

# PROJECT PLAN

## FOR DEVELOPING A FORUM

### Distribution

Name	ID
Do Quoc Thinh (leader)	ITITIU14090
Ly Quan Bao	ITITIU14009
Ho Minh Huy	ITITIU14037
Nguyen Luong Huy	ITITIU14038
Le Minh Thien	ITITIU14088
Hoang Trong Van	ITITIU14108

# Contents

<b>1. Overview .....</b>	<b>3</b>
<b>2. Goals and Scope .....</b>	<b>4</b>
2.1 Project goals .....	6
2.2 Project scope .....	6
2.2.1 Included .....	6
2.2.2 Excluded .....	6
<b>3. Organization .....</b>	<b>7</b>
3.1 Organizational Boundaries and Interfaces .....	7
3.2 Project Organization.....	7
<b>4. Resources Requirements .....</b>	<b>8</b>
4.1 Hardware Resources .....	8
4.2 Software Resources .....	8
4.3 Human Resources .....	8
<b>5. Schedule .....</b>	<b>9</b>
5.1 Work Breakdown Structure .....	9
5.2 Schedule and Milestones.....	11
5.3 Development Process (optional) .....	12
5.4 Development Environment (optional) .....	12
5.5 Measurement Program (optional) .....	12
<b>6. Risk Management .....</b>	<b>13</b>
<b>7. Delivery Plan .....</b>	<b>15</b>
<b>8. Security Aspects (optional).....</b>	<b>16</b>
<b>9. References .....</b>	<b>16</b>

# 1. Overview

SET is a company specializing in developing software and web application. We focus on creating the products with high quality in design, functionality, and performance. Our customers range from small and medium enterprises, and development partners.

<b>Company Name:</b>	SET
<b>Team Name:</b>	SETeam
<b>Business:</b>	Develop Software Design and Develop Web Application
<b>Customer:</b>	Prof. Sang
<b>Office:</b>	3B Ly Tu Trong street, District 1, HCM city
<b>Email:</b>	seteam@gmail.com
<b>Phone:</b>	(08) 38242092 - (08) 38237846

Discussion forum is no longer a new idea in the World Wide Web. During the early of the 21<sup>st</sup> century, forum had become prevalent and common between Internet users. However, as time goes by, especially with the advent of Social Networks (e.g. Facebook, Twitter, etc ..), more and more people are abandoning forums to switch to these new sparkling applications. Seeing that the potential of web-based forum are still enormous, our team aims to once again bring back the glory of it by adapting some new technologies and services nowadays.

Our customers are the Internet users all over the world, from teenagers to middle-aged community. Anyone who can access to the forum can read all the posts and comments in it. If they want to take part in the discussion, they can sign up as a member of our forum, and have the opportunity to become a moderator or administrator to help us manage and improve the system.

This product is a part of the project for a one-semester University course. Due to the constraints in time (around 3 months) and human resources (5-6 members), it is impossible for us to deliver a complete product with all great functionalities as we want to. Therefore; we only aim at implementing some basic services of a typical forum, and leave some of them for future development. Our criteria are: Clear, Simple, but Attractive.

Aside from the costs for hardware resources and domain server used to develop and run the system, which our team decides to take care of by ourselves, we intend to distribute the final product absolutely free for everyone. Any donations from the community are strongly appreciated, but are not required.

Our early approximation:

<b>Time Delivery</b>	The <i>First</i> Day of the Construction: <b>20<sup>th</sup> October, 2016.</b> The <i>Last</i> Day of the Construction: <b>19<sup>th</sup> December, 2016.</b> <i>Duration:</i> approx. <b>2 months.</b> <i>Demonstration:</i> [date to demonstrate the project to the class]
----------------------	---

