



PSP 0201: MINI IT PROJECT

Final Report

Group: A01 Group 4

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Acknowledgement

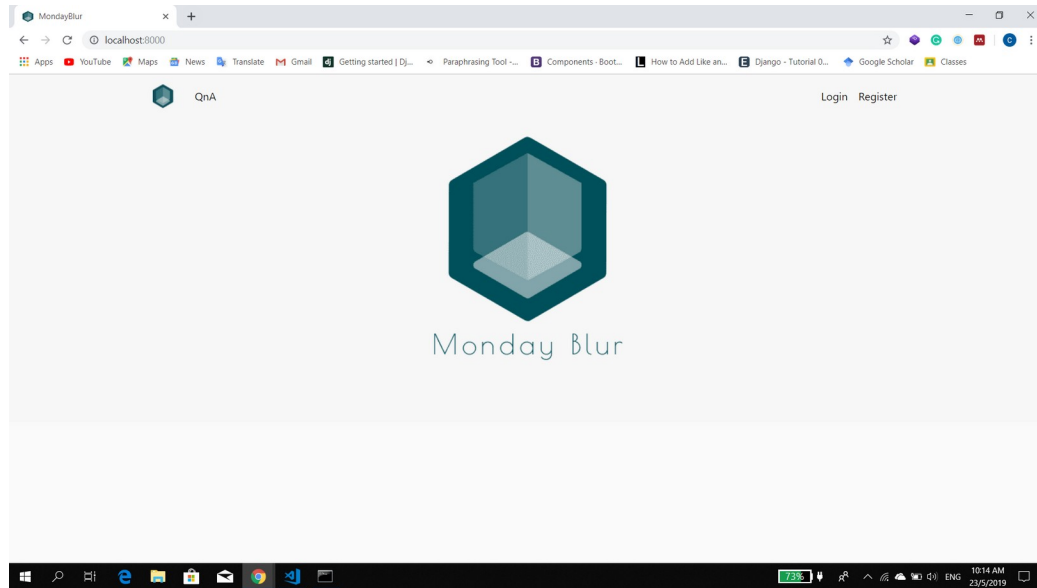
In the making of this mini it project, we had to take the help and guidelines of some respected people whom deserves our greatest gratitude and appreciation. The completion of this project had gave us the utmost pleasure as this project was quite challenging to complete due to many new things we had to learn for the completion of this project. Firstly, we would like to thank Ms. Aziah Binti Ali for providing us very helpful advice and informative guidelines when we got stuck and had trouble continuing.

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Lastly, many people, especially our coursemates and team members itself, have made valuable comment and suggestions on this project which gave us an inspiration to improve our assignment. We thank all the people for their help directly and indirectly to complete our assignment.

Abstract

The program we are creating is a web application which provides a platform for our users especially students to be able to freely ask questions. This web app aims to help students to get answers they need for their studies faster. We plan to accomplish this by creating a system where anyone can answer the questions asked. There will be a point system for each answer provided to see which answer is deemed more accurate/correct by our users. This forum-like question and answer platform we have created not only help the person asking the question but also helps others who have a similar question in mind. The design of this web app will be mostly based on Facebook, Stack Overflow and Reddit. We are going to create a login page design based on Facebook, a question and answer forum based on Stack Overflow and implementing a reward/point system like the one on Reddit. The login page will have a login which forces a user to login to view the contents of the website. The Q&A forum layout will be based on stack overflow as it makes it easier to see the question which is followed by the answers below it. Lastly, we will implement a point system which keeps tracks lifetime contribution in the web app which is based on Reddit. We can track their contribution and engagement by looking at the points they accumulated, the higher the points they have, that indicates they are more active in participating or contributing to the forum.



This is the homepage of the webapp, looking at the navigation bar, it shows there four navigation options. First is the MondayBlur icon on the top left, this button take you to the homepage which is shown as above. The “QnA” hypertext takes the user to the main page of the website which contains all the forum posts. Next, the “login” hypertext redirects user to a login page which allows them to login to the website and allow them to post questions. Lastly, the “register” hypertext allows user to create a new account.

MondayBlur x +

localhost:8000/register/

Apps YouTube Maps News Translate Gmail Getting started | Django - Tutorial B... Paraphrasing Tool Components - Boot... How to Add Like an... Django - Tutorial B... Google Scholar Classes

Search Login Register

Faculty

Faculty of Applied Communication(FAC)

Faculty of Business(FOB)

Faculty of Cinematic Arts(FCA)

Faculty of Computing And Informatics(FCI)

Faculty of Creative Multimedia(FCM)

Faculty of Engineering(FOE)

Faculty of Engineering And Technology(FET)

Faculty of Informatics Science And Technology(FIST)

Faculty of Law(FOL)

Faculty of Management(FQM)

Username*

Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Email*

Password*

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

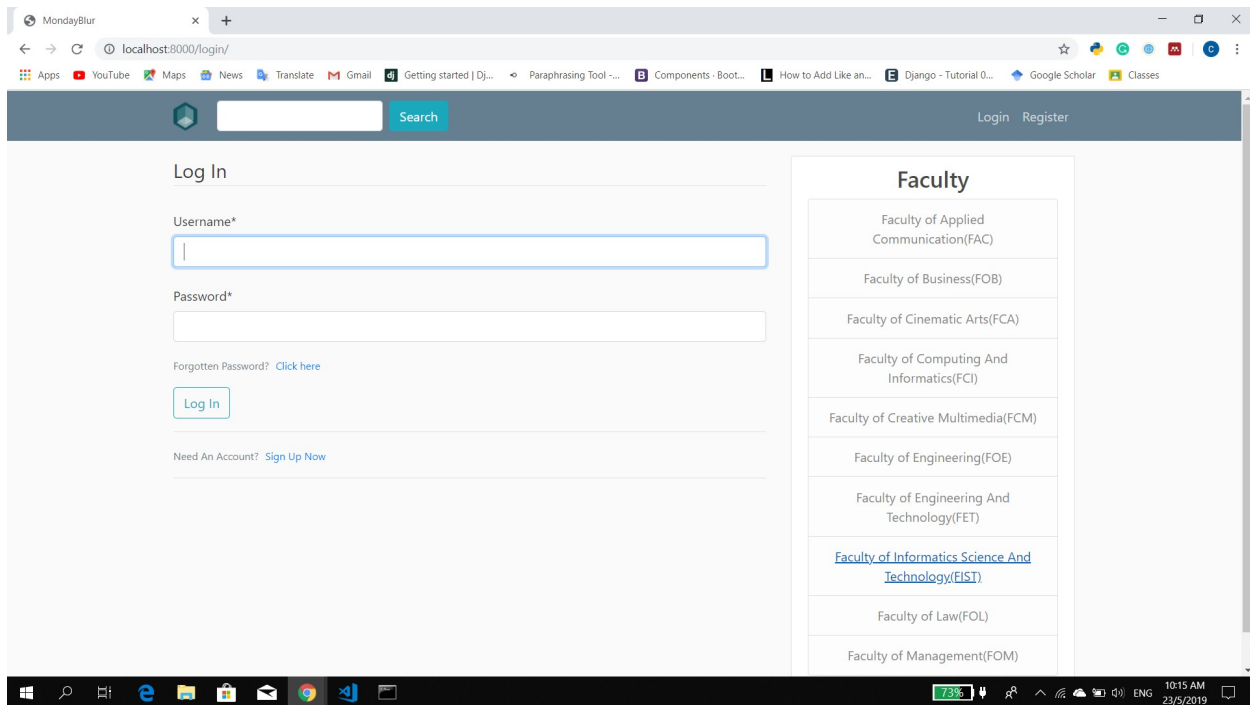
Password confirmation*

Enter the same password as before, for verification.

