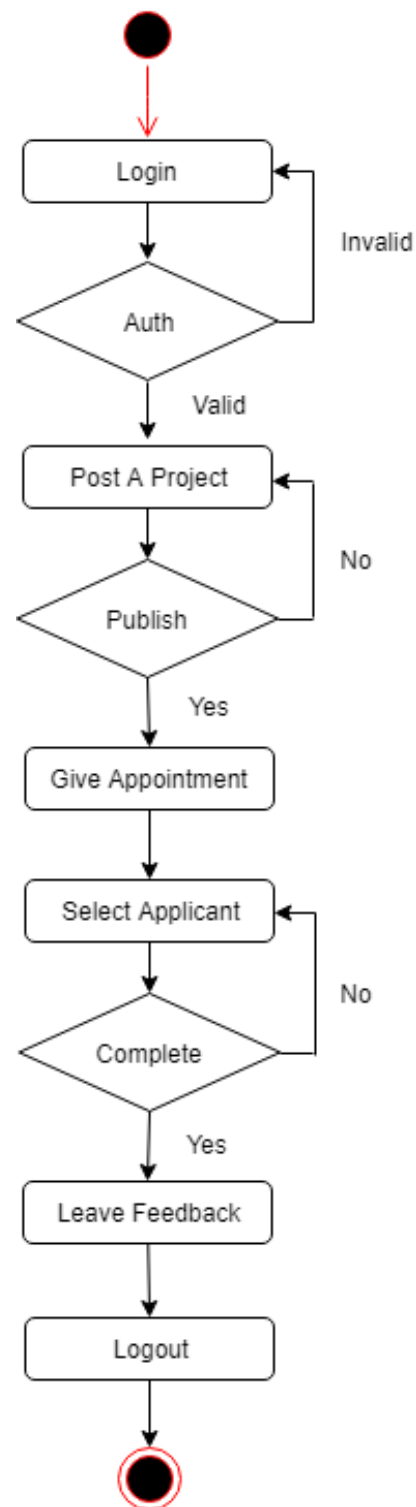


Figure 5: Activity Diagram for Supervisor

3.3.3. Researcher (Member)

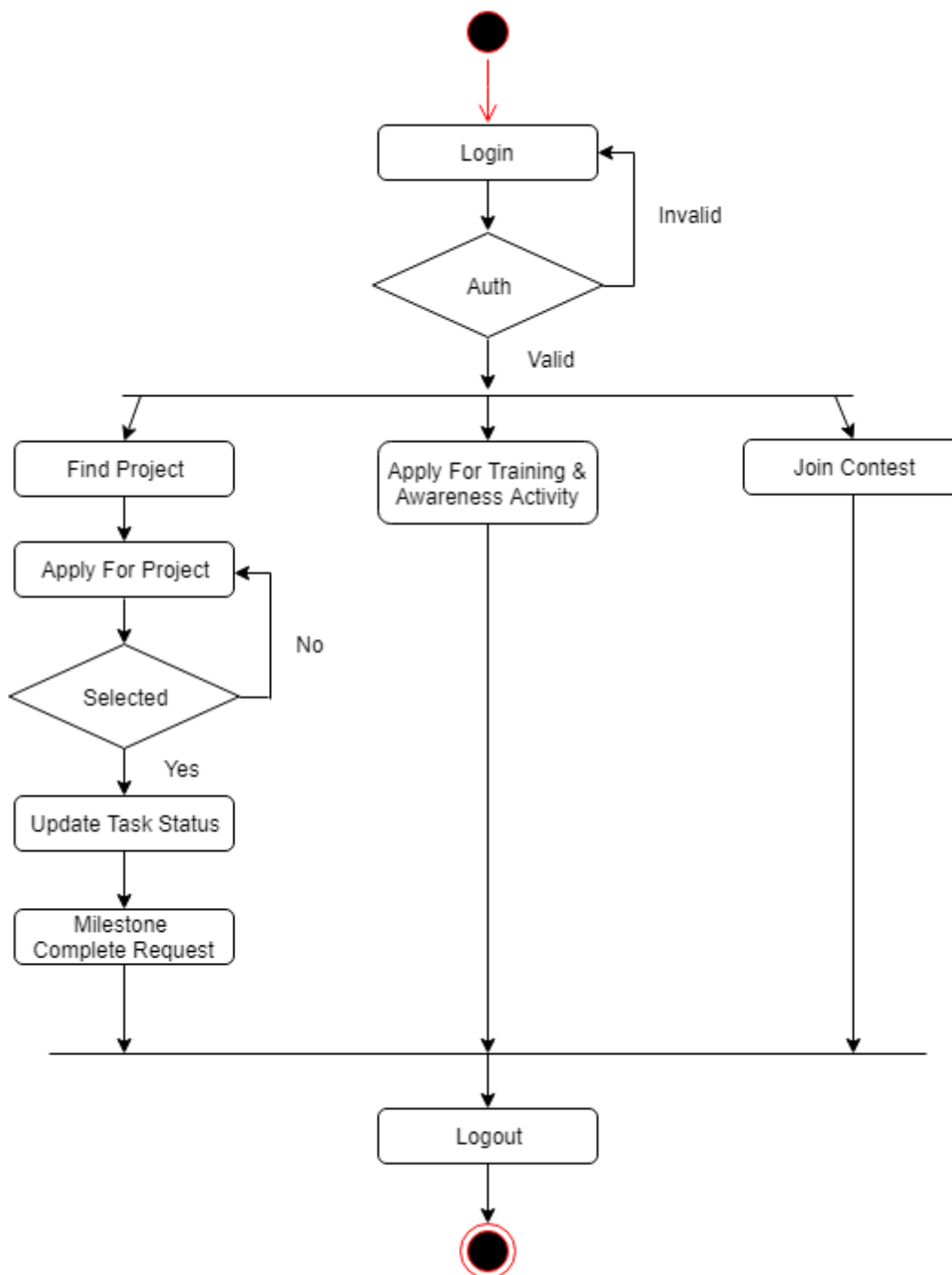


Figure 6: Activity Diagram for Researcher

3.3.4. Training & Awareness Coordinator

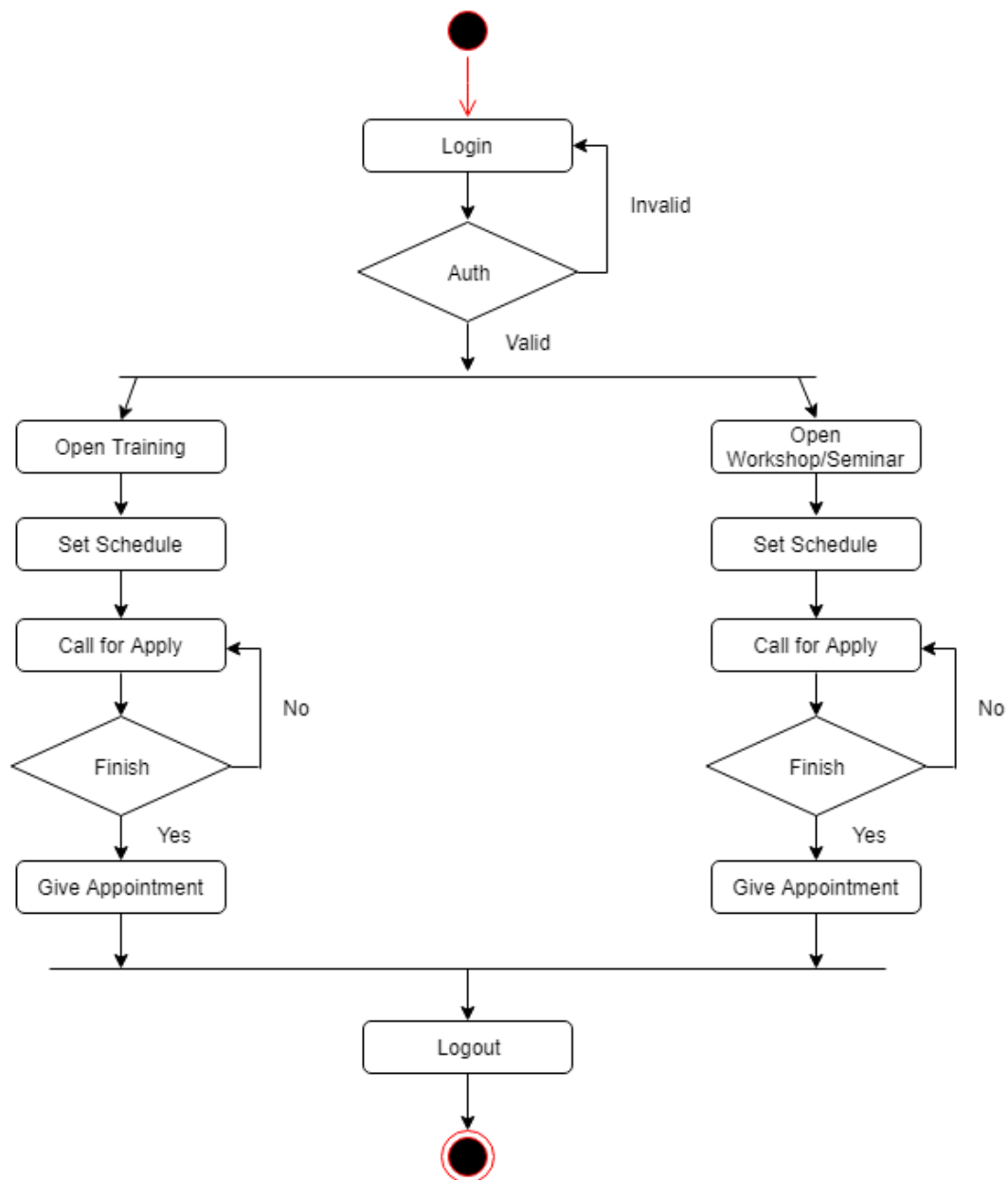


Figure 7: Activity Diagram for Training & Awareness Coordinator

3.3.5. Service & Innovation Coordinator

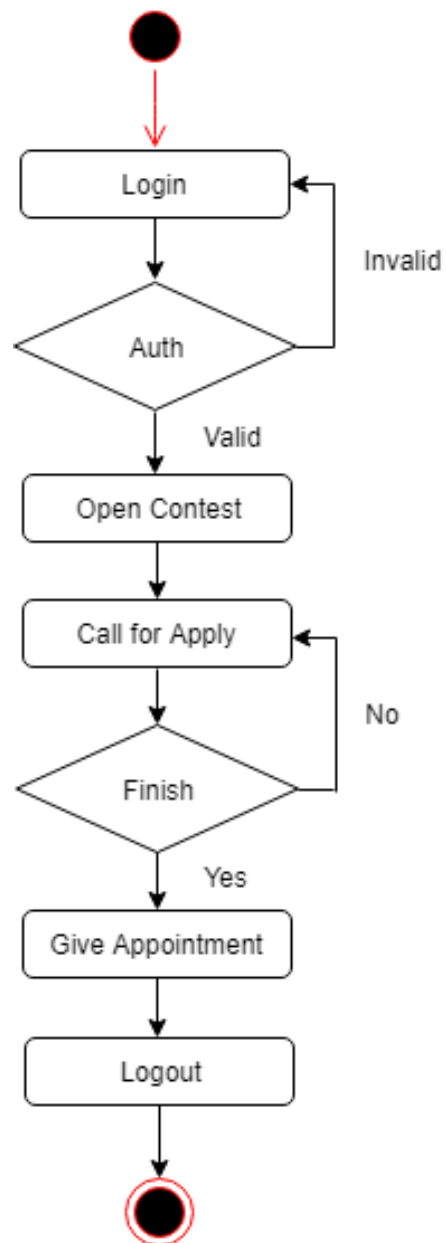


Figure 8: Activity Diagram for Service & Innovation Coordinator

Chapter IV

System Design Specification

4.1. Logical ER Diagram Part I

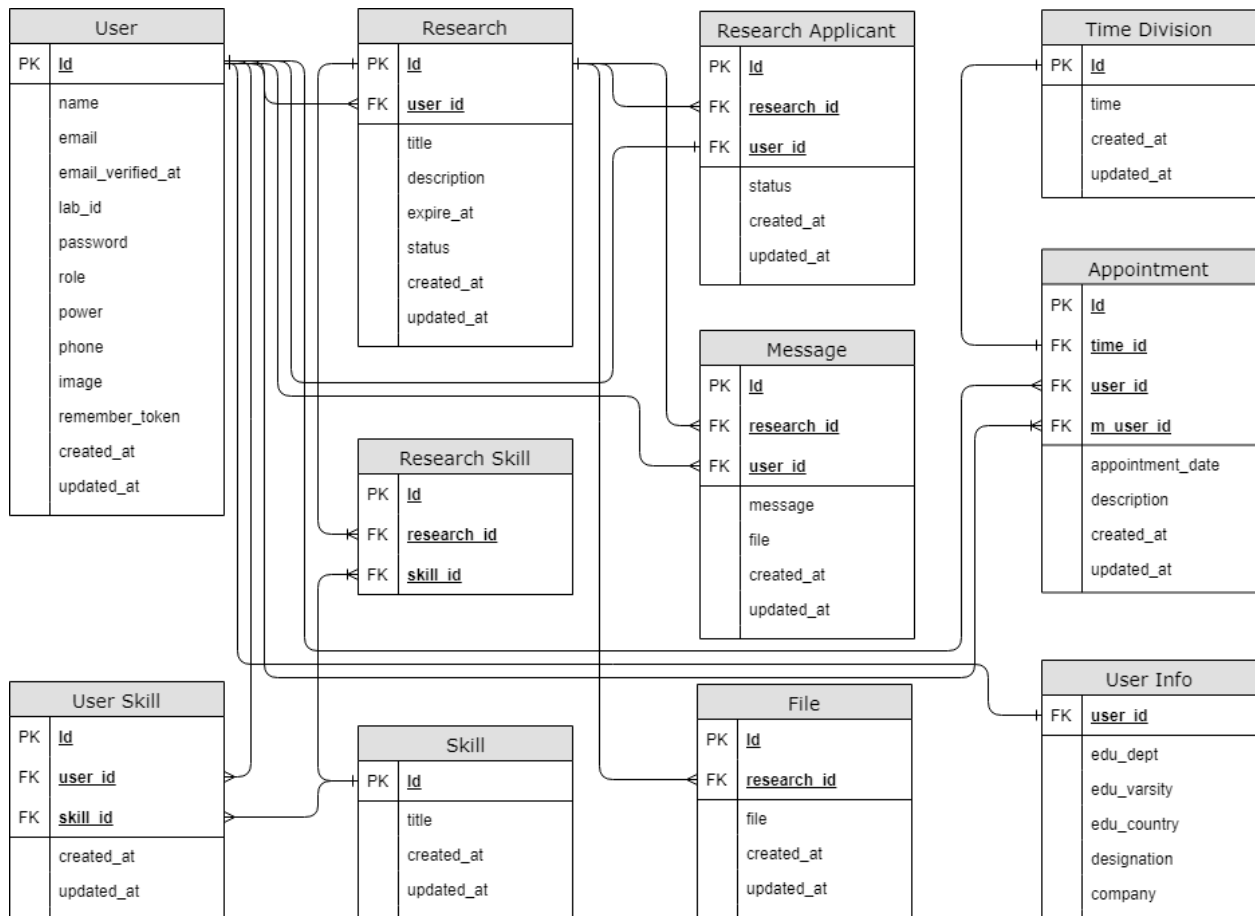


Figure 9: Logical ER Diagram Part I

4.2. Logical ER Diagram Part II

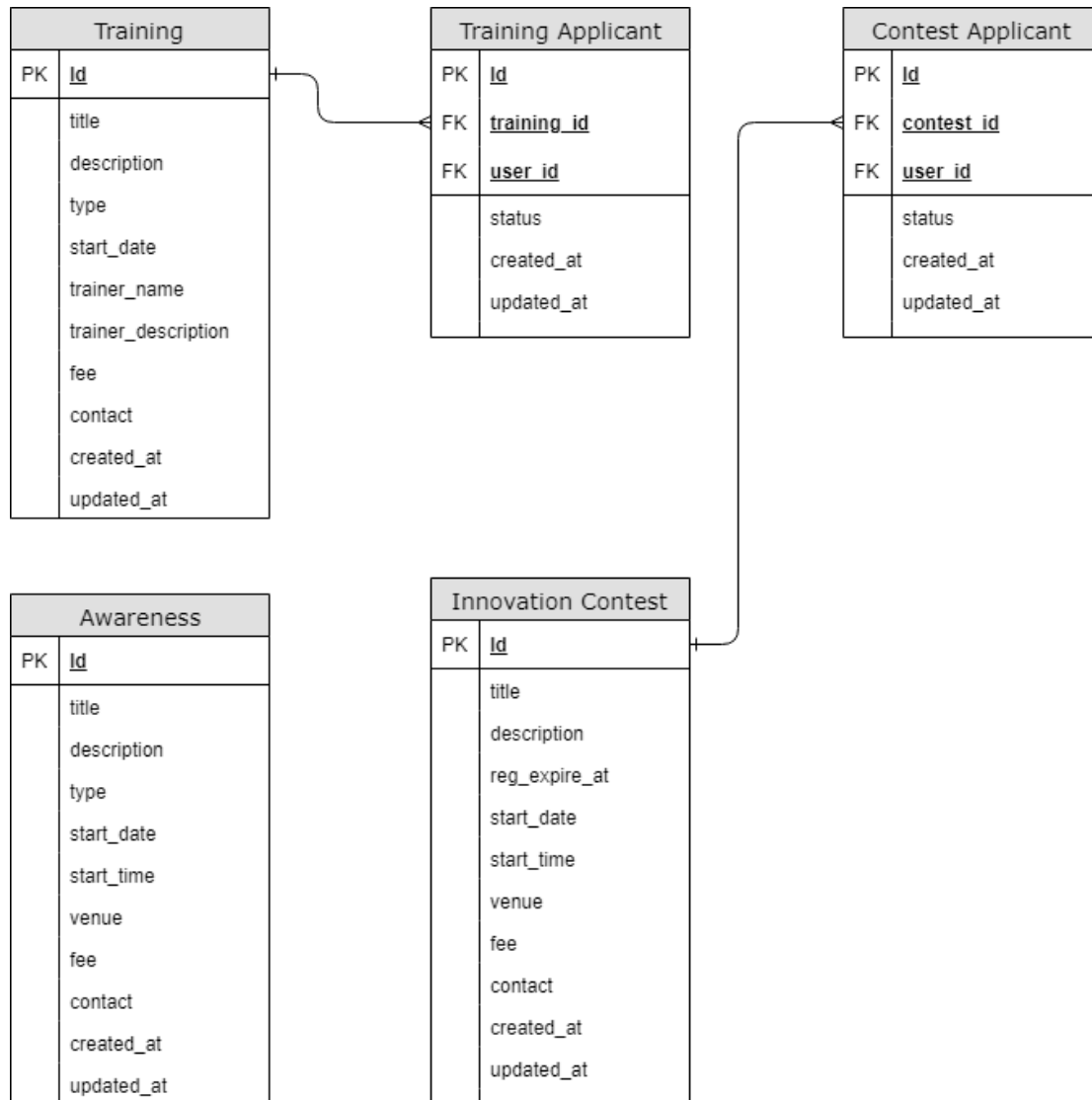