## 2. Goals and Scope

Priority: 5 – Highest

1 – Lowest

### 2.1 Project Goals

Project Goals	Priority	Description
<b>Functional Goals</b>		
1. Registration function	2	System shall allow user / guest to register as an official member.
2. Authentication function	3	System shall allow user to login / logout as a member and be able to identify user's privilege (member / moderator / administrator).
3. Guest visit	4	System shall allow user / guest (non-member) to read all discussions freely without the need to become a member. ( <u>Note:</u> non-member users <b>cannot</b> participate in the discussion)
4. Member discussion	5	System shall allow members to be able to create / edit their own posts and comments.
5. Profile modification	1	System shall allow members to edit their profile.
6. Post management	4	System shall allow moderator / administrator to edit / delete members' comments and posts.
7. Post filtering	1	System shall allow user to choose the way how the posts in a thread are displayed: newest first , most active first , etc ...
<b>Strategic Goals</b>		
1. Experience-gaining threads	3	System shall provide some special threads for users to obtain useful experience and information from senior members.
2. Customer services	5	System shall be able to achieve and maintain outstanding services for users.
3. Popularity	5	System shall attract many users and make a well-known status in the Internet community.
<b>Business Goals</b>		
1. Released time	4	The final product shall be delivered within 3 months from first day of the development process.
2. Cost	3	The final system (discussion forum) shall be delivered to users for free. However, we will charge for advertisements from other organizations and use that profit to cover the cost of running the system.
3. Market growth	4	The final product shall produce significant growth in the market.

<b>Technological Goals</b>		
1. Basic functions	5	System shall deliver standard functions for a discussion forum.
2. Future enhancement	3	System shall leave rooms for future improvement (be able to implement new functions).
<b>Quality Goals</b>		
1. Functions execution	5	System shall be able to execute all the implemented functions smoothly, free of errors.
2. Response time	4	System shall be able to response to user within an acceptable amount of time.
3. System interface	3	System shall display its components in an organized and well-formatted way; clearly and easy to use.
<b>Organizational Goals</b>		
1. Competence development	4	System shall be designed and implemented so that it is able to compete with the top product in the market.
2. Maintenance	4	System shall be developed such that it is easy to be maintained.
3. New technologies	3	System shall be able to adapt to new technologies.
4. Modern tools exploitation	3	Up-to-date tools and technologies shall be used to develop the whole system.
<b>Other Goals</b>		
<b>Constraints</b>		
1. Environment constraints	3	System shall be able to accessed by multi-platform devices.
2. Application standards	5	System shall satisfy most common standard rules of a web application.
3. National and cultural standards	4	System shall not be illegal.

## 2.2 Project Scope

*Customer classifications:*

1. (Unprivileged) Users: Guest
2. Privileged users
  - a) Member
  - b) Moderator
  - c) Administrator

### 2.2.1 Included

Due to time and human resources constraints, our final system can only provide some standard functions of a typical discussion forum, including:

- Sign up function.
- Login / logout functions.
- Allow user to read all posts and comments.
- Allow user to choose among different sorting options for displaying posts in a thread.
- Allow member / moderator / administrator to edit their profiles.
- Allow member / moderator / administrator to create a post.
- Allow member / moderator / administrator to edit their own posts.
- Allow member / moderator / administrator to post a comment.
- Allow member / moderator / administrator to edit their own comments.
- Allow moderator / administrator to edit / delete other members' comments.

### 2.2.2 Excluded

Some functions that our team decides to exclude from the project but may intrigue customers will be left for future improvements, including:

- Allow user to search for a specific post / comment.
- Moderator promotion, for administrator only.
- Allow member to report a post / comment / other member.
- Allow member to subscribe to a specific thread.
- Allow member to upvote / downvote a post / comment.
- Allow moderator / administrator to ban members.
- Allow administrator to add new thread.

## 3. Organization

### 3.1 Organizational Boundaries and Interfaces

The project is intended to be implemented on a web-based platform, which provides access to anyone who has Internet connection. Due to the fact that this is just an own-funding project developed during a university course, all the stakeholders of the system are members of the team. There are currently no external stakeholders that the project depends on.

The main *resource owners* of the project are all of the team members, who take full responsibilities in the process of developing and delivery of the system. Our expected *receiver* of the final product is the Internet community. Any Internet users who take an interest in the project can use it absolutely free, but only for the purpose of discussion and sharing ideas with no specific commercial intentions.

