

KINGDOM OF SAUDI
ARABIA
Ministry of Higher Education
Al-Imam Mohammad
University College of Computer &
Information Sciences



المملكة العربية السعودية
وزارة التعليم العالي
جامعة الإمام محمد بن سعود الإسلامية
كلية علوم الحاسوب والمعلومات

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Software Engineering (CS- 310)
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SeniorsProjects
(web-based system)



Submitted By

Nouf Mohammed Abdullah Binkanaan

Sara Jubran Saeed Alshahrani

ALANOUD ABDULAZIZ MOUSA ALHUSAYN

Shaden Khaled Mohammed Almarshad

Delayel fahad turk alqhatany

Supervisor
L.Sarah Alzahrani

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1. Introduction

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for the “Senior projects” software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interactions with other external applications. This document is primarily intended to be proposed to our supervisor for her approval.

1.2 Scope

The “Senior Projects” web based application that it going to help a lot of student find useful information for preparing for their graduation project and connect graduates to companies that has interest in their field. The web application should have a responsive design that will work on all devices.

1. Our Website is going to be a big library for a lot of seniors. The user can add projects through his/her personal account in the web application.
2. The availability of search about graduation project for specific University according to the publication date and other categories.
3. Allowing the graduates to add his/her graduation project.
4. Providing a promising career chances for the graduates according to the skills shown on his/her graduation project.
5. Companies may adopt some projects invest in it, and provide the students with resources and people to help them develop their project to the point that it will start make money out of it.

1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
User	Someone who interacts with the web application.
Graduates	Anyone who are about to graduate
Senior	Some who is freshly graduated

SEO	Search Engine Optimization
CFG	Control Flow Graph
N	Number of Nodes
E	Number of edges
Predicates	Node With multiple exit arcs
Region	Enclosed area in the CFG

1.4 References

1. Web Browser :
 - i. Loyola.Edu [Senior Projects] . ¹
 - ii. layerslider.kreaturamedia . ²
2. Project from this account with their premonition :
 - i. @Imam_expo.³
 - ii. @KSU_CCIS. ⁴
3. Very useful article:
 - i. Sitepoint .⁵

1.5 Overview

First phase was about building a software and we have explained our system and how its work and why we choose it and who are the stakeholders and who are the targeted audience, and then in the second phase we wrote the requirements in detail both functional and non-functional requirements, and in the third phase we use some design that represents our requirements such as sequence diagrams and use case and also we have provided some screenshots of our interfaces, then in the final phase we start implementing our system and convert it into a real website using some programming language and then we tested the system both black and white

[¹](https://www.loyola.edu/academics/computer-science/current-students/senior-projects)

[²](https://layerslider.kreaturamedia.com/?utm_medium=content&utm_campaign=mekanism201804)

[³](https://twitter.com/Imam_expo?s=16)

[⁴](https://twitter.com/ksu_ccis/status/1305145668382740481?s=21)

[⁵](https://www.sitepoint.com/25-web-resources-to-help-you-build-your-projects)

test and finally we have provided a screenshot of our implementation and talk about our future plans for this system.

2. General Description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other systems and introduce the basic functionality of it. It will also describe what type of stakeholders that will use the system and what functionality is available for each type. At last, the constraints and assumptions for the system will be presented.

2.1 Product Perspective

Our goal is to build a very helpful website that can help A lot of student find useful information for preparing for their graduation project and connect graduates to companies that has interest in the fields that the graduates has worked in.

2.2 Product Functions

Our Website is going to be a big virtual exhibition for a lot of seniors the graduates can add projects through their personal account in the web applications .

The availability of search about graduation project for specific University according to the publication date.

Providing a promising career chances for the graduates according to the skills shown on his/her graduation project.

2.3 User Characteristics

1. Our intended users are all students in general but seniors and graduates in particular, also companies and people who's looking for some new ideas and talents to support.
2. students are about to graduate can see previous project To take an overview of graduation projects, and graduates will provide information about their ideas and how they worked on it.
3. Companies may adopt some projects invest in it, and provide the students with resources and people to help them develop their project to the point that it will start make money out of it.

3. System Analysis

3.1 Functional Requirements

ID:FR1: Registration

DESC:

1.1 :The system shall be able to register new users by providing an interface for them to fill their personal information.

1.2 : Users should register using their email or phone number.

1.3 : The system shall send an email to users in once the administrator authenticate and issue a smart card for them.

ID:FR2: Log-in

DESC:

2.1 : The system shall allow the users to log in by providing an interface for them to fill it and then log into the system.

2.2 : Users should log-in using their username and password

2.3 : If users forget their password, then the system should allow user to retrieve his/her password by E-mail.

ID:FR3: Password retrieval

DESC:

3.1 : The system shall provide a button “forget password”.

3.2 : Once the user click in it, it should provide an interface for the user to put her/his email and then it will send a new password to their email.

3.3 : The password should be suggested randomly by the system.

ID:FR4: Uploading projects

DESC:

4.1 : The system should provide the graduates an interface containing a form.

4.2 : The graduates should fill in the form in order to upload their projects in the system.

4.3 : Graduates can upload their projects on the web application throughout the week at any time during the day.

ID:FR5: Delete Project

DESC:

5.1 : The system should let the admin have the right to delete any project in the system.

5.2 : The administrator should not delete any project unless there's a reason to do so.

ID:FR6:public users

DESC:

6.1 : The system shall allow any user to view the web application.

6.2 : The users does not have to register or log-in in order to view the web application.

ID:FR7: search in the system

DESC:

7.1 : The system shall provide an interface containing a list with specific options.

7.2 : The users should choose from these options and then press the button “search”.

7.3 : After pressing the button, the system will provide all the projects that is related with the specific choices that the user has chosen.

7.4 : Or if the user wishes to view all the projects without any specific options the system should provide “view all” button that well view all the projects that has been uploaded in the website .