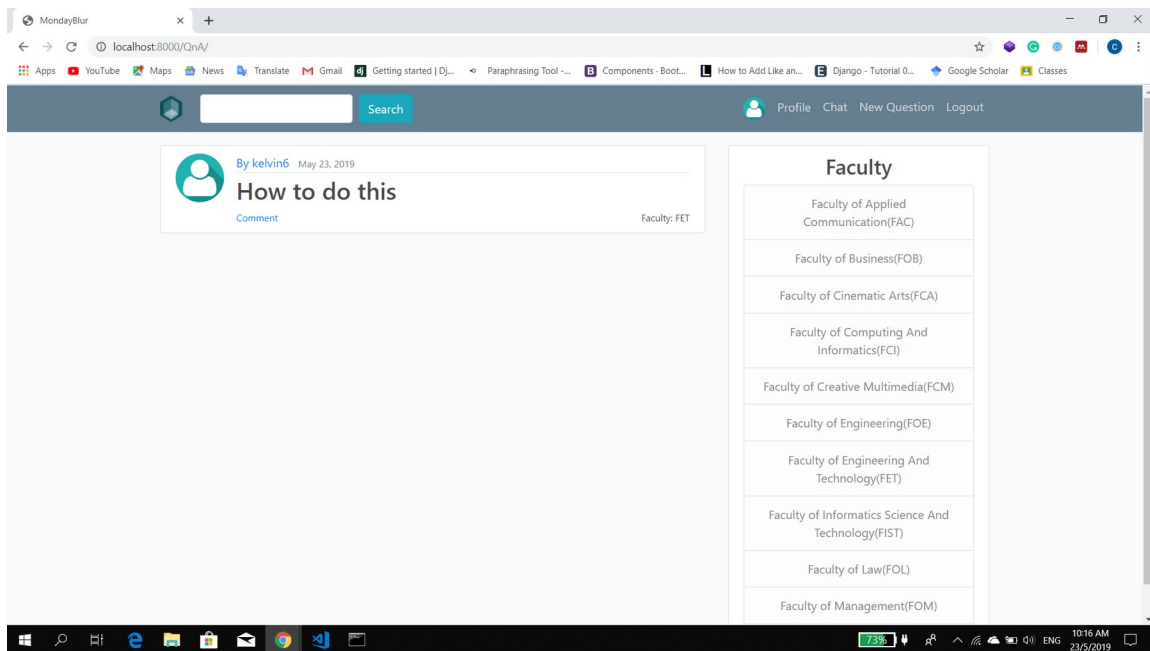
Sign Up

Already Have An Account [Sign In](#)

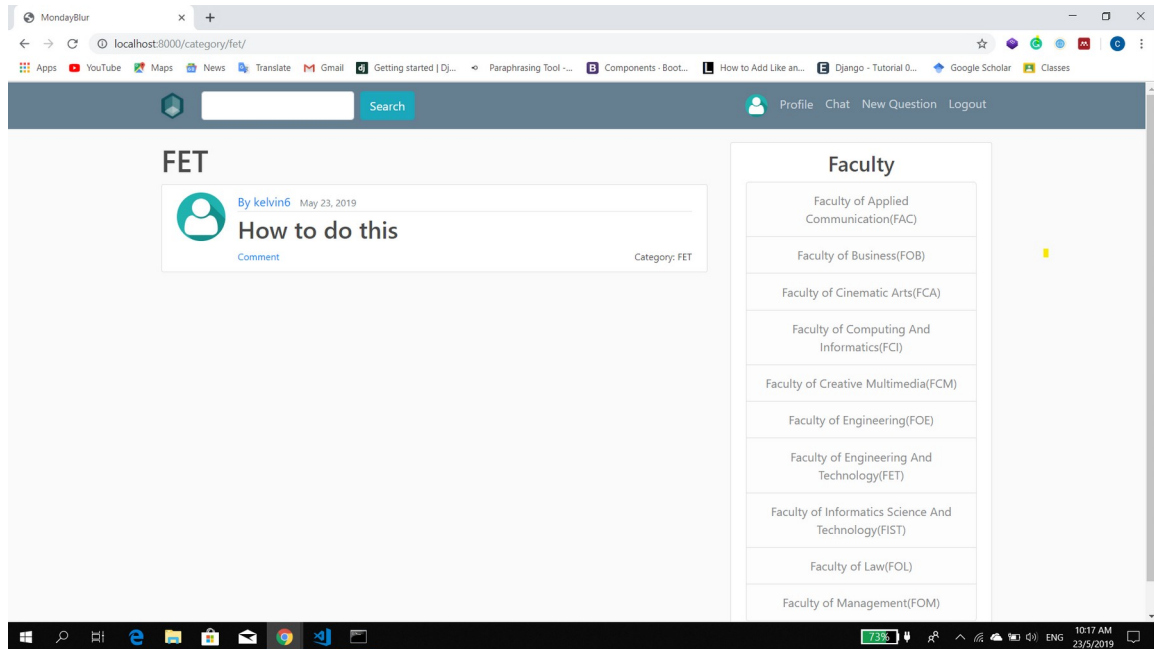
This is the register page. As seen from above, it requests user input for Username, Email, Password and Password confirmation. When their info gets pass through the system, it runs multiple validity check before allowing user to register. If there is any error, user will be redirected back to reenter the forms.



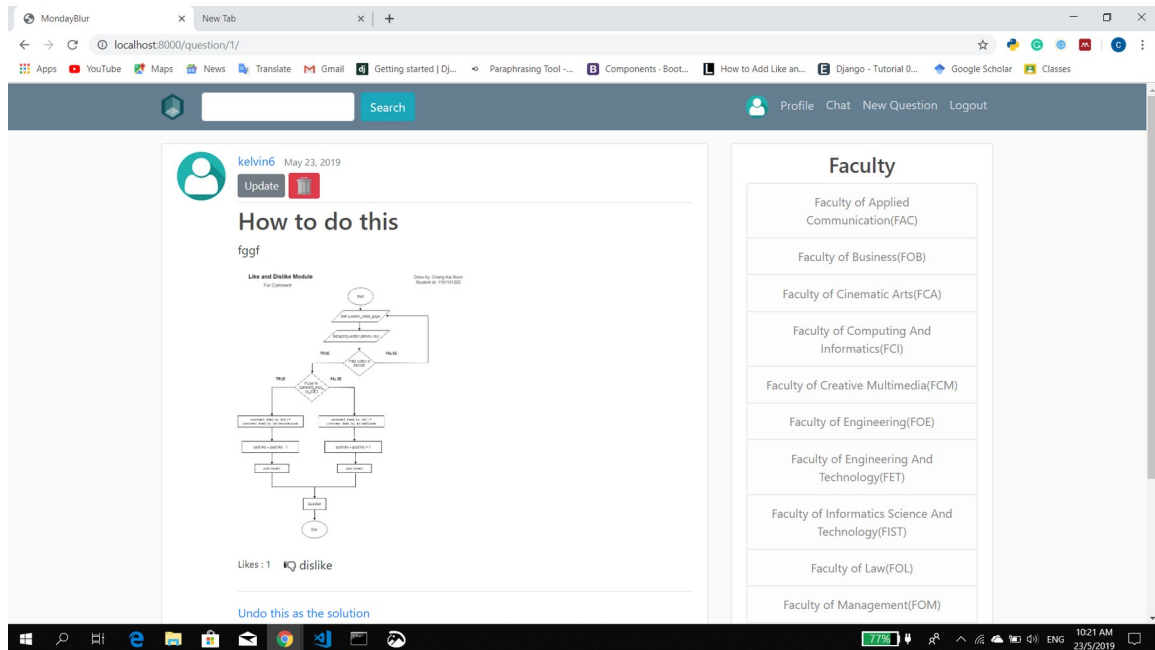
This is the login page. It requests input from user for Username and Password. Just like register page, the backend checks the validity of the credentials before allowing them to login. If the username and password is wrong, it redirects back to the login page and lets user reenter the details again.