List of *suppliers* for our project

Company	Deliverable Product
Microsoft Corporation	Microsoft Office 365
Oracle Corporation	MySQL Database
Sun Microsystems / Oracle Corporation	GlassFish Server
Sun Microsystems / Oracle Corporation	NetBeans IDE

### 3.2 Project Organization

Our project development process is organized in such a way that all members have a fair share of work, and all actively take part in the successful delivery of the system. Some members are assigned specific roles due to their outstanding performance in these functions, which will likely enhance the quality of the final product further. Here is a list of our team members, their roles and their contacts:

Name	Role	Contact	Email
Do Quoc Thinh	Project Manager / Programmer	+84 932 0583 98	bay25796@gmail.com
Ly Quan Bao	Programmer / Tester	+84 939 047 081	lyquanbao29@gmail.com
Ho Minh Huy	Programmer / Designer	+84 968 075 162	gilovino92@gmail.com
Nguyen Luong Huy	Programmer / Designer	+84 1258 653 568	forcer1996@gmail.com
Le Minh Thien	Business Analyst / Tester	+84 933 396 639	leminhthien18081996@gmail.com
Hoang Trong Van	Business Analyst / Programmer	+84 968 0064 51	htvan.ityu@gmail.com

## 4. Resource Requirements

### 4.1 Hardware Resources

Name	Quantity	Purpose	Price
ASUS X450LD	1	Coding / Testing	\$ 650
DELL XPS	1	Coding / Testing	\$ 1050
Lenovo Thinkpad	1	Coding / Designing	\$ 800
ASUS K551LN	1	Coding / Designing	\$ 750
Macbook Air	1	Coding	\$ 1000
ASUS Zenbook UX510UW	1	Coding / Data Server	\$ 900

### 4.2 Software Resources

Name	Quantity	Purpose	Price
Microsoft Office 365	5	Project management and documenting	\$ 69.99 / year
LibreOffice	1	Project management and documenting	Free
NetBeans IDE	6	Developing	Free
Adobe Photoshop	1	Designing	\$ 19.99 / month
Lucidchart	4	Mind-map / Use case diagram	Free

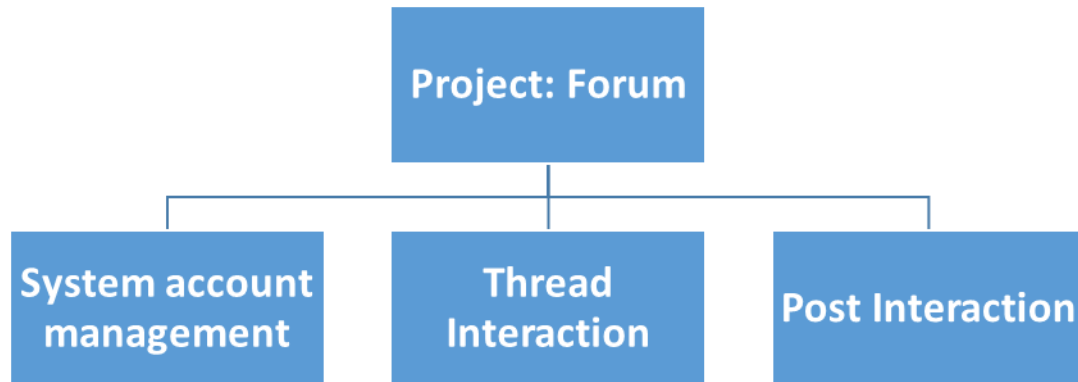
### 4.3 Human Resources

Name	Skillset	Time	Salary
Do Quoc Thinh	Project supervisor, project analyst, coder	Full	\$801
Ly Quan Bao	Coder, tester	Full	\$800
Ho Minh Huy	Coder, designer	Full	\$800
Nguyen Luong Huy	Coder, designer, tester	Full	\$800
Le Minh Thien	Coder, tester	Full	\$800
Hoang Trong Van	Project analyst, coder	Full	\$800