ID: FR8:Modify Project

DESC:

- 8.1 : The system should let the admin have the right to modify any project in the system.
- 8.2 : The administrator should not modify any project unless there's a reason to do so.

3.2 Non-Functional Requirements

ID:NFR1: handling users

DESC:

The web application should be able to handle thousands of users per day

ID:NFR2: storage capacity

DESC:

The web application is capable of uploading more than 10,000 of projects per week.

ID:NFR3: user experience

DESC:

The web application interface should be designed simple, clear, elegant, user friendly and easy to use.

ID:NFR4:languages support

DESC:

The web application should provide both Arabic and English languages.

ID:NFR5: transaction in the web application

DESC:

All the user's required transactions should be performed by the system with no delay.

ID:NFR6: system operating.

DESC:

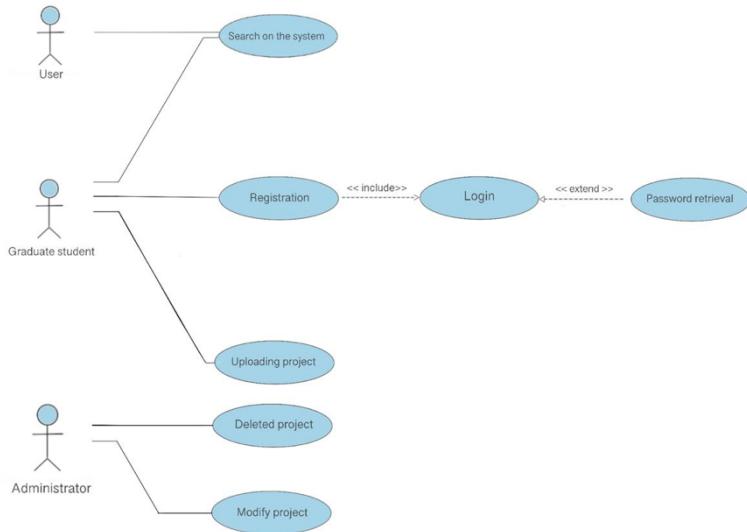
The system should be operated with very low to zero breaks and shutdowns.

ID:NFR7: SEO techniques

DESC:

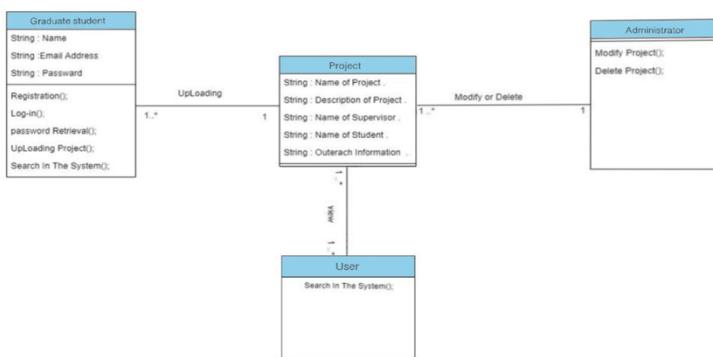
By using a good SEO techniques and tools, The system should be made compatible with all the available Internet browsers.

3.3 Use Case Diagram



4. System Design

4.1 Class Diagram



4.2 Sequence Diagram

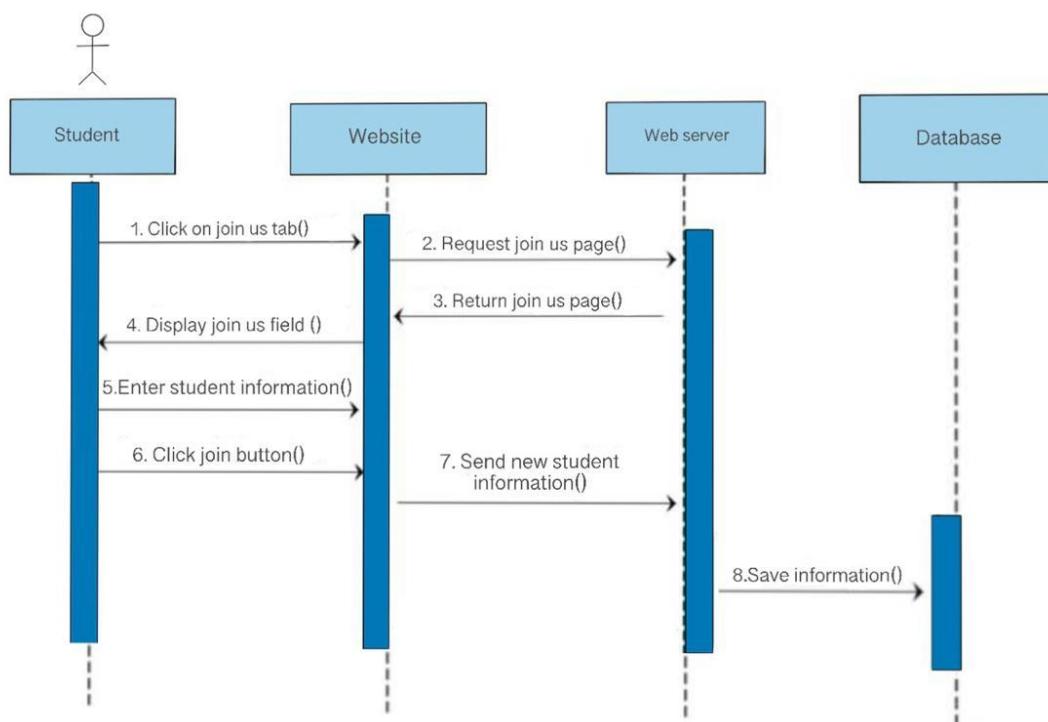


Figure 1 : Sequence Diagram Of Join Us .