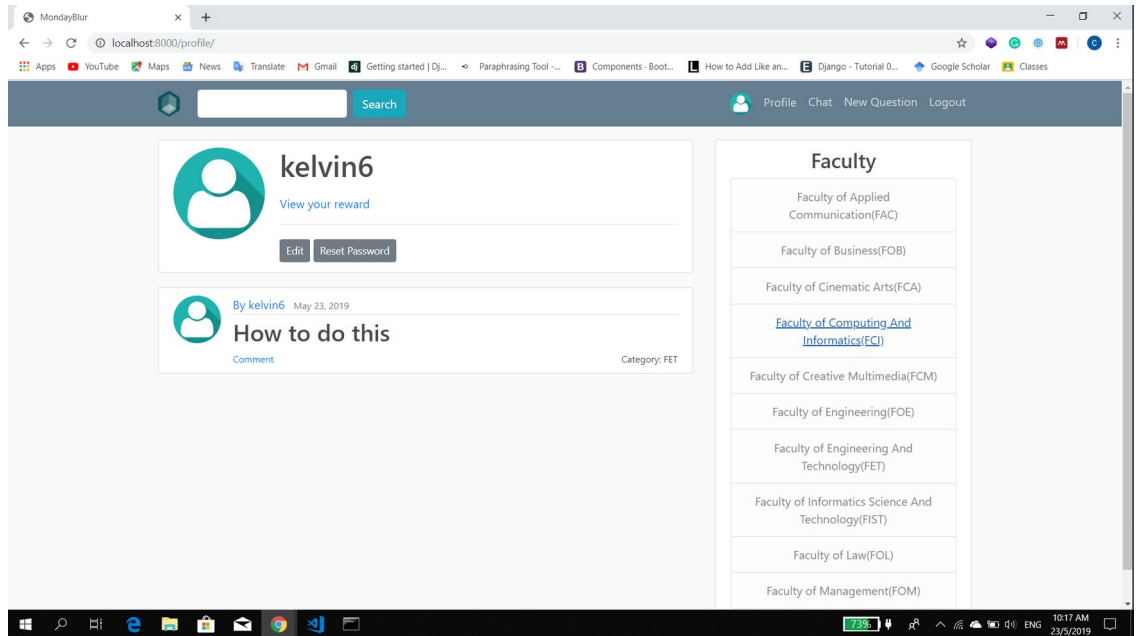
This is the main page, where user can see all the question post that have been previously posted by other users. User can click on the question to see the full detail of the question and be able to leave like and comment.



Theres a sidebar which allows user navigate each category. For example shown above, user have clicked FET option and shows all the post in FET.



This is one of the question post. As seen here, there is update option and delete option. This allows user to update their question or either delete it. There is also like and dislike option but only one button will show. If user haven't like, like option shows up. If user liked the post, then a dislike option will show.



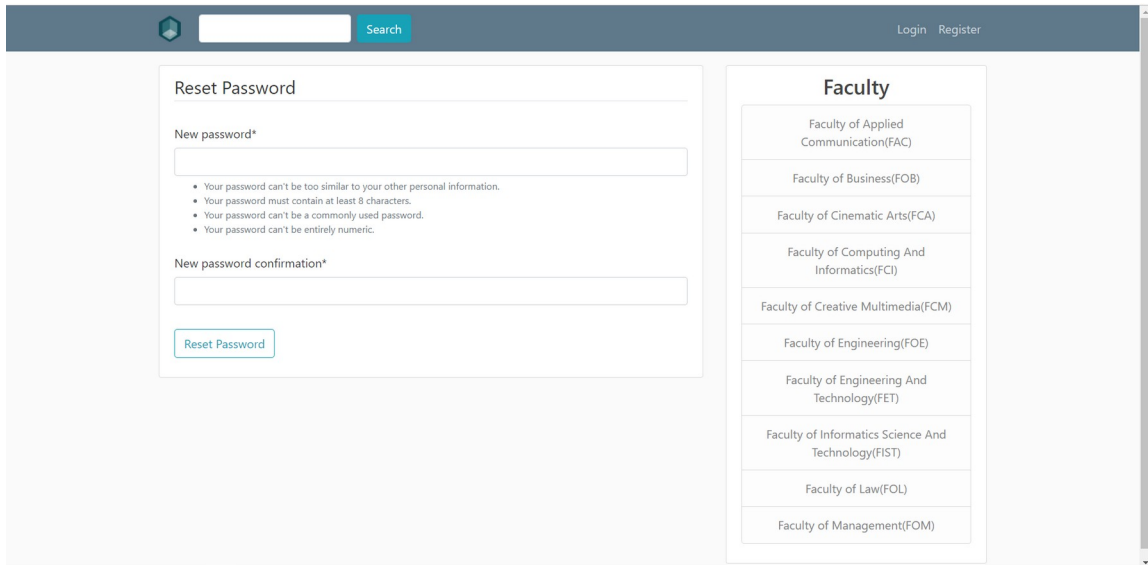
This is user profile page, where user can see their profile detail, edit profile, reset password and view accumulated rewards points. When user click “edit” it redirects to an update page which allows user to change profile picture, username and email. If user click “reset password”, they will be redirected to a page asking for email and will send them password reset link through their email. In profile users will also be able to see all their previous posts.

The screenshot shows a web browser at the URL `localhost:8000/profile/update/`. The page has a dark blue header with a search bar and navigation links: Profile, Chat, New Question, and Logout. The main content area is divided into two columns. The left column, titled "Profile Info", contains a profile picture placeholder, a "Username*" field with the value "test1", an "Email*" field with the value "test1@test1.com", and an "Image*" section showing a default image and a "Choose File" button. An "Update" button is at the bottom of this column. The right column, titled "Faculty", contains a vertical list of faculty names: Faculty of Applied Communication(FAC), Faculty of Business(FOB), Faculty of Cinematic Arts(FCA), Faculty of Computing And Informatics(FCI), Faculty of Creative Multimedia(FCM), Faculty of Engineering(FOE), Faculty of Engineering And Technology(FET), Faculty of Informatics Science And Technology(FIST), Faculty of Law(FOL), and Faculty of Management(FOM).

This is update page where user can update their details, user can change their details upon their request.

The screenshot shows a web browser at the URL `localhost:8000/profile/reset-password/`. The page has a dark blue header with a search bar and navigation links: Profile, Chat, New Question, and Logout. The main content area is divided into two columns. The left column, titled "Reset Password", contains an "Email*" field and a "Request Password Reset" button. The right column, titled "Faculty", contains a vertical list of faculty names: Faculty of Applied Communication(FAC), Faculty of Business(FOB), Faculty of Cinematic Arts(FCA), Faculty of Computing And Informatics(FCI), Faculty of Creative Multimedia(FCM), Faculty of Engineering(FOE), Faculty of Engineering And Technology(FET), Faculty of Informatics Science And Technology(FIST), Faculty of Law(FOL), and Faculty of Management(FOM).

This is reset password page, user can reset their password by entering their email and receive an email with a reset password link.



Reset Password

New password*

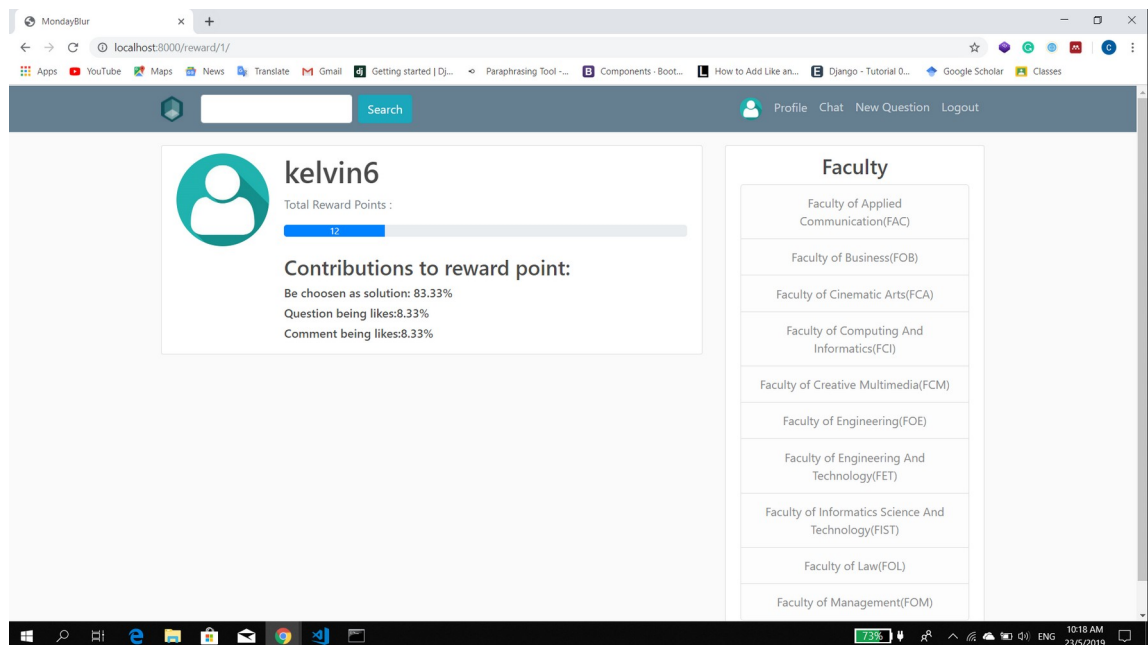
New password confirmation*

Reset Password

Faculty

- Faculty of Applied Communication(FAC)
- Faculty of Business(FOB)
- Faculty of Cinematic Arts(FCA)
- Faculty of Computing And Informatics(FCI)
- Faculty of Creative Multimedia(FCM)
- Faculty of Engineering(FOE)
- Faculty of Engineering And Technology(FET)
- Faculty of Informatics Science And Technology(FIST)
- Faculty of Law(FOL)
- Faculty of Management(FOM)