Figure 10: Logical ER Diagram Part II

Chapter V

User Interface and Manuals

5.1. User Interface

5.1.1. Dashboard Main Page

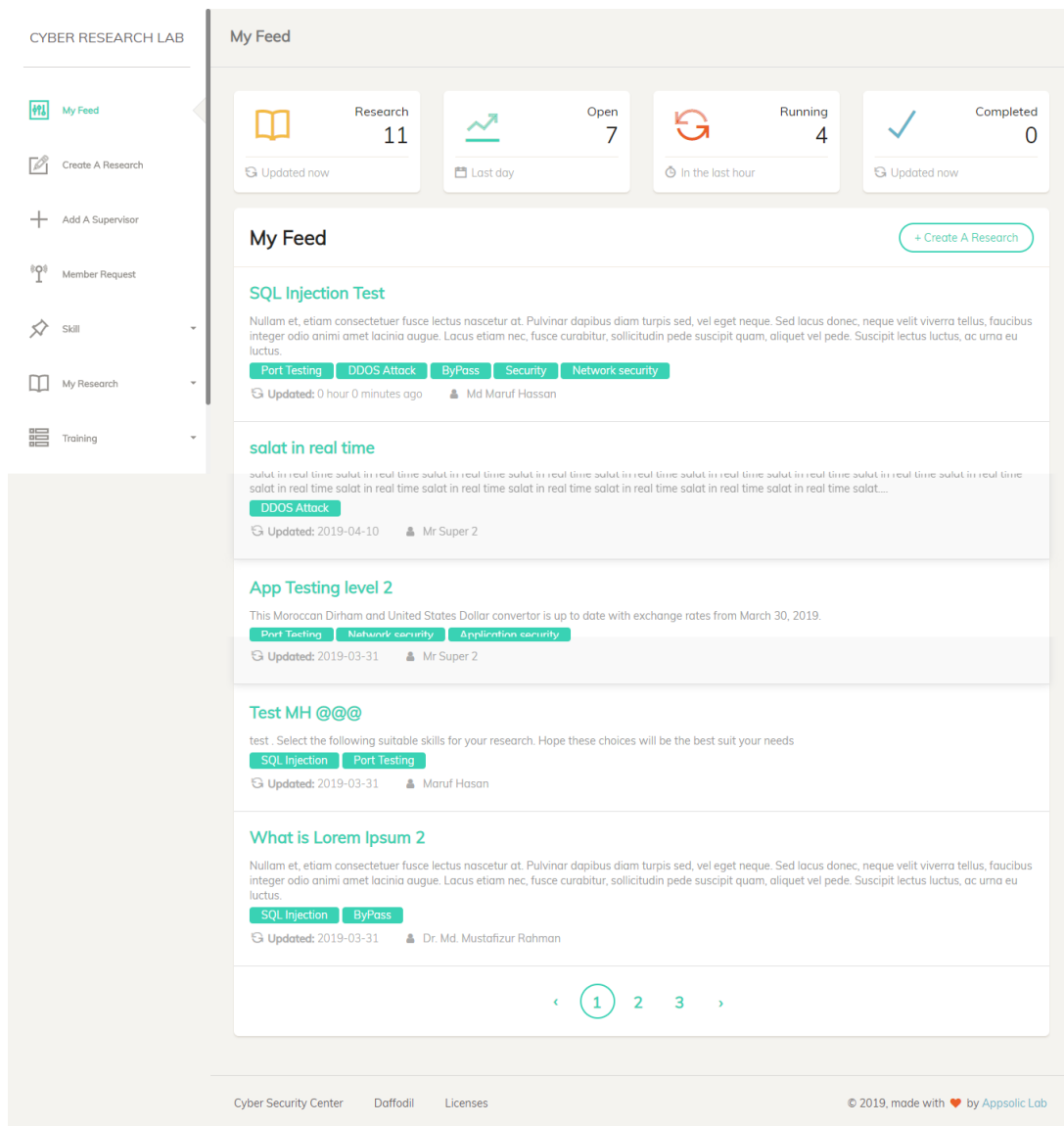


Figure 11: Dashboard Main Page

5.1.2. Add Supervisor

The screenshot shows a web application interface for adding a supervisor. On the left is a sidebar with the text 'CYBER RESEARCH LAB' and a 'My Feed' link. The main content area is titled 'Add Supervisor' and contains a form titled 'Enter New Profile Information'. The form has several input fields: 'Name' (with a placeholder 'Name'), 'Email Address' (with a placeholder 'Email'), 'Password', 'Confirm Password', 'Phone' (with a placeholder '015*****'), 