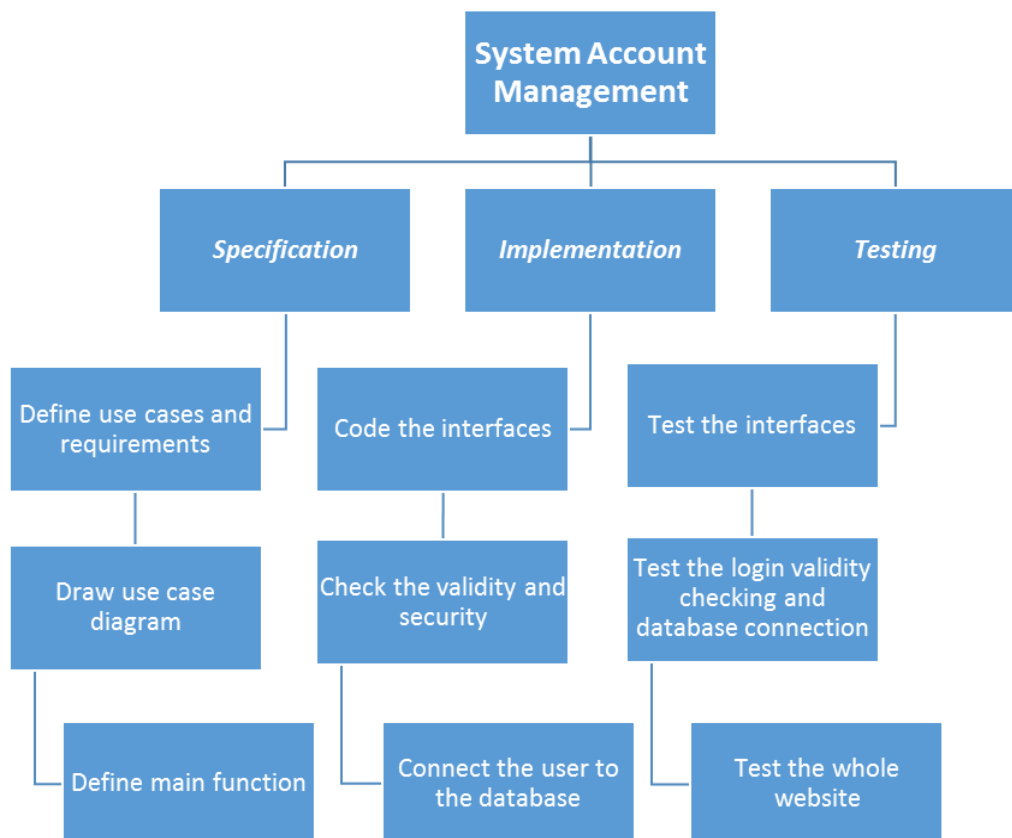


## 5. Schedule

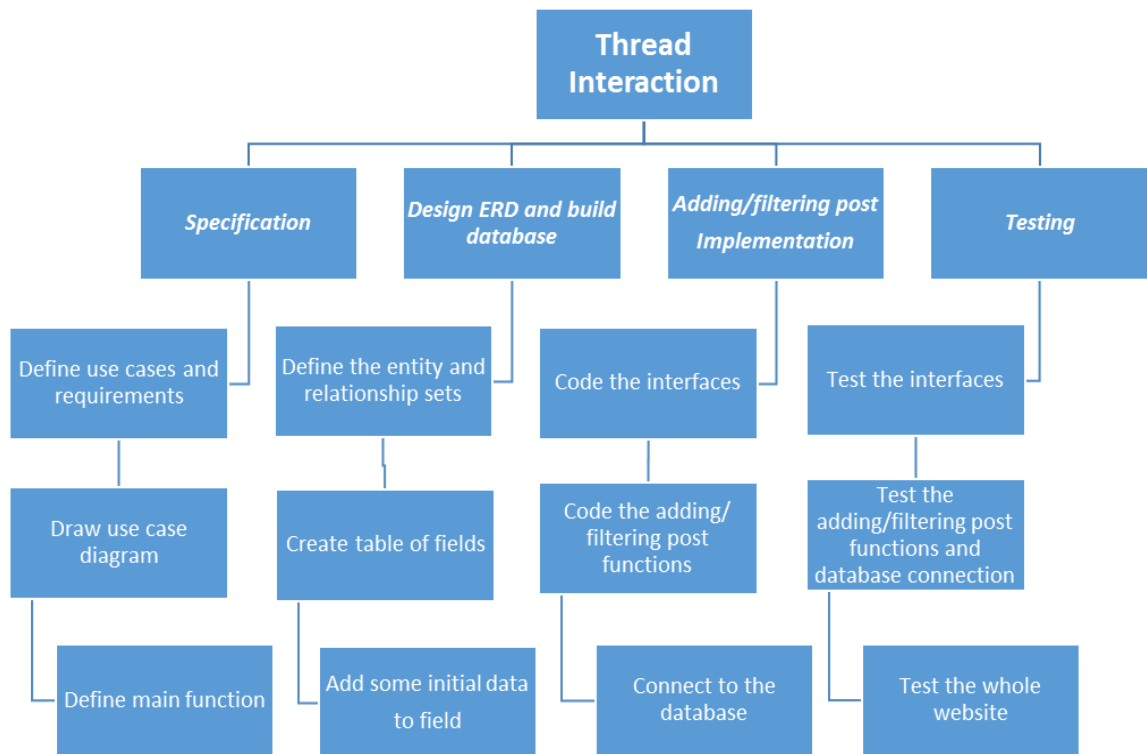
### 5.1 Work Breakdown Structure



#### Structure for *System Account Management*



## Structure for *Thread Interaction*



## 5.2 Schedule and Milestones

Here is the *product backlog* that our team comes up with after applying Scrum Framework to the project development process:

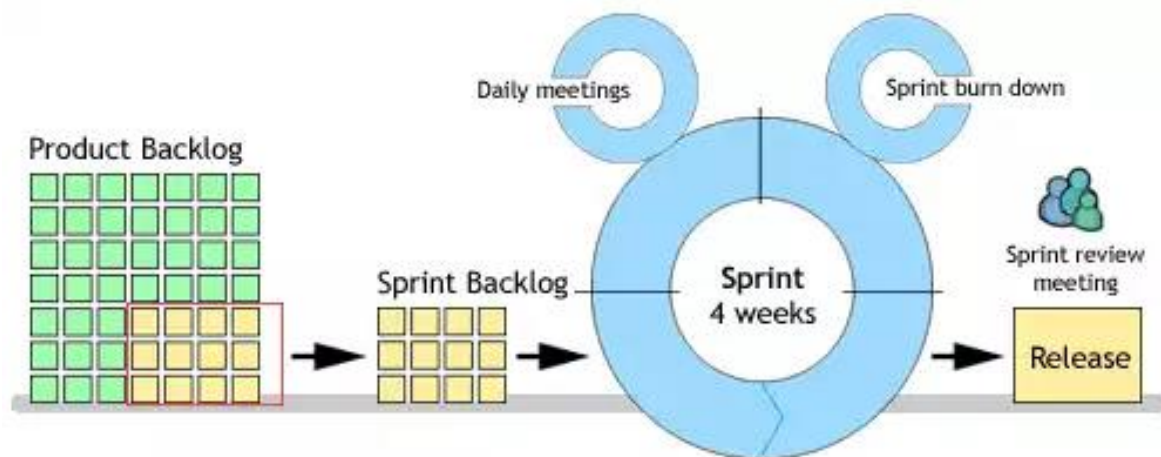
Priority:      5 – Highest                      1 – Lowest

ID	User Story	Estimation (days)	Priority
1	As a guest, I want to sign up so that I can have all of the member's accessibilities.	4	2
2	As a guest / members / moderator / administrator, I want to choose the way posts are arranged in the corresponding thread.	2	1
3	As a member / moderator / administrator, I want to login / logout.	4	3
4	As a member / moderator / administrator, I want to create a new post.	5	5
5	As a member / moderator / administrator, I want to edit my own posts.	5	5
6	As a member / moderator / administrator, I want to post a new comment.	5	5
7	As a member / moderator / administrator, I want to edit my own comments.	5	5
8	As a member / moderator / administrator, I want to edit my own profile.	4	1
9	As a moderator / administrator, I want to delete other members' comments if they violated the forum's regulations.	6	4
10	As a moderator / administrator, I want to delete other members' posts if they violated the forum's regulations.	6	4

## 5.3 Development Process (optional)

In order to deliver the product on time, our team has chosen to adopt an agile method of development for our project. Specifically, Scrum will be the main methodology we used for our team's general productivity model.