The reset password link brings user here and allows them to reset password.



kelvin6

Total Reward Points : 12

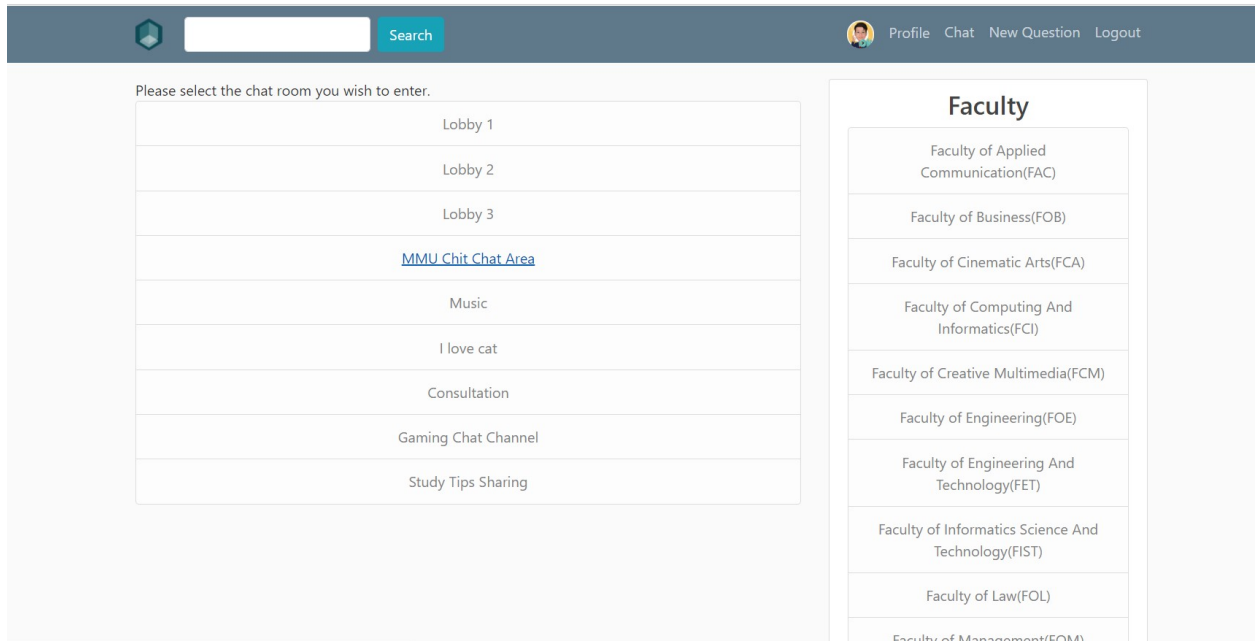
Contributions to reward point:

- Be chosen as solution: 83.33%
- Question being likes: 8.33%
- Comment being likes: 8.33%

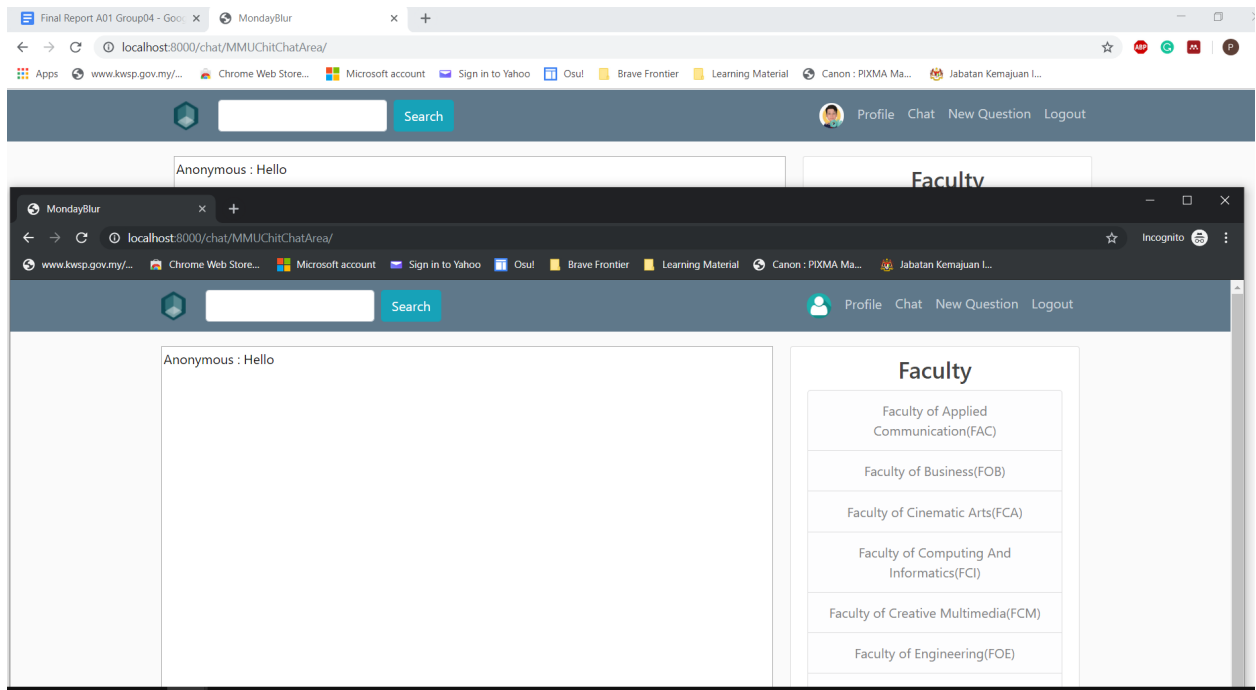
Faculty

- Faculty of Applied Communication(FAC)
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- Faculty of Cinematic Arts(FCA)
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- Faculty of Informatics Science And Technology(FIST)
- Faculty of Law(FOL)
- Faculty of Management(FOM)

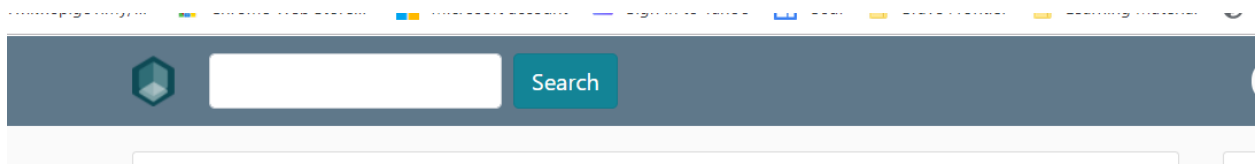
This is reward page, where user can see the rewards point accumulated. They can also see from where they accumulated it and the percentage of accumulation.



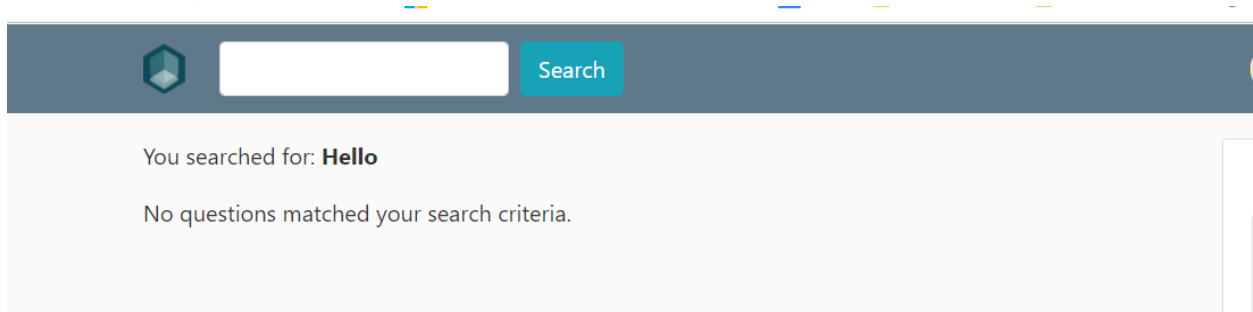
This is the chat module. At first, it gives user to select which chat room they want to enter.



