



UNIVERSITY  
of  
GREENWICH

**ENTERPRISE WEB SOFTWARE DEVELOPMENT**  
**COMP1640**  
**Group Report**

**Team Members**

Name	ID	Email
Vu Hoang Ha	001248974	vh2420h@gre.ac.uk
Mai Van Duc	001248944	md5515p@gre.ac.uk
Phan Bao Hoang	001251043	ph1578k@gre.ac.uk
Nguyen Van Duc	001249270	nd1849d@gre.ac.uk
Usman Ibrahim	001251008	ui2948n@gre.ac.uk

*Lecturer*

*Nguyen Dinh Tran Long*



## Table of Contents

1	Information of Management System Collect Ideas .....	7
2	Introduction .....	8
3	Requirement .....	8
3.1	Functional.....	8
3.1.1	Admin.....	8
3.1.2	Staff.....	8
3.1.3	Quality Assurance Manager.....	8
3.1.4	Quality Assurance Coordinator.....	9
3.2	Use case diagram .....	9
3.2.1	Admin.....	9
3.2.2	Staff.....	10
3.2.3	QA manager .....	11
3.2.4	Quality Assurance Coordinator.....	11
4	Database .....	12
4.1	ERD .....	12
4.2	Data security .....	13
4.3	Data validation .....	14
4.4	Database normalization .....	14
1.1.1	Define.....	14
1.1.2	Rules.....	15
5	Design.....	18
5.1	Sitemap.....	18
5.2	Wireframes.....	18
6	Implementation .....	27
6.1	Techniques .....	27
6.1.1	Wireframe design tool .....	27
6.1.2	Front-end .....	27
6.1.3	Back-end .....	29
6.2	Features.....	30
6.2.1	System flow.....	30
6.2.2	Back end.....	30
6.2.3	Front end.....	34



6.3	Flowcharts .....	48
6.4	Activity diagram .....	54
7	Interface (screenshots) .....	55
8	Testing.....	69
8.1	Test Plan .....	69
8.1.1	Scope.....	69
8.1.2	Quality Objectives.....	69
8.1.3	Test Approach.....	69
8.1.4	Roles and Responsiblities.....	69
8.1.5	Test Strategy .....	70
8.1.6	Resource And Environment Needs .....	71
8.2	Test case.....	72
8.3	Test log .....	74
9	Agile .....	82
9.1	Product backlog and User story .....	83
9.2	Sprints backlog .....	84
9.2.1	Sprint 1 .....	84
9.2.2	Sprint 2 .....	86
9.2.3	Sprint 3 .....	88
9.2.4	Sprint 4 .....	90
9.2.5	Sprint 5 .....	92
9.3	Team challenges.....	94
9.4	Meeting minutes .....	95
9.4.1	Meeting 1 .....	95
9.4.2	Meeting 2 .....	96
9.4.3	Meeting 3 .....	97
9.4.4	Meeting 4 .....	98
9.4.5	Meeting 5 .....	99
9.4.6	Meeting 6 .....	100
9.4.7	Meeting 7 .....	101
10	Conclusion.....	102
11	References .....	103



## List of Figures

Figure 1. Use Case Admin .....	9
Figure 2. Use Case Staff .....	10
Figure 3.QA Manager Use Case Diagram.....	11
Figure 4. Quality Assurance Coordinator.....	11
Figure 5. ERD .....	12
Figure 6. Login website .....	14
Figure 7. Data .....	14
Figure 8. First normal form .....	15
Figure 9. Second normal form .....	16
Figure 10. Third normal form.....	17
Figure 11. Site map of Idea Collect System.....	18
Figure 12. Wireframe-Login .....	18
Figure 13. Wireframe-Change password .....	19
Figure 14. Wireframe-Create New Idea.....	19
Figure 15. Wireframe-Staff homepage .....	20
Figure 16. Wireframe-Idea post detail page.....	21
Figure 17. Wireframe-Admins create account .....	22
Figure 18. Wireframe-Admin creates deadline .....	22
Figure 19. Wireframe-Admin edit account .....	23
Figure 20. Wireframe-Document download page with zip and CSV formats for manager ....	23
Figure 21. Wireframe-Manager's homepage .....	24
Figure 22. Wireframe-Add a category of ideas for managers .....	25
Figure 23. Wireframe-Manager Dashboard.....	26
Figure 24. Drawio .....	27
Figure 25. Display code ReactJS by VSCode.....	28
Figure 26. ReactJS file organization .....	28
Figure 27. Material UI of ReactJS .....	29
Figure 28. Code directory structure.....	29
Figure 29 Create new idea .....	37
Figure 30 Idea Reducer .....	38
Figure 31 Comment reducer .....	44
Figure 32. Activity diagram .....	54
Figure 33. Login .....	55
Figure 34. Change Password .....	56
Figure 35. Admins create user account .....	57
Figure 36. Admin creates deadline .....	58
Figure 37. Admin edit user account .....	59
Figure 38. Staff homepage.....	60
Figure 39. Staff posted ideas .....	61
Figure 40. Before posting the idea, the terms and conditions will be popup .....	62
Figure 41. Post details.....	63
Figure 42. Comment .....	64



Figure 43. Manager's homepage .....	65
Figure 44. Managers create the topic.....	66
Figure 45. File download manager .....	67
Figure 46. Manager dashboard page.....	68



## List of Table

Table 1. Roles of team members .....	7
Table 2. Account Information .....	7
Table 3. Test case.....	73
Table 4. Test log .....	81

## List of Code

Code 1. Back-end create idea .....	30
Code 2. Update category .....	30
Code 3. Back end Delete category.....	31
Code 4. Notify email about reaction and comment .....	31
Code 5. Back-end update user .....	32
Code 6. Back-end change password .....	32
Code 7. Back-end delete user .....	33
Code 8. Back-end create user .....	33
Code 9. Login.....	34
Code 10. Set role.....	34
Code 11. Load user.....	35
Code 12. AuthReducer .....	36
Code 13. Post Reaction .....	40
Code 14. Like .....	41
Code 15. Dislike.....	42
Code 16. Comment .....	43
Code 17. Create topic .....	43
Code 18. Topic reducer .....	45
Code 19. Update topic .....	46

## Table of Flowchart

Flowchart 1. Login.....	48
Flowchart 2. Log out .....	49
Flowchart 3. Change password.....	50
Flowchart 4. Admin .....	51
Flowchart 5. Staff .....	52
Flowchart 6. Set date for post idea and comment .....	53



# 1 Information of Management System Collect Ideas

Team Members	
Name	Role
Vu Hoang Ha	Scrum master, Database, Tester
Nguyen Van Duc	Backend, Database
Phan Bao Hoang	Fontend
Mai Van Duc	Design interface, Tester
Usman Ibrahim	Tester

Table 1. Roles of team members

- Site URL:  
<https://drive.google.com/drive/folders/19BJxb4uGO8BqqHOLk1jYv37FwUQyFbot?usp=sharing>
- Repository: <https://github.com/haiduc100/COMP1640>
- Product Backlog:  
[https://docs.google.com/spreadsheets/d/1\\_2VSyqRRL8VPLPvyU7j4GzxL1Zjpql5fzFJHsRmGHBo/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1_2VSyqRRL8VPLPvyU7j4GzxL1Zjpql5fzFJHsRmGHBo/edit?usp=sharing)
- Screencast:  
<https://drive.google.com/drive/folders/1W3J61jMGQEXqX7IDINEF7feqYJA8w7A1?usp=sharing>

Account Information		
User Roles	User Name	Password
Admin	admin	gree123
Staff	staff	gree123
Quality Assurance Manager	qamanager	gree123
Quality Assurance Coordinator	qacoordinator	gree123

Table 2. Account Information



## 2 Introduction

Currently, corporate social networking is a trend so that internal communication can be more effective in this 4.0, it is also a tool for internal employees to contribute to building and developing corporate culture. Besides, it promotes the interaction between employees so that businesses can understand all the thoughts and aspirations of employees, thereby helping businesses have a stronger staff.

Our team's responsibility now is to build a secure web system to gather innovative ideas from staff in a university. In this report, our team will demonstrate how to effective teamwork based on a scrum model and lay out the processes for developing a secure web system.

## 3 Requirement

### 3.1 Functional

#### 3.1.1 Admin

- Admin can create accounts with user roles as QA manager, QA coordinator, staff
- Admin can set the first closing date and the last closing date
- Admin can see the statistical data (staff details, dealine time...)
- Admin can see the popular list of ideas

#### 3.1.2 Staff

- Staff can post ideas
- When posting ideas, they can upload 1 or more documents with a file format of word or pdf until the first closing date
- Before submitting documents, staff need to agree to the terms and conditions in advance
- When submitting a document, they can choose to post publicly or anonymously
- Staff can see all the other employee's ideas
- You can make a comment on any idea
- When commenting staff can choose to comment anonymously or publicly
- Staff may like or dislike any idea
- Staff will be notified of the email if someone comments on their post
- Staff can see a list of popular ideas.

#### 3.1.3 Quality Assurance Manager

- Add idea categories or delete ideas categories when not in use
- Dashboard can be viewed such as (the number of ideas of each division / year, the total number of popular ideas by month, the number of people contributing ideas to each department ...)
- Download all the idea data on the last closing date in CSV file format
- Download all uploaded idea documents in Zip format
- Can see popular ideas.

### 3.1.4 Quality Assurance Coordinator

- When department employees post ideas, the system sends an email notification to the coordinator
- Quality Assurance Coordinator can see popular ideas

## 3.2 Use case diagram

### 3.2.1 Admin

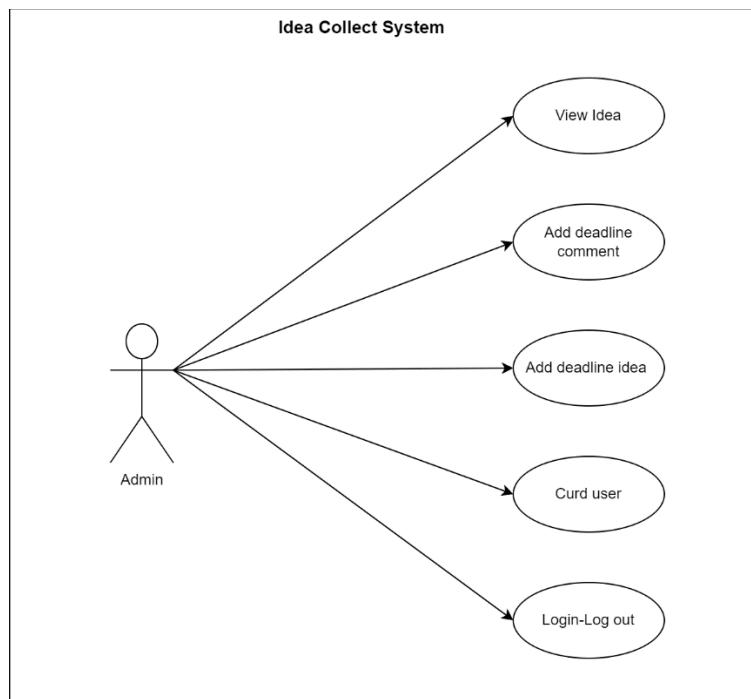
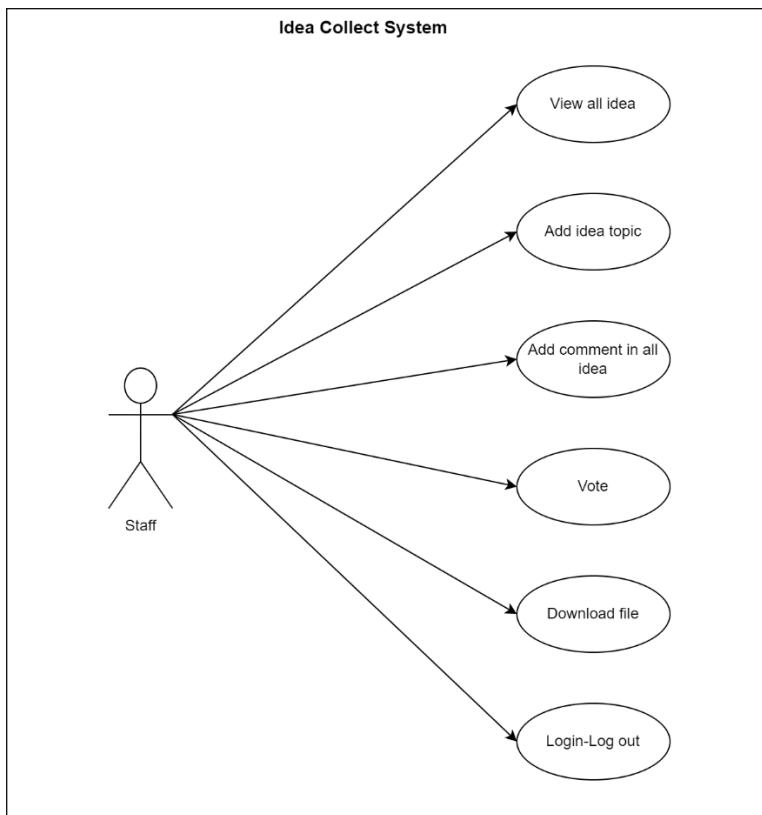


Figure 1. Use Case Admin

Admin has basic functions such as view Idea, add deadline comment, add deadline idea, crud user, login logout:

- View Idea: can see all ideas posted by staff
- Add deadline can extend the deadline for submitting ideas. When the deadline for submitting ideas expires, people are not allowed to submit ideas.
- Add comment: can add comment time for posts, when the time expires, users are not allowed to comment
- Crud user: admin has the right to create, edit, delete, and view accounts for users
- Login: used to log in to the website account
- Log out: used to log out the software

### 3.2.2 Staff



*Figure 2. Use Case Staff*

Staff has functions such as view all idea, add idea for topic, add comment on idea, vote, download file, login log out

- View all ideas: staff can see all previously posted ideas and can see the comments and votes of each idea.
- Add idea for topic: when there is a topic, the staff can add ideas for that topic while it is not overdue
- Add comment: the staff can comment above any idea posted if it is not past the comment period given by the admin
- Vote: when you see a good or bad idea, the staff has the right to vote like or dislike for that post, each idea, the staff can only vote once to like or dislike
- Download ideas: when some ideas are posted with files attached, the staff can download those files to view
- Login, logout: like admin, staff also have separate accounts used to log in to the website

### 3.2.3 QA manager

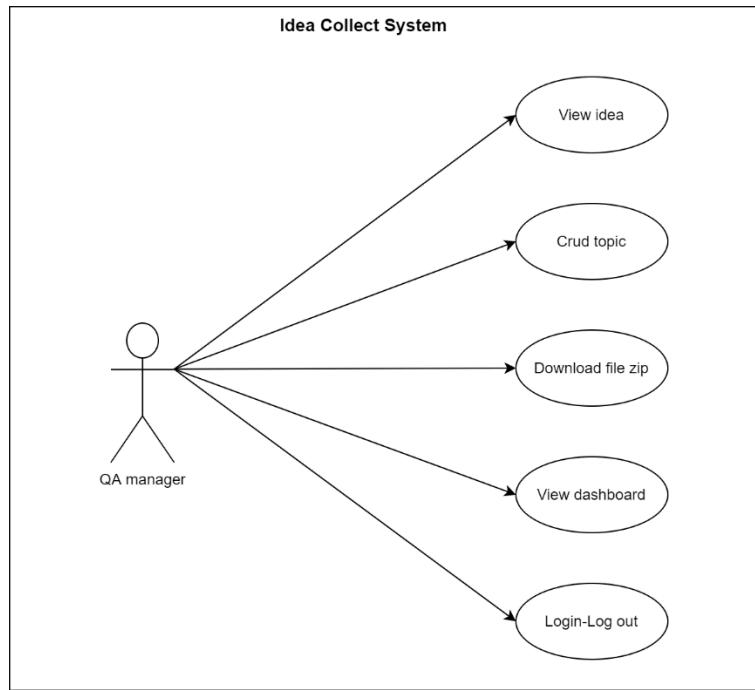


Figure 3.QA Manager Use Case Diagram

QA manager has basic functions like view idea, crud topic, download file, view dash broad, login, logout

- View idea: QA manager can view all ideas posted as well as its attachments
- Download: QA manager can download all uploaded files
- View dash broad: this is where the QA manager can see the parameters of the ideas posted
- login, logout: used to login to the website

### 3.2.4 Quality Assurance Coordinator

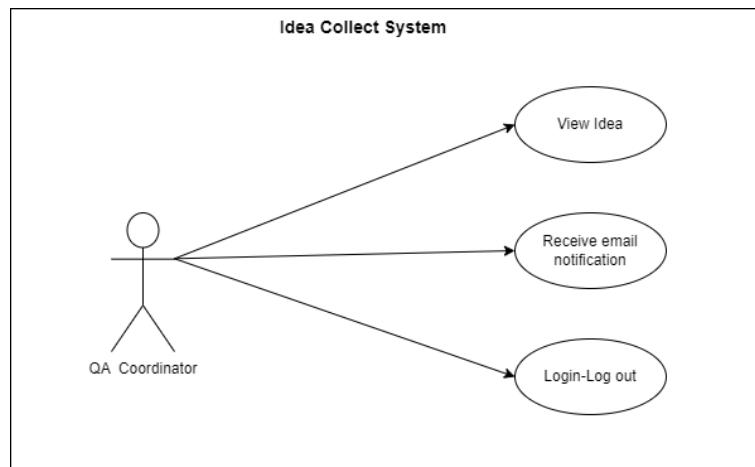


Figure 4. Quality Assurance Coordinator



Quality Assurance Coordinator can log in to the system to be able to see information about ideas posted as well as the number of likes and dislikes of posts. In addition, the Quality Assurance Coordinator will receive email notifications for new submissions from staff.

## 4 Database

### 4.1 ERD

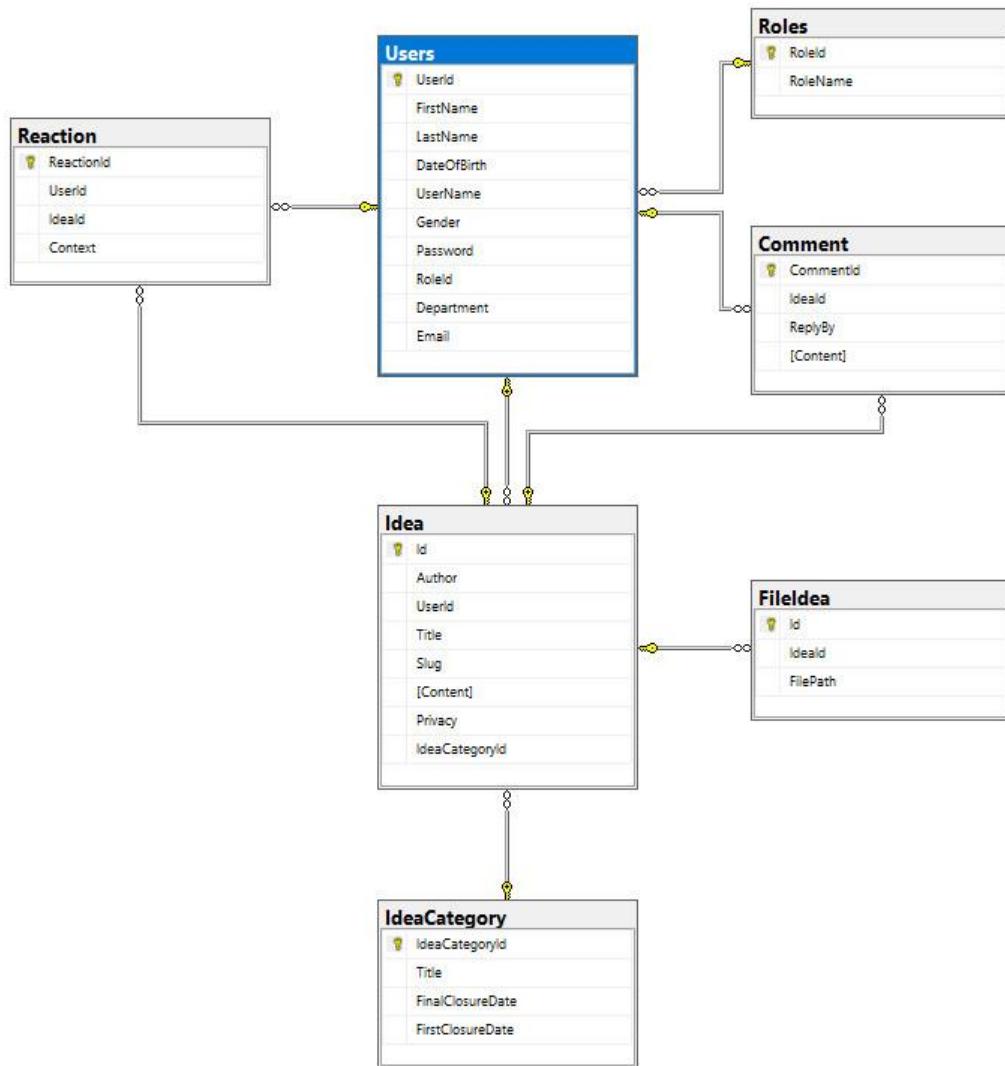


Figure 5. ERD

Database includes 6 main states: idea, Comment, User, Roles, IdeaCategory, Reaction

- User: this table includes the user's information fields, firstnaem is the user's name, lastname is the user's last name, DateOfBirth is the user's date of birth, Username is the account name used to log into the system, gender is the user's gender, password of the account, roleId this person's position in the system, department is the user's room, Email is the user's email to receive mail. And have UserId as the id of this table.



- Reaction: have reactionID as key field of this table, userid and ideaid are subkey of this table, context is the content of this table.
- Idea: the idea table includes fields where id is the primary key, Author is the name of the post author, userid is the secondary key of the table title is the title of the idea, content is the content of the post, privacy is the field used to Post in incognito mode, ideacategory is the subkey of this table associated with the ideaCategory table.
- IdeaCategory: includes 4 fields: ideaCategory is the primary key of this table, title is the title of this table, finalClosuerDate and FirstClosuerDate is the time when the idea starts and ends.
- FileIdea: id is the primary key of this table, ideaid is the secondary key of this table related to idea, filepath is the address to store the uploaded data file.
- Comment: the comment table consists of 4 fields. CommentID is the primary key of this table, useid is the secondary key of this table used to link to the user replybe table, which is the field used to reply to comments. Context is the content of the table
- Roles: includes 2 fields, roleID is the primary key and roleName is the name of the roles

### **Relationship**

- The reaction board has a one-to-many association with the idea board and a one-to-many association with users
- The roles table has a one-to-many association with the users.
- The comment table has a one-to-many association with the users table, the comment has a one-to-many association with the idea table
- The fileIdea table has a one-to-many association with the idea table
- The IdeaCategory board has a one-to-many association with the idea board
- The idea table has a one-to-many association with the fileIdea, ideaCategory, reaction, users, and comment tables
- The users table has a one-to-many relationship with the roles, comment, reaction, idea tables

## **4.2 Data security**

The increasing abuse of computers by people and the increasing threats to personal information through the internet, leading to more people's concern about data protection. There are contingency safeguards:

- Control the classification of user access and control the data the user is using can read or write.
- Controls the adjustment of common value flows between the data sets that can be accessed.



- Inference control is used to prevent the questioner from being able to infer information by posing a designed statistical query string and the correlation of the answers (Denning, 1979).

The screenshot shows a 'Sign in' page. At the top center is a purple circular icon with a white padlock symbol. Below it is the text 'Sign in'. There are two input fields: one for 'userName \*' containing a placeholder 'I' and another for 'Password \*' with an eye icon to the right. A checkbox labeled 'Remember me' is below the password field. A large blue 'SIGN IN' button is at the bottom. To the right of the 'SIGN IN' button is a link 'Forgot password?'

Figure 6. Login website

The requirement to login before accessing the website is also a way to secure the data so that it is not stolen by those who do not have the rights and obligations about the website's information.

### 4.3 Data validation

Data authentication is a way of checking and protecting people's data, it is usually used to check your information when you use it on an unknown client, or it can also be used to recover some data that you don't remember. This validation helps you to know that your data is still complete (not null data). Data validation often occurs in processes such as ETL, login, password recovery or lost credentials. it can also sometimes appear in checking if you are the owner of the information being accessed (Denning, 1979).