'Designation' (with a placeholder 'Assistant Professor'), and 'Workplace' (with a placeholder 'Daffodil International University'). A blue 'Add Supervisor' button is at the bottom of the form. The footer contains links for 'Cyber Security Center', 'Daffodil', and 'Licenses', along with a copyright notice: '© 2019, made with ❤️ by Appsolic Lab'.

CYBER RESEARCH LAB

My Feed

Add Supervisor

Enter New Profile Information

Name

Email Address

Password

Confirm Password

Phone

Designation

Workplace

[Add Supervisor](#)

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Figure 12: Add Supervisor Profile

5.1.3. New Member Approval Page

CYBER RESEARCH LAB

My Feed

Create A Research

Add A Supervisor

Member Request

Skill

My Research

Training

Awareness

Researcher

New Registered Researcher List

#	Name	Study Area	Email	Phone	bKash TrxID	Status	Action
10	Sazal Ahamed	B.Sc In Software Engineering	r6@mail.com	01758148788	GDHXHDYEO	Pending	Accept
9	researcher 5	B.Sc In Software Engineering	r5@mail.com	01589742145	GDHXHDYEO	Pending	Accept
8	r4 user	B.Sc In Software Engineering	r4@mail.com	01589740045	GDHXHDYEO	Pending	Accept
7	r3 user	B.Sc In Software Engineering	r3@mail.com	01589742145	GDHXHDYEO	Pending	Accept
6	rana	B.Sc In Software Engineering	rana@mail.com	01521117791	GDHXHDYEO	Accepted	Wait

<

1

2

>

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Figure 13: New Member Approval Page