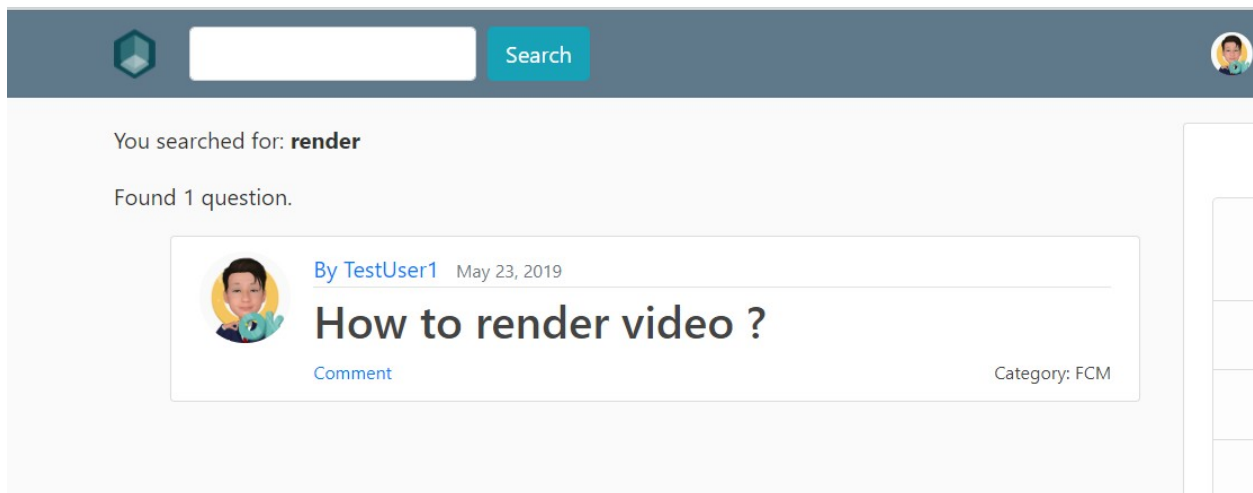
After that, the user will enter the chat room. User will be able to send message to the message box. The user which in the same chat room will be able to receive the message from the other user and vice versa.



This search bar allow users to input the keyword of the question.



It will display an message. "No questions matched your search criteria" if there is no "hello" in the database.



It will display the question if the keyword and the questions in database match.

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Chapter 1: Introduction

The purpose of this report is to investigate what idea is the most suitable for a Mini IT project for a university assignment. The team decides upon an idea based on a few criterias. Mainly, does the idea have real world value, can it be implemented in any industry, can users use it with ease and would the user like it. With these few criteria in mind, the team manage to think of an Q&A site which targets students as their audience.

To ensure that this idea is viable, the team did a background study, which made research about how students look up information online for their knowledge or studies. Background study also covers the existing online learning and how student often use them. From the analysis of background study, the team created a problem statement and listed down a few objective of this mini it project.

Furthermore, the team did a deeper analysis in literature review about an QnA learning forum. The literature review talks about a magnitude of topics, mainly, what is an QnA learning forum, whom is the suitable target audience, pros and cons of such forums, existing learning forums, how rewards affect users and future of QnA learning forums.

Lastly, the team carried out an online survey at a local university to find out how widely accepted is the idea of an QnA learning forum and what features would people love to have in an QnA learning forum.

1.1 Background Studies

Over the year, university students will “google” whenever they face any difficulties in their coursework. Students in Multimedia University, Cyberjaya also search information about their coursework using Google. Many of the solutions will then come from existing websites like StackOverflow, Reddit and Quora. Online QA forums like Quora and StackOverflow (SO) are appearing as platforms that allow large users to interact on common topics of interest. (Rekha, V. S., Venkatapathy, S. , 2015). Question answering (Q&A) sites provide a platform for online users to share and exchange knowledge on a variety of topics. They are part of many knowledge sharing domains, such as blogs, wikis and video sharing networks. Some sites, e.g., Yahoo! answers, encourage users to ask questions on any topic while others, such as StackOverflow (SO) and Quora, are specialized communities focused on more specific domains. (Movshovitz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., Faloutsos, C., 2013). However, most of the time the solutions given are not what the lecturer wants as most of it may not be related to the coursework.

This program is an enhancement from the existing program, such as StackOverflow, Quora and Reddit. This program is better because it has a more versatile question and answer site designed for MMU students, while StackOverflow does have the same concept but the focus is more to coding. Moreover, the point system that exists in this program is similar to the point system from Stack Overflow and Reddit but way simpler. For example, Reddit has upvotes, which are measured in karma points, and signal to the community that a particular comment or post is substantive and adds to the larger conversation. When content is downvoted, the poster’s account loses karma points. (Adrienne Massanari, 2013). The point system is to encourage students and lecturer actively answering the questions from students to get special privilege based on the points accumulated. As questions on these sites become more complex, single questions often generate multiple good answers produced by different experts who explore distinct aspects of the problem. (Anderson, A., Huttenlocher, D., Kleinberg, J., Leskovec, J. , 2012). The users in Quora usually provide compelling answers to the questions in which they are interested. (Maity, S. K., Sahni, J. S. S., Mukherjee, A. , 2015).

The program has real-world value because it can be implemented in many universities. It is marketable to most of the field due to the modification can be done depend on the customers need, but the main functions of the program will be retained.

A survey on the user's acceptance of your program will be conducted. It is a prototype but definitely has the potential to become a complete program. It can be implemented in education because the target user is students and lecturers.

Our program has a simplistic login page like Facebook so it is easy for the user to login. We make it easier for the user to post a question, it is as easy as making a post on Facebook. User most likely will accept this program because it would be helpful for their studies. Furthermore, the user does not have to go through a tedious search using Google and ended up getting an unrelated answer. User only has to post a question and there will be lecturers or students answer for you.

1.2 Problem Statement

As students, we find that sometimes the courses that we are newly introduced to can be difficult and problematic. We found that asking lecturers every time when we have a question in mind can be inconvenient and hectic. Besides, if we would have to book a consultation period with them or email them and these would take quite a long time. We also notice that students are facing difficulties in finding information about their coursework. Thus, we thought that we can provide a platform for MMU students to ask any questions related to the coursework. Therefore we created Monday Blur, to create convenience for the inconvenience by providing a web environment for them to ask questions and be answered by other fellow students and lecturers.

1.3 Objective

1. To develop a web-based interactive Q&A program for students and lecturers.
2. To develop a point system by rewarding students and lecturer who answer the question.
3. To create a voting system to choose the best answer for that particular question.

Chapter 2: Literature Review

2.1 Introduction

The desired outcome of this literature review is to create a better understanding about the Q&A Forum and how it plays an important role in education field to encourage people to ask question about their problems and to provide better thinking ability among the people in this era. By doing extensive research on online articles and research reports, the team has found many information to prove the importance of Q&A Forum in education. In this literature review, the team will be explaining the general knowledge of Q&A forum, How Q&A Forum work, the target audience, how online Q&A Forum get revenue, pros and cons of Q&A Forum, the inconveniences of traditional learning ways, existing QnA learning forum, rewards system, how rewards improve user engagement, future of QnA learning and conclusion. The team decided to do this program because Q&A forum is basically not very applicable for organisational use. In the program, the team categorised the question based on the organisation. For example, the program can be categorised into 5 different faculties of question in MMU.

In chapter 2.2, the team did research on the current Q&A forum. The team explained on how Q&A Forum work, the target audience of Q&A Forum and how online Q&A Forum get their revenue. All of these are made based on references. In chapter 2.3, the team did some extensive research on the pros and cons of Q&A Forum. They also found out the inconveniences of traditional learning ways. In chapter 2.4, the team compared the existing Q&A Forum like StackOverFlow and Reddit. They also discussed on the pros and cons of those existing Q&A Forum in this chapter. On the other hand in chapter 2.5, the team discussed on reward system in Q&A Forum and how important is reward system in a Q&A Forum to improve user engagement. Last but not least, in chapter 2.6, the team discussed on the future of Q&A forum and how Q&A forum can be improved. The team also made a conclusion based on the literature review and showed their references in the final two chapters which are chapter 2.7 and 2.8.