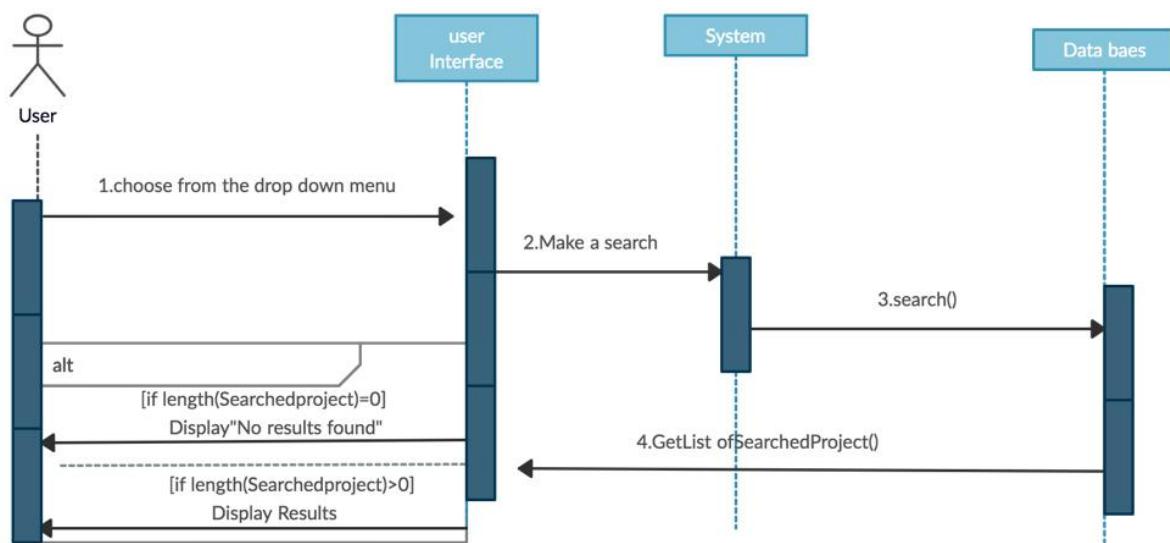


Figure 2 : sequence Diagram for search.

4.3 User Interface Design



Figure 1 : Home page.

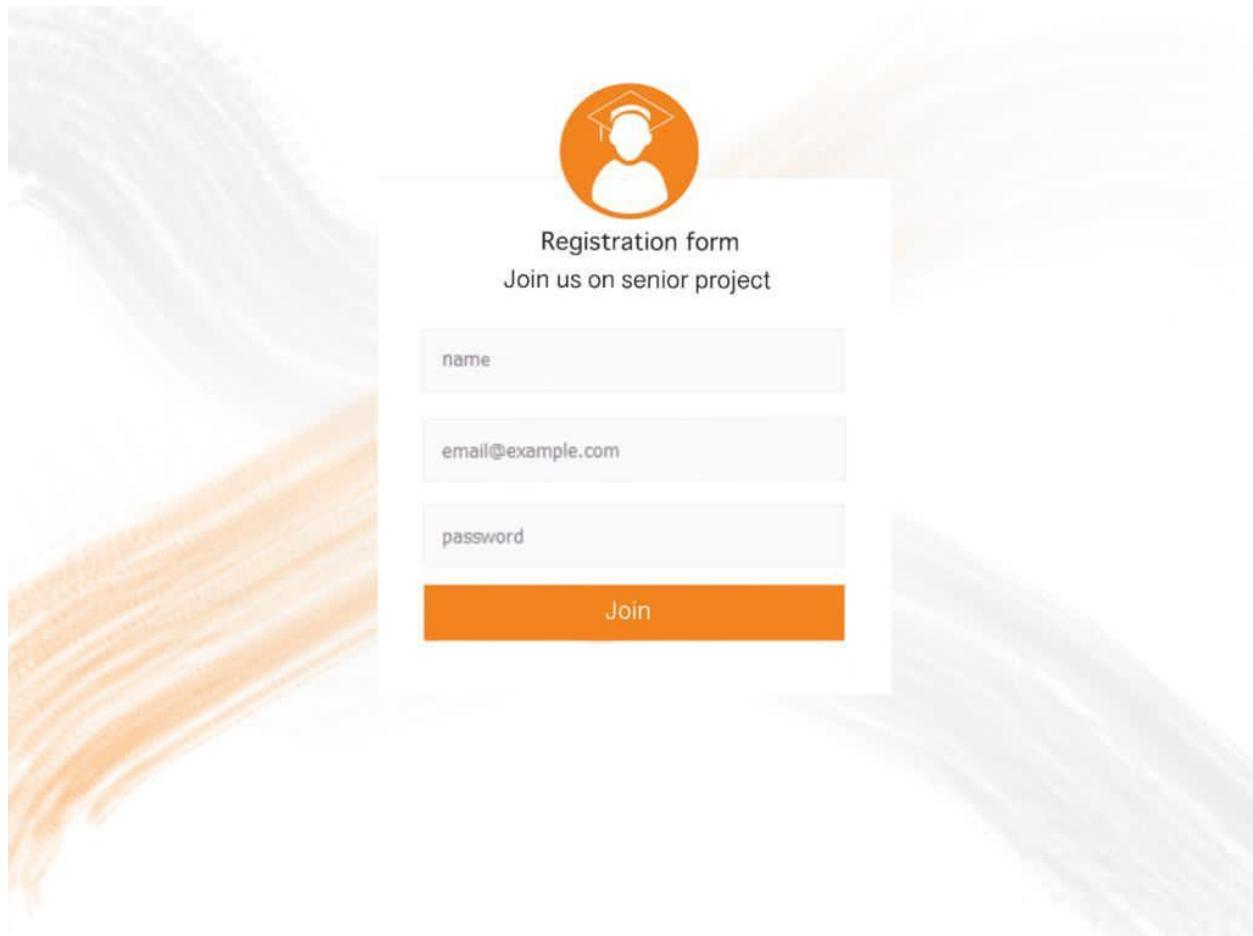


Figure 2 : Join us page.