5.1.4. Login UI

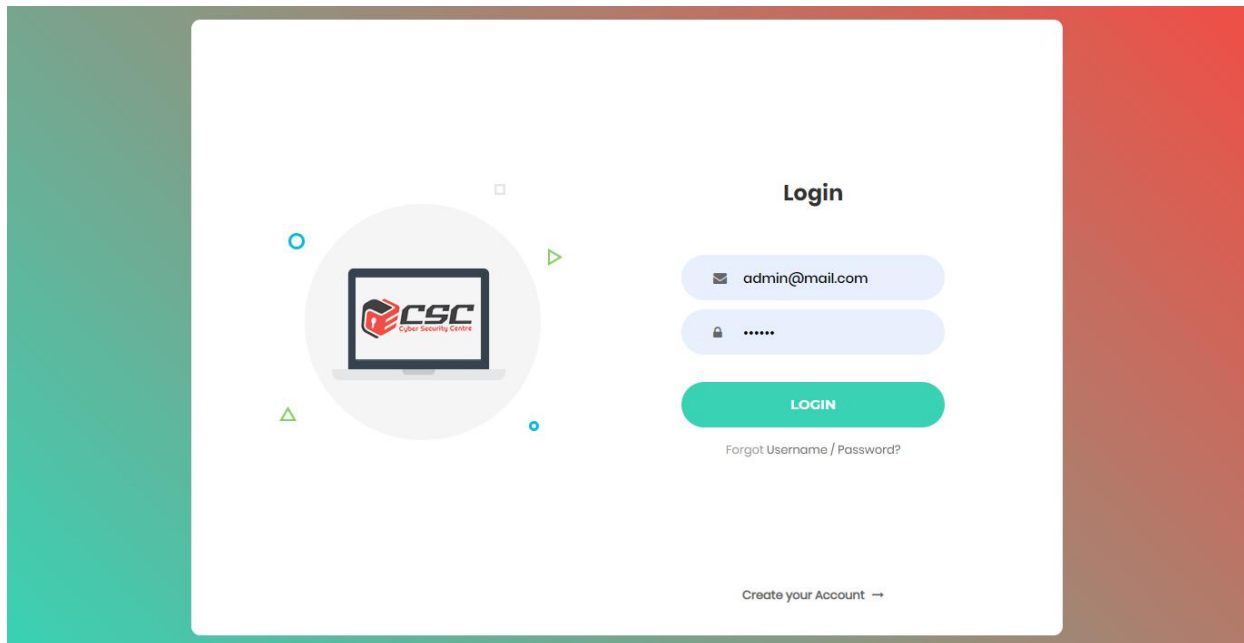


Figure 14: Login UI

5.1.5. Reset Password UI

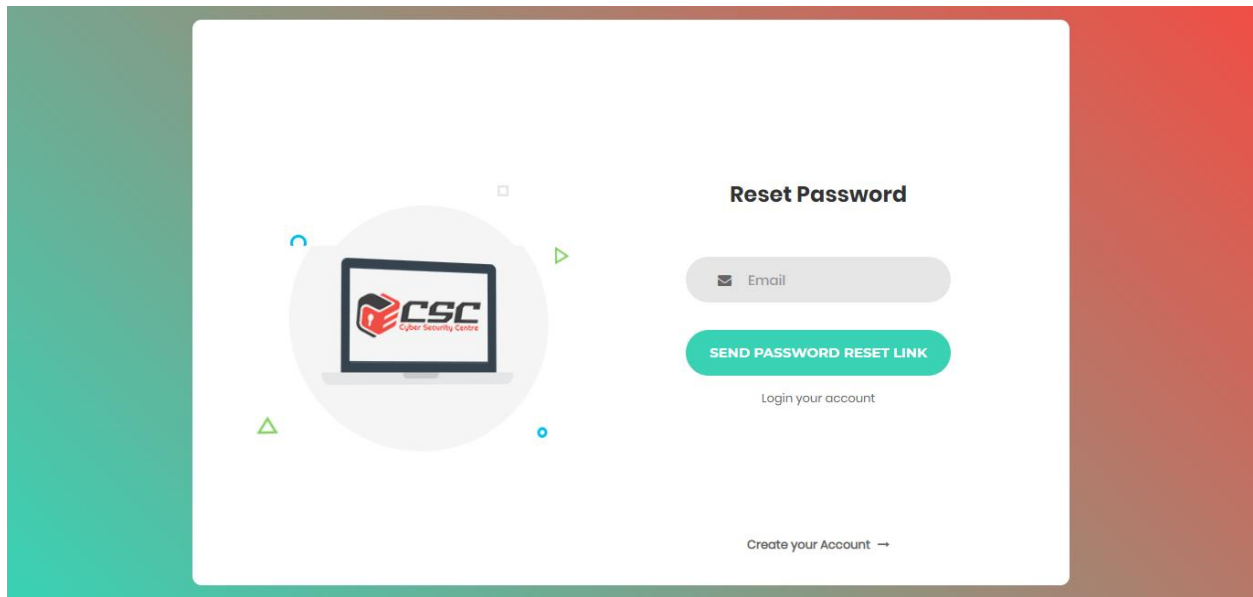
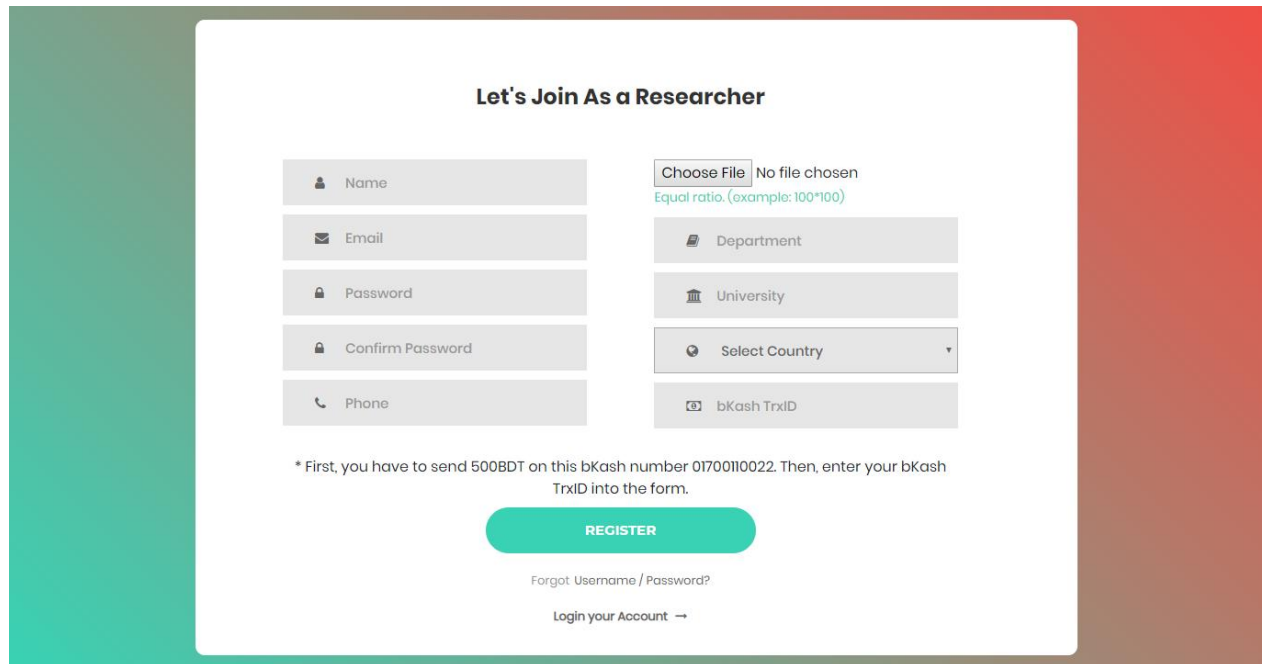


Figure 15: Reset Password UI

5.1.6. Researcher Join UI



The image shows a web form titled "Let's Join As a Researcher". The form is divided into two columns. The left column contains five input fields: "Name", "Email", "Password", "Confirm Password", and "Phone". The right column contains four input fields: a file upload field labeled "Choose File" with the text "No file chosen" and a hint "Equal ratio. (example: 100*100)", "Department", "University", and a "Select Country" dropdown menu. Below these fields is a "bKash TrxID" field. A note states: "* First, you have to send 500BDT on this bKash number 01700110022. Then, enter your bKash TrxID into the form." At the bottom of the form is a green "REGISTER" button, a link for "Forgot Username / Password?", and a link for "Login your Account" with a right arrow.

Let's Join As a Researcher

Name

Email

Password

Confirm Password

Phone

No file chosen
Equal ratio. (example: 100*100)

Department

University

▼

bKash TrxID

* First, you have to send 500BDT on this bKash number 01700110022. Then, enter your bKash TrxID into the form.

REGISTER

[Forgot Username / Password?](#)

[Login your Account →](#)

Figure 16: Researcher Join UI

5.1.7. Create New Research

CYBER RESEARCH LAB

My Feed

Create A Research

Add A Supervisor

Member Request

Skill

My Research

Training

Awareness

Add Research

Tell us what you need done

Choose a name for your project

Tell us more about your project

Expire Date

What skills are required?

Select the following suitable skills for your research. Hope these choices will be the best suit your needs.