The screenshot shows a data entry form with an 'Email \*' field containing 'maivanducga1'. Below the field is an error message: 'Please include an '@' in the email address. 'maivanducga1' is missing an '@''. The 'Role' field is partially visible below the error message.

Figure 7. Data

### 4.4 Database normalization

#### 1.1.1 Define

Database normalization is the design of data in tabular form so that the use of database data becomes easier to use, clear and correct. Normalization is the theoretical nature of relational databases. it has the effect of duplicating data leading to the creation of more tables (Beeri, 1989).



### 1.1.2 Rules

Data normalization makes it possible to reduce redundant data (remove unnecessary data duplication). This is a process of editing and reducing as well as removing unnecessary things for data and identifying data objects that are necessary for the job.

#### Relational database tables normalization levels

First normal form (1NF) is the most basic level and it is often used to define database tables:

- It is two-dimensional (with columns and rows).
- Columns for attributes or objects
- The rows are the information representing the attributes or objects of the columns

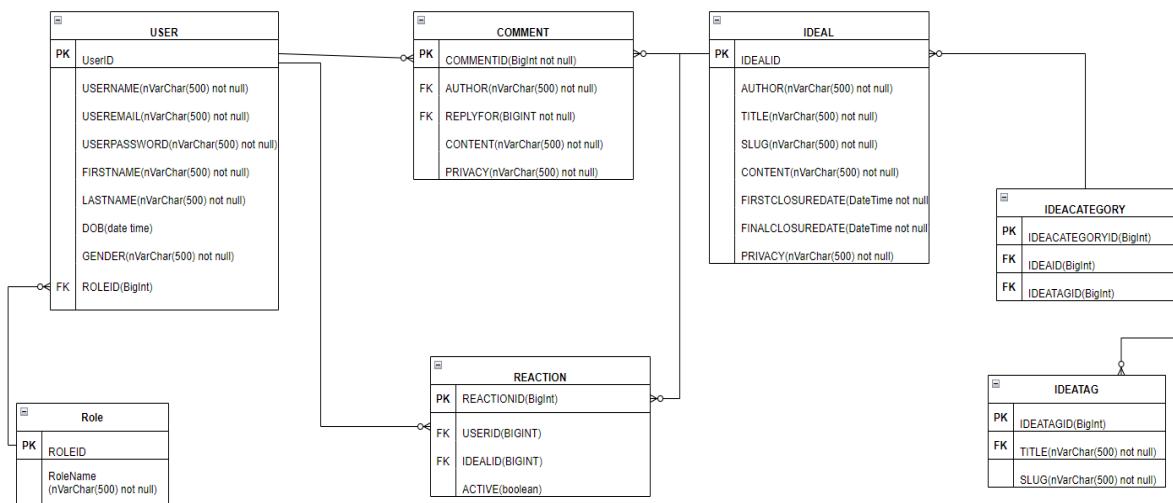


Figure 8. First normal form

This is the first database designed by our team for this website.

#### Second normal form (2NF):

- Each column in the table will not determine the content of another column, but it is a function of the other columns in the table. In the Second normal form there are dependencies that are not present in the First normal form. Next, in these tables there is usually a column that is included as the primary key because it is used to uniquely identify the rows in that table, and it cannot be null or undefined.

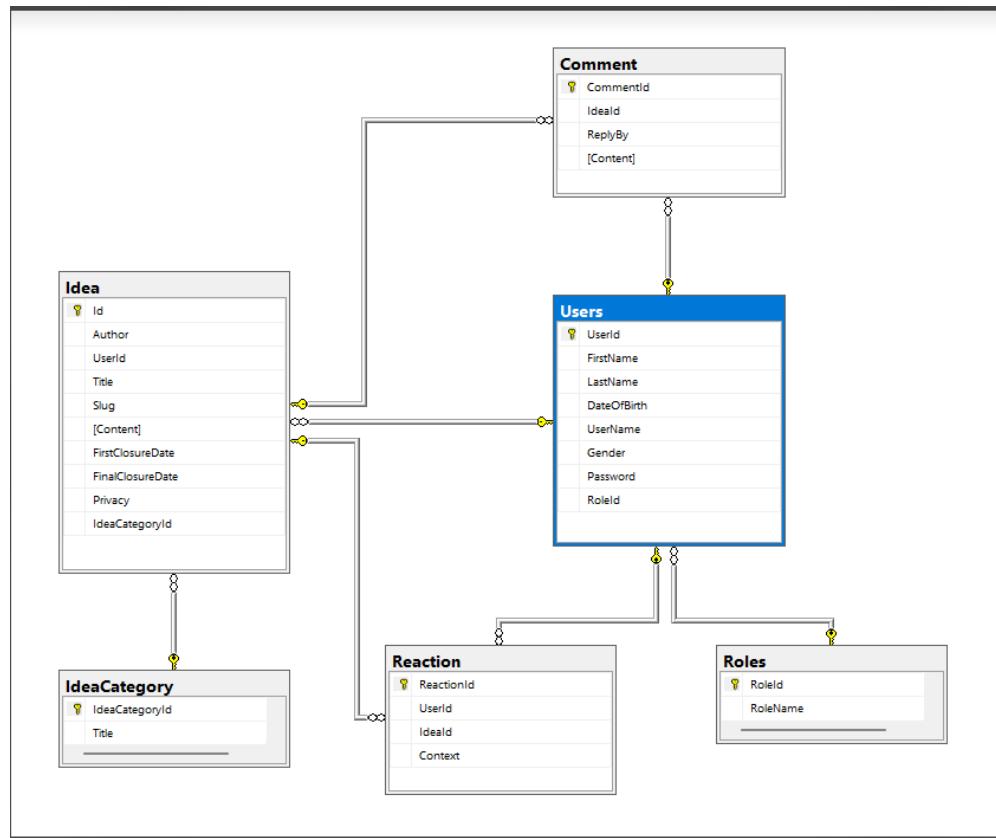


Figure 9. Second normal form

This is the database that was supported by the instructor to edit after seeing the first database

Third normal form (3NF):

- In the first two forms, it is still possible to change rows in the table that can affect the data referencing information in other tables, but for the third normal form these tables will be divided into smaller tables that are linked together to be able to monitor.
- Database normalization to avoid or reduce data instability, data redundancy and duplication, and improve data integrity (Beeri, 1989).

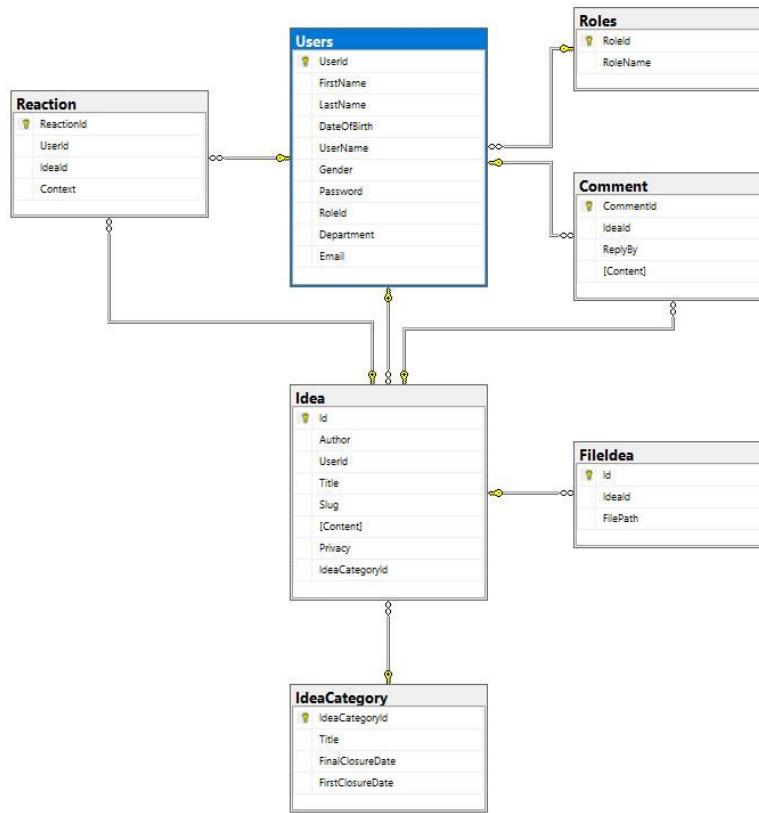


Figure 10. Third normal form

This is the final database after getting to work and adding what we found missing in the previous 2 tables in the website.



## 5 Design

### 5.1 Sitemap

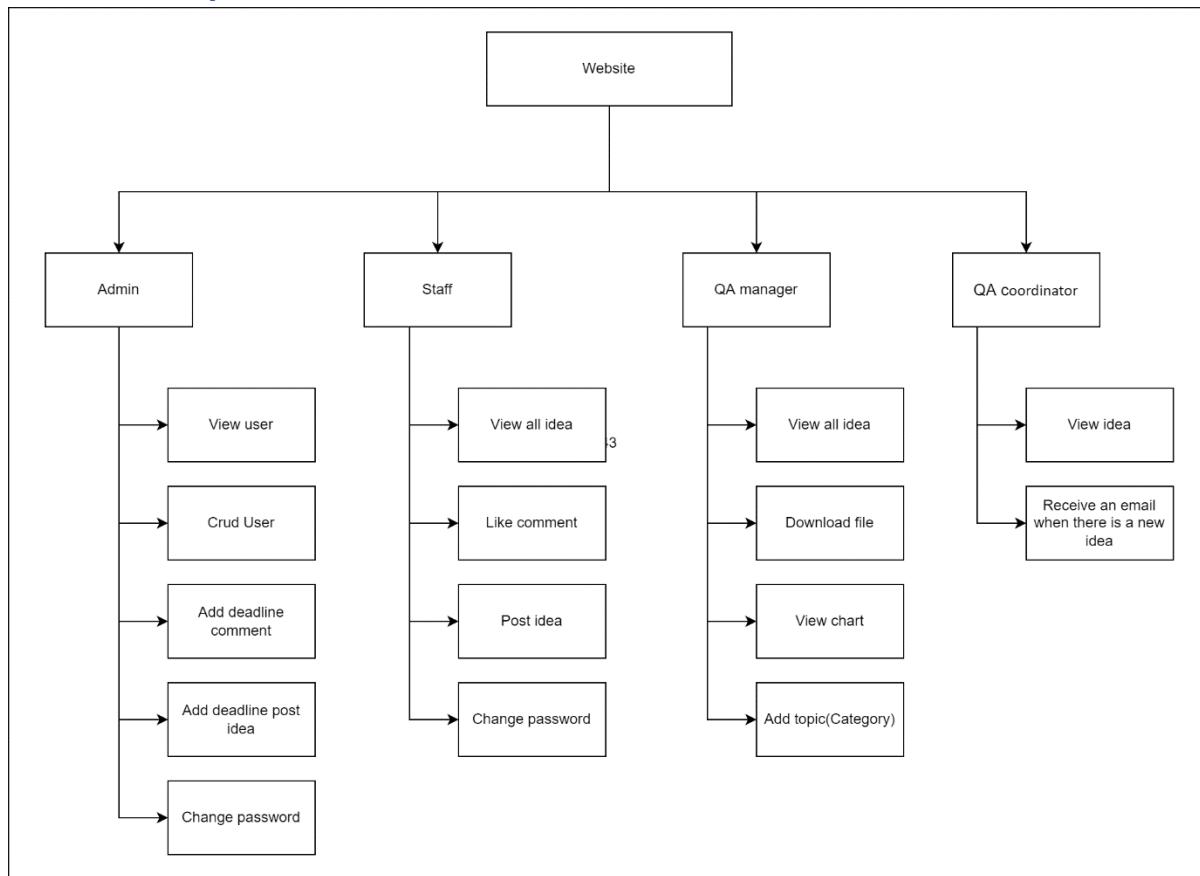


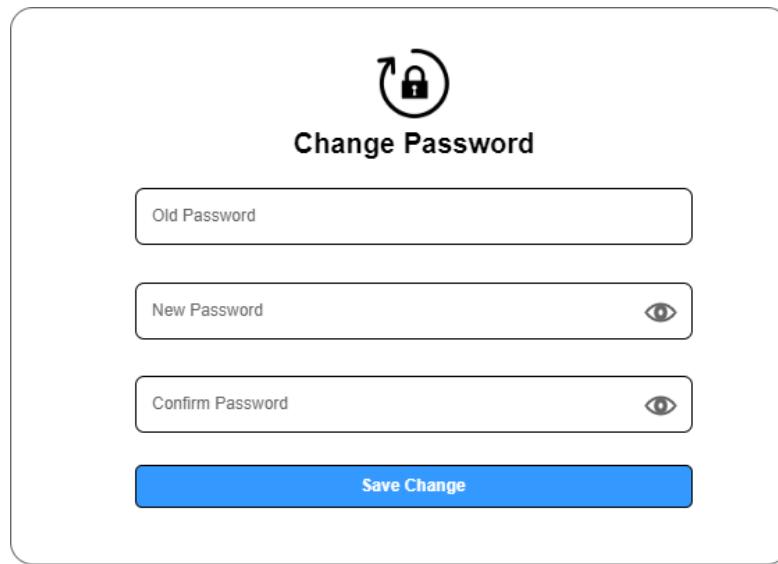
Figure 11. Site map of Idea Collect System

### 5.2 Wireframes

The wireframe for the login page is a rectangular form with rounded corners. At the top center is a circular icon containing a padlock symbol, labeled 'Sign In' below it. Below the icon is a text input field labeled 'User Name'. Underneath that is another text input field labeled 'Password', which includes a small eye icon to the right for password visibility. Below the password field is a checkbox labeled 'Remember me'. At the bottom of the form is a large blue rectangular button labeled 'SIGN IN' in white capital letters.

Figure 12. Wireframe-Login

The login part includes username, password so that users can enter their account and password to log in to the system. remember password so that users can click on it to remember the password for the next login for the website's system.



Change Password

Old Password

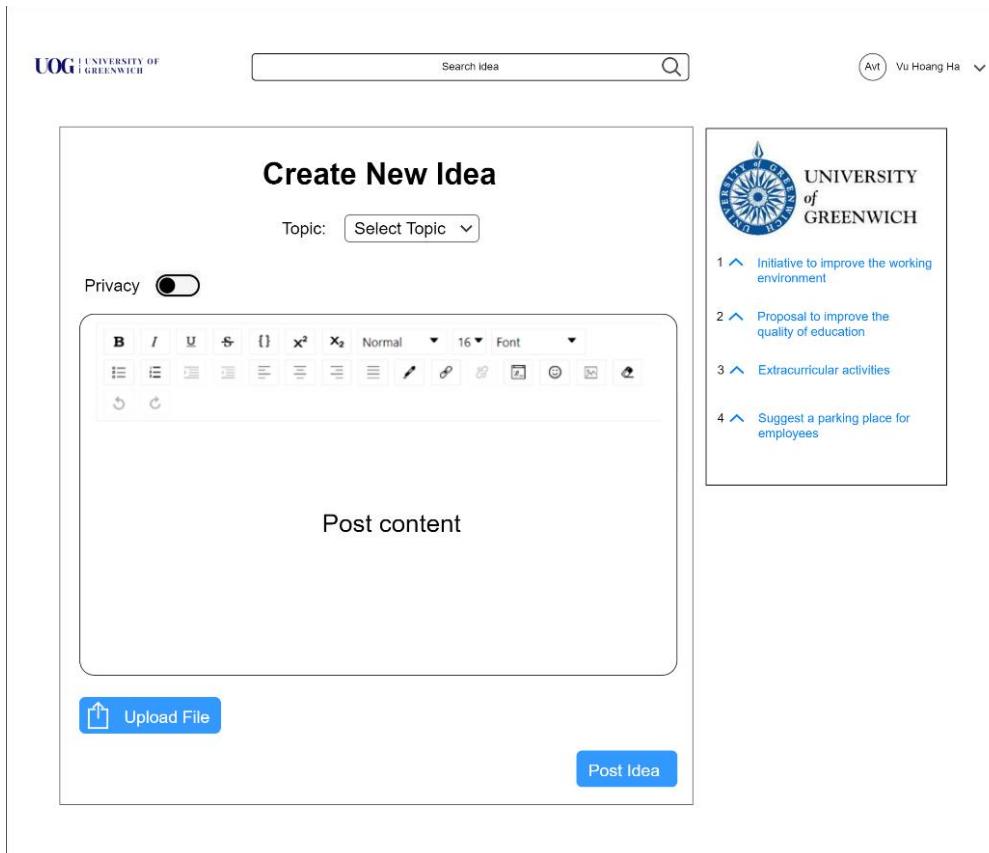
New Password

Confirm Password

Save Change

Figure 13. Wireframe-Change password

Here the user will be asked to enter the old password then the password to change finally click on the change button to change if the old password is wrong or the new password does not match, the system will display a message and ask the user to re-enter.



Search Idea

Avt Vu Hoang Ha

Create New Idea

Topic: Select Topic

Privacy

Post content

Upload File

Post Idea

UNIVERSITY of GREENWICH

- 1 Initiative to improve the working environment
- 2 Proposal to improve the quality of education
- 3 Extracurricular activities
- 4 Suggest a parking place for employees

Figure 14. Wireframe-Create New Idea



UOG UNIVERSITY OF GREENWICH

Search idea

Vu Hoang Ha

Avt

HaVH Initiative to improve the working environment

School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

9 like

TuVN Initiative to improve the working environment

School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

6 like

DucMV Initiative to improve the working environment

School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

5 like

IbrahimUB Initiative to improve the working environment

School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

3 like

HaVH Posted 11 hours ago

Initiative to improve the working environment

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.

COMMENTS 9 2

TuVD Posted 11 hours ago

Initiative to improve the working environment

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.

COMMENTS 6 1

UNIVERSITY of GREENWICH

1 ▲ Initiative to improve the working environment

2 ▲ Proposal to improve the quality of education

3 ▲ Extracurricular activities

4 ▲ Suggest a parking place for employees

1 2 3 4 5 ... 26

Figure 15. Wireframe-Staff homepage

This is the home page of the user when successfully logging into the website that we designed when reading the system's requirements. It includes a header where the website's logo, a search bar, and some functions of the website. The lower part is the main part of this page, it includes posts by users, those posts include ideas, attachments, number of likes, dislikes and comments of each post.



**HaVH** Posted 11 hours ago

Avatar

Initiative to improve the working environment

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.



---

 COMMENTS  6  1

---

Avatar Write a comment ...

**CANCEL** **COMMENT**

Avatar Posted 11 hours ago

**TuVN**

I think if you design the whole garden area, swimming pool, gym, yoga ... help employees feel most comfortable at work, too much work until 7 pm is also haha

Avatar Posted 11 hours ago

**DucMV**

Good

Avatar Posted 11 hours ago

**Anonymous**

Not Good

Avatar Posted 11 hours ago

**HoangPB**

It's a great idea, adding another kitchen is great. hihi

Figure 16. Wireframe-Idea post detail page



☰ Admin page

Welcome Admin Logout

<ul style="list-style-type: none"><li> Create new account</li><li> View all accounts</li><li> Topic and Deadline</li><li> Change Password</li></ul>	<h3>Create New Account</h3> <p>First Name* <input type="text" value="Hoang Ha"/></p> <p>Last Name* <input type="text" value="Vu"/></p> <p>Date of Birth <input type="text" value="26/11/2000"/> </p> <p>Gender <input type="text" value="Male"/></p> <p>Email* <input type="text" value="Hoanghazs2000@gmail.com"/></p> <p>Department <input type="text" value="TCH2004"/></p> <p>Role* <input type="text" value="Staff"/></p> <p>User Name* <input type="text" value="HaVH"/></p> <p>Password* <input type="text" value="hoangha123"/></p> <p><b>CREATE</b></p>
---	--

Figure 17. Wireframe-Admins create account

☰ Admin page

Welcome Admin Logout

<ul style="list-style-type: none"><li> Create new account</li><li> View all accounts</li><li> Topic and Deadline</li><li> Change Password</li></ul>	<p>Topic <input type="text" value="Initiative to improve the working environment"/></p> <p>Deadline for Topic      Deadline for Comments</p> <p><input type="text" value="11/03/2022 - 16/03/2022"/> </p> <p><input type="text" value="17/03/2022 - 22/03/2022"/> </p> <p>Enter description for this topic...</p> <p><b>CREATE DEADLINE</b></p>
---	---

Figure 18. Wireframe-Admin creates deadline



Admin page						
		Enter name of staff...			Logout	
<a href="#"> Create new account</a>						
<a href="#"> View all accounts</a>		Number	Name	Email	Date of Birth	Department
<a href="#"> Topic and Deadline</a>		1	Vu Hoang Ha	hoangha@gmail.com	2000-11-26	TCH2004
<a href="#"> Change Password</a>		2	Phan Bao Hoang	hoang@gmail.com	2000-11-26	TCH2004
		3	Mai Van Duc	maiduc@gmail.com	2000-11-26	TCH2004
		4	Nguyen Van Duc	vanduc@gmail.com	2000-11-26	TCH2004
		5	Ibrahim Usman Brutatai	ibrahim@gmail.com	2000-11-26	TCH2004

Figure 19. Wireframe-Admin edit account

UOG UNIVERSITY OF GREENWICH						
		Search idea			Logout	
<a href="#"> DOWNLOAD FILE ZIP</a>						
Month	Time-Idea	Topic	Quantity	Action	Download	
1	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	
	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	
	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	
2	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	
	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	
	11/3 - 26/3	Name Topic	26	<a href="#">Detail</a>	csv	

Figure 20. Wireframe-Document download page with zip and CSV formats for manager



UOG UNIVERSITY OF GREENWICH

Search idea

Avt Quality Assurance Manager

Manage categories  
View Statistics  
Download Idea  
Log out

**HaVH**  
Initiative to improve the working environment  
School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

**TuVN**  
Initiative to improve the working environment  
School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

**DucMV**  
Initiative to improve the working environment  
School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

**IbrahimUB**  
Initiative to improve the working environment  
School burning is carried out in many different ways, buying gasoline to burn, hiring people to burn, or hiring young people who don't life.... [Read More](#)

**HaVH** Posted 11 hours ago  
[Initiative to improve the working environment](#)

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.

**HaVH** Posted 11 hours ago  
[Initiative to improve the working environment](#)

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.

1 2 3 4 5 ... 26

Figure 21. Wireframe-Manager's homepage



The wireframe shows a user interface for managing ideas. At the top, there is a header with the University of Greenwich logo, the text "UOG UNIVERSITY OF GREENWICH", a search bar labeled "Search Category", and a dropdown menu for "Quality Assurance Manager". Below the header is a button labeled "Add category" with a plus sign icon. The main area contains two columns. The left column lists 12 categories, each with a "Name Category" label, a pencil icon for editing, and a trash bin icon for deletion. The right column lists 12 entries from "Name Staff" to "Name staff", each containing a summary of an idea and the date "18/3/2022".

Name Category	18/3/2022
Name Category	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...
Name staff	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will...