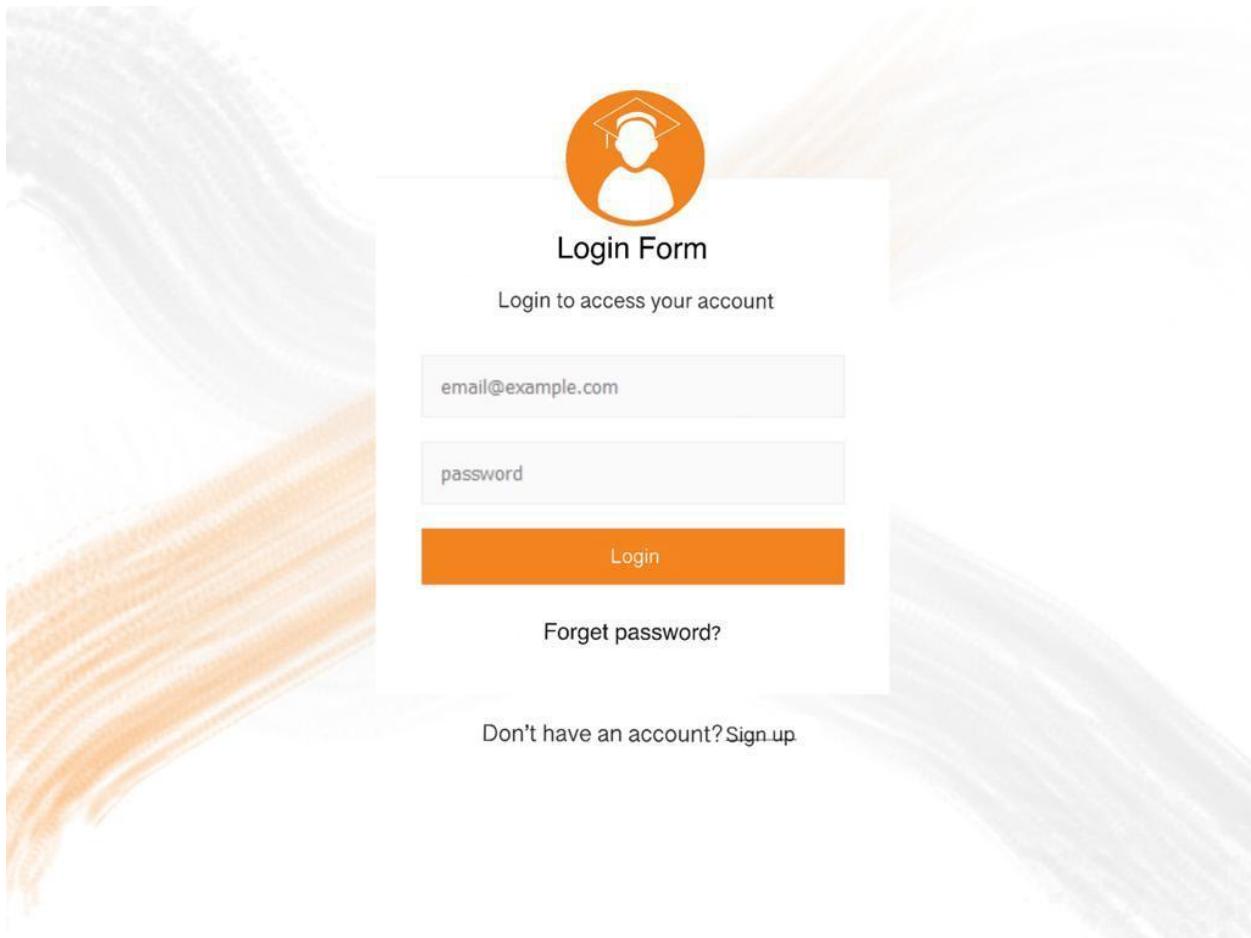


Figure 3 : Log in page.