☐ Pen Testing ☐ SQL Injection ☐ Port Testing ☐ DDOS Attack ☐ ByPass ☐ Security ☐ Network security ☐ Application security

Upload your file

Selected file: *only pdf, doc, docx, xls,xlsx, ppt, pptx and image format*

Save

Cyber Security Center

Daffodil

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© 2019, Developed by [Sazal Ahamed](#)

Figure 17: Create New Research

5.1.8. Research Approval By Admin

CYBER RESEARCH LAB

My Feed

Create A Research

Add A Supervisor

Member Request

Skill

My Research

Training

Awareness

Research

Research List

+ Add New Research

#	Title	Created	Expire	Status	Author	Action
5	How to set orderby for role of post_author as parameter 3	2019-03-08	Expired	Pending	Md Maruf Hassan	Publish Edit
7	What is Lorem Ipsum 2	2019-03-09	Expired	Published	Md Maruf Hassan	Pending Edit
6	How to set orderby for role of post_author as parameter 7	2019-03-08	Expired	Published	Md Maruf Hassan	Pending Edit
4	How to set orderby for role of post_author as parameter 2	2019-03-08	Expired	Published	Mr Supervisor 2	Pending Edit
3	What is Lorem Ipsum	2019-03-09	Expired	Published	Mr Supervisor 2	Pending Edit
2	SFTP Driver Configuration	2019-03-08	1D 22H	Published	Mr Supervisor 3	Pending Edit
1	How to set orderby for role of post_author as parameter	2019-03-08	Expired	Published	Mr Admin	Pending Edit
11	SQL Injection Test	2019-04-11	Expired	Published	Mr Super 2	Edit
10	salat in real time	2019-04-02	Expired	Published	Mr Super 2	Edit
9	App Testing level 2	2019-03-31	1D 22H	Published	Mr Super 2	Edit
8	Test MH @@@	2019-03-16	Expired	Published	Maruf Hasan	Edit

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Figure 18: Research Approval UI

5.1.9. Single Research From Supervisor

CYBER RESEARCH LAB

My Feed

Create A Research

Add A Supervisor

Member Request

Skill

My Research

Training

#0007

Great! You awarded 1 person for the research project. Let's chat.

Hi, You have currently 5 interview schedule for this research project.

SFTP Driver Configuration

Posted 9th March 2019

Nulam et, etiam consectetur fusce lectus nascetur at. Pulvinar dapibus diam turpis sed, vel eget neque. Sed lacus donec, neque velit viverra tellus, faucibus integer odio animi amet lacinia augue. Lacus etiam nec, fusce curabitur, sollicitudin pede suscipit quam, aliquet vel pede. Suscipit lectus luctus, ac urna eu luctus.

Skills required

SQL InjectionByPass

Additional File

20190311234519_347.pdf

Already Started

About Supervisor

Md Maruf Hassan

Assistant Professor

Daffodil International University

B.Sc In Software Engineering

Daffodil International University, Bangladesh

Research Status

Open 7

Running 0

Completed 0

Applied Member

Mr Researcher 1^{awarded}

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-15

Chat

Mr Researcher 2

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-10

Keep Interview

Mr Researcher 3^{invited}

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-16

Award Finally

Sazal

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-10

Keep Interview

Mr Researcher 4

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-10

Keep Interview

Mr Researcher 8

B.Sc In Software Engineering

Daffodil International University

Running 1

Completed 0

SQL InjectionPort TestingByPassApplication security

Applied 2019-03-10

Keep Interview

Sazal Ahamed

B.Sc In Software Engineering

Daffodil International University

Running 3

Completed 0

Network security

Applied 2019-04-02

Keep Interview

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Figure 19: Single Research UI

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40

5.1.10. Give Appointment To Researcher By Supervisor

CYBER RESEARCH LAB

My Feed

Create A Research

My Research

My Profile

Sign Out

Make Appointment

Messages(0)

My Board



Sazal Ahamed

01758148788

sazal836@gmail.com

B.Sc In Software Engineering

Daffodil International University

Note

Hi, Let's meet to discuss about agenda.

Appointment Date

04/22/2019

Set Appointment Schedule

-- Select Timeslot

Make Appointment

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Figure 20: Give Appointment To Researcher By Supervisor

5.1.11. Report Board UI

CYBER RESEARCH LAB

My Feed

Create A Research

My Research

My Profile

Sign Out

Report

Messages(0)My Board

Active Project

SFTP Driver Configuration

#	Researcher	Chat
20	Sazal Ahamed	Chat

salat in real time

App Testing level 2

Present Status

Running Research : 3

Apointment Schedule

#	Appointed	Date	Time	Agenda
18	Sazal Ahamed	13 April, 2019	8:30am - 9:00am	#0011
17	Abu Tuhin	3 April, 2019	8:00am - 8:30am	#0010
16	Rana	1 April, 2019	8:30am - 9:00am	#0009

Total Research Status

Not Started Yet : 0

Completed Research : 1

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Figure 21: Report Board UI

5.1.12. Inbox UI

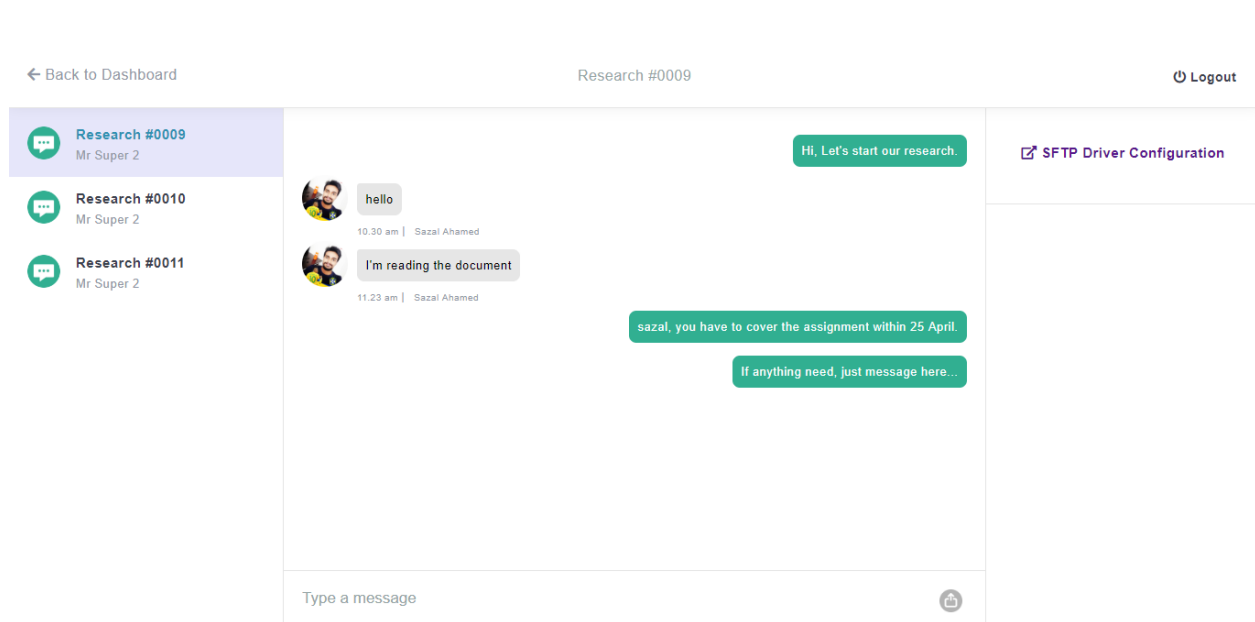


Figure 22: Inbox Page

5.1.13. Create New Training UI

CYBER RESEARCH LAB

 My Feed

 Training

 Awareness

 My Profile

 Sign Out

New Training

Write Training Information

Course Title

Course Title

Description

Here can be your course description

 Start Date

04/28/2019

 Fee

BDT

 Contact

Contact Number

About Trainer

Trainer Name

Trainer Name

Description

Here can be trainer description

☒ Technical Training

☐ Vendor Training

 Upload your file

Selected file: *only image format*

Save Training

Cyber Security Center

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Figure 23: Create New Training UI