Figure 22. Wireframe-Add a category of ideas for managers

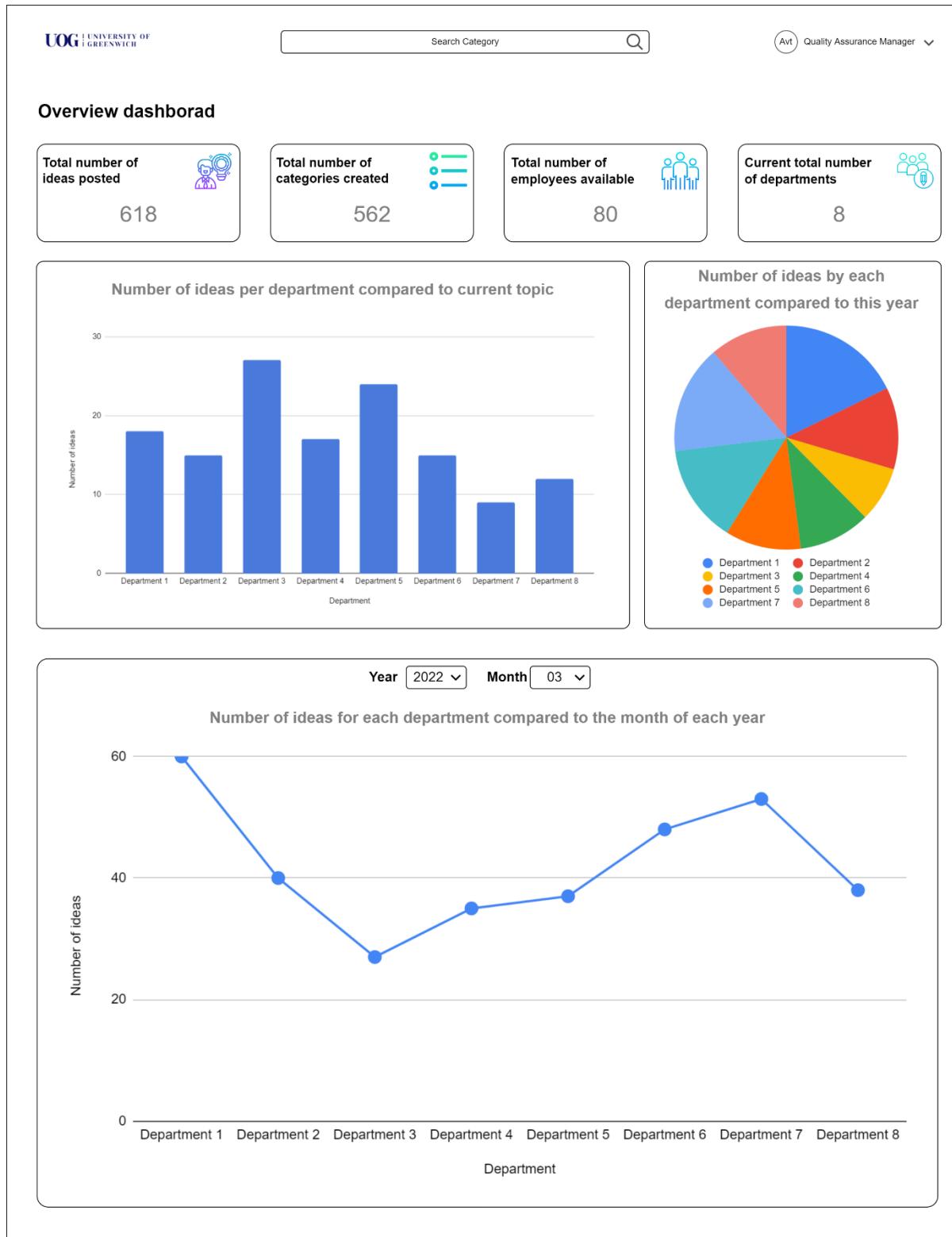


Figure 23. Wireframe-Manager Dashboard

## 6 Implementation

### 6.1 Techniques

#### 6.1.1 Wireframe design tool

Currently, there are many tools to support the wireframe design of a website. For example, Adobe Photoshop, Web Easy Professional, draw.io, ... most of this software have basic functions to help us draw wireframes, but this software needs to cost money or require downloading to use. So, we chose draw.io, this is a tool that supports interface design, flowchart drawing, etc. can be used always on the web, at the same time, it also supports us to share drawings for each other and can be edited on it. Most importantly this is a completely free website for us to use.

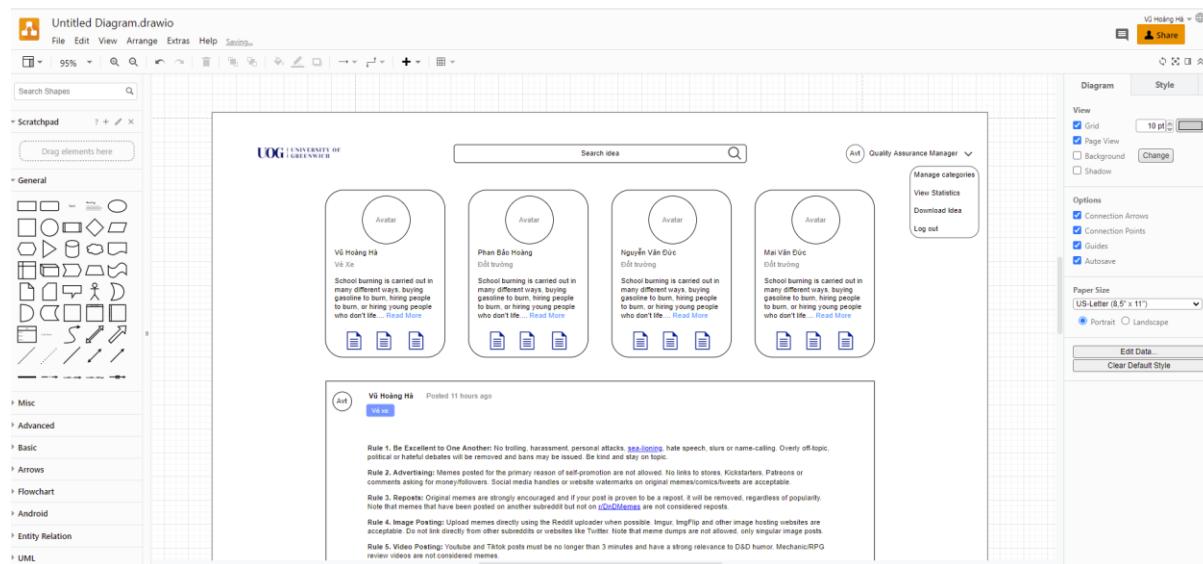


Figure 24. Drawio

#### 6.1.2 Front-end

For the front end, we also have many options to do this project with different technologies that we have known and used before for example: Angular: is a framework for front-end code. It also has a lot of support libraries for front end work. Angular uses type scripts to code and it requires quite a bit of knowledge and is often used for large projects we find it unsuitable for a short project like this. Next, we were intending to use HTML, CSS, Bootstraps and frontawsome to code pure for this project but we realized that pure code without libraries will take us quite a lot of time. front end handling. So, we thought of another technology to work with facebook's powerful front end which is reactjs which is also a big library it's developed by facebook open source on github for everyone to use and it has a lot of features. many libraries support working with front end such as material UI... In the end our team chose to use reactjs to work on this project.



The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows the project structure for "PROJECT 8 - TOP-UP WEB". It includes a "client" folder containing "node\_modules", "public" (with "favicon.ico", "index.html", "logo192.png", "logo512.png", "manifest.json", and "robots.txt"), and a "src" folder with "assets", "components" (containing "alert" with "SuccessAlert.js", "home" with "Home.css" and "Topic.js", "contexts" with "AuthContext.js", "Constant.js", "IdeaContext.js", "TopicContext.js", and "UserContext.js"), and "pages" (containing "admin" with "CreateAccount.js", "CreateDeadline.js", "index.css", and "index.js").
- Editor:** Displays the content of "index.html". The code includes meta tags for charset, viewport, theme color, and description, along with a link to the manifest.json file.
- Terminal:** Shows the command "npm run build" being run in a Windows PowerShell window. The output indicates that "package.json" was found, but "enonet" was not found, which is related to npm not being able to find a file.

Figure 25. Display code ReactJS by VSCode

We use VSCode to be able to code ReactJS because VSCode is free and easy to use, and it also provides a lot of extensions to help with coding.

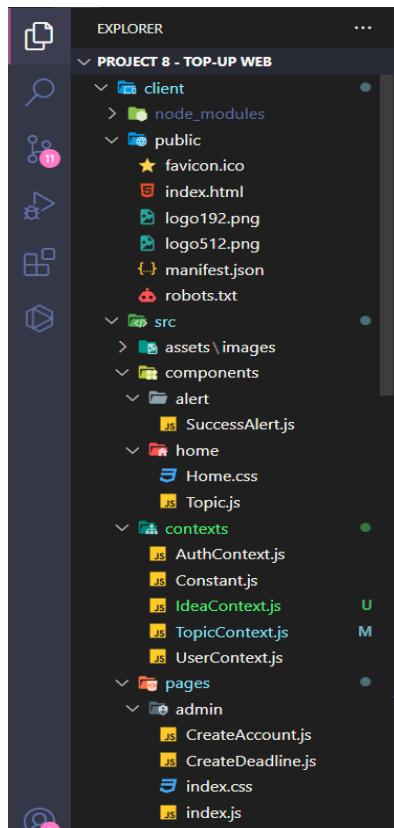


Figure 26. ReactJS file organization

Using ReactJS and organizing files also makes it easier for us to manage and maintain our code periodically, or while we are working on a project

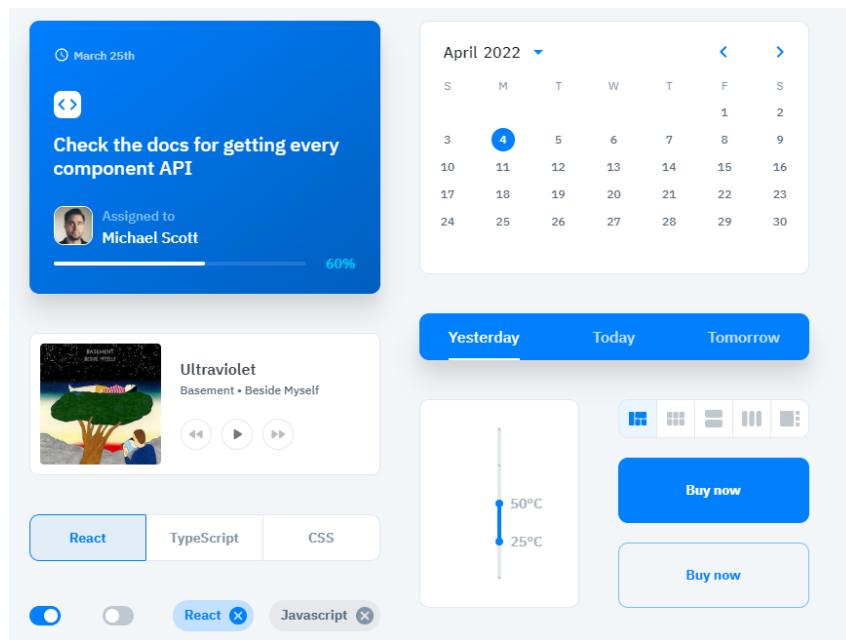


Figure 27. Material UI of ReactJS

Material UI makes it possible for us to code faster with some pre-built interfaces and our job is to take it out and use it.

### 6.1.3 Back-end

When we started this project, we thought about using one of two main technologies, Nodejs or ASP.NET which are both good technologies to work with back-end. As for NodeJS it's been widely used lately and can work easily with database but for our team no one has a deep understanding of NodeJS it's almost just working with it and not understanding about NodeJS and don't know many of its libraries. As for ASP.NET, our team has a person who is familiar with it and understands it well, so using ASP.NET can help us work more conveniently and when we encounter an error, we can also easily handle it. Through that, it can help us have more time to work on the project and fix as well as troubleshoot problems when encountered more easily.

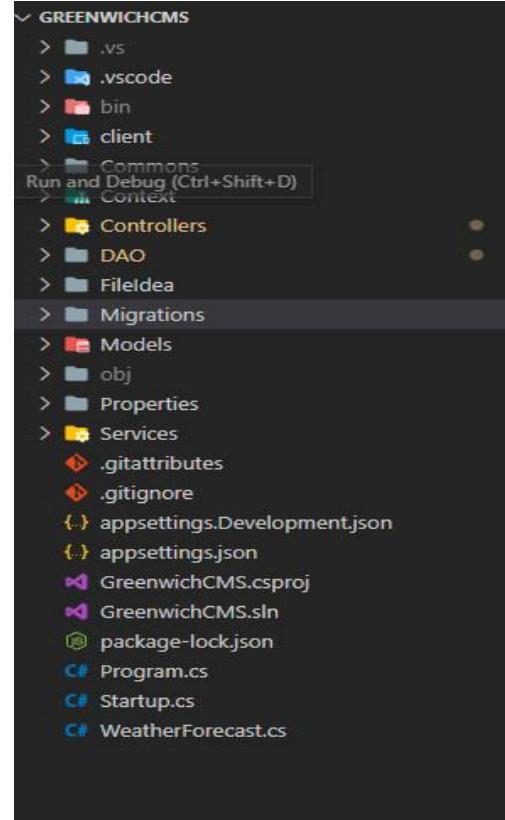


Figure 28. Code directory structure



## 6.2 Features

### 6.2.1 System flow

*Example of the system's flow (login example): when the user enters his information in the login displayed on the website and then clicks login, the information will be transmitted to the front end of the system. then through the back-end API, then from the back-end controller, it will manipulate the database to compare the input data is the same in the database or not, then notify the user of success or failure to log in to the system.*

### 6.2.2 Back end

#### 6.2.2.1 Create idea

```
1 reference
public string CreateIdea(IdeaDTOs idea, List<string> listFilePaths)
{
    try
    {
        var currentCat = _greenwichContext.IdeaCategory.FirstOrDefault(c => c.Title == idea.IdeaCategoryName);
        var QA = _greenwichContext.Users.Include(p => p.Role).Where(p => p.Role.RoleName == "Quality Assurance Coordinator");
        var listEmailQA = QA.Select(p => p.Email).ToList();

        if (DateTime.Now > currentCat.FirstClosureDate)
        {
            throw new Exception("Expired to create ideas");
        }

        var currentUser = _greenwichContext.Users.FirstOrDefault(u => u.UserId == idea.Author);
        if (currentUser == null)
        {
            throw new Exception("User is null");
        }

        if (currentCat == null)
        {
            throw new Exception("Cat is null");
        }

        var newIdea = new Idea
        {
            User = currentUser,
            Author = idea.Author,
            Content = idea.Content,
            IdeaCategory = currentCat,
            Privacy = idea.Privacy,
            Slug = idea.Slug,
            Title = idea.Title,
            Files = idea.Files
        };
    }
}
```

Code 1. Back-end create idea

Create Idea: find the title of the category if it exists, then do it

#### 6.2.2.2 Update category

```
1 reference
public string UpdateCategory(IdeaCategory category)
{
    try
    {
        var currentCategory = _greenwichContext.IdeaCategory.FirstOrDefault(i => i.IdeaCategoryId == category.IdeaCategoryId);
        if (currentCategory == null)
        {
            throw new Exception("Category is null");
        }

        currentCategory.Title = category.Title;
        currentCategory.FinalClosureDate = category.FinalClosureDate;
        currentCategory.FinalClosureDate = category.FinalClosureDate;
        _greenwichContext.SaveChanges();
        return "ok";
    }
    catch (Exception ex)
    {
        return ex.Message;
    }
}
```

Code 2. Update category



Create a variable curruntCategory and store its value equal to the data of the user whose id is Ideacategory equal to the searched ideaCategory. if it is null, it returns a message, otherwise null it will let us change the information of that category.

#### 6.2.2.3 Delete Category

```
1 reference
public string DeleteCategory(Guid id)
{
    try
    {
        var currentCat = _greenwichContext.IdeaCategory.FirstOrDefault(p => p.IdeaCategoryId == id);
        _greenwichContext.Remove(currentCat);
        _greenwichContext.SaveChanges();
        return "ok";
    }
    catch (Exception ex)
    {
        return ex.Message;
    }
}
```

Code 3. Back end Delete category

Delete category this function will get id if that id exists then allow to delete that category and if not exist in the database it will return an error message

#### 6.2.2.4 Send email reaction idea and comments

```
2 references
public bool NotifyReactIdea(string reciverEmail, string createBy)
{
    Message.To.Clear();
    Message.To.Add(new MailAddress(reciverEmail));
    Message.Subject = "New reaction";
    Message.Body = $"{createBy} react your idea";
    try
    {
        Client.Send(Message);
        return true;
    }
    catch
    {
        return false;
    }
}

1 reference
public bool NotifyCommentIdea(string reciverEmail, string createBy)
{
    Message.To.Clear();
    Message.To.Add(new MailAddress(reciverEmail));
    Message.Subject = "New Comment";
    Message.Body = $"{createBy} comment your idea";
    try
    {
        Client.Send(Message);
        return true;
    }
    catch
    {
        return false;
    }
}
```

Code 4. Notify email about reaction and comment



When there is a new reaction or a new comment, a Gmail will be sent to the owner of that post

#### 6.2.2.5 Update user

```
1 reference
public bool UpdateUser(UserDTOs user)
{
    var currentUser = _greenwichContext.Users.Single(x => x.UserId = user.UserId);
    var role = _greenwichContext.Roles.Single(x => x.RoleName = user.Role);
    currentUser.DateOfBirth = user.DateOfBirth;
    currentUser.Gender = user.Gender;
    currentUser.FirstName = user.FirstName;
    currentUser.LastName = user.LastName;
    currentUser.RoleId = role.RoleId;
    currentUser.Password = user.Password;
    currentUser.UserName = user.UserName;
    currentUser.Email = user.Email;

    _greenwichContext.SaveChanges();

    return true;
}
```

Code 5. Back-end update user

Update User: create a variable to store the user's information, which is currentUser. When we search by id that user exists, we just need to call the fields of that user to change. After the change is successful, the new data will be saved to the database.

#### 6.2.2.6 Change password

```
}
```

```
1 reference
public void ChangePassword(Guid id, string newPassword, string oldPassword)
{
    try
    {
        var user = _greenwichContext.Users.FirstOrDefault(x => x.UserId = id);
        if (user != null)
        {
            var currentPassword = MD5Hash.Hash.Content(oldPassword);
            if (user.Password == currentPassword)
            {
                user.Password = MD5Hash.Hash.Content(newPassword);
                _greenwichContext.SaveChanges();
            }
            else throw new Exception("Old password is not correct!");
        }
        else throw new Exception("User is null!");
    }
    catch (Exception)
    {
        throw;
    }
}
```

Code 6. Back-end change password



Change password: create a user variable to store information of the user whose id matches the searched id. If that id exists, we will change the password by entering currentpassword to capture the input data. . If the input data matches the old password, the user is allowed to change the password. By entering newPassword and assigning the password in the database with it.

#### 6.2.2.7 Delete User

```
1 reference
public bool DeleteUser(Guid userId)
{
    try
    {
        var user = _greenwichContext.Users.FirstOrDefault(x => x.UserId = userId);
        _greenwichContext.Remove(user);
        _greenwichContext.SaveChanges();
        return true;
    }
    catch
    {
        throw new Exception($"User Null!");
    }
}
```

Code 7. Back-end delete user

Delete user: check if the user id exists or not, if it exists, remove and then save it.

#### 6.2.2.8 Create user

```
public bool CreateUser(UserDTOs user)
{
    var role = _greenwichContext.Roles.FirstOrDefault(x => x.RoleName = user.Role);
    var newUser = new Users
    {
        DateOfBirth = user.DateOfBirth,
        FirstName = user.FirstName,
        Gender = user.Gender,
        LastName = user.LastName,
        Password = user.Password,
        UserName = user.UserName,
        Email = user.Email,
        Role = role,
        RoleId = role.RoleId
    };
    _greenwichContext.Users.Add(newUser);
    _greenwichContext.SaveChanges();

    return true;
}
```

Code 8. Back-end create user

Create user: creates a role variable to define the role of the user you want to create and then assigns the user's fields using the information entered from the keyboard. Finally, add the added information to the user table in the database and save it.



### 6.2.3 Front end

```
1 const loginUser = async userForm => {
2     try {
3         const response = await axios.post(`${apiUrl}/account/Login`, userForm)
4         if (response.status === 200) {
5             const id = response.data.user.userId
6             localStorage.setItem(LOCAL_STORAGE_TOKEN_NAME, response.data.token);
7             localStorage.setItem(USER_ID, id);
8             await loadUser(id);
9         }
10        return response
11    } catch (error) {
12        return error.response.data
13    }
14}
```

*Code 9. Login*

Initialize the loginUser function. Call api using axios with post method. If the response returns status equal to 200 save the user's id and token back to local storage and then call the loadUser function and pass in the user's id.

```
1 const login = await loginUser(loginForm);
2
3     if (isAuthenticated && user.role === 'Admin') {
4         return <Navigate to='/admin' />
5     }
6     else if (isAuthenticated && user.role === 'Staff') {
7         return <Navigate to='/home' />
8     }
9     else if (isAuthenticated && user.role === 'Quality Assurance Manager') {
10        return <Navigate to='/qa-manager' />
11    }
12    else if (isAuthenticated && user.role === 'Quality Assurance Coordinator') {
13        return <Navigate to='/qa-coordinator' />
14    }
```

*Code 10. Set role*

call loginUser and pass in the data the user entered on the login page. Check what role the user account has and redirect to the appropriate page for each of those roles.



```
 1 const loadUser = async (id) => {
 2     if (localStorage[LOCAL_STORAGE_TOKEN_NAME]) {
 3         setAuthToken(localStorage[LOCAL_STORAGE_TOKEN_NAME])
 4     try {
 5         const response = await axios.get(` ${apiUrl}/Users/${id}`)
 6         if (response.status === 200) {
 7             dispatch({
 8                 type: 'SET_AUTH', payload: {
 9                     isAuthenticated: true,
10                     user: response.data
11                 }
12             })
13         }
14     } catch (error) {
15         localStorage.removeItem(LOCAL_STORAGE_TOKEN_NAME)
16         localStorage.removeItem(USER_ID)
17         setAuthToken(null)
18         dispatch({
19             type: 'SET_AUTH', payload: {
20                 isAuthenticated: false,
21                 user: null
22             }
23         })
24     }
25 }
26
27 }
28
29 useEffect(() => {
30     const id = localStorage.getItem(USER_ID)
31     loadUser(id)
32 }, [])
```

Code 11. Load user

Initialize the loadUser function. Checking if there is a token in local storage call the setAuthToken function to set the header for the request to be transmitted. Here checks again the user with the id stored in local storage exists or not. If you send an action with type “SET\_AUTH” and the payload is the data returned from the api. If the user with id does not exist, the system also sends an action with type “SET\_AUTH” and payload equal to null.



```
1  export const AuthReducer = (state, action) => {
2      const { type, payload: {
3          isAuthenticated, user
4      } } = action;
5      switch (type) {
6          case 'SET_AUTH':
7              return {
8                  ...state,
9                  authLoading: false,
10                 isAuthenticated,
11                 user
12             }
13         default:
14             return state;
15     }
16 }
```

Code 12. AuthReducer

Initialize the AuthReducer function to receive the action sent from the loadUser. With the received type of “SET\_AUTH” , the system assigns a variable to initialize the state equal to the received payload.