Our requirement details are expected to change across the design and development period as the project depends on developing each functional part separately then integrating them holistically.



## 5.4 Development Environment (optional)

Some programming languages as well as framework and IDEs that our team use to develop the project:

1. **HTML** - to develop the outline and structure of the webpage
2. **CSS** - to decorate the webpage
3. **Javascript / HTML 5** - to create animations and functional scripts
4. **Servlet / JSP** - to manipulate data to create dynamic webpages
5. **MySQL** - to store and manage data through a database

The team also uses some external web applications to help organize ideas, share codes and documents, and measure the performance of the team as a whole:

1. **Slack** – a messaging app for teams
2. **Github** – a web-based Git repository hosting service
3. **Lucidchart** – a web-based application for drawing many kinds of software diagrams
4. **Umlet** – a free tool to produce fast UML diagrams

## 5.5 Measurement Program (optional)

For our project system, a *discussion forum*, speed performance is the top priority that we intend to maintain. Therefore; beside implementing handmade testing units, our team also tries to use as many as possible some external on-line program to measure the system's correctness and performance. Some of them are:

- <https://developers.google.com/speed/pagespeed/>
- SonarQube: <http://www.sonarqube.org/>

## 6. Risk Management

This section describes some potential risks that our project is likely to suffer during the development process and / or after releasing, along with some solutions to mitigate and avoid the hazardous effects these risks can have on the final product.

Three classifications of risk:

- *Project risks*: affect schedules and resources.
- *Product risks*: affect the quality of performance of the software being developed.
- *Business risks*: affect the organization developing or procuring the software.

Degree of effects:

- *Red: Catastrophic*
- *Orange: Serious*
- *Yellow: Tolerable*
- *Green: Insignificant*

### ***Project risks:***

<b>Risk</b>	<b>Probability</b>	<b>Description</b>	<b>Strategy</b>
Staff turnover	High	Members leave the project before it's finished without reasons; members are absent from team meetings.	Have daily meeting after work to discuss difficulties with teammates and find suitable solution.
Requirement changes	High	Changing requirements from customers directly affect the project schedule.	Adjust the schedule and the amount of work accordingly as the customers demand.
Hardware defections	Moderate	Some unexpected hardware problems occur during the development process, which forces the team to find replacements.	Perform weekly maintenance and prepare backup resources for all hardware components.

### ***Product risks:***

<b>Risk</b>	<b>Probability</b>	<b>Description</b>	<b>Strategy</b>
Unexpected bugs	High	UI bugs, spam, advertisements, fonts missing, and many other problems that annoy users but have not been detected before.	Regularly update functions and refactor codes; use up-to-date tools.
Server bandwidth underestimate	Moderate	Server breakdown due to overloading access from many users trying to enter the forum.	Purchase high bandwidth server and upgrade monthly.
Member under-performance	Moderate	Individual performances are not as expected due to the lack of skill and experience on the project topic.	Project leader has to balance the number of junior and senior developers in the team to help overcome the lacks of experience.

### ***Business risks:***

<b>Risk</b>	<b>Probability</b>	<b>Description</b>	<b>Strategy</b>
Product competition	Low	There are similar products (with the same type or idea) that have been released in the market.	Discuss with customers to add some specific features that help improve the quality of the product.
Budget underestimate	High	Wrong budget estimation; cost overruns due to unexpected expansion of project scope.	Carefully estimate the project scope to avoid unnecessary expansions.
Late delivery	Moderate	Additional cost may have to be paid to compensate for the late delivery of the final product to the customer.	Project leader has to ensure that each sub-component of the system and the final product itself are finished before the expected deadlines.