5.1.14. Create Awareness Program UI

CYBER RESEARCH LAB

 My Feed

 Training

 Awareness

 My Profile

 Sign Out

New Awareness Program

Write Program Information

Title

Program Title

Description

Here can be your program description

Program Date

04/28/2019

Fee

BDT

Contact

Contact Number

About Program

Program Start Time

--:--:--

Venue

Here can be venue information

☒ Workshop ☐ Seminar

Upload your file

Selected file: *only image format*

Save Program

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Figure 24: Create Awareness Program UI

5.1.15. My Profile UI

CYBER RESEARCH LAB

My Feed

Create A Research

My Research

My Profile

Sign Out

Edit Profile

Md Maruf Hassan

@Supervisor

Change Password

Password

Confirm Password

Update Password

Edit Profile

Name

Md Maruf Hassan

Email Address

maruf.swe@diu.edu.bd

Phone

+8801718520275

Change Picture

Selected file: *only image format accepted.*

Department

M.Sc. in Computer Science & Engineering

University

Australian Catholic University

Country of University (Australia)

Select Country

Designation

Assistant Professor

Workplace

Daffodil International University

Update Profile

Choose your own skills

Select the following suitable skills for you. Hope these choices will be the best suit your knowledge.

☐ Pen Testing

☒ SQL Injection

☒ Port Testing

☐ DDOS Attack

☒ ByPass

☐ Security

☐ Network security

☒ Application security

Update Skill

Cyber Security Center

Daffodil

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Figure 25: My Profile UI

5.1.16. Home Page (Cyber Security Center, DIU)

CYBERTHREAT REAL-TIME MAP

OUR RESEARCH

The Cyber and Information Security Research (CISR) Group conduct cutting-edge research in cyber warfare, advanced cyberterrorism, social engineering, secure communications, botnets and digital forensics to detect and neutralise critical infrastructures against attacks from known and future adversaries, understand the threat to provide real-time actionable intelligence from diverse data, secure the supply chain and critical infrastructures, enable cyber-resilient operational capabilities, and protect against and future cyberterrorism. It is a long-established research center that will be diversified by the research content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it more like a realistic English dummy text. Sample paragraph paragraph and with page content now used to create space as their default model text.

CURRENT RESEARCH

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

Publication
An Algorithm for Constructing and Searching Spaces of Alternative Hypotheses

PROJECTS

Snoop Switch
Detect mobile networks abuse on your Android phone.

Snoop Switch
Detect mobile networks abuse on your Android phone.

Snoop Switch
Detect mobile networks abuse on your Android phone.

Snoop Switch
Detect mobile networks abuse on your Android phone.

Snoop Switch
Detect mobile networks abuse on your Android phone.

Snoop Switch
Detect mobile networks abuse on your Android phone.

EVENTS

Upcoming Education Events to feed your brain.

18 DECEMBER
Cyber Defence Interactive Seminar
@daffodil @diu @daffodil
Provide cyber defense or cyber cyber defense (ACD) means acting in anticipation to support on school network computers and networks.

04 JANUARY
Workshop on Penetration Testing
@daffodil @diu @daffodil
Penetration testing (also called pen testing) is the practice of testing a computer system, network or web application to find weaknesses that can be exploited to gain access.

Cyber security centre managed by DIU CSC

Events	Publication	Research	Useful Links
Conferences	Media Coverage	DIU/IS	DIU/IS
Newsletters	Newsletters	DIU/IS	DIU/IS
Art of Living Training	Art of Living	DIU/IS	DIU/IS
One Student One Laptop	One Student One Laptop	DIU/IS	DIU/IS
Daffodil Green Room Booking	Daffodil Green Room Booking	DIU/IS	DIU/IS

ABOUT CSC

STAY CONNECTED
Follow us on social media

ISACA
Trust is our other name. Information systems.

Daffodil University
Daffodil University

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Figure 26: Home Page (Cyber Security Center, DIU)

5.1.17. Contact Page (Cyber Security Center, DIU)

Login / Register

Search

[HOME](#)
[SERVICES](#)
[RESEARCH](#)
[SCHEDULES](#)
[INNOVATION](#)
[CONTACT](#)

KEEP IN TOUCH

Your email address will not be published. Required fields are marked.

Name*

Email*

Subject*

Comment*

[Send](#)

+880 1713 495 250
+880 173 495 011

info_csc@diuedubd
support_csc@diuedubd

Daffodil Tower 4/2, Sobhanbag, Mirpur Rd,
Dhaka 1207

Cyber security centre managed by DIU CSC

Events	Publication	Research	Useful Links
Convocation	Media Coverage	DIU.JST	Skill jobs
Foundation	Newsletter	DIU.JBE	Campus Radio
Art of Living Parents' Day	e-Newslatter	DIU.JHS	Daffodil Family
One Student One Laptop	Newspaper	DIU.JAHS	Video Gallery
Daffodil Guest Room Booking	DIU Press		Directory

ABOUT CSC

STAY CONNECTED

Follow us on social media

Protect it, and value from, information systems

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Developed By Apollon Lab

Figure 27: Contact Page (Cyber Security Center, DIU)

Chapter VI

Development Tools & Technologies

6.1. Tech Stacks

- Laravel, ReactJS
- MySQL, Redis
- ES6, DataTables(JS), Blade Engine
- Twitter Bootstrap, Pretty JS Library
- Material Kit, Font Awesome, Flat Icons

6.2. Implementation Technologies

6.2.1. Composer (v1.8.5)

Composer is an application-level package manager for the PHP programming language that provides a standard format for managing dependencies of PHP software and required libraries.

6.2.2. Laravel (v5.8.2)

Laravel is a free, open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symfony. Some of the features of Laravel are a modular packaging system with a dedicated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic.

6.2.3. React (v16.8)

React (also known as React.js or ReactJS) is a JavaScript library for building user interfaces. It is maintained by Facebook and a community of individual developers and companies.

React can be used as a base in the development of single-page or mobile applications, as it's optimal only for its intended use of being the quickest method to fetch rapidly changing

data that needs to be recorded. However, fetching data is only the beginning of what happens on a web page, which is why complex React applications usually require the use of additional libraries for state management, routing, and interaction with an API

6.2.4. MySQL (v8.0.15)

MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL). MySQL runs on virtually all platforms, including Linux, UNIX and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing.