A screenshot of a code editor window. At the top left are three colored circular icons: red, yellow, and green. The main area contains the following JavaScript code:

```
1 const createNewIdea = async ideaForm => {
2     try {
3         const response = await axios.post(`/${apiUrl}/Idea`, ideaForm, {
4             headers: {
5                 'content-type': 'multipart/form-data',
6             }
7         })
8         if (response.status === 200) {
9             dispatch({
10                 type: 'CREATE_NEW_IDEA',
11                 payload: response.data
12             })
13             return response
14         }
15     } catch (error) {
16         return error.response.data
17     }
18 }
19
```

Figure 29 Create new idea

Initialize the CreateNewIdea function with a form as an input parameter including the idea's information. Call api and set header with 'content-type' of 'multipart/form-data' to be able to pass both json and file. If the response received has a status of 200, perform an action of type "CREATE\_NEW\_IDEA" and the payload is the returned data.



```
1  export const IdeaReducer = (state, action) => {
2      const { type, payload } = action;
3      switch (type) {
4          case 'GET_ALL_IDEAS':
5              return {
6                  ...state,
7                  ideas: payload,
8              }
9          case 'CREATE_NEW_IDEA':
10         return {
11             ...state,
12             ideas: [...state.ideas, payload]
13         }
14         case 'FIND_IDEA':
15             return {
16                 ...state,
17                 idea: payload
18             }
19         case 'VIEW_IDEA_BY_CATEGORY':
20             return {
21                 ...state,
22                 ideas: payload
23             }
24         default:
25             return state;
26     }
27 }
```

Figure 30 Idea Reducer

Initialize the IdeaReducer function to get and act. Consider the case that the action has type "CREATE\_NEW\_IDEA" which will assign the state variable (array) to add new data as the returned payload.



```
1 let formData = new FormData()
2
3     files.map(file => {
4         formData.append("files", file)
5     })
6
7     formData.append("Author", user.userId)
8     formData.append("Title", 'ok')
9     formData.append("Slug", 'ok')
10    formData.append("Content", content)
11    formData.append("Privacy", checked)
12    formData.append("IdeaCategoryName", topic.title)
13
14    await createNewIdea(formData)
```

Initialize a FormData to save the files posted by the user, and at the same time save the post idea information such as topic, idea content, whether the user wants to post anonymously or not, etc. Then, call the createNewIdea function and pass in the formData just save.



```
1 const PostReaction = async reactionForm => {
2     try {
3         await axios.post(`/${apiUrl}/Reaction`, reactionForm)
4     } catch (error) {
5         return error.response.data
6     }
7 }
8
9 const deleteReaction = async reaction => {
10    try {
11        await axios.delete(`/${apiUrl}/Reaction`, {
12            data: reaction,
13            headers: {
14                contentType: 'application/json'
15            },
16        })
17    } catch (error) {
18        return error.response.data
19    }
20 }
```

*Code 13. Post Reaction*

Initialize the PostReaction function. Call api to post reaction

Initialize deleteReaction function. Call the api to remove the reaction. Pass in header with contentType of application/json



```
1 const handleLike = async () => {
2     if (likeActive) {
3         setLikeActive(false)
4         setLike(like - 1)
5         await deleteReaction(reactionDelete)
6     }
7     else {
8         if (dislikeActive) {
9             setLikeActive(true)
10            setDislikeActive(false)
11            setLike(like + 1)
12            setDislike(dislike - 1)
13            await deleteReaction(reactionDelete)
14            await PostReaction({
15                userId: user.userId,
16                ideaId: idea.id,
17                context: true
18            })
19        }
20        else {
21            setLikeActive(true)
22            setLike(like + 1)
23            await PostReaction({
24                userId: user.userId,
25                ideaId: idea.id,
26                context: true
27            })
28        }
29    }
30}
```

Code 14. Like

Initialize the handleLike function to handle the user performing the action of clicking like or disliking a post. If the post has been liked by the user, the user who clicks it again will cancel the activation of the like button on the interface, and call the deleteReaction function and pass in the reaction that has just been clicked. If the post has been disliked by the user, then when clicking the like button, the system considers the like button active and deactivates the dislike button, and calls the deleteReaction function to delete the dislike reaction and calls the PostReaction function to repost the like reaction. In case the user has not done like or dislike on the post, when pressing like, the system will activate on the like button and call the PostReaction function to post the reaction like.



```
1 const handleDislike = async () => {
2     if (dislikeActive) {
3         setDislikeActive(false)
4         setDislike(dislike - 1)
5         await deleteReaction(reactionDelete)
6     }
7     else {
8         if (likeActive) {
9             setDislikeActive(true)
10            setLikeActive(false)
11            setDislike(dislike + 1)
12            setLike(like - 1)
13            await deleteReaction(reactionDelete)
14            await PostReaction({
15                userId: user.userId,
16                ideaId: idea.id,
17                context: false
18            })
19        }
20        else {
21            setDislikeActive(true)
22            setDislike(dislike + 1)
23            PostReaction({
24                userId: user.userId,
25                ideaId: idea.id,
26                context: false
27            })
28        }
29    }
30}
```

Code 15. Dislike

Initialize the handleDislike function. This function is similar to handleLike welding but instead of checking the like button case, the function will check the dislike button case.



```
● ● ●  
1 const PostComment = async commentForm => {  
2     try {  
3         const res = await axios.post(` ${ apiUrl }/comment` , commentForm)  
4         if (res.status === 200) {  
5             dispatch({  
6                 type: 'POST_COMMENT',  
7                 payload: res.data  
8             })  
9         }  
10    } catch (error) {  
11        return error.response.data  
12    }  
13}
```

Code 16. Comment

Initialize the PostComment function. Call api, if the response returns a status of 200, it will transmit an action of type "POST\_COMMENT" and the payload is the data received from the response.

```
● ● ●  
1 const createNewTopic = async title => {  
2     try {  
3         const response = await axios.post(` ${ apiUrl }/Category` , title)  
4         if (response.status === 200) {  
5             dispatch({  
6                 type: 'CREATE_NEW_TOPIC',  
7                 payload: response.data  
8             })  
9             return response  
10        }  
11    } catch (error) {  
12        return error.response.data  
13    }  
14}
```

Code 17. Create topic

Initialize the CreateNewTopic function. Call api with post method. If the response returns a status of 200, send an action of type "CREATE\_NEW\_TOPIC"



```
1 export const CommentReducer = (state, action) => {
2     const { type, payload } = action;
3     switch (type) {
4         case 'GET_COMMENT_BY_IDEA':
5             return {
6                 ...state,
7                 comments: payload,
8             }
9         case 'POST_COMMENT':
10            return {
11                ...state,
12                comments: [...state.comments, payload]
13            }
14        default:
15            return state;
16    }
17 }
```

Figure 31 Comment reducer

Initialize the CommentReducer function. Check the case that the action has type "POST\_COMMENT" to set the state variable (array) to add a new element that is the payload passed.

```
1 const commentForm = {
2     ideaId: idea.id,
3     replyBy: user.userId,
4     content: comment
5 }
6 await PostComment(commentForm)
```

Initialize the commentForm variable passing in the entire value of the comment. Call the PostComment function and pass the commentForm variable.



```
1 export const TopicReducer = (state, action) => {
2     const { type, payload } = action;
3     switch (type) {
4         case 'GET_ALL_TOPICS':
5             return {
6                 ...state,
7                 topics: payload,
8             }
9         case 'CREATE_NEW_TOPIC':
10            return {
11                ...state,
12                topics: [...state.topics, payload]
13            }
}
```

Code 18. Topic reducer

Initialize the TopicReducer function. Check the case that the action with type "CREATE\_NEW\_TOPIC" will assign the state variable (array) to add an element called payload.

```
1 const checkTopic = topics.some((topic) => {
2     return title === topic.title
3 })
4
5 if (checkTopic) {
6     window.alert('this topic is already exists!')
7     setTitle('')
8 }
9 else {
10     const createTopic = await createNewTopic({ title: title });
11     if (createTopic.status === 200) {
12         setTitle('');
13         handleClose();
14         window.alert('create new topic successfully!')
15     }
16 }
```



Check if the topic the user just entered exists in the list of old topics. If there is a message that the topic already exists. otherwise call CreateNewTopic function. If the status returns equal to 200, t=a message of successful topic creation. At this point, the topic will have a default deadline.

```
 1 const updateTopic = async updateUserForm => {
 2     try {
 3         const response = await axios.put(` ${apiUrl}/Category`, updateUserForm)
 4         if (response.status === 200) {
 5             dispatch({
 6                 type: 'UPDATE_TOPIC',
 7                 payload: response.data
 8             });
 9             return response;
10         }
11     } catch (error) {
12         return error.response.data;
13     }
14 }
```

Code 19. Update topic

Initialize the Topic update function. Call api with PUT method. If the response returns a status of 200, send an action of type "UPDATE\_TOPIC" and the payload is the returned data.

```
 1 case 'UPDATE_TOPIC':
 2     const newTopics = state.topics.map(topic => topic.ideaCategoryId === payload.ideaCategoryId ? payload : topic)
 3     return {
 4         ...state,
 5         topics: newTopics
 6     }
```

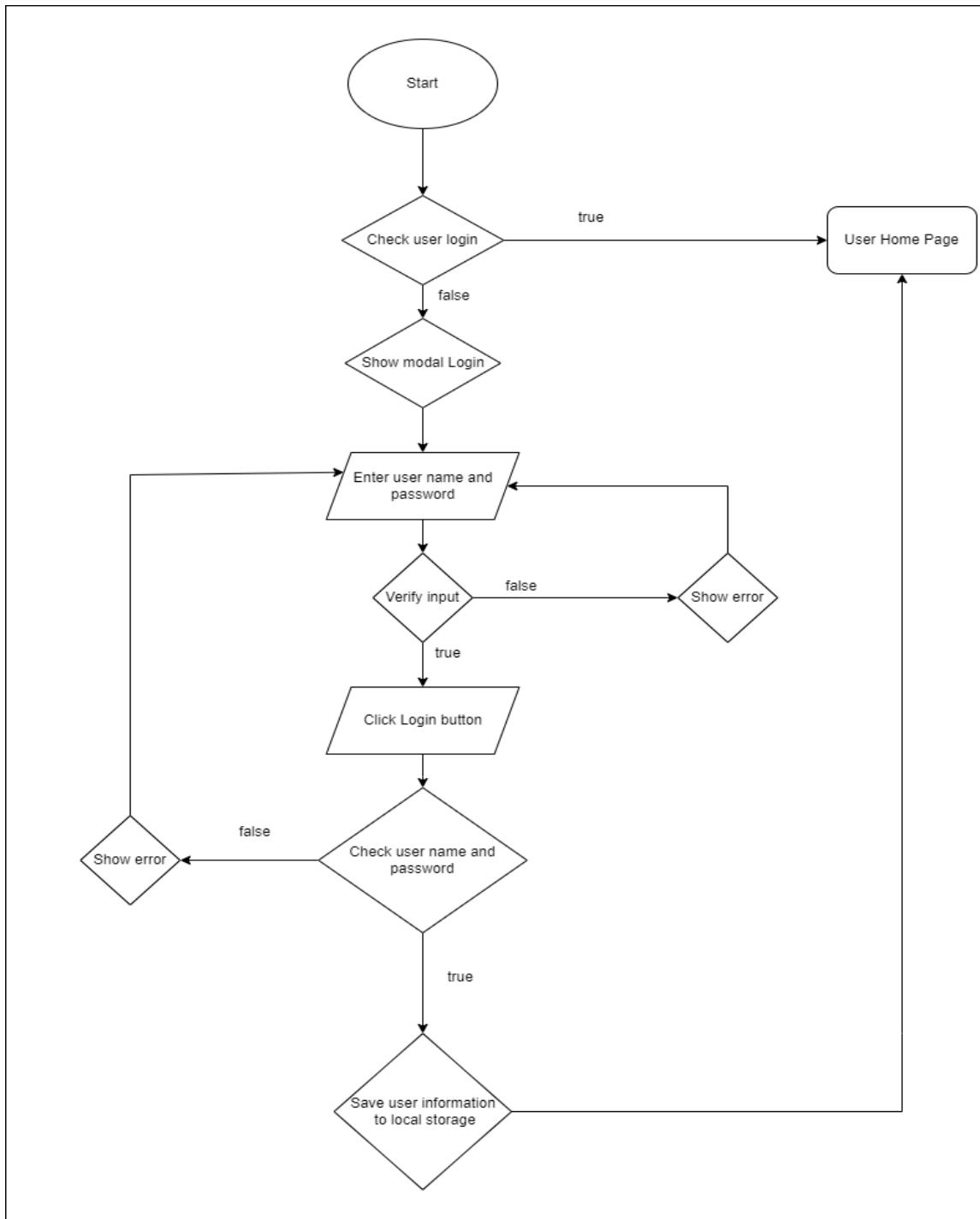
In the TopicReducer function check in case the action has type "UPDATE\_TOPIC", perform a map through the state variable (array) to change the topic value.



```
1 const deadlineForm = {  
2     ideaCategoryId: topic.ideaCategoryId,  
3     title: topicTitle,  
4     firstClosureDate: deadlineTopicValue,  
5     finalClosureDate: deadlineCommentValue  
6 }  
7  
8 const updateDeadline = await updateTopic(deadlineForm)  
9  
10 if (updateDeadline.status === 200) {  
11     window.alert(`Create deadline for ${topicTitle} successfully!`)  
12 }
```

Users who want to set a deadline for a topic will update that topic. Initialize the dealForm variable with the value passed including the deadline time for the topic. Call the updateTopic function and pass the deadlineForm variable. If the update is successful, the system will send a notice of successful creation of the deadline for this topic.

## 6.3 Flowcharts

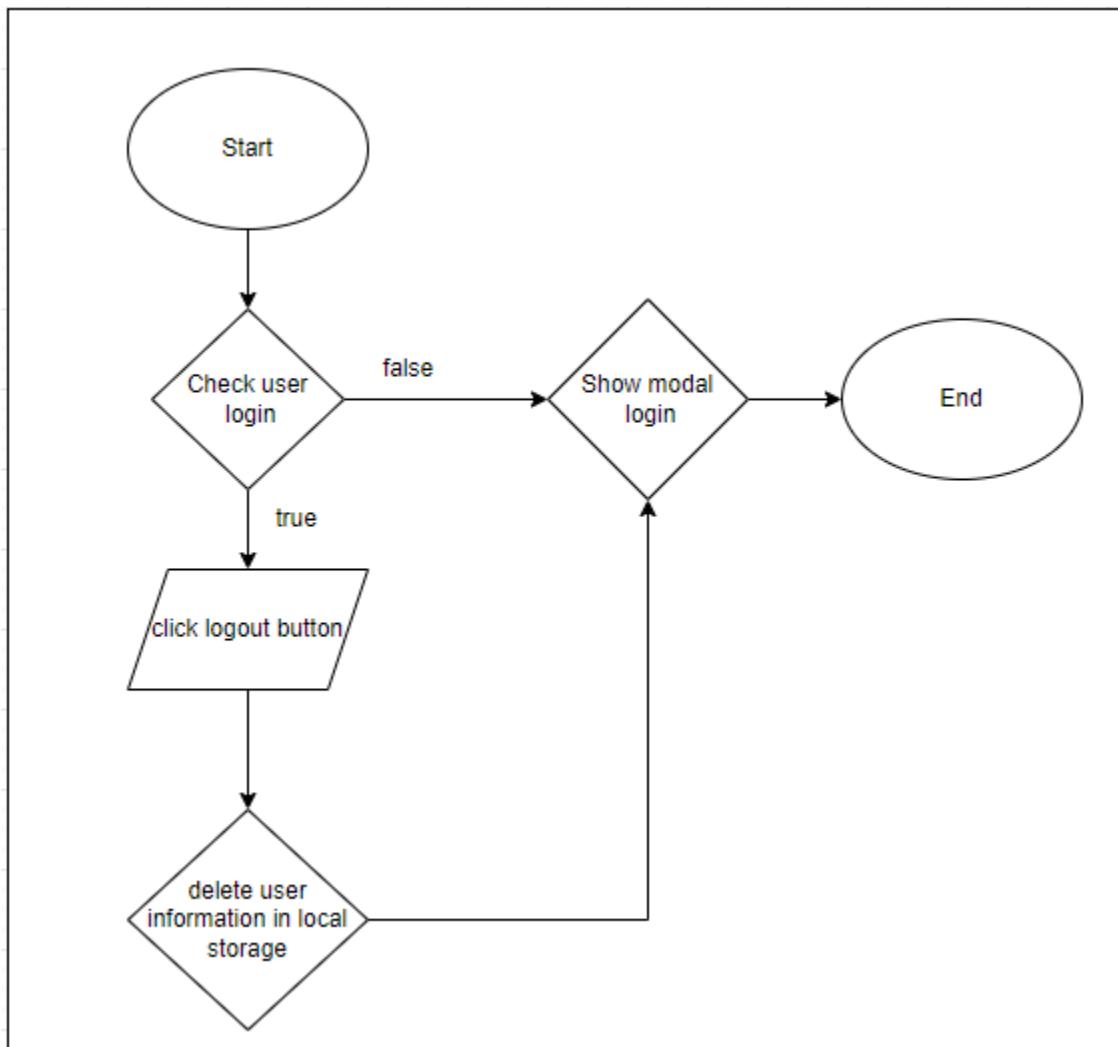


*Flowchart 1. Login*

Here is the flow chart of the website's login. When the user starts to login to the website, the website will ask the user to enter an account and password to be able to log in to the website. When entering information, the user presses login to access the website, if the account and password are used, the user will be redirected to the homepage. If wrong, the user will be given a message about entering the wrong account or password and asked to re-enter it to

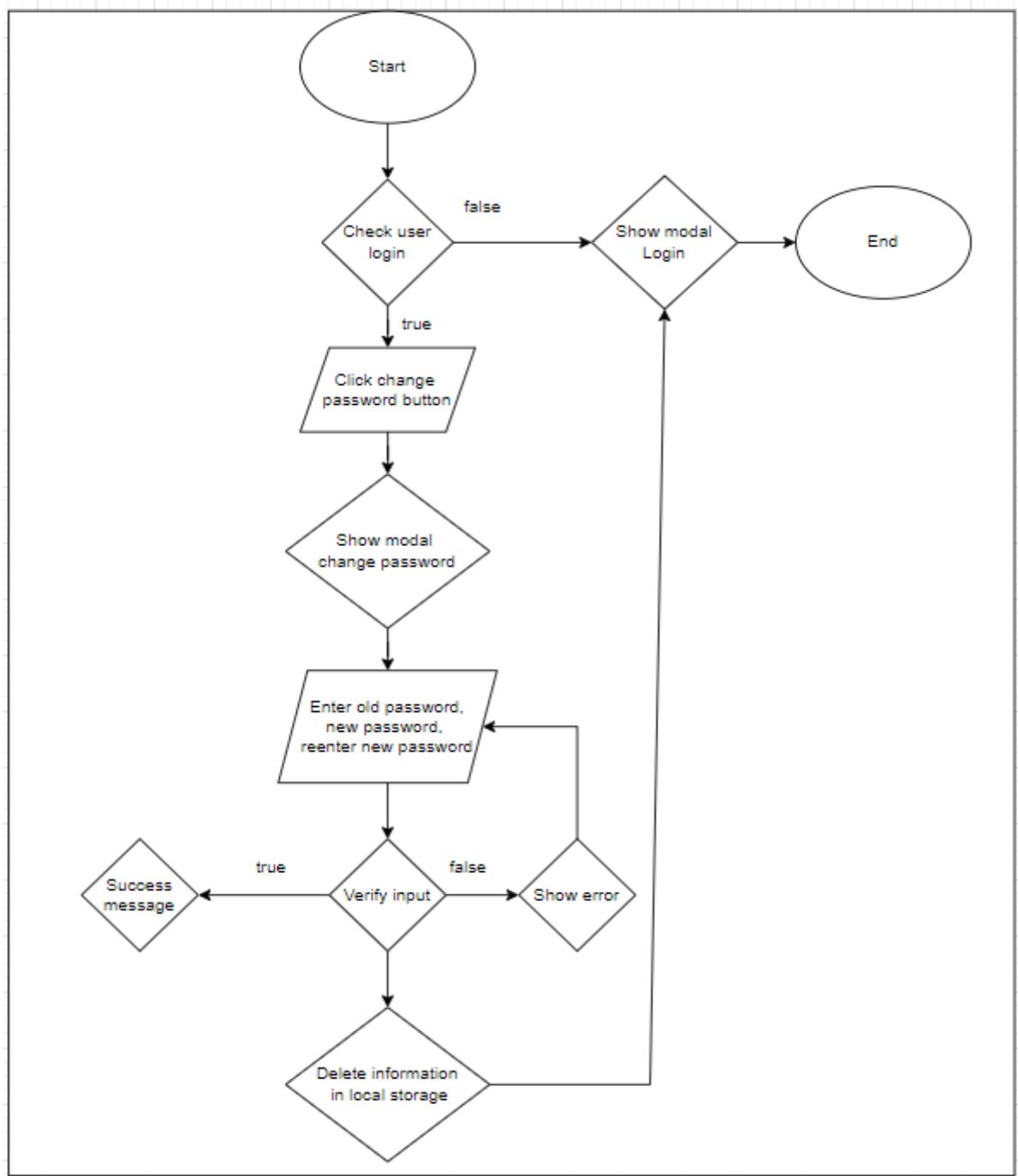


be able to log in to the website. This will log in until the user can access the website or stop logging in.



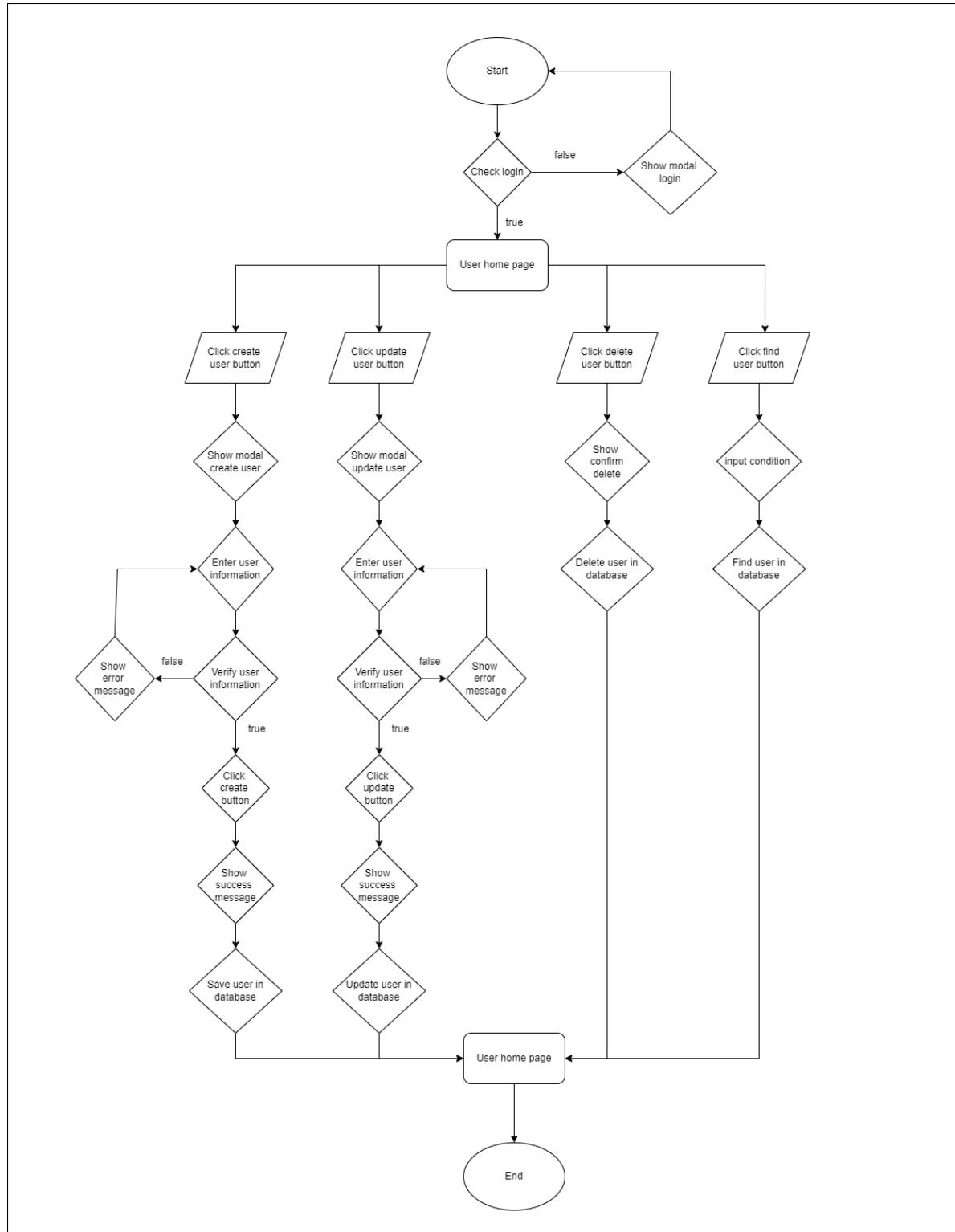
Flowchart 2. Log out

With logout, when users want to log out, they will click on the log out button to be able to log out of the web site.



*Flowchart 3. Change password*

For password change, first need the user to go to the personal information section and then select change password it will take the user through the interface of the password changer, here it asks the user to enter the old password and the new password. If the password is not correct, it will display a message and ask the user to re-enter it, if it is correct, a successful password change message will appear.