## 7. Delivery Plan

In this section, we demonstrate our *sprint backlog* over 5 sprints (approximate 5 weeks of work) for the total of 10 *user stories*, starting from the most important ones to the least important ones:

### Sprint 1:

**User story:** *As a member / moderator / administrator, I want to create a new post.*

**User story:** *As a member / moderator / administrator, I want to edit my own posts.*

	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
Sprint 1	Design UI for creating and editing posts	4	4						70
	Design use cases and class diagrams	8							
	Create database to manage data of posts		6	2					
	Code function for creating post		4	4	4				
	Code function for editing post		4	2	2				
	Test functions and database			8	6	4			
	Get user feedbacks					8			

### Sprint 2:

**User story:** *As a member / moderator / administrator, I want to post a new comment.*

**User story:** *As a member / moderator / administrator, I want to edit my own comments.*

	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
Sprint 2	Design UI for creating and editing comments	4	4						72
	Design use cases and class diagrams	8							
	Create and configure database for comments		6	2					
	Code function for creating and editing comment		4	4	4				
	Test functions and database			8	6	4			
	Integration testing				6	6			
	Get user feedbacks					6			

### **Sprint 3:**

**User story:** *As a moderator / administrator, I want to edit / delete other members' comments if they violated the forum's regulations.*

**User story:** *As a moderator / administrator, I want to edit / delete other members' posts if they violated the forum's regulations.*

Sprint 3	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
	Design UI for editing and deleting	4	4						68
	Design use cases and class diagrams	4							
	Code functions for editing posts and comments		6	4					
	Code function for deleting posts and comments		4	6					
	Test functions and database			6	6	4			
	Integration testing				6	4	4		
	Get user feedbacks						6		

### **Sprint 4:**

**User story:** *As a guest, I want to sign up so that I can have all of the member's accessibilities.*

**User story:** *As a member / moderator / administrator, I want to login / logout.*

Sprint 4	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
	Design UI for getting account information	4							39
	Design use cases and class diagrams	4							
	Create database to manage data of users	4							
	Code function for adding account information		3						
	Code function for checking account information		3	3					
	Test functions and database			6	4				
	Get user feedbacks			4	4				



**Sprint 5:**

*User story: As a member / moderator / administrator, I want to edit my own profile.*

	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
<b>Sprint 5</b>	Design UI for editing profile	4							32
	Design use cases and class diagrams	4							
	Code function for editing profile		6	4					
	Test functions and database			6	4				
	Get user feedbacks				4				

**Sprint 6:**

*User story: As a guest, I want to choose the way posts are arranged in a thread (newest first, most active first, etc ...)*

	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Estimated Total Hours
<b>Sprint 6</b>	Design UI for filtering posts	6							28
	Code functions for filtering posts	4	4						
	Test all functions	6	4						
	Get user feedbacks		4						

## 8. Security Aspects (optional)

No matter how well-prepared your product was made, there will always be some potential loopholes that can be exploited to shut down or corrupt the whole system. In this section, we list some of the possible security issues that we expect to happen as well as our strategy to deal with these problems.

But first, let's talk about some negative effects that may happen due to security incident attacks:

- ✓ Information and identification leaking which threatens users' privacies.
- ✓ Unable to connect to system due to intentional internet traffic breakdown.
- ✓ Loss of reputation and beliefs from community.

Here are some vulnerabilities that are likely to happen to a web-based project system

Vulnerability	Brief description	Solution
SQL Injection	MySQL is a well-known database that has been used very commonly by many web application systems. By inputting some crafted strings based on SQL instruction, if being handle poorly, malicious users can exploit this to extract other accounts' identities and passwords for evil use.	Construct a well-made algorithm to handle the inputs given by users correctly to avoid pasting malicious strings directly into querying from the database.
Broken authentication	Some sensitive functions like session management or authentication are often built up without proper handling methods, thus allows the possibility that these critical information being illegally obtained by malicious user.	Use a generic way to display notification message to user, avoiding unexpectedly expose user's information. Use proper encryption technique and implement necessary constraints to secure sensitive information.

## 9. References

[1] Successful Software Outsourcing and Offshoring, Prof. B. Meyer, Prof. P. Kolb