2.2 QnA Learning Forum

QnA learning forum has become one of the platform where it has a big influence in everyone life. This is because users can seek help by posting the questions in the forum and there will be volunteers which willing to answer the questions. Moreover, it is a platform which give online users to share and exchange understanding on many topics,(Movshovitz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., & Faloutsos, C.,2013).Questions and answers on Q&A websites represent archives with millions of entries that are of value to the community,(Treude, C., Barzilay, O., & Storey, M.-A. ,2011) It becomes a phenomenon where mostly students seek help from internet about their coursework. Surprisingly, there are a lot of solutions which can be found in educational forum website or we can called it as 'question and answer' website. This includes website such as,Quora,Stack Overflow and Yahoo! Answers. It has become one of the most efficient ways to get the solutions they seeking for.

QnA learning forum is a place where a lot of users gathered and contribute to the Q&A community. Q&A sites provide enduring value to active users who ask and answer questions. They are also a record of knowledge organized around specific queries that can later be found through web searching. Studies find that there are differences in terms of the answer quality especially when comparing answers on paid versus free Q&A sites, motivating the need to identify and encourage the participation of expert users who can provide top notch answers. It has been claimed these experts are the main source of answers, as well as of helpful answers in many knowledge sharing communities,(Movshovitz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., & Faloutsos, C.,2013). Furthermore, Anderson, A., Huttenlocher, D., Kleinberg, J., & Leskovec, J. (2012) mentioned that general question answering sites such as Yahoo! Answers, Quora, and others support variety types of interaction: expertise sharing, discussion, everyday advice, and moral support.

On the other hand, focused Q&A sites, like Stack Overflow, the programming related Q&A site we study, differ from these broad interest sites in that all questions are meant to be objective and factually answerable – most subjective questions are frowned upon by the Stack Overflow community. In general,Stack Overflow questions are difficult, in the sense that not much people can provide a satisfactory answer. Profound expertise and domain knowledge is a must to contribute an excellent answer. This type of focused Q&A model has been extremely successful. As of early August 2010, Stack Overflow has a total of 300k registered users who asked 833k questions, provided 2,2M answers, and posted 2,9M comments. In August 2010 the site served 7.8 million

monthly visitors. This makes Stack Overflow smaller than general Q&A sites, but larger than social Q&A or programming forums (Table 1)(Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011)

Site	Users	Total Posts	Posts/day (last month)	Source
Stack Overflow	300,534	833,427 Q 2,225,456 A	2226 Q 4573 A	This paper
Aardvark	90,361	225,047 Q 386,702 A	3167 Q	Horowitz [12]
Java Dev. Forum	13,379	333,314 messages	?	Zhang [25]
K-iN	?	60 million total	44,000 Q 110,000 A	Nam [19]
Yahoo! Answers	?	23 million resolved A	39,299 Q 281,745 A	Adamic [2]
Live QnA	290,000	600,000 Q 1,800,000 A	?	Hsieh [13]

Table 1: Comparison of multiple Q&A sites.

Source: Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011

2.2.1 How online Learning Forum work

In general, QnA learning forum is a website where the users can post their questions just like what they do when they want to post in Facebook. However, QnA learning forum has several common features which can be easily distinguish from the social networks such as Facebook and Twitter. Further into the details, the knowledge sharing websites, including Q&A sites, are often identical to social networks where traditional friendship relationships are replaced with interactions which leads to information exchange. User interactions on StackOverflow are started by a user asking a question, they usually continue when another user answers the question, and may extend further through the exchange of insightful comments. Additionally, a user who asks a question can tell which was the most helpful answer, and other users can vote on whether they find any answer useful. (Movshovitz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., & Faloutsos, C., 2013).

The best example to show how a QnA learning forum works is Stack Overflow. Overall, Stack Overflow has 9 main features. First of all, voting feature is for the users to vote which has the best answers and it used as a mechanism to differentiate good answers from bad ones. Users are able to upvote and downvote the answers given by the other users. Additionally, user who is asking the question are given the power to accept one answer as the official answer. Secondly, Stack Overflow contains tag which are used to organize questions. Users have to attach at least one tag before posting their question. Users can improve the quality of their answer and questions by editing it. Badges are awarded to users to reward them for their contribution.

The pre-search function can avoid users asked duplicate questions by showing similar questions after user has finished typing the title of a question. It is impressive that Stack Overflow was designed to be used such that Google is UI. Stack Overflow web pages are optimized towards search engines and performance (Treude, C., Barzilay, O., & Storey, M.-A., 2011).

Furthermore, Movshovitz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., & Faloutsos, C., 2013 mentioned that users reputation can be gained by answering questions on the site and it is a form of measurement on how much the community trust you. Not only that, user who has higher reputation are given the power to edit on the site, this includes editing other users answers.

Stack Overflow is dedicated to factual answers and clearly discourages subjective, conversational topics or Discussions. However, users can enable conversations about the site itself without interfering with the main Q&A function as Stack Overflow has a “meta” site, similar with discussion pages on Wikis (Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011). While the generic QnA learning forum like Quora have both, giving answers and commenting to the answers, QnA learning forum

such as Stack Overflow is more than just a discussion forum like Quora and Yahoo! Answer. Instead, their design approach put more focus on prioritized information over conversation through a Q&A format and a voting system that motivate participation (Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011).

2.2.2 Target Audience

The target audience for QnA learning forum can be very broad and then can be further down to a more specific audience when it is sorted by categories. This kind of QnA learning forum are basically like Quora and Yahoo! Answer. Both of them are a QnA learning forum which allow users to ask any questions. The question will then be sorted into a suitable category.

Another kind of QnA learning forum is language based forum. This means it is target to a specific community which use only one language other than english. For instance, the chinese community favors Baidu Knows as their QnA learning forum because it use Mandarin as their main language.

While Stack Overflow specifically covered all range of topics in computer programming. Therefore, programmers are very fond of Stack Overflow as it is always a place to find their solutions. When they face any difficulties in coding, asking coding questions in Stack Overflow will become very handy as they can expect to get help from the other users very fast. Mamykina, Manoim, Mittal, Hripcsak, & Hartmann, 2011 found out that half of all questions that eventually receive answers are answered within 11 minutes.

Moreover, users can look up for the existing solutions given by the experienced users in Stack Overflow before asking question. Stack Overflow attracts programming students to use their forum as the solutions given in Stack Overflow can help them with their coursework enormously. Students only required to understand the code and use it for their project. Moreover, those who work as a programmer use Stack Overflow too to find out how to solve the errors encountered. Since Stack Overflow are for programmers, it might not be as popular as the other forum but there is no doubt that Stack Overflow are the best QnA learning forum for programmers.

2.2.3 How online Learning Forum get revenue

QnA learning forum is basically free to use. We do not required to sign in to view the content in the website. Furthermore, we do not required to become a premium member or anything when using their website. Users can access most of the features in the QnA learning forum without paying anything. However, websites like Stack Overflow with over 50 million monthly visitors can keep their website running. Therefore, there must be other way for Stack Overflow to earn revenue while keeping their website free to use.

The main income for Stack Overflow is by displaying advertisement. Advertisement is playing a huge role in gaining income for the website. The vast majority of users will receive a considerable amount of ads. Stack Overflow tried their best to deliver the relevant ads instead of putting more ads to their website. By doing this, users are willing to visit the website because the ads are less annoying. This indirectly boost their revenue as the amount of income come from advertisement are depending on the number of visitors.

Moreover, Nick Craver, 2016 said that they don't want to use an automated system that selects some ads for us. It is because they do not have the control over the system which might be difficult to maintain the level of quality we want to maintain. They have intentionally left a lot of money on the table, yet sacrificing quality is not what they want to be known for.

Next, Stack Overflow relied on Stack Overflow Talent & Stack Overflow Jobs. These services in turn help developers find better jobs and also learn about companies in a way that preserving the best user experience (no spammy inmail, no flash ads, etc.). Developer experience is taken into consideration, which makes everything they sell as a company unique. The more companies and developers we have, the better and faster the matching we can do with developers and hopefully their dream jobs. For companies, they aim to match with a few candidates that are an awesome match, not 500 candidates that barely match at all. This is how Stack Overflow showcase their value. They prefer to optimize things and increase the efficiency for both developer and companies – there's so much inefficiency here we aim to improve with the whole hiring process (Nick Craver, 2016).