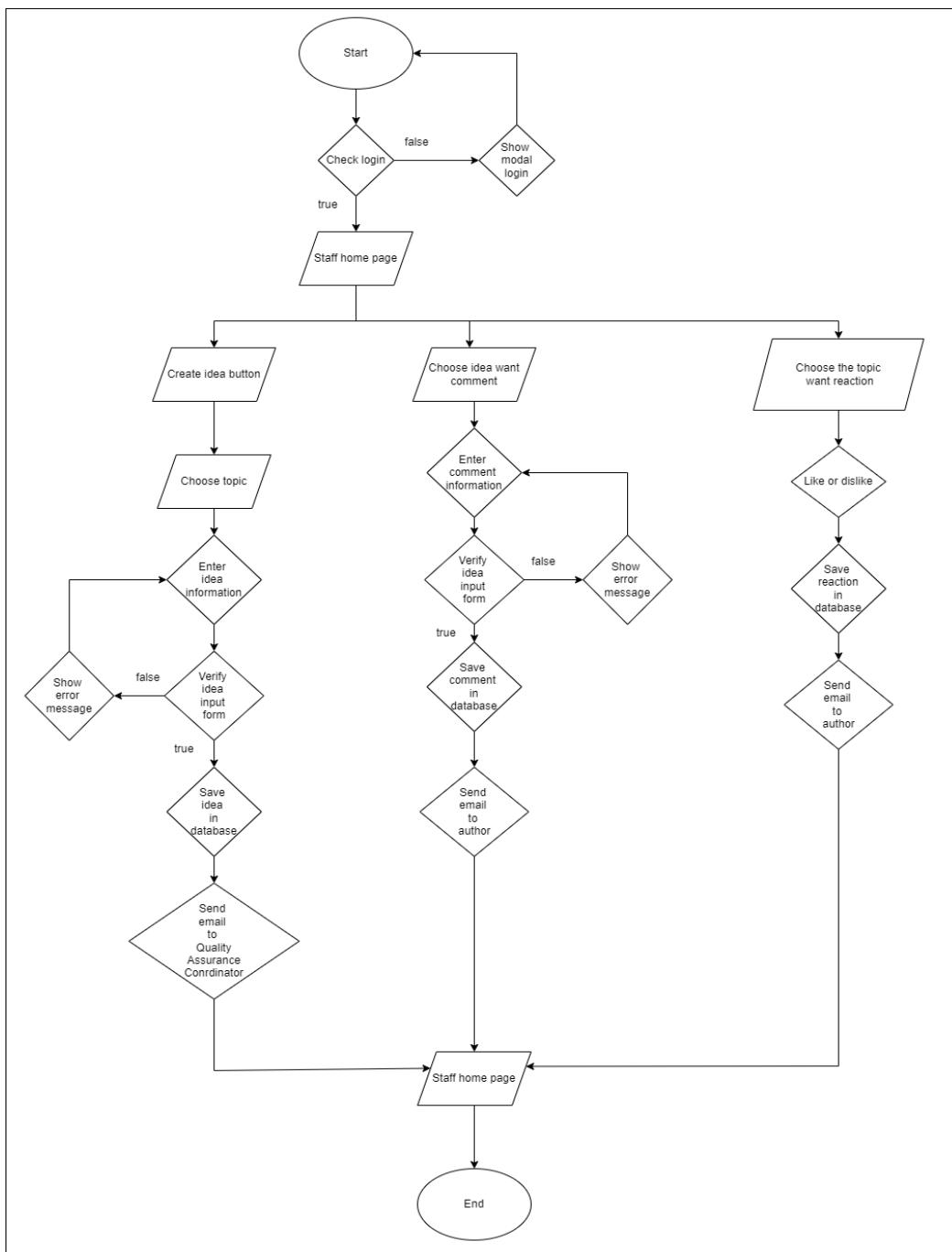
Flowchart 4. Admin

Admin: first of the user will log into the system, if the login fails, the user will return to the login page, if the login is successful, it will be taken to the admin's home page. Here we have 4 functions: create user, edit user, find user and delete user:

- Create user: click on the user button, then it will display the user interface, then click on create user and enter user information, if the entered information is not

valid, the system will ask to re-enter it. If the information is valid, the system will notify the input successfully.

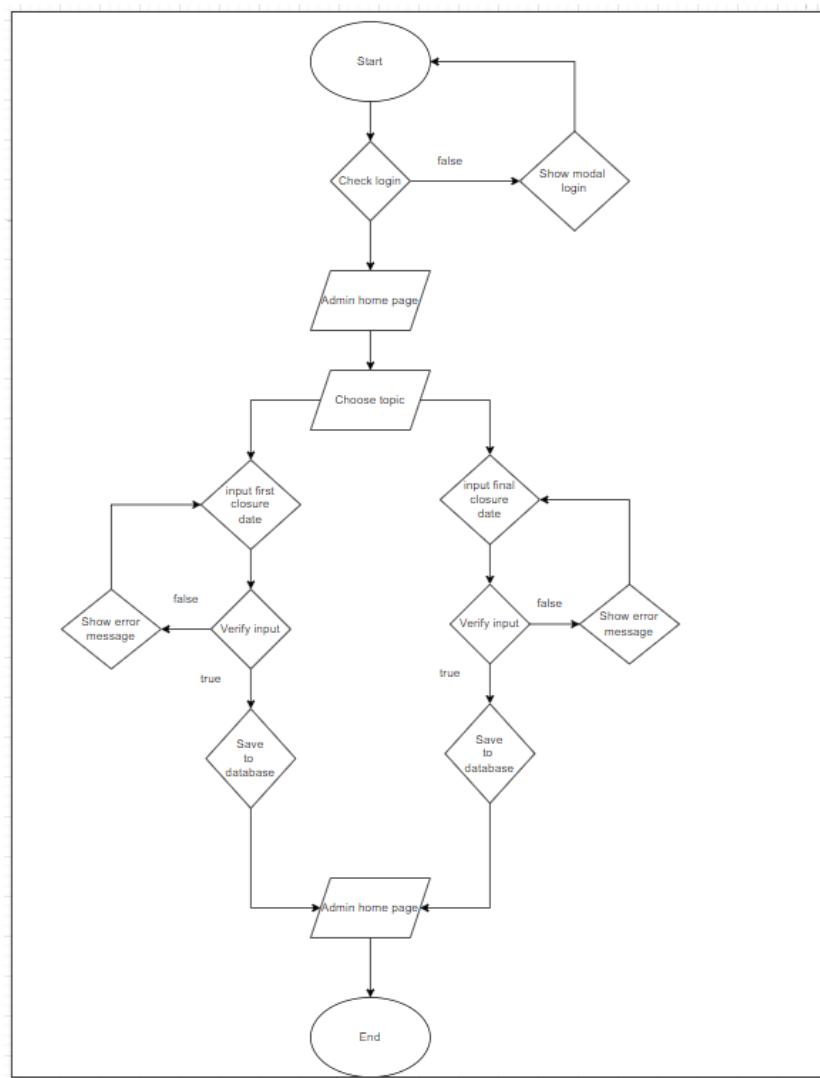
- Update user: select the user who wants to update the information, then start editing the user's information. If the edit is valid, a message will appear to update the user information successfully, if the information is not valid. then the system notices that the update information is invalid and asks to re-enter it
- Click on the user you want to delete, then a message will appear whether you want to delete this user or not, if you click OK, the user will be deleted.
- Find user: admin click on the search bar then enter the username to search



Flowchart 5. Staff

Staff: first of the user will log into the system, if the login fails, the user will return to the login page, if the login is successful, it will be taken to the Staff's home page.

- After entering the home page, the staff can post ideas by category by clicking on that category and then entering the information of the article they want to post, then clicking post, the system will display information about the terms before posting if the user If you click agree, the post will be posted to the system.
- Comment on the ideas that have been posted by clicking on the comment of the post the staff wants to comment on
- Reaction post Staff just click on the like or dislike button of the posts



*Flowchart 6. Set date for post idea and comment*

User Admin can set the date of posting ideas and comments. If the date is set less than today, the system will display a message asking to re-enter if the date is greater than today, the renewal message is successful.

## 6.4 Activity diagram

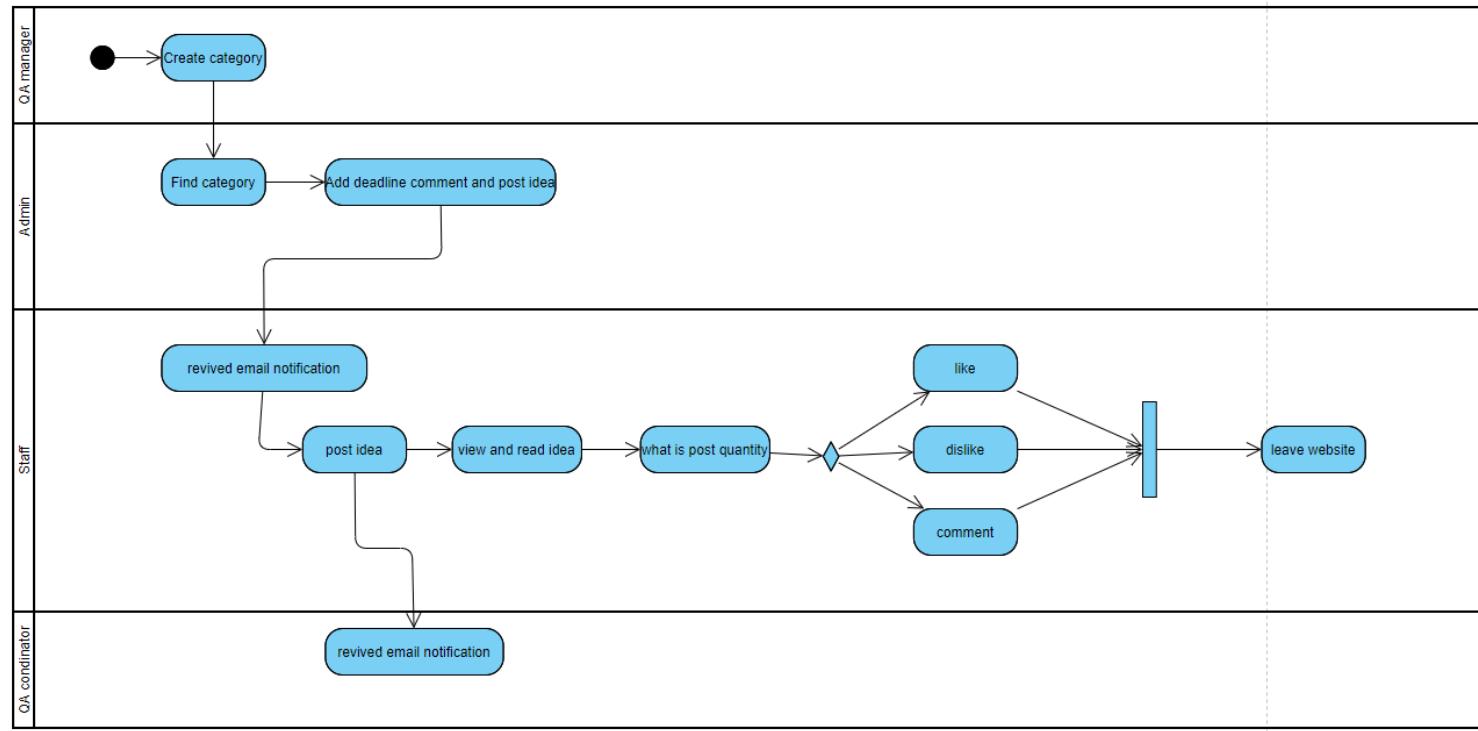


Figure 32. Activity diagram

The website will start operating from the position of QA manager when QA manager adds category(topic), Admin will receive a notification that there is a new topic, then Admin can add a deadline for staff about posting ideas for that topic on the system... When the Admin successfully adds the deadline, the staff will receive an email informing that there is a new topic and need to post an idea. After posting the idea, the Staff can see and read other ideas posted by other Staff and can also evaluate other ideas through commenting and dropping reactions, when the Staff posts the idea, the QA coordinator will receive an email about it. Staff post ideas for the system. Finally, the process of a system is terminated.

## 7 Interface (screenshots)

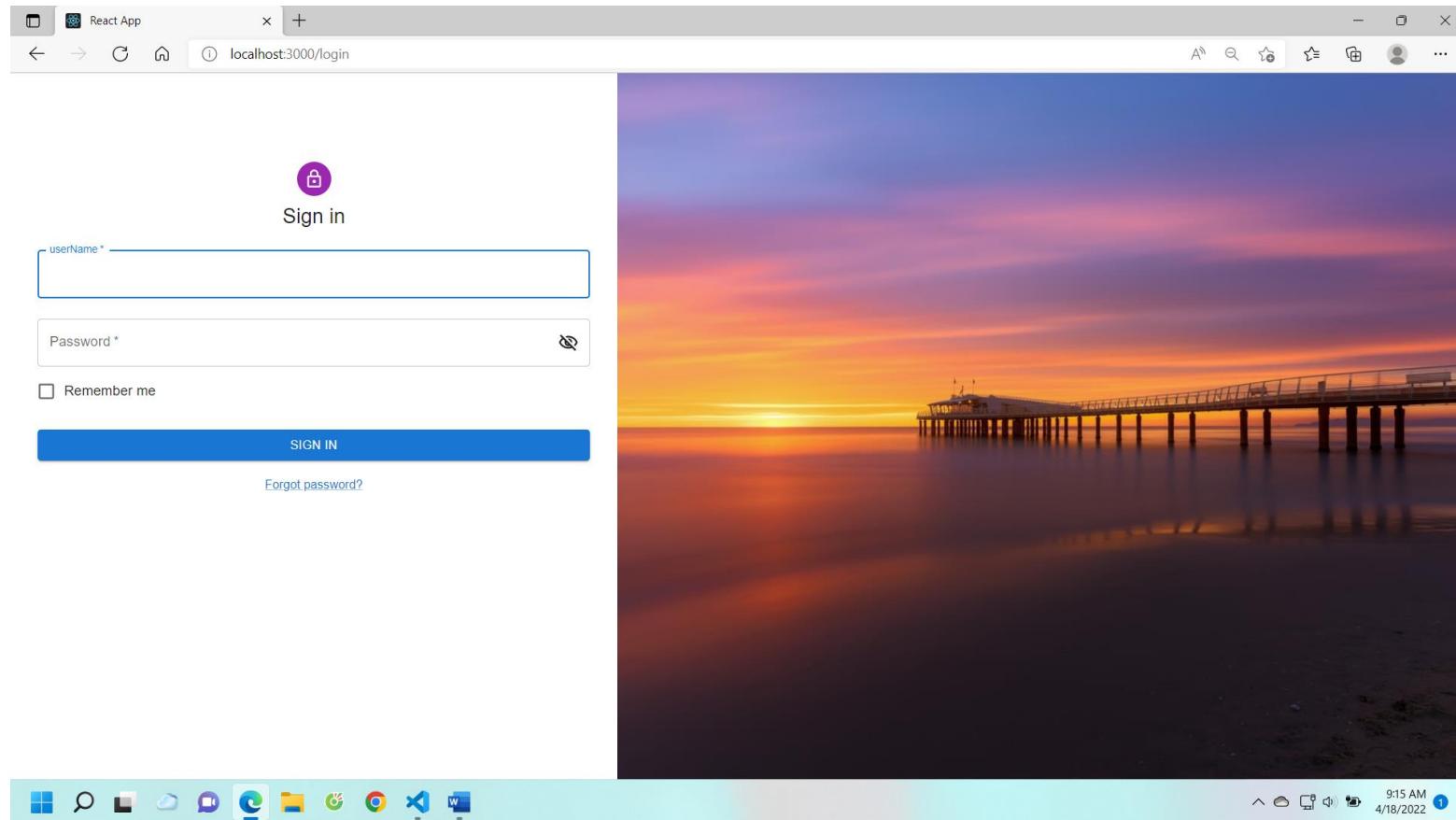


Figure 33. Login



The screenshot shows a web browser window titled "React App" with the URL "localhost:3000/admin/setting". The page has a blue header bar with the text "Admin Page" and "Wellcome Bui Thi Kieu Chinh" along with a "Logout" link. On the left, there is a sidebar with various menu items: "Create new account", "View all accounts", "Topic and Deadline", "Change password" (which is highlighted), "Saved reports", "Current month", "Last quarter", and "Year-end sale". The main content area contains a "Change Password" form with three input fields: "Old Password", "New Password", and "Confirm Password", followed by a blue "SAVE CHANGE" button. The bottom of the screen shows the Windows taskbar with several pinned icons and the system tray indicating the date and time.

Figure 34. Change Password

When using the system, the user will be granted a separate account, the default passwords are very predictable, so when logging into the system, the user can change his or her own password. Besides, if the user forgets the password, the admin can edit or create a new account for the user.



React App    localhost:3000/admin/create

### Admin Page

localhost:3000 says  
Create new user successfully!

OK

#### Create new account

First name \*  
Duc

Last name \*  
 Mai

Date of birth  
04/20/2000

Gender  
Male

Email \*  
maivanducga@gmail.com

Department  
GCH190102

Role  
Quality Assurance Manager

User Name \*  
ducmv

Password \*  
123

CREATE

Wellcome Bui Thi Kieu Chinh    Logout

≡ Admin Page    [Logout](#)

04/20/2000

Gender  
Male

Email \*  
maivanducga@gmail.com

Department  
GCH190102

Role  
Quality Assurance Manager

User Name \*  
ducmv

Password \*  
123

CREATE

Figure 35. Admins create user account

This is the interface that creates a user account for admins, including the user's details. The image next to it is a mobile interface, which makes it easy for users to use with different devices.



The screenshot shows the 'Admin Page' interface. On the left, a sidebar lists various admin tasks: Create new account, View all accounts, Topic and Deadline, Change password, Saved reports, Current month, Last quarter, and Year-end sale. The main area has two sections: 'Deadline for topic' and 'Deadline for comments'. Both sections have a 'Deadline topic' input field set to '04/20/2022' with a calendar icon. Below each is a text area labeled 'Enter description for this topic...' and a blue 'CREATE DEADLINE' button. At the top right, a message says 'Wellcome Bui Thi Kieu Chinh' with a logout link. The browser title bar shows 'React App' and the URL 'localhost:3000/admin/deadline'. The taskbar at the bottom includes icons for File, Search, Start, Task View, File Explorer, Google Chrome, Microsoft Edge, and Microsoft Word.

This screenshot shows the 'Admin Page' interface again, focusing on the 'Deadline for comments' section. It features a 'Deadline comments' input field set to '04/20/2022' with a calendar icon. Below it is a text area labeled 'Enter description for this topic...' and a blue 'CREATE DEADLINE' button. The top right corner shows a message for 'Topic' with the text 'Initiative to improve the working environment'. The browser title bar shows 'React App' and the URL 'localhost:3000/admin/deadline'. The taskbar at the bottom is identical to the one in the first screenshot.

Figure 36. Admin creates deadline

This interface is for admins, admins can put dealine ideas and dealine of comments



The screenshot shows the 'Admin Page' interface. On the left is a sidebar with navigation links: 'Create new account', 'View all accounts', 'Topic and Deadline', 'Change password', 'Saved reports', 'Current month', 'Last quarter', and 'Year-end sale'. The main area displays a table of user accounts with columns: Number, Name, Email, date Of Birth, Department, and Role. Each row has edit and delete icons. A search bar at the top right allows searching by staff name. The bottom status bar shows system icons and the time '9:18 AM 4/18/2022'.

Number	Name	Email	date Of Birth	Department	Role	Actions
1	Bui Thi Kieu Chinh	hoangpbgch190102	2000-03-28		Admin	
2	Dang Thi Thanh Huyen	hoangpbgch190102	2000-03-28		Staff	
3	Doan Anh Tu	hoangpbgch190102	2000-03-28		Staff	
4	Duc Mai	maivanducga@gmail.com	2000-04-20		Quality Assurance Manager	
5	Ha Hoang	hoangha@gmail.com	2000-04-13		Quality Assurance Manager	

Figure 37. Admin edit user account

Admins can add, edit, delete any account in cases where the account is no longer in use, or forget the password.



The screenshot shows a web browser window with multiple tabs. The active tab displays the 'Staff homepage' of the University of Greenwich Idea Collect System. The page features a search bar at the top right. Below it, a grid of four initiative cards:

- HaVH**: Initiative to improve the working environment. Description: Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.  
...READ MORE
- DucMV**: Initiative to improve the working environment. Description: The most successful companies are often also the ones with the ...READ MORE
- TuVN**: Initiative to improve the working environment. Description: A happy working environment is an environment in which employee ...READ MORE
- IbrahimUB**: Initiative to improve the working environment. Description: If the workplace, your company headquarters encounters some spe ...READ MORE

Below the grid, a modal window is open for the first initiative, showing its details and a download link:

**HaVH**  
**Initiative to improve the working environment**  
Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.  
[download document](#)

At the bottom of the page, there is a 'VIEW ALL' button.

The screenshot shows a second instance of the staff homepage. It displays two initiative cards:

- HuyenDT**: Initiative to improve the working environment. Description: Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.  
...READ MORE
- HuyenDT**: Initiative to improve the working environment. Description: Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.  
...READ MORE

Figure 38. Staff homepage

This is the interface for staff, employees can see popular ideas, the most likes on top, the latest generated ideas will also show the top.



The screenshot shows a web browser window titled "React App" at "localhost:3000/postIdea". The page has a header with the "UOG UNIVERSITY OF GREENWICH" logo and a search bar. A user profile for "Mai Van Duc" is visible. The main content area is titled "Create new Idea" and includes a "Topic" field set to "Initiative to improve the working environment". A "Privacy" toggle switch is shown as off. Below the topic is a text area containing a detailed proposal about improving the work environment. An "UPLOAD" button is present, and a file named "table.docx" is listed. A "POST" button is at the bottom right. To the right, a sidebar displays the university logo and a list of ideas under the heading "INITIATIVE TO IMPROVE THE WORKING ENVIRONMENT", with a "VIEW ALL" button. The taskbar at the bottom shows various application icons, and the system tray indicates the date and time as 9:19 AM on 4/18/2022.

Figure 39. Staff posted ideas

This is the interface that posts the idea of employees, employees can upload documents in different formats. Also when posting ideas, employees can choose to post anonymously or publicly with the "Privacy" button.

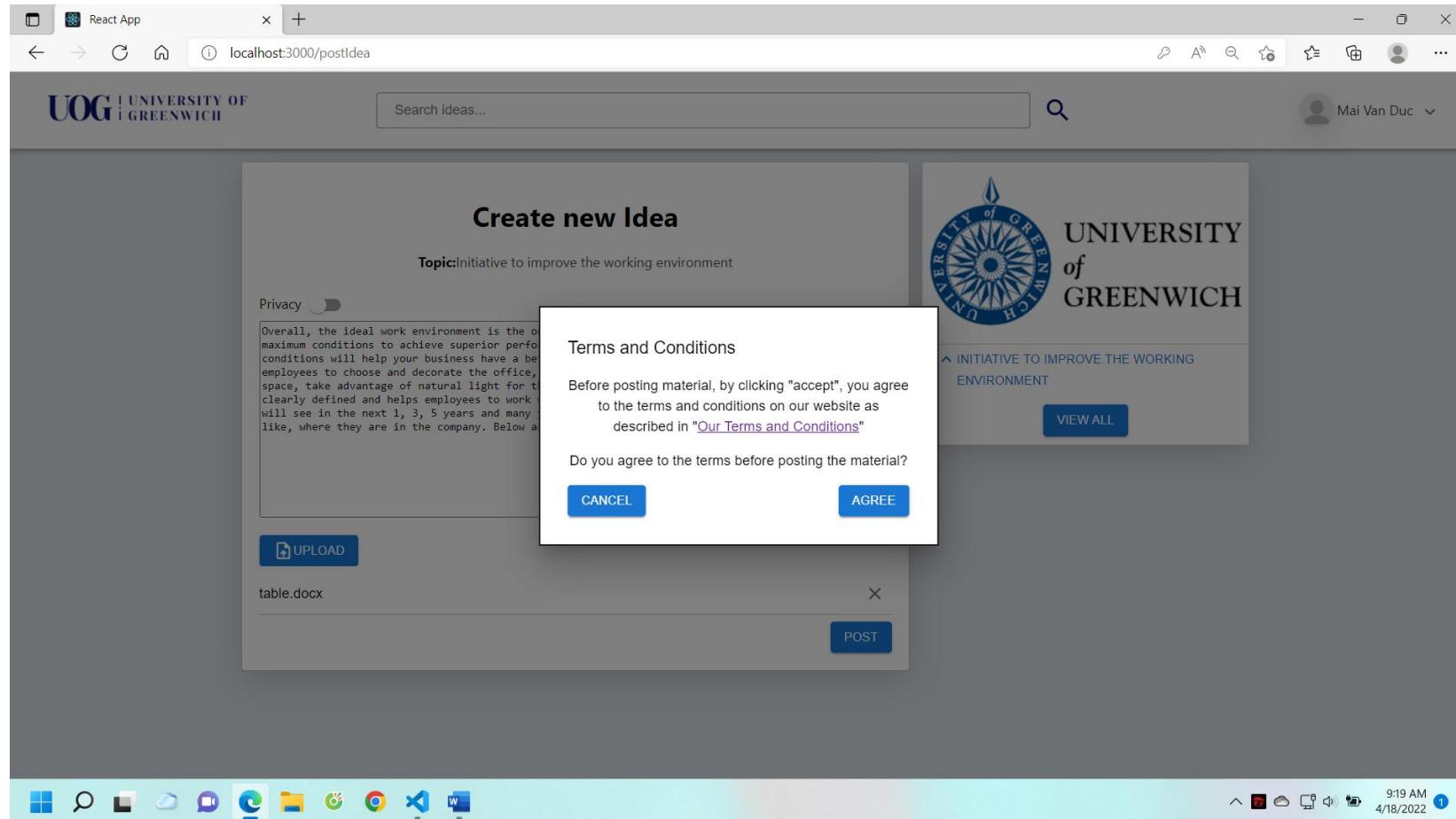


Figure 40. Before posting the idea, the terms and conditions will be popup

Before staff post ideas, the system displays conditions and terms information, and when staff agree to the terms, they can post ideas.