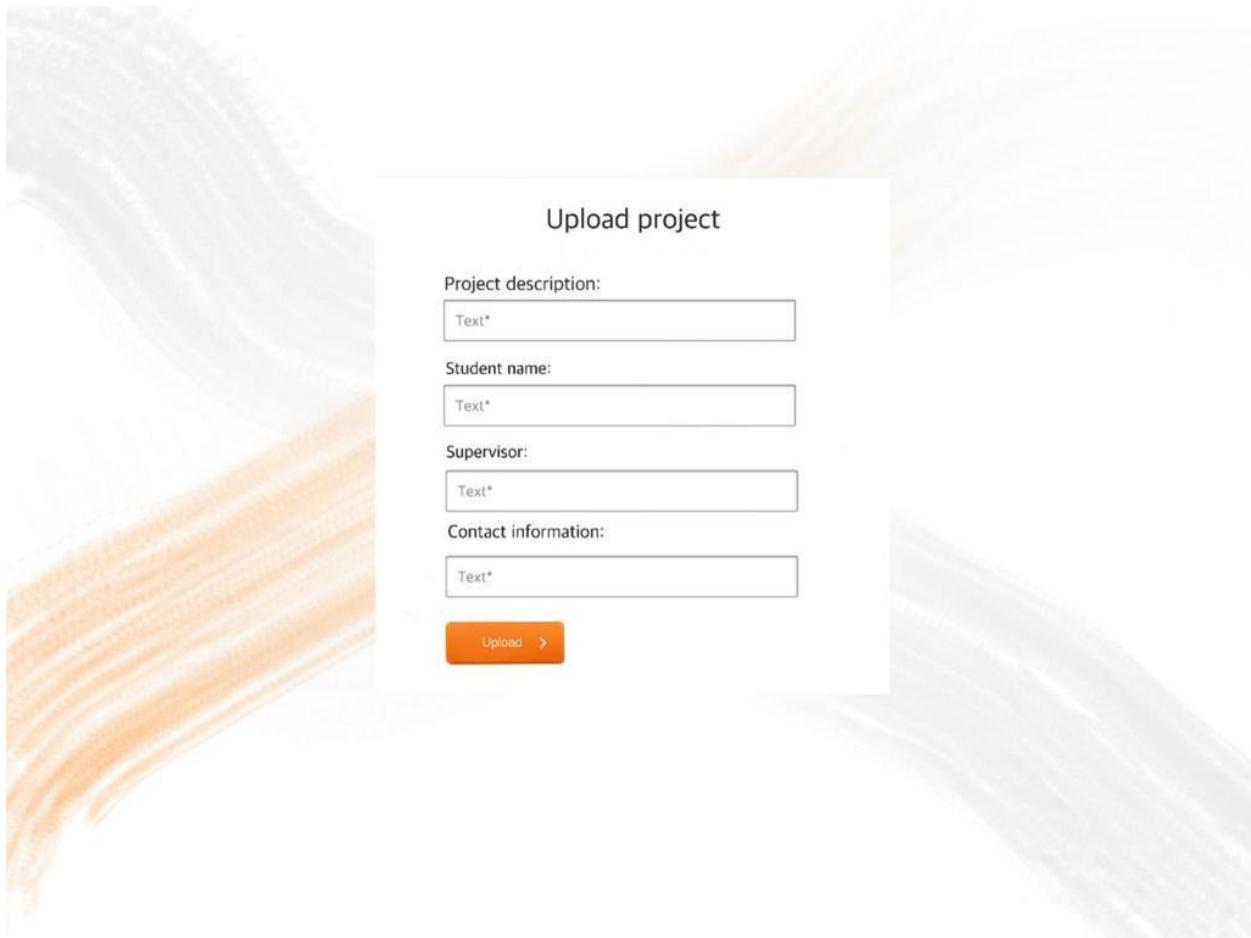


Figure 4 : UpLoad Project page.



Seniors project

The "Senior Projects" web based application that it going to help a lot of student find useful information for preparing for their graduation project and connect graduates to companies that has interest in their field. The web application should have a responsive design that will work on all devices.

Supervision:

Students:

Contact information:



Figure 5 : Project page.

5. IMPLEMENTATION AND TESTING

5.1 Implementation interface and Intended technologies

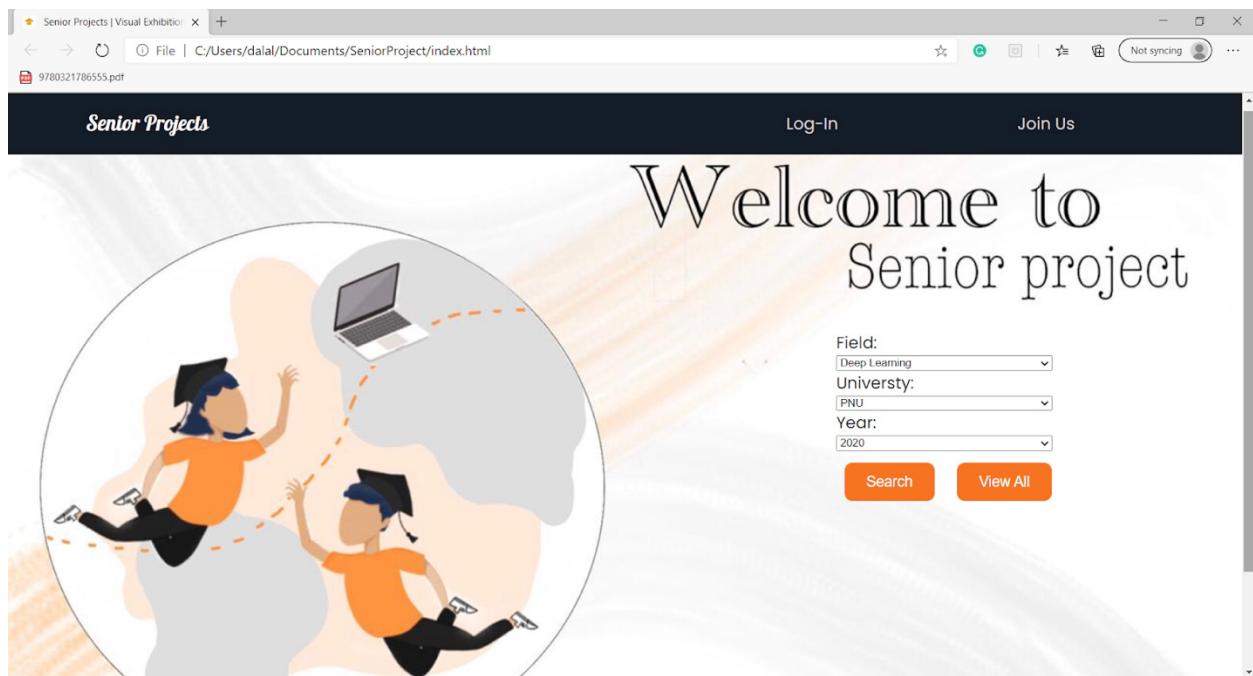


Figure 1 : Home page Of Senior Project .