2.3 Pros and cons of online Learning

Online learning has come a long way every since the creation of the internet on January 1, 1983. Countless amount of QnA learning forum platform have emerge over the span of decades due to the evolution of the internet and being more accessible by more people around the world. Online learning has helped countless people ranging from students to university professor to help further increase their knowledge on topics of their interest. QnA learning offers innumerable amount of advantages over traditional formal learning like in schools or university. Some of the pros of QnA learning are better learning environment for students, higher student engagement with the study material, better perception of learning and reduced number of student failure in particular subject (Nguyen, 2015).

By offering a online platform, users can access it from the comfort of their own home and get the knowledge they want at their own pace which indirectly improve user engagement with study material and increase their ability to better understand the education material. Incidentally by being in their comfort of their own home, they will be more relax and more encourage to learn which consequently reduces number of failure to master a subject. Furthermore, the goals of QnA learning are to increase completion rate, decrease time for obtaining degree, reduce costs to continue to postsecondary education, and offer more access to non-traditional students (Koller & Ng, 2012). On top of that, there is the hope that QnA learning will be able to provide a top tier education to anyone, anywhere, and anytime as long as they have Internet Access (Nguyen, 2015). Now higher education can be obtained by people anywhere with an internet connection and the overall education level of the world can increase steadily overtime for the betterment of the world.

However, there are some research which are contradictory to each other. Some research paper show positive findings in QnA learning while others find either negative or null finding in effectiveness of QnA learning. In a study that compares student learning outcomes in a microeconomics course, Brown and Liedholm (2002) found that students in the online format performed significantly worse on tests than the students in the traditional format even though they had better GPA and ACT scores. The key difference between these 2 type of students were their engagement in the education. The online student claim to spend less than 3 hours per week on the education material while the traditional student attended every class which is at least 3 hours per week.

In one experimental studies on the effects of traditional instruction versus QnA learning. Students were randomly assigned to live lectures versus watching the same lectures online while they were given same study material, Figlio et al. (2010). He found

modest evidence that the traditional format has a positive effect compared to the online format. According to Tuan Nguyen, the evidence shows that QnA learning is just as effective if not better than traditional learning; However, he stresses that the findings of the evidence is inconclusive.

2.3.1 The inconveniences of traditional learning ways

Traditional learning has many flaws and many researchers and even educators are aware of this. Many agree that QnA learning far exceeds traditional learning; However, many research have found that pros QnA learning doesn't completely overcome the conventional traditional learning. In many research it is found that attitude of learners play a huge role on how well a person learns from either online forums or traditional learning. With this in mind, researchers can't deny that QnA learning forums offers much more convenient than traditional learning. For example, if a user wants to know how to fix a certain problem with their code in Java, they could just easily go to stackoverflow and ask a question and get multiple answers; Whereas in the traditional method, one would require to read multiple books or refer to someone with higher knowledge which would eat up a lot of time and become an inconvenience for the person. This is why QnA learning forum is extremely convenient as it is able to connect everyone from users with lots of question to knowledgeable people.

Next, traditional learning often use more resources compared to QnA learning forums. Since everything online is digitized, there is no use of paper to store all those data, instead its all stored in a server somewhere around the world where everyone with internet connection and retrieve easily. On the other hand, traditional learning often require manual documentation of data on paper and its stored locally where it is can only be access easily by the local but not so much for the people far away.

2.4 Existing QnA learning forum

There are many existing forums in this modern day and age such as “stackoverflow”, “reddit”, “quora”. There are many things that can be learnt from these QnA learning forum. Each QnA learning forums has its own strengths and weakness which we can learn from to further improve future online forums. For instance, the online forum that is in reddit is only limited to a number of subreddits(categories), most subreddit in reddit is considered to be for entertainment/ social media type of forum discussion which does to focus on the learning side.

According to Asha (2018) however, there are some subreddit which solely focuses on discussion for the sake of learning, to name a few “r/todayilearn”, “r/smartereverday” and “r/iwantolearn”. This shows that a website can both contain education and entertainment categories and still be successful. For “stackoverflow” on the other hand, it mainly focuses on problems associated with the tech side of the world such as problems with programs, code, algorithms and so on. The weakness of “stackoverflow” is that it is unable to cater to a wide range of audience, only caters to a specific audience who is more towards the tech side. However, “stackoverflow” manage to become one of the best QnA learning forum for the tech side of the world, where everyone who's anyone that is involved in tech will refer to “stackoverflow” for help. “Stackoverflow” has established a great amount of user and its reputation in the tech world is so good that it has become a niche.

2.5 Rewards System

As what we know, rewards means a thing given in recognition of service, effort, or achievement. We are taught to avoid punishment but earn a reward when we are still a kid. Since rewards system have been used frequently in learning to offer incentives though, there is no surprise that this concept had be implemented in QnA learning forum like Quora and StackOverFlow to promote growth user contributions. Rewards or we called reputation, is a rough measurement of how much the user in that particular QnA learning forum trusts you; it's a certification for your contribution to that particular QnA learning forum(Anderson, A., Huttenlocher, D., Kleinberg, J., & Leskovec, J., 2012). Moreover, users can build reputation in Stack Overflow by giving useful answers on the question (Pal, Chang, & Konstan, 2012).If the community members give upvotes on the answers, reputation of the answerer increases. A users' reputation can also increase by asking interesting questions which is liked by the Q&A community.(It is also a gamification technique used to engage user to participate more. In order to let us have a clearer mind of how rewards system works, we will take two example from Stackoverflow and Reddit.

In StackOverflow, the algorithms of rewards system is detailed but simple. The only ways to obtain the rewards is by posting a good question and useful answers. Table below show the rewards scheme of stackoverflow(Taken from <https://stackoverflow.com/help/whats-reputation>). This rewards scheme facilities an easy recognition of experts as users with high rewards marks. It is designed to rewards user who answer the question more than those who ask the question(itz-Attias, D., Movshovitz-Attias, Y., Steenkiste, P., & Faloutsos, C. ,2013).

Action	Rewards marks change
Question is voted up	+5
Answer is voted up	+10
Answer is marked "accepted"	+15
Suggested edit is accepted	+2

On the other hand, the rewards marks of user can be decreased too. User will lose their rewards marks if following conditions happened(Taken from <https://stackoverflow.com/help/whats-reputation>):

Action	Rewards marks change
Your question is voted down	-2
Your answer is voted down	-2
Your vote down an answer	-1
One of your post receives 6 spam or offensive flags	-100

In stackoverflow rewards system, all users begin with one rewards point, and the point will never be dropped below 1, not matter how worse your question or your answer is(Taken from <https://stackoverflow.com/help/whats-reputation>). Besides, you are not able to increase your rewards marks if you accepting your own answer(Taken from <https://stackoverflow.com/help/whats-reputation>). Moreover, if you deleted posts, it does not affect your rewards marks, it rules is applied for author and voters(Taken from <https://stackoverflow.com/help/whats-reputation>).

Apart from Stackoverflow, Reddit rewards system, we called “Karma” is basically has the same algorithms as Stackoverflow. Not only submitting posts, user in Reddit can also upvote or downvote other users’ post and comment based on their opinion ;their voting has enabled the collection of karma points(Annika Richterich, 2014). Karma points is indirectly proportional to the number of upvote(Annika Richterich, 2014). Karma point represents how much googs the user had done for the reddit community, the best way to gain karma is to submit links that other people like and vote for(Taken from https://www.reddit.com/wiki/faq#wiki_frequently_asked_questions). Besides achieving upvote and downvote for a contribution which leads to the achievement of Karma, users can also gain virtual awards in Reddit.;these trophies are placed as thumbnails on the respective user page(Annika Richterich, 2014). Table below lists down some awards in reddit(Taken from <https://www.reddit.com/wiki/awards>) :

Awards’ Name	Description
Bellwether	Hang out on the new queue and flag carefully
Well-rounded	Post goog links and good comments
Best Link	Submit a great link

Best Comment	Write a great comment
ComboLinker	Submit lots of good links
ComboCommenter	Post a high percentage of good comments in one day
Inciteful Link	Submit something worthwhile but provocative
Inciteful comment	Submit something interesting but provocative
Shutterbug	Contribute a photo to the sidebar
Gilding(tiered)	Gild a link or a comment

Besides awards, Reddit does have some special trophies that are more rare than awards. The table below lists down some special trophies(Taken from <https://www.reddit.com/wiki/awards>):

Trophy's Name	Description
Translator	Foreign language translations
Open Sorcerer	Contribute code to reddit
White Hat	Responsible probe and report any holes in the reddit code
Beta Team	Participate in a reddit beta
Alienator	Design a logo used on reddit's front page
Artisan	Artistic contributions

In short, we can see that from both StackOverFlow and Reddit, rewards system does play an important role to promote user engagement. We will focus more on this topic in the next chapter.