**HaVH**

**Initiative to improve the working environment**

Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.

burn-down-chart.xls  
Excel

burn-down-chart.xls  
Excel

burn-down-chart.xls  
Excel

4 COMMENTS    9    0

Figure 41. Post details

This is the interface of the idea detail page, it will show the detailed information of the post including the document file, in this page the user will be able to see the comments and comments on the post (figure 42)



➤

**HoangPB**  
I think if you design the whole garden area, swimming pool, gym, yoga ... help employees feel most comfortable at work, too much work until 7 pm is also haha

**DucNV**  
It's a great idea, adding another kitchen is great. hihi

**KhaiNQ**  
I think we should implement this idea as soon as possible

**DucMV**  
This idea is partly your own desire, rather, I think a good environment is when there is good management, do not ask too much!!!

Figure 42. Comment



The screenshot shows a web browser window with multiple tabs open. The active tab is 'localhost:3000/qa-manager'. The page displays a 'Search ideas...' input field and a search icon. Below this, there are four cards representing ideas:

- HaVH**: Initiative to improve the working environment. Overall, the ideal work environment is the one in which the mem ... [READ MORE](#). 8 likes.
- DucMV**: Initiative to improve the working environment. The most successful companies are often also the ones with the ... [READ MORE](#). 6 likes.
- TuVN**: Initiative to improve the working environment. A happy working environment is an environment in which employee ... [READ MORE](#). 6 likes.
- IbrahimUB**: Initiative to improve the working environment. If the workplace, your company headquarters encounters some spe ... [READ MORE](#). 4 likes.

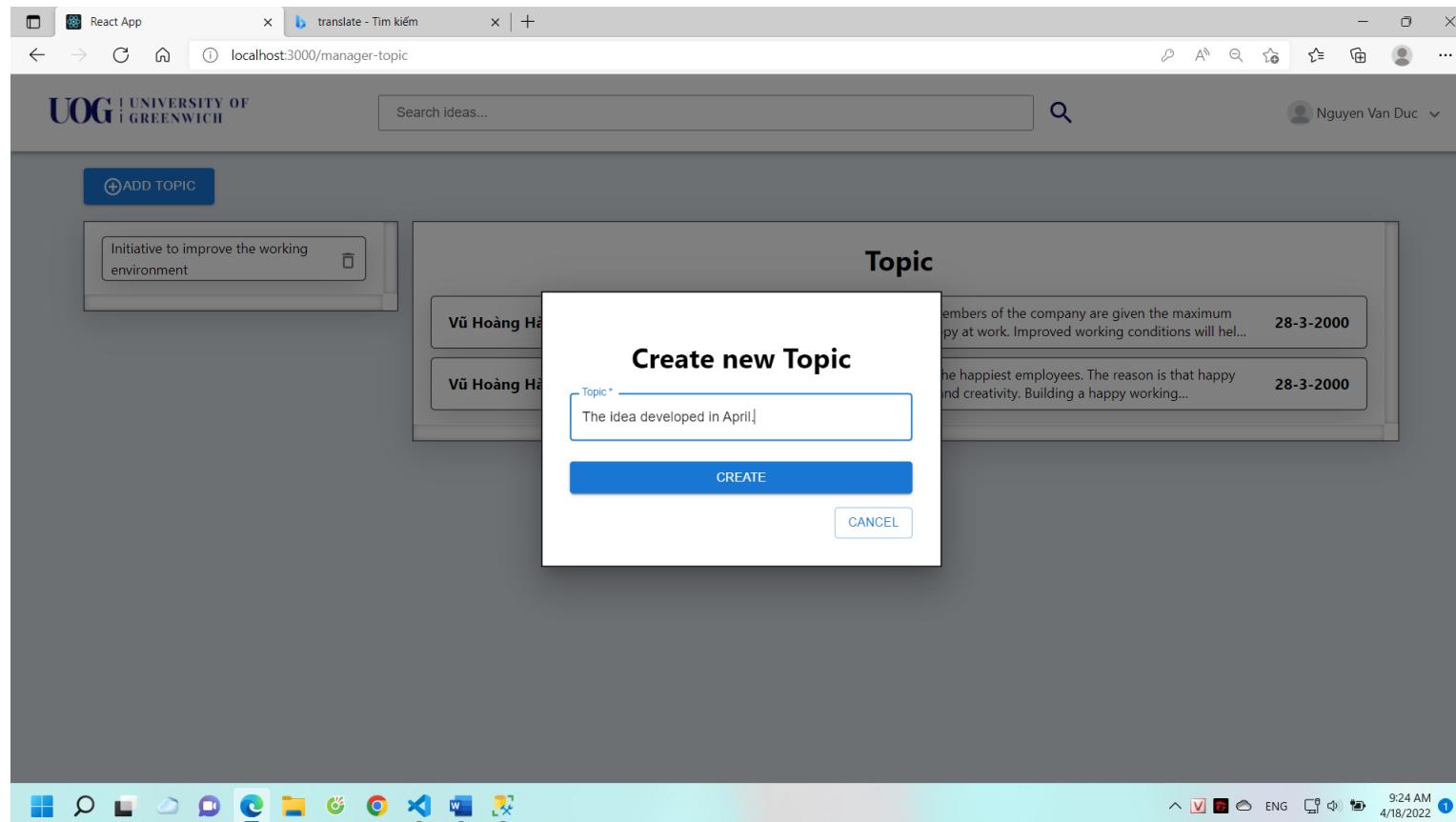
Below these cards, there are two recent posts by **HuyenDT**:

- Posted 11 hours ago: Initiative to improve the working environment test 1. Includes a download document link and 8 comments.
- Posted 11 hours ago: Initiative to improve the working environment test 2. Includes a download document link and 6 comments.

A sidebar on the right shows a user profile for **Ha Hoang** with options for Dark mode, Manager Topic, View Statistics, Download Idea, Change password, and Logout. The system status bar at the bottom shows the date and time: 8:32 PM, 4/16/2022.

Figure 43. Manager's homepage

This is the manager's home page interface; they can see popular ideas and the latest idea posts.



*Figure 44. Managers create the topic*

The manager can create a topic in this page, besides, when the manager clicks on the topics, the system will show the staff who have tagged the topic into their post will be shown in detail.



The screenshot shows a Microsoft Edge browser window with the following details:

- Address Bar:** localhost:3000/download-detail
- Header:** UOG UNIVERSITY OF GREENWICH, Search ideas..., Nguyen Van Duc
- Title:** Initiative to improve the working environment
- Table:** A table listing staff ideas. The columns are Name of Staff, Idea, and Date.
- Data:**

Name of Staff	Idea	Date
HuyenDT	Overall, the ideal work environment is the one in which the members of the company are given the maximum conditions to achieve superior performance and they feel happy at work. Improved working conditions will help your business have a better, more comfortable working environment. Based on employees to choose and decorate the office, accordingly, create a clean and comfortable office space, take advantage of natural light for the office. The development roadmap for employees is clearly defined and helps employees to work with peace of mind and dedication at the company. They will see in the next 1, 3, 5 years and many years from now what their work development will look like, where they are in the company. Below are my detailed ideas.	2/1/2022
TuDA	The most successful companies are often also the ones with the happiest employees. The reason is that happy employees can achieve the highest productivity, motivation, and creativity. Building a happy working environment is therefore very important. When you are transparent, clear the goals and mission of the company, each department, department to each employee will understand what they need to do and how their efforts contribute to the overall success of the company. You can refer to some of the measures below	2/1/2022
- Download Buttons:** Download for each row.
- Taskbar:** Shows various pinned icons (File Explorer, Task View, File History, Control Panel, etc.) and system status (9:24 AM, 4/18/2022).

Figure 45. File download manager

This is the interface on which the manager can download data files in csv format.

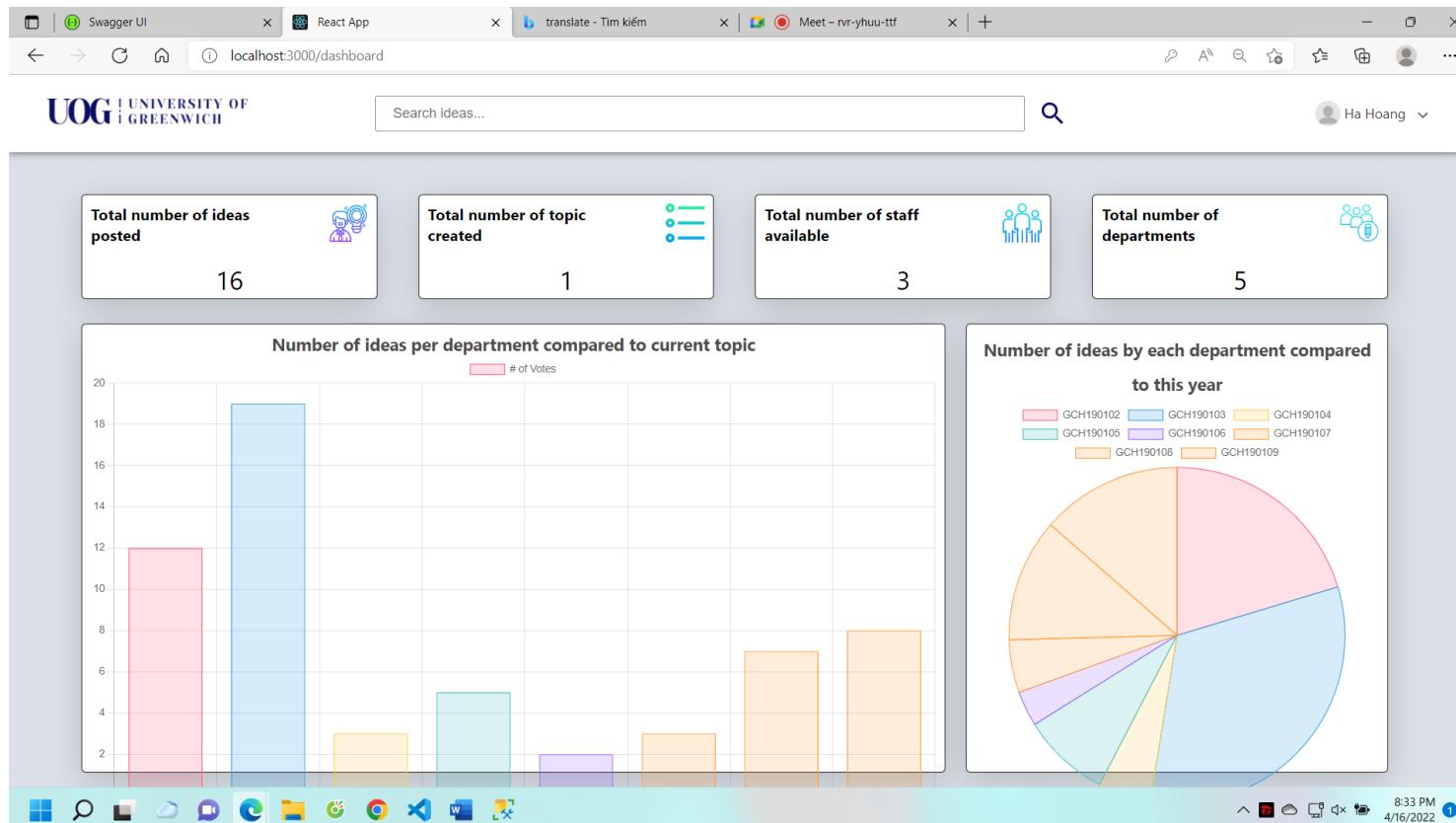


Figure 46. Manager dashboard page

Finally, the manager can see the statistics of the system.

## 8 Testing

### 8.1 Test Plan

#### 8.1.1 Scope

The goal of this document is to check all the requirements, the specifications that have been provided from the beginning.

##### 8.1.1.1 Functions required to be checked

- All functions inside the request document have been provided
- System performance
- Check the security features of the system
- Detailed examination of the logical functions of the system
- Check the system's flexible interface level with different devices

##### 8.1.1.2 Functions that are not required to be checked

- No other function section (8.1.1.1)

#### 8.1.2 Quality Objectives

##### 8.1.2.1 Primary Objectives

The main objective of this test is to ensure that the system can fully meet the required features. Includes quality requirements for system features and requirements on the interface of the system, testing the features that the user uses the system. This test will provide test case and test log documents so that users can understand that the system can meet their requirements.

The most important thing is that there are any changes from the request or removed from the system requirement. The specification document requires the design to be recorded and tested in the most rigorous way, which is to ensure that the requirements are not missed.

##### 8.1.2.2 Secondary Objectives

The team will assign the project manager as the scrum master to plan the risks when testing the project, if there is a problem in the testing, the scrum master will identify and communicate information about the problems that are encountered to the team members.

#### 8.1.3 Test Approach

The team's approach is that after creating a list of functional requirements, the scrum master will predict and design the tests. Test cases will be added during system testing. After completing each feature, the tester will test the planned cases and report back to the scrum master.

#### 8.1.4 Roles and Responsibilities

Role	Name	Responsibilities
Project Manager	Vu Hoang Ha	<ul style="list-style-type: none"><li>▪ Take full responsibility for the progress of the project.</li><li>▪ Plan a project test</li><li>▪ Analyze the requirements of the project</li></ul>



QA Lead	Mai Van Duc	<ul style="list-style-type: none"><li>▪ Conduct the most up-to-date inspection of the project's testing plans</li><li>▪ Note any problems that occur during the test</li><li>▪ Report on career progress with project manager</li></ul>
QA	Ibrahim	<ul style="list-style-type: none"><li>▪ Understand the requirements to be tested</li><li>▪ Review and evaluate test cases</li><li>▪ Update the plans to test if changed</li><li>▪ Coordinate with QA lead when testing is problematic</li><li>▪ Note the system error</li></ul>

### 8.1.5 Test Strategy

#### 8.1.5.1 Role of QA in system testing

**Understand project manager's requirements analysis:**

- Documents analyzing user requirements
- Capture the testing methods offered by Project Manager

**Prepare test cases:**

- QA will make test cases, then report back to Project Manager for confirmation.

**Creating Test Data:**

- The test data is generated by qa lead, the data needs to correspond to the requirements from the user.

**Conducting test cases:**

- Project Manager will be the same level for QA test case table
- QA will record errors and give results to test cases

**Retesting:**

- Retesting will be carried out by QA. After the errors are resolved by the developers, QA will test again and then report the results to Project Manager.

**Deployment/Delivery:**

- After all the problems, the errors of the system are fixed, QA will send the entire report on the test cases and test log to the Scrum master to conduct the project review.

#### 8.1.5.2 Testing types

**Test the functions:**

- The functions are rigorously tested with different cases
- The tester must ensure that the system's output and input data have been checked in detail.



### Test the performance of the system:

- Testers need to check page reloading levels with all functional requirements
- Check system speed when entering real data into each page

### User interface testing:

- Check the interface in accordance with the design requirements of wireframe
- Check the flexibility of switching systems between devices

### System testing:

- QA will test a life cycle of some user games. "Staff" test example: Sign into the account -> Create Idea -> Like -> comment -> change password -> logout.

## 8.1.6 Resource And Environment Needs

### 8.1.6.1 Testing Tools

Process	Tool
Create test cases	Google Sheets
Create a table of test case assessment factors	Google Sheets
Perform experiments	Google Sheets
Record high-severity test cases	Microsoft Word
Write a test report	PDF

### 8.1.6.2 Test Environment

#### Browsers:

- Win 10: Chrome, Coc Coc, Edge, Firefox, Opera
- Mac OS: Safari, chrome, Opera

#### Devices:

- Iphone SE, IPhone 6/7/8 Plus, Iphone 11/12 Promax, Samsung Galaxy Note 5/20, Ipad air 2.

## 8.2 Test case

Number	Test case name	Datatypes	Expected Result	Actual Result	Pass/Fail
1	See the website		The homepage can be viewed when successfully logged in	can see home page while typing	Pass
2	Login to roles		When you log in to different accounts, you can access different roles	Access to different roles with different accounts	Pass
3	Test login wrong		Displays a message that the account or password is wrong	Nothing is displayed	Fail
4	Test logout		Can log out of current account	Log out of the currently logged in account	Pass
5	Create user	Abc, 123	New users can be created	Create a new user	Pass
6	Create user	#!&\$*%	Message with invalid characters	Created normally	Fail
7	Delete user		Can delete users	Can delete user	Pass
8	Update user	Abc, 123	User can be updated	Update user	Pass
9	Update user	@#\$*%&^	Notifications with special characters cannot be updated	Update user	Fail
10	View topic		Topics can be viewed	Can see topic	Pass
11	Upload idea		ideas can be uploaded	Ideas can be uploaded	Pass
12	Like		Like successfully, the number of likes + 1	Like it	Pass
13	dislike		Can dislike	Can Dislike	Pass

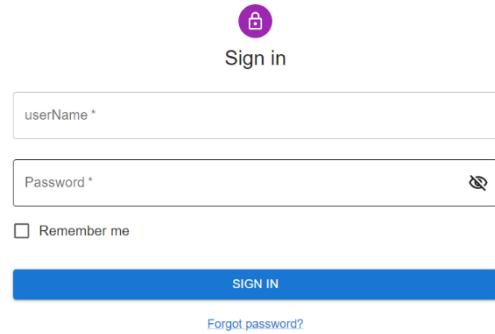
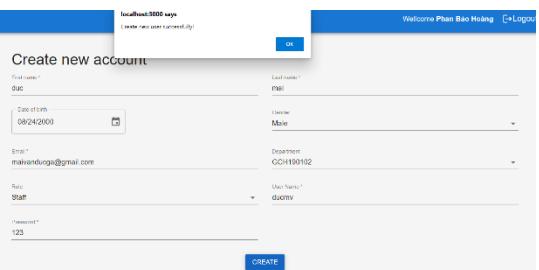


14	Comment text		Can comment	Can comment	Pass
15	Comment photo		Can't comment	Can comment	Fail
16	Upload multiple files		Can be uploaded	You can upload multiple files	Pass
17	Upload file		Can be uploaded	Can upload files	Pass
18	View the topic with the most likes		Viewable	View the topic with the highest likes	Pass
21	Searching for ideas	Ideas exist	Couldn't find it	find ideas	Fail
22	Searching for ideas	Idea doesn't exist	Haven't checked	The idea doesn't exist (or returns nothing)	Fail
23	Search user's name	Username exists	Can search for users	Returns the users with the name searched for	Pass
24	Search user name	Name does not exist	Couldn't find it	Returns nothing	Fail
25	deadline extension	Start date is less than end date	Error message cannot be renewed	Notice cannot be extended	Pass
26	Deadline extension	The start date is greater than the end date	Deadline can be extended	Notice of unsuccessful renewal, please renew it again	Pass
27	Close the idea post when the submission deadline is over		When the idea expires, it can't be posted anymore	Notice can't post ideas because of expiration	Fail
28	Close comment posting when submission deadline		Can't comment when it expires	Notice of idea is overdue for comment	Pass

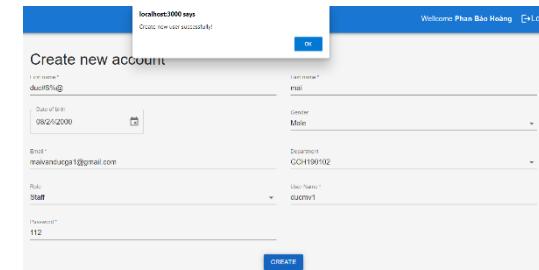
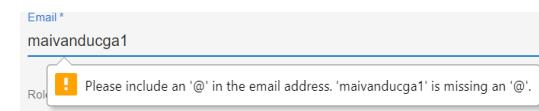
Table 3. Test case



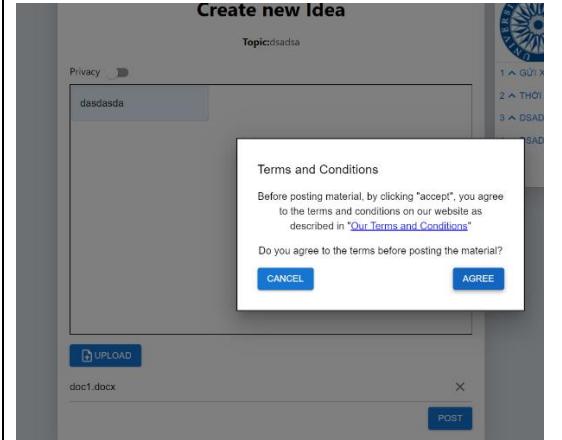
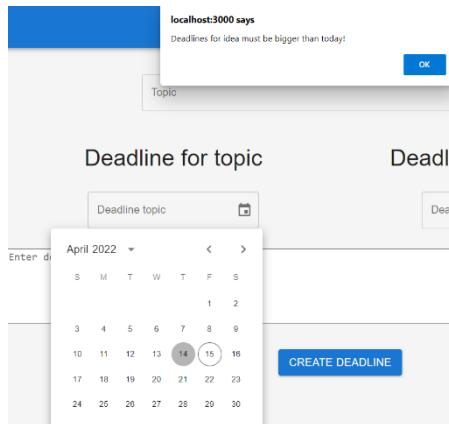
### 8.3 Test log

Number	Date	Test name	Input data	Expected Result	Actual Result	Results	Test evidence
1	4/13/2022	Test login admin	Account: admin Password: 123	Login successfully put on home page	Take to home page	Pass	 <p>Sign in</p> <p>userNmae *</p> <p>Password *</p> <p><input type="checkbox"/> Remember me</p> <p>SIGN IN</p> <p>Forgot password?</p>
2	4/13/2022	Test login admin fail	Account: admin1 Password: 222	Wrong message re-login	Notice of incorrect account or password input	Fail	<p>localhost:3000 says</p> <p>userNmae or password is incorrect!</p> <p>OK</p>
3	4/13/2022	Tests create user	Firstname: duc Lastname: mai dateOfbirth:08/24/2000 email: maivanducga@gmail.com username: ducmv password:123	Notice of successful account creation	Create Account Success	Pass	 <p>Welcome Phan Bao Nhung</p> <p>Create new account</p> <p>First name: duc</p> <p>Last name: mai</p> <p>Date of birth: 08/24/2000</p> <p>Gender: Male</p> <p>Department: GCH19H02</p> <p>Role: Staff</p> <p>Passcode: 123</p> <p>CREATE</p>