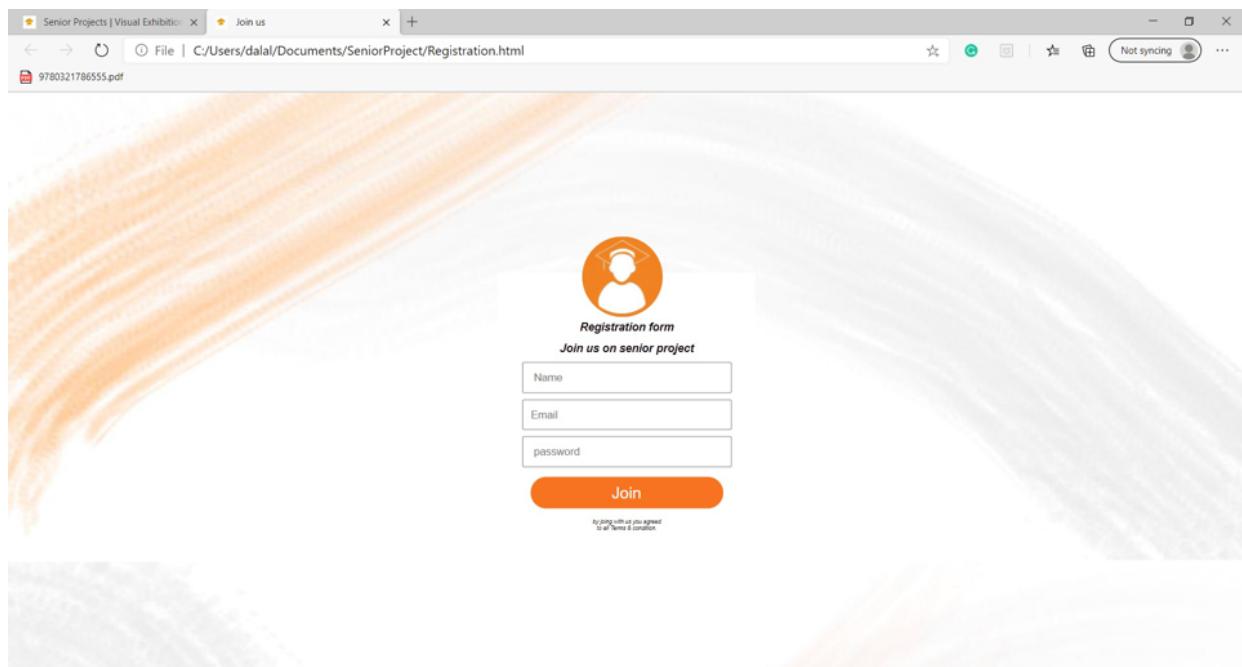


Figure 2 : Join us page.

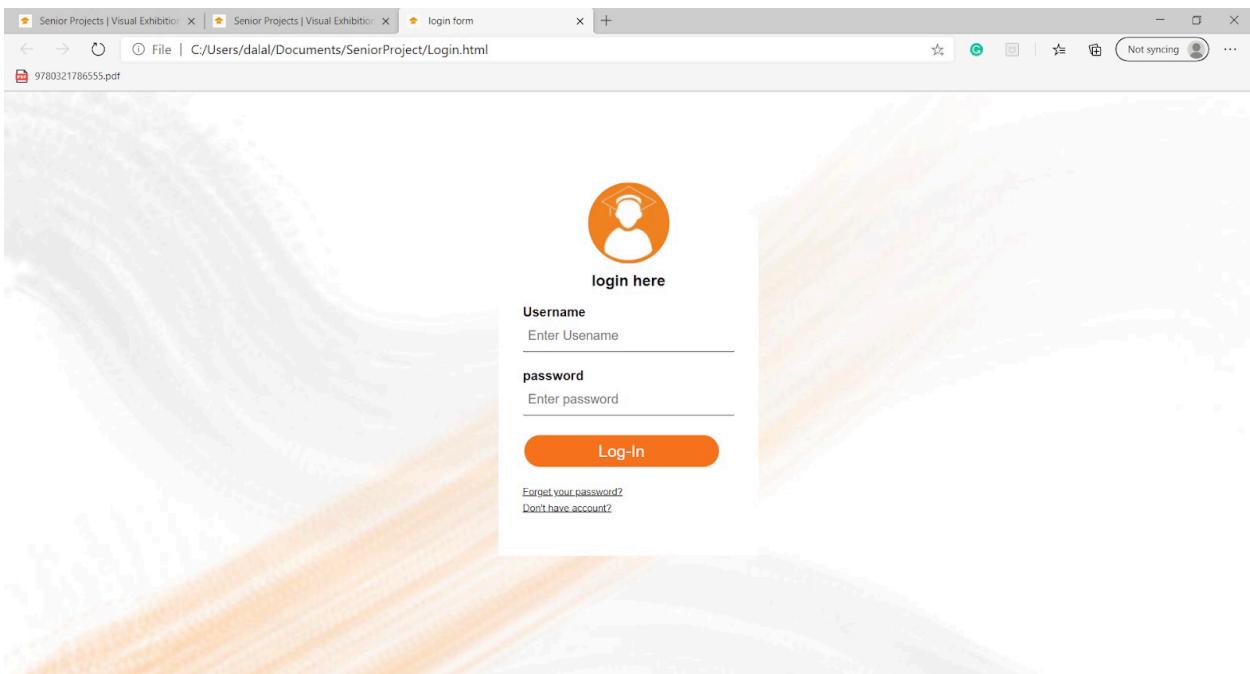


Figure 3 : Log in page.