MySQL is an important component of an open source enterprise stack called LAMP. LAMP is a web development platform that uses Linux as the operating system, Apache as the web server, MySQL as the relational database management system and PHP as the object-oriented scripting language.

6.2.5. Redis (v5.0.4)

Redis is a data structure server. Redis stores our data in one of five native Redis data types so we can perform fast, reliable operations on our data across a network.

Redis stores and manipulates all data in memory, but we can configure Redis to also store our dataset to disk, replicate our data to a secondary nodes supporting live failover, and (soon) load balance our data across an entire cluster.

6.3. Platform & Environment

6.3.1. Hardware

- Processor: Intel Core i7.
- RAM: 8GB.
- Hard drive: 500GB Solid State Drive.
- Ubuntu 18.04.2 / Windows 10

6.3.2. Tools

- IDE/Editor: Atom, VS Code
- Git Bash Terminal
- XAMPP Control Panel
- Server: Localhost:8000

6.3.3. Version Control

- Git
- GitHub (a web-based hosting service for version control hosting using Git)
- Netlify (offers hosting and serverless backend services)

Chapter VII

System Testing

7.1. Introduction

This is aimed at identifying and correcting error. The major objectives of this activity are to ensure that the process done by the application is correct and meets the objectives of the organization. Test plan aids in effective and systematic testing of the system and it aims at checking the errors of omission and commission that hinders the realization of the objectives.

7.2. Test Plan Strategy

The importance of the test plan is to show how the system is to be tested and also gives precise procedure to be followed during test plan. The test data is identified, what is being tested and the expected outcome as well as actual input. Test plan is one of the standard documents that should be produced in most software engineering projects. If the project does not have any test plan this means that the system produced is low quality. This may not be acceptable to the user it will not satisfy their needs. The test plan should be written as soon as requirements have been identified. The system will be tested with sample data to see how it would handle input and output functions as well as extreme data or conditions to determine the system behavior in overloaded situation which will directly slow the system that behaves in failure or extreme situation.

7.3. Test Case

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works properly. The process of developing test case can help find problems in the requirements or design of an application.

- Ensure that logical decisions on their true and false side.
- Practice all the logical decisions on their true and false side.
- Check equivalent partitions and boundary value within their operations bounds.
- Exercise internal data structure to assure their validity.

7.3.1. Test Case of Login

Test Case #01	Test Case Name: Testing the login panel.
System: Cyber Research Lab	Subsystem: Login
Designed By: Sazal Ahamed	Design date: 18.04.2019
Executed By: Sazal Ahamed	Execute Date: 18.04.2019
Short Description: This field handle's the login functionality of the website.	
Precondition: Go to http://localhost:8000/login	

Table 27: Test case of login

Steps	Action	Action Result	Expected System Response	Pass/Fail
01	Enter valid email and valid password	Get logged in.	Logged in into the system.	Pass
02	Valid email and invalid password	Not logged in and error message.	Not logged in and error message.	Pass
03	Click login without any data	Required message	Required message	Fail

7.3.2. Test Case of Sign Up

Test Case #02	Test Case Name: Testing the signup panel.
System: Cyber Research Lab	Subsystem: Register
Designed By: Sazal Ahamed	Design date: 18.04.2019
Executed By: Sazal Ahamed	Execute Date: 18.04.2019
Short Description: This field handle's the register functionality of the website.	
Precondition: Go to http://localhost:8000/register	

Table 28: Test case of signup

Steps	Action	Action Result	Expected System Response	Pass/Fail
01	Click sign up without any data	Required message	Required message	Pass
02	Click sign up partially filling with data	Not signed up and required messages.	Not signed up and required messages.	Pass
03	Click sign up with valid data and password less than 6 characters.	Signed up in and error message.	No Required message	Fail
04	Click sign up with valid data and password not matching with confirm password.	Not signed up in and error message.	Not signed up in and error message.	Pass
05	Click sign up with valid data and password.	Signed up and redirected to main landing page.	Signed up and redirected to main landing page.	Pass

7.3.2. Test Case of Post New Research

Test Case #03	Test Case Name: Testing the Post New Research
System: Cyber Research Lab	Subsystem: Research
Designed By: Sazal Ahamed	Design date: 18.04.2019
Executed By: Sazal Ahamed	Execute Date: 18.04.2019
Short Description: All the field handle's the create research functionality of the web application.	
Precondition: 1. Go to http://localhost:3000/app/research/create 2. Fill up all the given fields	

Table 29: Test case of post new research

Steps	Action	Action Result	Expected System Response	Pass/Fail
01	Click save button.	One research topic is added in all research list.	One product is added in cart. • Created research is visible for admin approval.	Pass

7.4. Features yet not tested

Table 30: Features yet not tested

No	Name	Users
01	Manage Training	T&A Coordinator
02	Manage Awareness	T&A Coordinator
03	Report Board	Supervisor/ Researcher
04	Website Home Page	Guest

Chapter VIII

Project Summary

8.1.1. GitHub Repository

- <https://github.com/DevSazal/research-lab-application-laravel>

8.1.2. Extra GitHub Repository

- <https://github.com/DevSazal/messenger-chat-box-ui>
- <https://github.com/DevSazal/amazing-login-reg-design>
- <https://github.com/DevSazal/cyberDIUpblic>

8.2. Limitations

- The system is only for a single research lab.
- We developed the system for only Cyber Security Center, DIU.
- The system needs web hosting with high performance.

8.3. Obstacle & Achievements

Obstacle:

- I (Sazal Ahamed) provided my times here to make it done more than 200 working hours. Because it's a very big project. In this case, my contribution was 90% for building the research lab application.
- It took huge time.

Achievements

- Successfully build the project for production level
- Nothing learn new technologies from the project
- I'm happy because my web application will use by Cyber Security Center, DIU

8.4. Conclusion

Despite the hardships encountered in the entire development process the system has been developed for cyber research lab thus enabling it improves its efficiency and effectiveness. Maintenance and usage of the system will be easy as the document and user manual of the system will be available to all users. Also there will be room for enhancement as this was considered during development. The system will offer better usability for users to increase connectivity between supervisor to researcher.

8.5. Future Work

Though the system was developed as fine but the future work will include some more major changes. Auto payment verify will be integrated for real time member approval, advanced training program managing and real time notification will be introduced including mobile app.

Key of Terms

A

Abstract

Acknowledgement

Approval

Associate Review Analysis

H

Hardware and Software Specification

Html5

C

Conclusion

Class Diagram

Context Diagram

E

E-commerce Entity Relationship Diagram

S

System description

Software Requirement Specification

Software Development Plan

System Design

System Overview

System Scope

Software Specification

F

I

Implementation

Introduction

D

Definition and abbreviations

Design map

Database Name

J

JavaScript

ES6

Future work

Functional Requirements

T

Testing

Test case

Tools

Technical Description

U

Use case diagrams

N

Non-Functional requirements