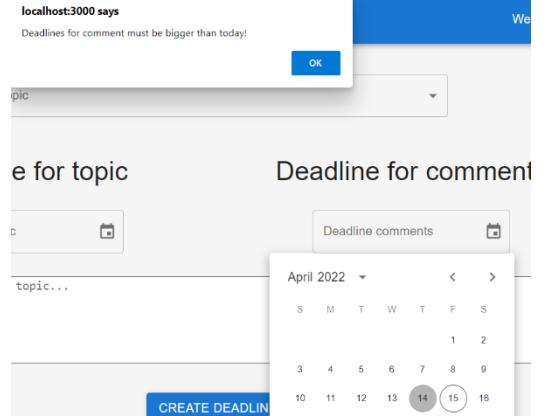
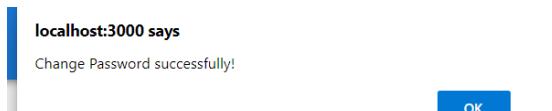


			gender: male department: gch190102 role: staff				
4	4/13/2022	Test create user	Firstname: duc#\$%@ Lastname: mai dateOfBirth:08/24/2000 email:maivanduc@mail.com username: ducmv1 password:112 gender: male department: gch190102 role: staff	Notice with special characters in the name	Create success	Fail	
5	4/15/2022	Test create user	email:maivanduc	Notifications require @ to work	Notice to add @	Pass	



6	4/13/2022	Test user post idea	Content: duc12331 File: doc1.doc	Notice of successful post	Notice of successful creation	Pass	
7	4/15/2022	Test create deadline for topic	Enter the date: 4/14/2022	The message has an error that the date entered must be greater than today	Error message	Pass	
8	4/15/2022	Test create deadline for topic	Enter date: 4/16/2022	Notice of missing comment deadline	Error message missing deadline comment	Pass	

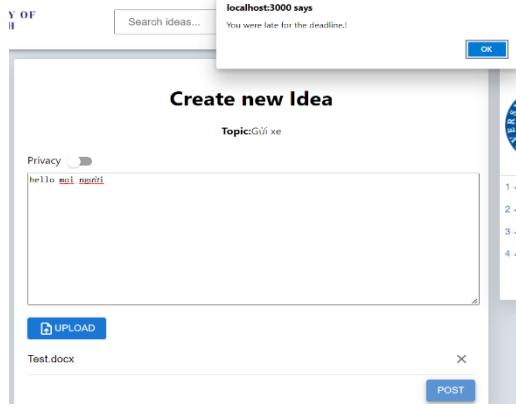
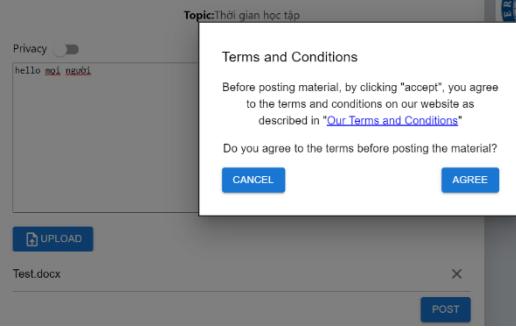


9	4/15/2022	Test create deadline for comment	Enter the date: 4/14/2022	The message has an error that the date entered must be greater than today	Error message	Pass	 
10	4/15/2022	Test create deadline for comment	Enter the date: 4/16/2022	Notice that you need to enter the deadline of the post idea	Error message	Pass	
11	4/15/2022	Create deadline comment and post idea	Enter the date: 4/16/2022	Successful deadline creation	Successful deadline creation	Pass	
12	4/15/2022	Change password	Enter new password: hoang	Create success	Create success	Pass	

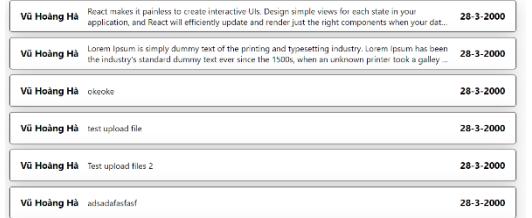


13	4/15/2022	like	Click the like button	Like successfully	Like successfully	Pass	<p><b>Anonymous</b> Posted 11 hours ago Thời gian học tập React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes.</p> <p><a href="#">Download Document 1</a> <a href="#">Download Document 2</a></p> <p>0 comments  3  0</p>
14	4/15/2022	dislike	Click the dislike button	Dislike successfully	Dislike successfully	Pass	<p><b>Anonymous</b> Posted 11 hours ago Thời gian học tập React makes it painless to create interactive UIs. Design simple views for each state in your application, and React will efficiently update and render just the right components when your data changes.</p> <p><a href="#">Download Document 1</a> <a href="#">Download Document 2</a></p> <p>0 comments  2  1</p>
15	4/15/2022	comment	Click the send button	Submitted successfully	Submitted successfully	Pass	<p> <b>huyendt</b> posted 11 hours ago comment test</p>
16	4/15/2022	Create idea	Do not select category	Post failed	Notice that no category has been added	Fail	<p>localhost:3000 says Please enter content for idea!</p> <p><b>OK</b></p>



17	4/15/2022	Create an idea when the category is overdue	There is content but the deadline has passed	The category notice is out of date	The category notice is out of date	Pass	
18	4/15/2022	Create an idea when the category has not expired	There is content but not expired	Displays a notification to agree to post or not	A notification will appear whether you agree to post or not	Pass	
19	4/15/2022	Click agree	Click agree	A successful creation message is displayed	Show successful creation message	Pass	



Thời gian học tập							
20	4/15/2022	View details ideas by topic	Click topic	View all ideas	View all ideas	Pass	
21	4/15/2022	Create new topic	Click add topic	Create successful	Create success full	Pass	<p>localhost:3000 says create new topic successfully!</p> <p>OK</p>
22	4/15/2022	Create topic already exists	Add an existing topic name	Announce the topic already exists	Announce the topic already exists	Pass	<p>localhost:3000 says this topic is already exists!</p> <p>OK</p>
23	4/15/2022	Delete user	Delete any 1 user	Notice if you want to delete that user	Show message whether you want to delete or not	Pass	<p>localhost:3000 says Do you want to delete this account user?</p> <p>OK Cancel</p>
24	4/15/2022	Edit user	Select any user, edit that user's information without special characters in the name	Editing information successfully	Update information successfully	Pass	<p>localhost:3000 says Update info of Dinh ThiHue successfully!</p> <p>OK</p>



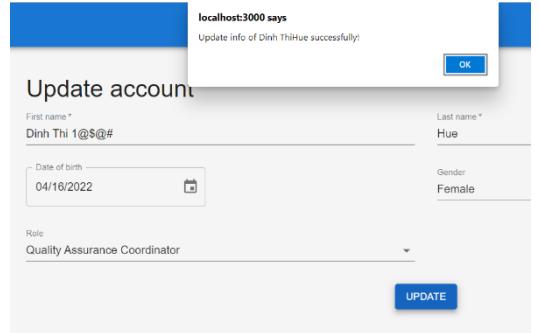
25	4/15/2022	Edit user	Select any user, edit that user's information with special characters (for example, \$^&((@& ) in the name)	Notice the name has special characters	Update successful	Fail	
----	-----------	-----------	---	--	-------------------	------	---

Table 4. Test log



## 9 Agile

To make it easier for the team to approach the agile model, the scrum master directs team members to use the "Jira" tool. This is a tool to manage and track project progress, this tool is also easy to plan and help team members have a more intuitive view of agile models when first approached.

The screenshot shows the Jira Software interface for a project named "Web-Topup1". The main view is a "WEB Sprint 1" board with three columns: TO DO, IN PROGRESS, and DONE. The DONE column contains four items:

- Manager account (status: WEB=2)
- Manager first closure date & final closure date (status: WEB=3)
- Manager system data (status: WEB=4)
- Manager see the number of interactions (status: WEB=5)

The left sidebar shows navigation options like "Your work", "Projects", "Filters", "Dashboards", "People", "Apps", "Create", and a search bar. The "Active sprints" option is highlighted in the "Planning" section. The bottom right corner features a "Quickstart" button.



## 9.1 Product backlog and User story

PRODUCT BACKLOG						
ID	As a...	I want to be able to...	So that...	Priority	Sprint	Status
1	Admin	Manager account	Create new account for QA manager, QA coordinator, staff	High	1	Done
2	Admin	Manager first closure date & final closure date	Set & edit first closure date & final closure date	High	1	Done
3	Staff	Post information in different document formats word, pdf.	Create file posting function	High	1	Done
4	Staff	Show agreement to terms before sending notice	Give more notice about file posting	Second-Level	1	Done
5	Admin	Manager account	Log in according to the permissions of each user	Second-Level	2	Done
6	Staff	Ideas posted from different sources can be viewed	Create a list of posts to see	High	2	Done
7	Staff	See comments of other ideas	I can see everyone's opinions on that idea	Second-Level	2	Done
8	Staff	Leave a comment for any other ideas until the closing date	I can comment on the idea with everyone until the last day of closing	High	2	Done
9	Staff	Can agree or disagree with any idea, but only once per idea	I can express my feelings	Second-Level	2	Done
10	Staff	Receive email notifications when ideas have new comments	Don't miss any comments from my ideas	Second-Level	3	Done
11	Staff	See list of popular ideas, most viewed ideas, latest ideas and latest comments	I can easily see what stands out	High	3	Done
12	Admin	Manager system data	Maintain system data: first closure date & final closure date for each academic year, staff details,...	Second-Level	3	Done
13	Admin	Manager see the number of interactions	See the lists of Most Popular Ideas (+1 for Thumbs Up, -1 for Thumbs Down), Most Viewed Ideas, Latest Ideas and Latest Comments	Low	3	Done
14	Quality Assurance Manager	See list of popular ideas, most viewed ideas, latest ideas and latest comments	I can easily see what stands out	High	5	Done
15	Quality Assurance Manager	Add additional categories, delete unused categories	When employees post ideas, they need to tag the ideas with the appropriate category	High	4	Done
16	Quality Assurance Manager	View statistics by overview page	I can see the number of ideas per department/year, the number of people contributing ideas for each department	Second-Level	4	Done
17	Quality Assurance Manager	Download all data after last close date in CSV file	I can control the data easily	Second-Level	5	Done
18	Quality Assurance Manager	Download all uploaded documents in ZIP format	I will save time compressing downloaded data	Second-Level	5	Done
19	Quality Assurance Coordinator	Receive email notifications for new submissions from staff	I can check which employee submitted the idea	High	4	Done
20	Quality Assurance Coordinator	See list of popular ideas, most viewed ideas, latest ideas and latest comments	I can easily see what stands out	Low	5	Done



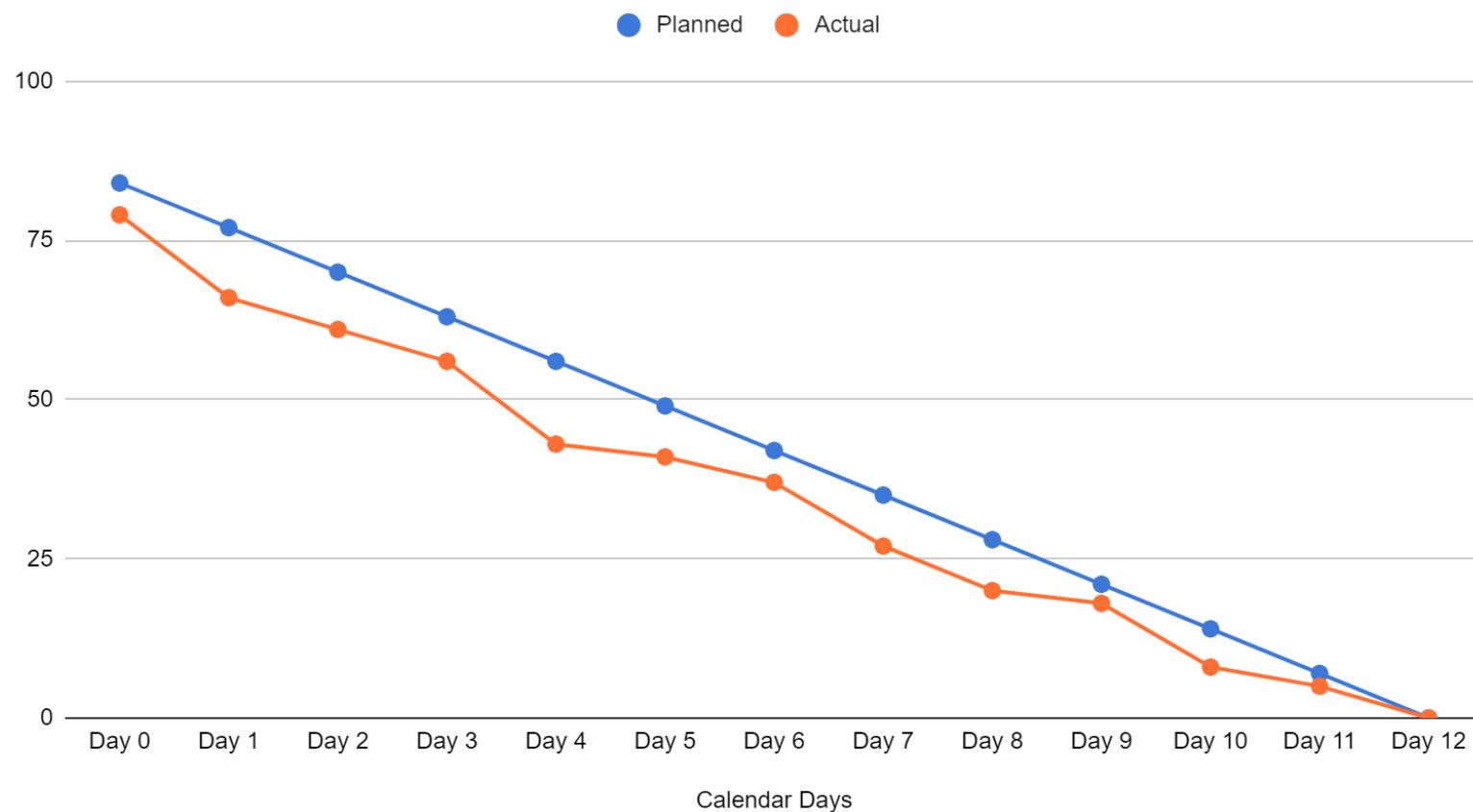
## 9.2 Sprints backlog

### 9.2.1 Sprint 1

SPRINT 1 (26/02/2022 - 09/03/2022)																		
ID	User Story	Task	Owner	Status	Estimated Hours	26-Feb Day 1	27-Feb Day 2	28-Feb Day 3	01-Mar Day 4	02-Mar Day 5	03-Mar Day 6	04-Mar Day 7	05-Mar Day 8	06-Mar Day 9	07-Mar Day 10	08-Mar Day 11	09-Mar Day 12	Total hours
1	Manager account	Database Design	Vu Hoang Ha, Nguyen Van Duc	Completed	18	5	0	0	0	0	0	0	0	0	0	0	0	23
		User interface design	Mai Van Duc, Phan Bao Hoang	Completed		8	0	0	0	0	0	0	0	0	0	0	0	
		Code the create an account for each user	Nguyen Van Duc	Completed		0	5	5	0	0	0	0	0	0	0	0	0	
2	Manager first closure date & final closure date	Draw wireframes	Vu Hoang Ha	Completed	25	0	0	0	3	0	0	0	0	0	0	0	0	19
		User interface design	Mai Van Duc, Phan Bao Hoang	Completed		0	0	0	6	0	0	0	0	0	0	0	0	
		Code the Set & edit first closure date & final closure date	Nguyen Van Duc	Completed		0	0	0	4	3	3	0	0	0	0	0	0	
3	Post information in different document formats word, pdf.	Draw wireframes	Vu Hoang Ha	Completed	20	0	0	0	0	0	0	2	0	0	0	0	0	19
		User interface design	Mai Van Duc, Phan Bao Hoang	Completed		0	0	0	0	0	0	4	2	0	0	0	0	
		Code the post information in different document	Nguyen Van Duc	Completed		0	0	0	0	0	0	4	5	2	0	0	0	
4	Show agreement to terms before sending notice	Draw wireframes	Mai Van Duc	Completed	18	0	0	0	0	0	0	0	0	0	3	0	0	13
		User interface design	Mai Van Duc, Phan Bao Hoang	Completed		0	0	0	0	0	0	0	0	0	3	3	0	
		Code the show agreement	Phan Bao Hoang	Completed		0	0	0	0	0	0	0	0	0	4	0	0	
5	Test	Test all completed functions of sprint 1	Vu Hoang Ha	Completed	3	0	0	0	0	0	0	0	0	0	0	0	5	5



## Sprint 1 - Burndown Chart



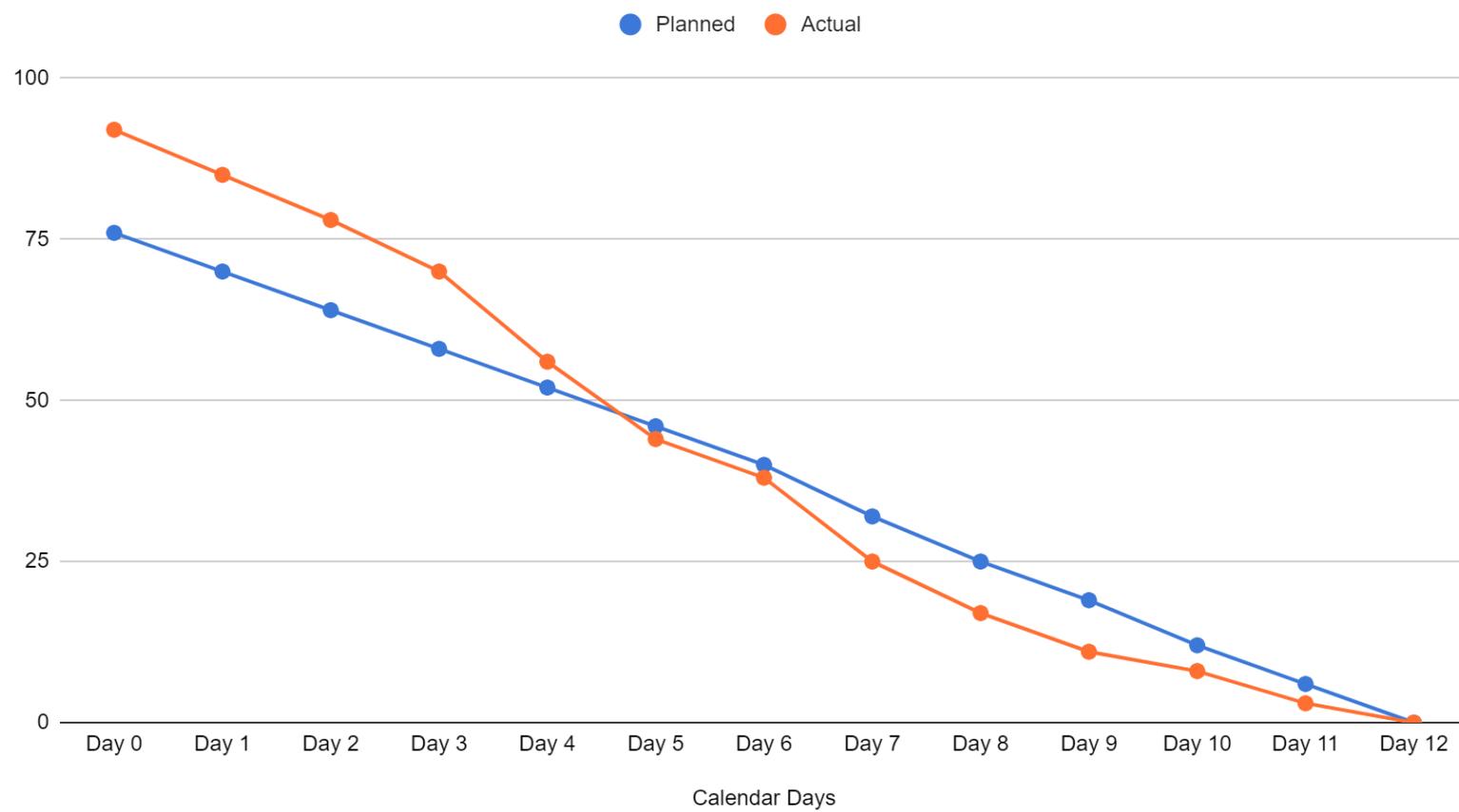


## 9.2.2 Sprint 2

SPRINT 2 (10/03/2022 - 17/03/2022)																		
ID	User Story	Task	Owner	Status	Estimated Hours Day 0	10-Mar Day 1	11-Mar Day 2	12-Mar Day 3	13-Mar Day 4	14-Mar Day 5	15-Mar Day 6	16-Mar Day 7	17-Mar Day 8	18-Mar Day 9	19-Mar Day 10	20-Mar Day 11	21-Mar Day 12	Total hours
1	Accounts can log in to the system's homepage	Draw wireframes	Mai Van Duc	Complete	15	3	0	0	0	0	0	0	0	0	0	0	24	
		User interface design	Phan Bao Hoang	Complete		4	0	2	0	0	0	0	0	0	0	0		
		Code Admin create an account to login to the homepage	Nguyen Van Duc	Complete		2	5	6	0	0	0	0	0	0	0	0		
		Writing meeting minutes	Mai Van Duc	Complete		0	2	0	0	0	0	0	0	0	0	0		
		Test	Mai Van Duc	Complete		0	0	0	3	0	0	0	0	0	0	0		
2	All posted ideas can be viewed	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	25	0	0	0	3	2	0	0	0	0	0	0	30	
		User interface design	Phan Bao Hoang	Complete		0	0	0	5	4	0	0	0	0	0	0		
		Code to see all posted ideas	Nguyen Van Duc	Complete		0	0	0	3	6	3	4	0	0	0	0		
		Test	Vu Hoang Ha	Complete		0	0	0	0	0	0	3	0	0	0	0		
3	See comments of other ideas	Edit the database	Nguyen Van Duc	Complete	20	0	0	0	0	0	3	0	0	0	0	0	25	
		Code see comments for other ideas	Nguyen Van Duc	Not Done		0	0	0	0	0	0	0	4	0	3	5		
		Discuss interface design	Vu Hoang Ha, Phan Bao Hoang	Complete		0	0	0	0	0	0	3	0	0	0	0		
4	Any ideas can be commented on	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	16	0	0	0	0	0	0	3	0	3	0	0	13	
		User interface design	Phan Bao Hoang	Complete		0	0	0	0	0	0	0	4	3	0	0		
		Code give comments for any ideas	Nguyen Van Duc	Not Done		0	0	0	0	0	0	0	0	0	0	0		