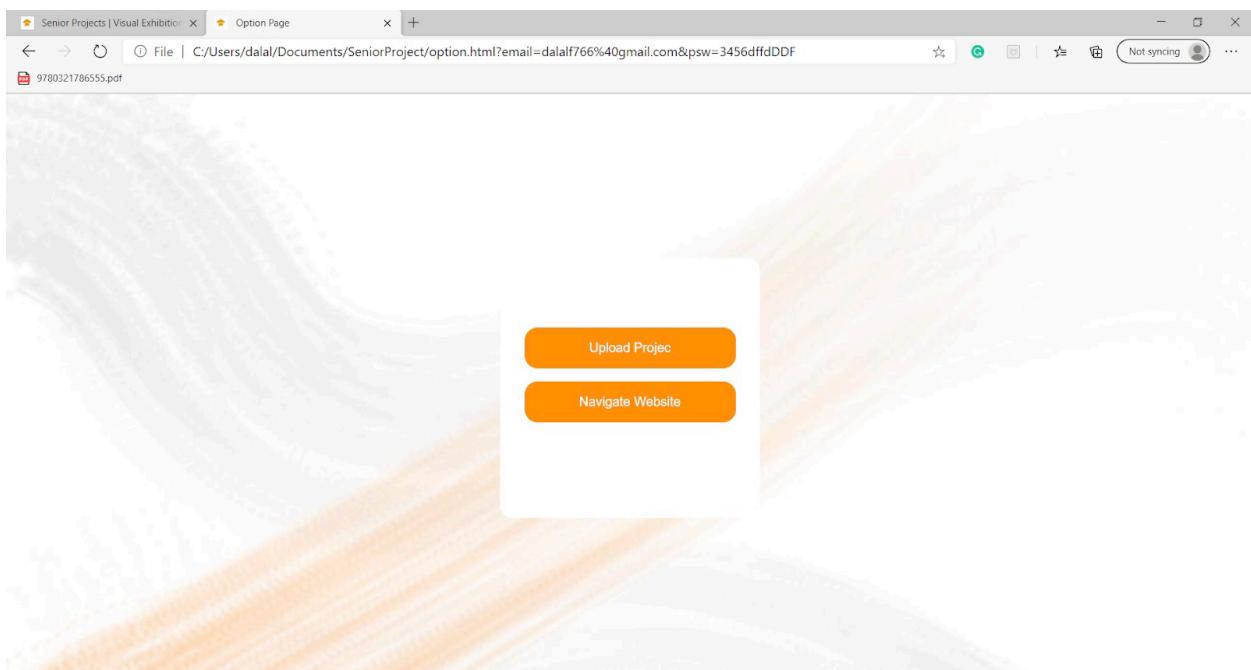


Figure 4 : Option page .

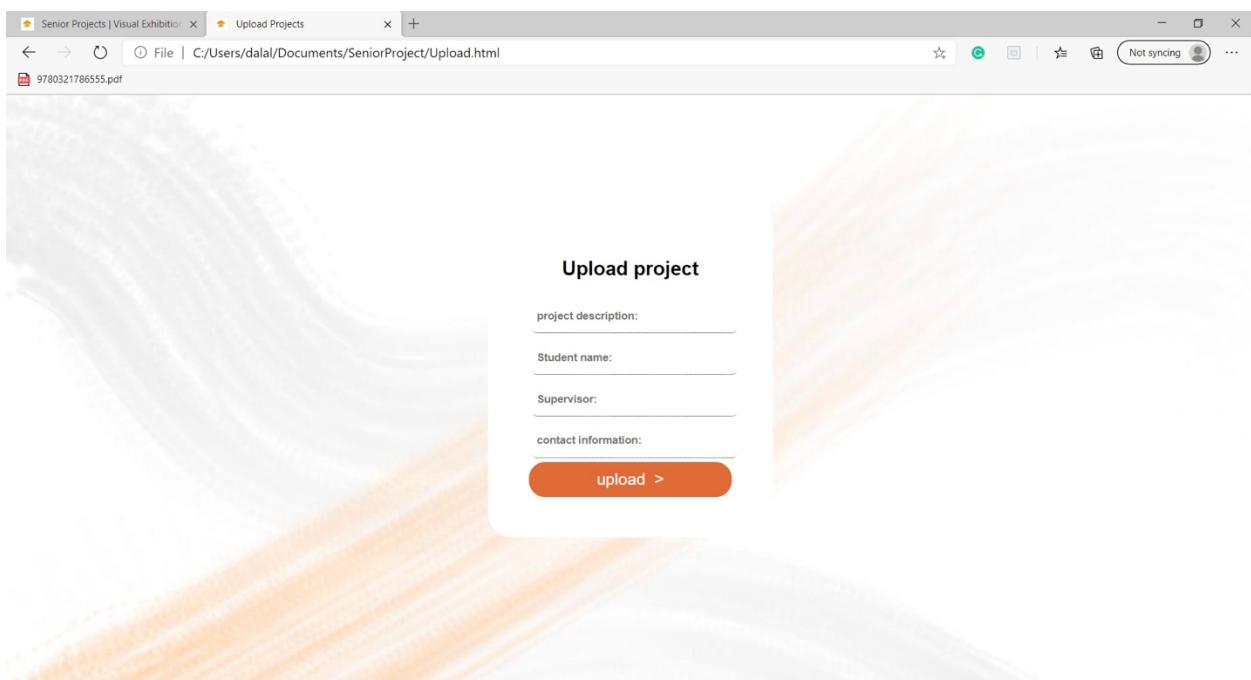


Figure 5 : UpLoad Project page.

Hint : The Code In attached File .

We used **language** :

- CSS

Saves time, faster page loads, and easy maintenance and it can be used in front end implementation.

- **HTML**

It is easy to learn and use , It is platform independent Images, video and audio can be added to a web page and it consider to be a mark up language and used in Front end implementation.

- **Java script**

Dealing with dates And time User input validation and it can be used as backend programming language.

We used **Tool** :

- **Visual Studio Code**

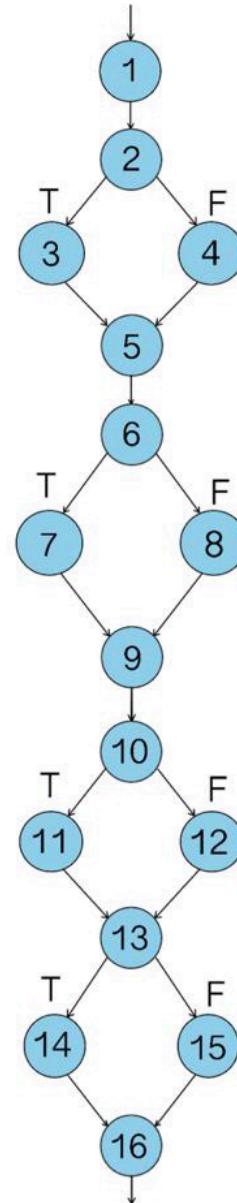
It is a free, open source, cross platform text editor made by Microsoft. They essentially took their online editor Visual Studio Online (codenamed "Monaco") and used Electron by GitHub to deliver a cross platform editor. They have taken great strides to create a fast and highly efficient work environment for programmers.