## Sprint 2 - Burndown Chart



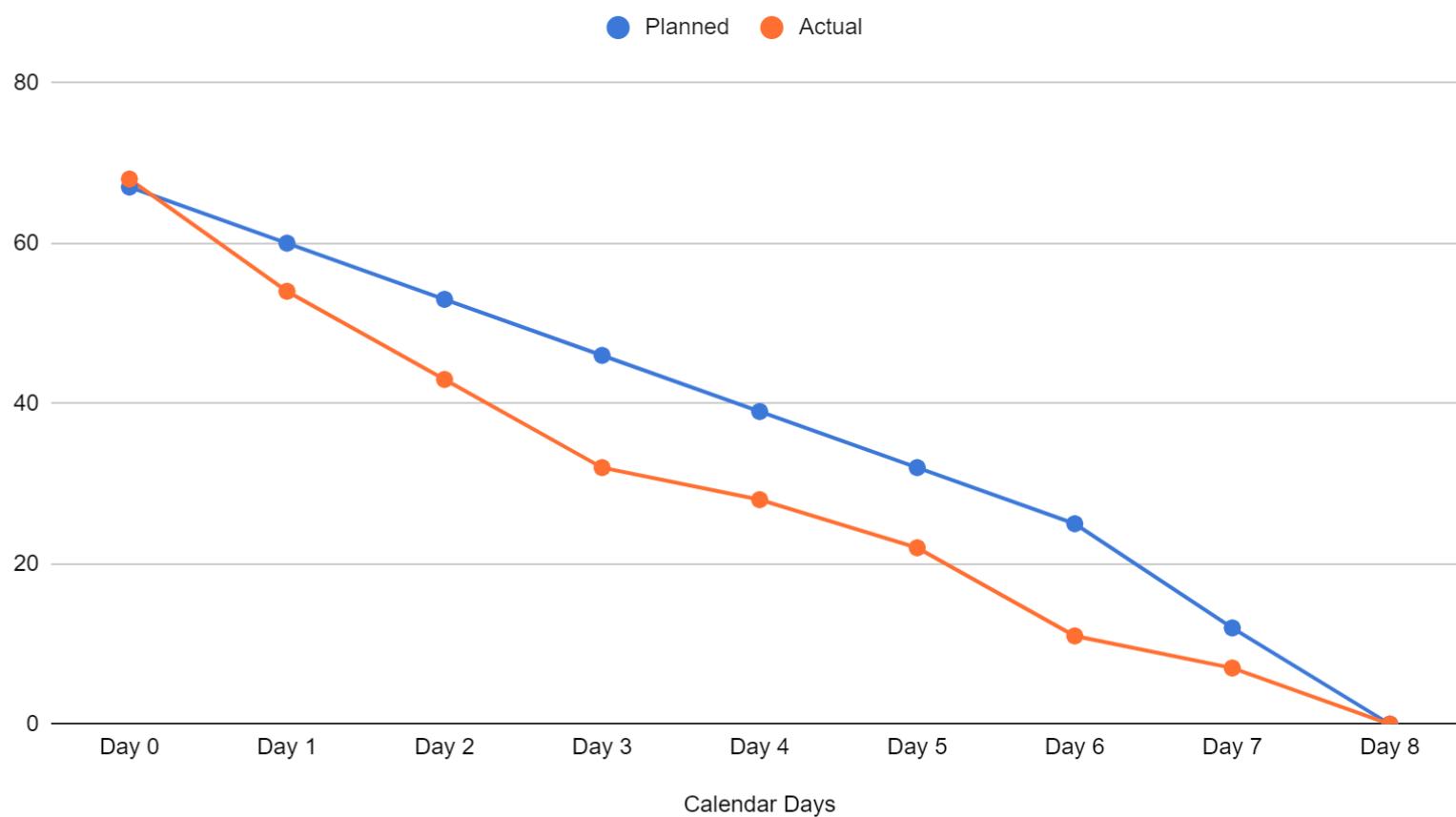


### 9.2.3 Sprint 3

SPRINT 3 (22/03/2022 - 29/03/2022)														
ID	User Story	Task	Owner	Status	Estimated Hours Day 0	22-Mar Day 1	23-Mar Day 2	24-Mar Day 3	25-Mar Day 4	26-Mar Day 5	27-Mar Day 6	28-Mar Day 7	29-Mar Day 8	Total hours
1	When posting ideas, staff will choose a category of ideas	Draw wireframes	Vu Hoang Ha	Complete	18	4	0	0	0	0	0	0	0	21
		User interface design	Phan Bao Hoang	Complete		4	0	0	0	0	0	0	0	
		Update database	Vu Hoang Ha	Complete		2	0	0	0	0	0	0	0	
		Code for staff to choose a list of ideas	Nguyen Van Duc	Complete		4	4	0	0	0	0	0	0	
		Test	Ibrahim	Complete		0	3	0	0	0	0	0	0	
2	When posting ideas, employees will choose which department they belong to	Draw wireframes	Mai Van Duc	Complete	16	0	1	0	0	0	0	0	0	21
		User interface code	Phan Bao Hoang	Complete		0	3	6	0	0	0	0	0	
		Code to receive members to choose the department when posting	Nguyen Van Duc	Complete		0	0	5	4	0	0	0	0	
		Test	Mai Van Duc	Complete		0	0	0	0	2	0	0	0	
3	See comments of other ideas	The code that employees can see other ideas	Nguyen Van Duc	Complete	8	0	0	0	0	4	6	0	0	10
4	Staff can comment	Code give comments for any ideas	Nguyen Van Duc	Complete	8	0	0	0	0	0	5	0	0	5
5	Like or dislike for any idea	Code to like or dislike for idea	Nguyen Van Duc	Complete	8	0	0	0	0	0	0	4	0	4
6	Staff receive email notifications when anyone comments on their posts	User interface code	Phan Bao Hoang	Complete	6	0	0	0	0	0	0	0	2	3
		The email notification code	Nguyen Van Duc	Complete		0	0	0	0	0	0	0	1	
7	Test	Testing all the missing features of sprint 3	Vu Hoang Ha	Complete	3	0	0	0	0	0	0	0	4	4



### Sprint 3 - Burndown Chart



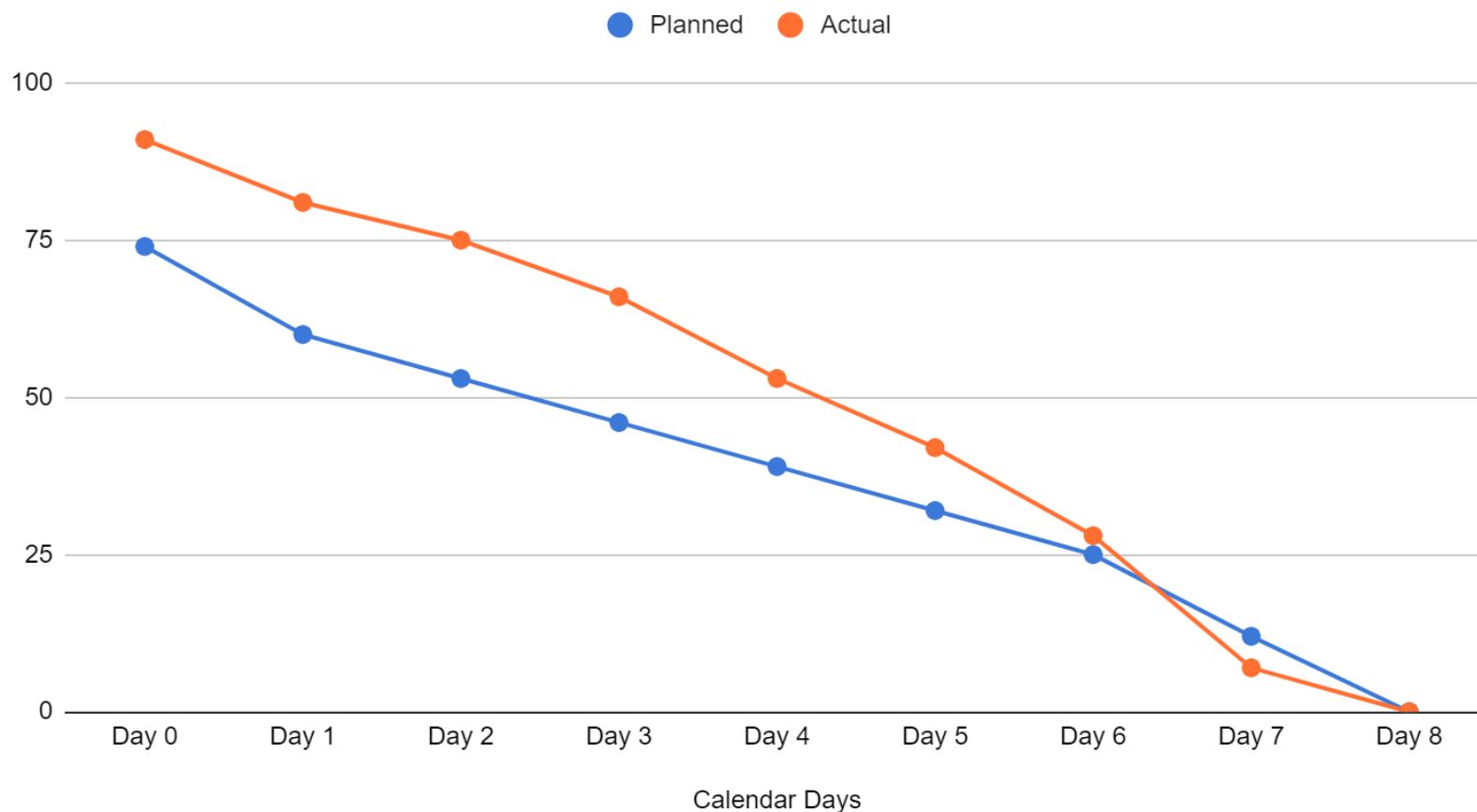


## 9.2.4 Sprint 4

SPRINT 4 (30/03/2022 - 06/04/2022)														
ID	User Story	Task	Owner	Status	Estimated Hours Day 0	30-Apr Day 1	31-Apr Day 2	01-Apr Day 3	02-Apr Day 4	03-Apr Day 5	04-Apr Day 6	05-Apr Day 7	06-Apr Day 8	Total hours
1	Admin can see the list of popular ideas	Draw wireframes	Mai Van Duc	Complete	20	3	0	0	0	0	0	0	0	16
		User interface design	Phan Bao Hoang	Complete		3	0	0	0	0	0	0	0	
		Code to admin see popular ideas	Nguyen Van Duc	Complete		4	3	0	0	0	0	0	0	
		Test	Ibrahim	Complete		0	3	0	0	0	0	0	0	
2	Staff can see a list of popular ideas	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	14	0	0	2	0	0	0	0	0	22
		User interface design	Phan Bao Hoang	Complete		0	0	3	4	0	0	0	0	
		Code to staff can view popular lists	Nguyen Van Duc	Complete		0	0	4	6	0	0	0	0	
		Test	Mai Van Duc	Complete		0	0	0	3	0	0	0	0	
3	Employees can see 5 ideas in 1 page	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	6	0	0	0	0	2	0	0	0	11
		User interface design	Phan Bao Hoang	Complete		0	0	0	0	7	0	0	0	
		Pagination Code	Phan Bao Hoang	Complete		0	0	0	0	2	0	0	0	
4	Manage creation and deletion of categories	Draw wireframes	Vu Hoang Ha	Complete	15	0	0	0	0	0	3	0	0	22
		User interface design	Mai Van Duc	Complete		0	0	0	0	0	6	0	0	
		Catalog management code	Nguyen Van Duc	Complete		0	0	0	0	0	5	6	0	
		Test	Mai Van Duc	Complete		0	0	0	0	0	0	2	0	
5	Coordinator receive email notifications when	Code to receive email notifications	Nguyen Van Duc	Complete	4	0	0	0	0	0	0	2	0	2
6	Staff who post ideas can choose to remain anonymous or public	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	15	0	0	0	0	0	0	3	0	18
		User interface design	Phan Bao Hoang	Complete		0	0	0	0	0	0	5	0	
		Code to staff can post anonymously	Nguyen Van Duc	Complete		0	0	0	0	0	0	3	5	
		Test	Vu Hoang Ha	Complete		0	0	0	0	0	0	0	2	



## Sprint 4 - Burndown Chart



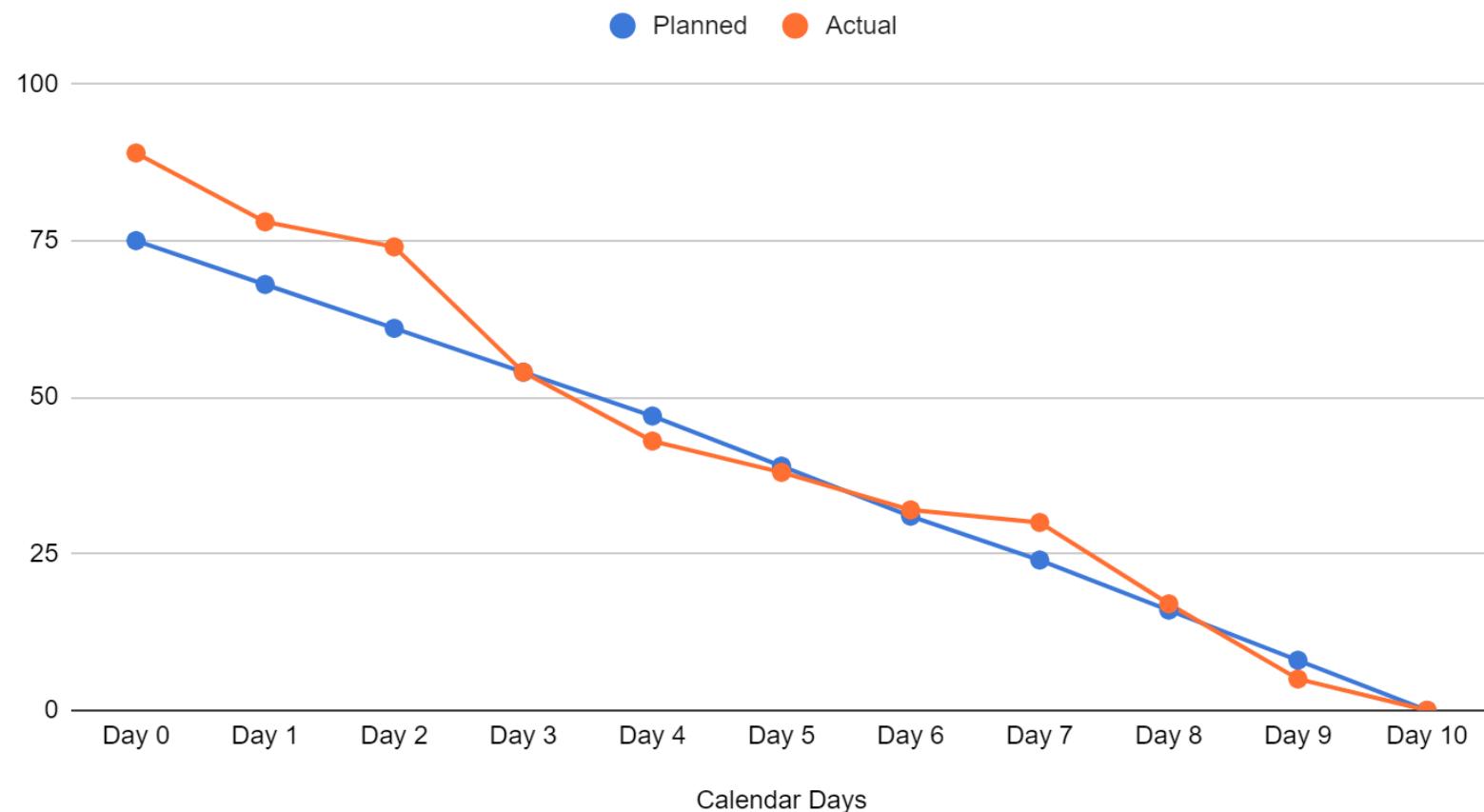


### 9.2.5 Sprint 5

SPRINT 5 (07/04/2022 - 16/04/2022)																	
ID	User Story	Task	Owner	Status	Estimated Hours Day 0	07-Apr Day 1	08-Apr Day 2	09-Apr Day 3	10-Apr Day 4	11-Apr Day 5	12-Apr Day 6	13-Apr Day 7	14-Apr Day 8	15-Apr Day 9	16-Apr Day 10	Total hours	
1	Admin can see the list of deadlines	Draw wireframes	Vu Hoang ha	Complete	16	2	0	0	0	0	0	0	0	0	0	22	
		User interface design	Phan Bao Hoang	Complete		4	0	0	0	0	0	0	0	0	0		
		Code to Admin can see the list of deadlines	Nguyen Van Duc	Complete		4	3	4	0	0	0	0	0	0	0		
		Writing meeting minutes	Mai Van Duc	Complete		1	1	0	0	0	0	0	0	0	0		
		Test	Ibrahim	Complete		0	0	3	0	0	0	0	0	0	0		
2	Manager can view the dashboard	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	20	0	0	2	0	0	0	0	0	0	0	16	
		User interface design	Phan Bao Hoang	Complete		0	0	5	0	0	0	0	0	0	0		
		Code to dashboard	Phan Bao Hoang	Complete		0	0	6	0	0	0	0	0	0	0		
		Test	Vu Hoang Ha	Complete		0	0	0	3	0	0	0	0	0	0		
3	Manager can download all data as CSV	Edit the database	Nguyen Van Duc	Complete	14	0	0	0	1	0	0	0	0	0	0	21	
		Code to download document as CSV	Nguyen Van Duc	Complete		0	0	0	5	0	0	0	0	0	0		
		Discuss interface design	Vu Hoang Ha, Phan Bao	Complete		0	0	0	2	5	6	0	0	0	0		
		Test	Ibrahim	Complete		0	0	0	0	0	0	2	0	0	0		
4	Download all documents uploaded by employees in zip format	Draw wireframes	Vu Hoang Ha, Mai Van Duc	Complete	16	0	0	0	0	0	0	0	2	0	0	17	
		User interface design	Phan Bao Hoang	Complete		0	0	0	0	0	0	0	5	0	0		
		Code to download documents as zip	Nguyen Van Duc	Complete		0	0	0	0	0	0	0	6	4	0		
5	Manager can see list of popular ideas	Draw wireframes	Mai Van Duc	Complete	5	0	0	0	0	0	0	0	0	2	0	8	
		User interface design	Phan Bao Hoang	Complete		0	0	0	0	0	0	0	0	4	0		
		Code to list of popular ideas	Nguyen Van Duc	Complete		0	0	0	0	0	0	0	0	2	0		
6	Coordinator can see list of popular ideas	Code to list of popular ideas	Phan Bao Hoang	Complete	4	0	0	0	0	0	0	0	0	0	2	5	
		Testing all the missing features of sprint 5	Mai Van Duc	Complete		0	0	0	0	0	0	0	0	0	3		



## Sprint 5 - Burndown Chart



## 9.3 Team challenges

### Difficulty in approaching agile model

- When starting to implement the project with an agile model, team members had difficulty approaching this model, and reading and understanding sprints also happened to some team members when it was their first time using it.
- Solution: First the Scrum Master learns why team members have trouble reading and understanding sprints. After learning that the main reason was the use of sprint tables to divide the work, the members found it difficult to understand. Finally Scrum Master instructs every use of the agile model support tool is "Jira", this model is quite intuitive, which helped solve the problem.

### Slow progress due to lack of human resources

- In the process of developing the project, backend developers are sick due to covid, the group is now quite lacking human resources
- Solution: The application of agile model helps the team change tasks easily, scrum master pushes interface design tasks to the top, features not related to the backend, the team will focus on doing first. After the backend developer returns to complete the features will be easier.

## 9.4 Meeting minutes

### 9.4.1 Meeting 1

Web Project Team Meeting			
MINUTES	2/23/2022	10am	Online: Google meet
MEETING CALLED BY	Team		
ATTENDEES	Vu Hoang Ha; Mai Van Duc; Nguyen Van Duc; Phan Bao Hoang; Usman Ibrahim		
ABSENTEES			
MINUTES	Vu Hoang Ha		
Agenda topics			
30 minutes	<i>Discuss project</i>		
DISCUSSION	Discuss sprint backlog and technology Changed sprint to speed up progress Discuss the backend and frontend technology Discuss the task again for the team members Update the presentations in the next session		
CONCLUSIONS	Discuss the work of each member of the group Select technology for the project: <ul style="list-style-type: none"><li>• Front-end: ReactJS</li><li>• Back-end: ASP.NET core</li></ul>		

GENERAL NOTES	Mobile details: <ul style="list-style-type: none"><li>• Ha 0834220174</li><li>• N Duc 0337612806</li><li>• M Duc 0346358843</li><li>• Hoang 0868243907</li><li>• Ibrahim 0416 791 928</li></ul>
---------------	---



### 9.4.2 Meeting 2

Web Project Team Meeting						
MINUTES	2/28/2022	10am	Online: google meet			
MEETING CALLED BY	Team					
ATTENDEES	Vu Hoang Ha; Mai Van Duc; Nguyen Van Duc; Phan Bao Hoang					
ABSENTEES	Usman Ibrahim					
MINUTES	Mai Van Duc					
Agenda topics						
30 minutes	<i>Discuss project</i>					
DISCUSSION	Discuss the small parts of the project					
Discuss database						
Draw wireframe						
Code interface Admin's page						
Code creates account user						
Write sprint backlog						
Write meeting minutes report						
CONCLUSIONS						
Start design database						
Design wireframe						
Write sprint Backlog						
Write meeting report						



### 9.4.3 Meeting 3

Web Project Team Meeting						
MINUTES	3/5/2022	10am	Online: google meet			
MEETING CALLED BY	Team					
ATTENDEES	Vu Hoang Ha; Mai Van Duc; Nguyen Van Duc; Phan Bao Hoang; Usman Ibrahim					
ABSENTEES						
MINUTES	Mai Van Duc					
<b>Agenda topics</b>						
30 minutes	<b>Discuss project</b>					
DISCUSSION	Discuss the function of the system					
Set deadline idea for staff						
Post idea in pdf, word format						
View home page and details staff						
Add roles user						
Edit burndown chart						
Draw more wireframe						
Code front-end like the wireframe						
CONCLUSIONS						
Back-end code function project						
Design wireframe						
Front end code interface						
Edit burndown chart						



#### 9.4.4 Meeting 4

Web Project Team Meeting						
MINUTES	3/12/2022	10am	Online: google meet			
MEETING CALLED BY	Team					
ATTENDEES	Vu Hoang Ha, Mai Van Duc. Nguyen Van Duc, Phan Bao Hoang, Usman Ibrahim					
ABSENTEES						
MINUTES	Vu Hoang Ha					
Agenda topics						
30 minutes	<i>Discuss project</i>					
DISCUSSION	Discuss the function of the system					
Discuss the user's role						
Comment with incognito status						
Delegating to employees						
Design interface comment						
Edit burndown chart						
Create API						
CONCLUSIONS						
Design interface comment						
Edit burndown chart						
Delegating to employees						



### 9.4.5 Meeting 5

Web Project Team Meeting			
MINUTES	3/20/2022	10am	Online: google meet
MEETING CALLED BY	Team		
ATTENDEES	Vu Hoang Ha; Mai Van Duc; Nguyen Van Duc; Phan Bao Hoang		
ABSENTEES	Usman Ibrahim		
MINUTES	Vu Hoang Ha		
Agenda topics			
30 minutes	<i>Discuss project</i>		
DISCUSSION	Discuss the function of the system		
Design interface QA manager			
Code like, dislike, comment, upload idea			
Problem with backend			
Design interface comment			
Code front end like wireframe			
Front end gets some API			
CONCLUSIONS			
Using API for front end			
Write meeting report			
Design interface download			



### 9.4.6 Meeting 6

PIIT Project Team Meeting						
MINUTES	3/26/2022	10am	Online: google meet			
MEETING CALLED BY	Team					
ATTENDEES	Vu Hoang Ha, Mai Van Duc, Phan Bao Hoang, Usman Ibrahim					
ABSENTEES	Nguyen Van Duc					
MINUTES	Vu Hoang Ha					
<b>Agenda topics</b>						
30 minutes	<b>Discuss project</b>					
DISCUSSION	Discuss group report and Export API from backend for front-end to process					
Write report group						
Back-end export API						
Front-end import API and use						
Discuss some function finish to draw use case						
CONCLUSIONS						
Write report group						
Front end import API to use						



### 9.4.7 Meeting 7

PIIT Project Team Meeting						
MINUTES	04/12/2022	10am	Online: google meet			
MEETING CALLED BY	Team					
ATTENDEES	Vu Hoang Ha, Mai Van Duc, Phan Bao Hoang, Usman Ibrahim					
ABSENTEES	Nguyen Van Duc					
MINUTES	Vu Hoang Ha					
<b>Agenda topics</b>						
30 minutes	<b>Discuss project</b>					
DISCUSSION	Discuss the remaining functions in sprint 5					
Reallocation of test plans						
Design the interface for mobile devices						
Summary of group reports						
Scrum master summarizes the remaining features						
CONCLUSIONS						
Scrum master gives detailed test plan including test case, test log						
Phan Bao Hoang completes the remaining features						



## 10 Conclusion

Overall, this system has fully met the requirements that were originally set out. Through this project, our team learned a lot, from teamwork experience to developing a web system from start to finish, to applying agile model to project development. Meetings are held daily for team members to discuss. The tasks of each team member are allocated according to each sprint. When applying the agile model, our team can know the current progress of the project, thereby giving analysis and evaluation to break down the tasks, suitable for some of the games of each team member. After completing the functions, our team conducts a test plan with a variety of test cases, to ensure the quality of the system. Although during the development of the project encountered some risks of technological change and lack of human resources, thanks to the application of agile model, my team easily flexibly changed sprints to complete the progress. Our team found that, for a project that is not too large and has many changes or risks that come with it, the agile model would be the best choice when developing projects like this.



## 11 References

Denning, D.E. and Denning, P.J., 1979. Data security. ACM Computing Surveys (CSUR), 11(3), pp.227-249.

Beeri, C., Bernstein, P.A. and Goodman, N., 1989. A sophisticate's introduction to database normalization theory. In Readings in artificial intelligence and databases (pp. 468-479). Morgan Kaufmann.