5.2 White Box Test Case

Step 1: Draw CFG

```

var myInput = document.getElementById("psw");
var letter = document.getElementById("letter");
var capital = document.getElementById("capital");
var number = document.getElementById("number");
var length = document.getElementById("length");
// When the user clicks on the password field, show the message box
myInput.onfocus = function() {
  document.getElementById("message").style.display = "block";
}
// When the user clicks outside of the password field, hide the message box
myInput.onblur = function() {
  document.getElementById("message").style.display = "none";
}
// When the user starts to type something inside the password field
myInput.onkeyup = function() {
  // Validate lowercase letters
  var lowerCaseLetters = /[a-z]/g;
  if(myInput.value.match(lowerCaseLetters)) {
    letter.classList.remove("invalid");
    letter.classList.add("valid");
  } else {
    letter.classList.remove("valid");
    letter.classList.add("invalid");
  }
}
// Validate capital letters
var upperCaseLetters = /[A-Z]/g;
if(myInput.value.match(upperCaseLetters)) {
  capital.classList.remove("invalid");
  capital.classList.add("valid");
} else {
  capital.classList.remove("valid");
  capital.classList.add("invalid");
}
// Validate numbers
var numbers = /[0-9]/g;
if(myInput.value.match(numbers)) {
  number.classList.remove("invalid");
  number.classList.add("valid");
} else {
  number.classList.remove("valid");
  number.classList.add("invalid");
}
// Validate length
if(myInput.value.length >= 8) {
  length.classList.remove("invalid");
  length.classList.add("valid");
} else {
  length.classList.remove("valid");
  length.classList.add("invalid");
}
}
  
```

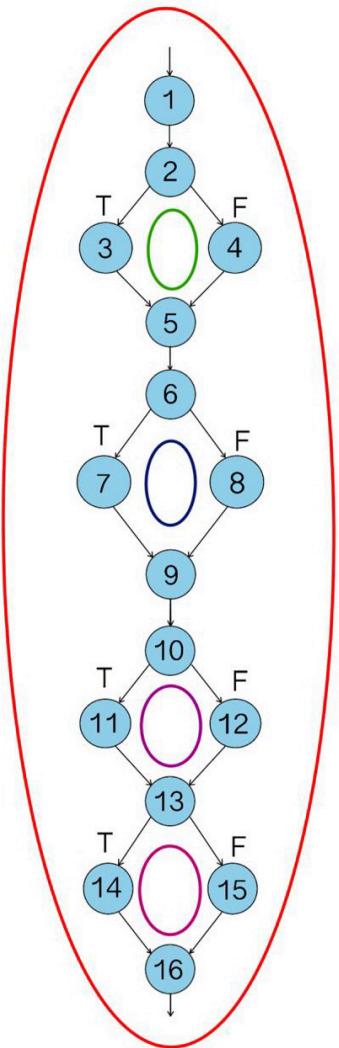


STEP 2 : FIND CYCLOMATIC COMPLEXITY

$$\text{CYCLOMATIC COMPLEXITY} = \text{PREDICATES} + 1 = 4 + 1 = 5$$

CYCLOMATIC COMPLEXITY = THE NUMBER OF **REGIONS** IN THE GRAPH=5

CYCLOMATIC COMPLEXITY = $E-N+2=19-16+2=5$



STEP 3 : FIND BASIC PATH SET :

BASIC PATH SET:

- [1,2,4,5,6,8,9,10,12,13,15,16]

- [1,2,3,5,6,8,9,10,12,13,15,16]

- [1,2,4,5,6,7,9,10,12,13,15,16]

- [1,2,4,5,6,8,9,10,11,13,15,16]

- [1,2,3,5,6,7,9,10,11,13,14,16]

STEP 4 : DERIVE TEST CASES

PATH	TEST CASE : MYINPUT	EXPECTED OUTPUT
[1,2,4,5,6,8,9,10,12,13,15,16]	--	INVALID PASSWORD
[1,2,3,5,6,8,9,10,12,13,15,16]	--m	INVALID PASSWORD
[1,2,4,5,6,7,9,10,12,13,15,16]	--D	INVALID PASSWORD
[1,2,4,5,6,8,9,10,11,13,15,16]	--l	INVALID PASSWORD
[1,2,3,5,6,7,9,10,11,13,14,16]	PHASE3_IS_FINAL_PHASE	VALID PASSWORD

5.3 Black box test case

Equivalence class partitioning In The password field in Registration form

Valid	Invalid
Contains at least one uppercase letter	Doesn't contain uppercase letter
Contains at least one lowercase letter	Doesn't contain lowercase letter
Contains at least one number	Doesn't contain number
Length ≥ 8	Length < 8

6.FUTURE WORK AND CONCLUSION

In the future work we need to work on a database because we need to search and show all the projectsthat has been uploaded on the website, and when logging we need a database that will save the information for students and graduate students.

In conclusion: the system will serve students and interested companies in different ways and we tried to make that possible and hopefully to manage to do it even in such a simple way, and of course we wish to improve our system in the future as we have explained in the beginning.

7. Team Members Contributions

Nouf Mohammed Binkanann	Gathered all the work and work on integrating it by rewriting everything so that it will be more understandable and remove any repetition. 5. Implementation
Sara Jubran Alshahrani	3.3 Use Case Diagram 4.2 Sequence Diagram 5. Implementation 6. FUTURE WORK AND CONCLUSION
Alanoud Abdulaziz Alhusayn	4.2 Sequence Diagram 3.3 Use Case Diagram 5. Implementation
Shaden Khaled Almarshad	4.3 User Interface Design 4.2 Sequence Diagram 5. Implementation

Delayel Fahad Alqhatany

3.3 Use Case Diagram

4.1 Class Diagram

4.2 Sequence Diagram

5. Implementation and Testing