2.5.1 How rewards improve user engagement

Before we move into how rewards improve user engagement, we need to understand the concept of “gamification”. The terms gamification come out in the early 2000s(Marczewski,2013), and become popular in the beginning of the 2010s(Deterding,Dixon 2011; Werbach & Hunter,2012). The central idea of gamification is to harness the motivational potential of video games by transferring game design elements to non-game environments(Michael Sailer, Jan Ulrich Hense, Sarah Katharina Mayr, Heinz Mandl, 2016). To make it simple to understand, gamification is defined as “the use of design(rather than game-based technology or other game-related practices)elements(rather than fully developed games)characteristic for games(rather than play or playfulness) in non-game contexts(regardless of specific usage intentions,contexts, or implementation media)”(Michael Sailer, Jan Ulrich Hense, Sarah Katharina Mayr, Heinz Mandl, 2016). The reputation point on stackoverflow and the karma points on Reddit could be conceptualised as elements of gamification and incentives for active participation in the community.

We already know that point is the basic element of a games, they serve to numerically represents a player’s progress in the game(Werbach & Hunter, 2012,2015) (Michael Sailer, Jan Ulrich Hense, Sarah Katharina Mayr, Heinz Mandl, 2016).The higher the points obtained, the higher the performance of that player in the game. Points allow the players' in-game behavior to be measured, and they serve as continuous and immediate feedback and as a reward (Sailer, Hense, Mandl, & Klevers, 2013)(Michael Sailer, Jan Ulrich Hense, Sarah Katharina Mayr, Heinz Mandl, 2016).This same go to the reward system in QnA learning forum. The higher the reputation points indicates the more active the user in participate in the forum.

To know how the reward system can improve user engagement, psychological need of satisfaction theory can be applied(Michael Sailer, Jan Ulrich Hense, Sarah Katharina Mayr, Heinz Mandl, 2016). Reward system can stimulate the need of competence of human. Users will become more active to participate in the discussion in order to achieve high reputation point in the forum. Reputation points not only represents the the user performance over the time, it also determine the contribution of this user in the community. Higher reputation points will make users feel they are better than others. For example, the answers provided by the high reputation point users are

usually be accepted and admired by other users who has low reputation points. This encourage the user to become more excited to help others to solve their problem. This kind of “do good feel good” mentality had provided benefits for altruistic user behaviour in rather spiritual way(Annika Richterich,2014).

Besides the need of competence, reward system has evoke the need for social relatedness of users in the online forum community. It offers a narrative frame in which the users are given a meaningful role in the QnA learning forum, which is to help each others. We will take Stackoverflow as an example to explain this situation. In Stackoverflow, user always ask question when they face some problems which struggle them for a long time, at the same time, user are also welcome to answer the question which asked by others users. This kind of “I help you, you help me” situation has made the QnA learning forum become more interesting. QnA learning forum is not like the online classroom which user learn from a syllabus which contains some contents that you might not interest; QnA learning forum is difference, you can just learn the things that you interest, and everyone in the forum could be your teacher. In short, it create a nice environment to let the user to learn and share and indirectly increase the quality of the QnA learning forum.

In short, reward system has improved the user engagement and can be explained by the psychological need of satisfaction theory.

2.6 Future of Question and Answer Forum

Over the years, QnA learning have been popular among every students because QnA learning is so convenient and easy to use. You can easily get a quality answers for your questions within a few minutes. Question Answering (Q&A) sites are presently vast vaults of use information.

While most Q&A aim were at first gone for giving helpful responses to the inquiry asker, there has been a stamped move towards inquiry replying as a network driven information creation process whose finished result can be of suffering an incentive to a wide group of onlookers. As a feature of this move, explicit aptitude and profound learning of the current subject have turned out to be progressively significant, and numerous Q&A sites utilize casting a ballot and notoriety systems as focal points of their plan to enable clients to recognize the reliability and precision of the substance.

There is a reasonable chance to include an incentive for both the makers and customers of data on these destinations by creating procedures that can dissect and extricate important data from the network elements occurring (A.Anderson 2012). For purchasers of data, there is the possibility to recognize and feature inquiries of enduring an incentive as quickly as time permits after they have showed up on the site, with the goal that clients can be coordinated to them. For makers of data — specialists who can respond to troublesome inquiries on the site — there is the possibility to distinguish addresses that have not yet been effectively replied, in order to feature them for expanded consideration (A.Anderson 2012).

As opposed to considering unsupported inquiry answer sets, we consider questions together with their arrangement of comparing answers. There are two viewpoints to this view — one at the inquiry level, and another at the full site level. To begin with, as inquiries on these locales become progressively unpredictable, single inquiries regularly create various clever responses delivered by various specialists who investigate unmistakable parts of the issue. As one of numerous prototypical precedents, an inquiry like(A.Anderson 2012) "How would you design a JSON date in jQuery?" on Stack Overflow creates various valuable reactions; the answerers and consequent analysts at that point separate among the few methodologies and discussion their relative benefits. In this regard, the full arrangement of answers establishes an examination of issues significant to the first inquiry that would be lost if any of the appropriate responses — even a generally amazing one — were seen in segregation. Accordingly, when one discussions about the making of enduring an incentive on a site like Stack Overflow, we guarantee that it is the issue just as all the

relating answers that together convey dependable incentive to the site. The second rule we recognize is that a higher action level around an inquiry not just flags the potential enthusiasm for the inquiry, however in total it likewise will in general advantage every one of the answers of the inquiry, regarding the assessment and notoriety builds they get. Along these lines, in spite of the fact that an inquiry asker can just formally acknowledge one of the appropriate responses, it is too basic a view to think about the different answers as existing in a condition of unadulterated challenge (A.Anderson 2012).

In conclusion, there is still much improvement that we can implement like a better database structure and giving multiple solutions

2.7 Conclusion

This literature review purpose is to help the team to understand the idea of question and answer forum. After doing this literature review, it clarifies the definition of question and answer forum. The team is able to differentiate the pros and cons of questions and answer forum and the inconveniences of traditional learning way. By doing so, they are able to implement the pros and cons of question and answer forum in their forum. On the other hand, the team understood how question and answer forum gets their revenue. The reward system takes a heavy position so that the user is encouraged to ask questions in the forum and to make the forum a better interactive environment while improving the user engagement. Over the year, the existing question and answer forum is not organisation friendly which means that the problem of a certain organisation couldn't be answered by it. Meanwhile, the future of question and answer forum has huge potential to expand in all human touched fields at the same time giving more possibilities in future for these forums to lead the change of culture of study. In short, this literature review is crucially needed in order for the team to create a better version of question and answer forum for organisation level like university and to have the question answered as soon as possible.

Chapter 3: Methodology

3.1 Interest Level Survey

Before starting the project, a survey will be conducted by the team in which participants are chosen randomly (around 50) from students of Multimedia University MMU. The target of this survey is to find out what are difficulties faced by students in MMU and who do they refer to when they have difficulty and would they still use it if other students help you with your difficulty. Based on the results of the survey, the team will then choose whether to allow students to answer the questions and to set up the questions category. After completing the whole program, the team will then carry out beta testing with 20 people to ensure that the program is bugless, flawless and achieved the objectives of the team. A feedback survey will also be given to 20 people to get ratings from the beta tester to check on the acceptance of the program. The aim of this survey is to gather feedback to improve the program further.

The diagrams below are how the survey form looks like. It consists of 9 questions.

PK Cube

Please answer the questions below.

* Required

Email

Your answer _____

Gender *

☐ Female

☐ Male

Age *

Your answer _____

Do you face any difficulty in your studies? *

☐ Yes

☐ No

If yes, what are the difficulties?

Your answer _____

Who do you refer to when you have difficulty? *

☐ Lecturer

☐ Students

☐ Other: _____

Would you like a website which helps with your coursework? *

☐ Yes

☐ No

What if other students help you through this website. Would you still use it? *

☐ Yes

☐ No

Suggest some feature you need in this website to solve your problems.

Your answer _____

SUBMIT

Figure 3.1.1: Survey form

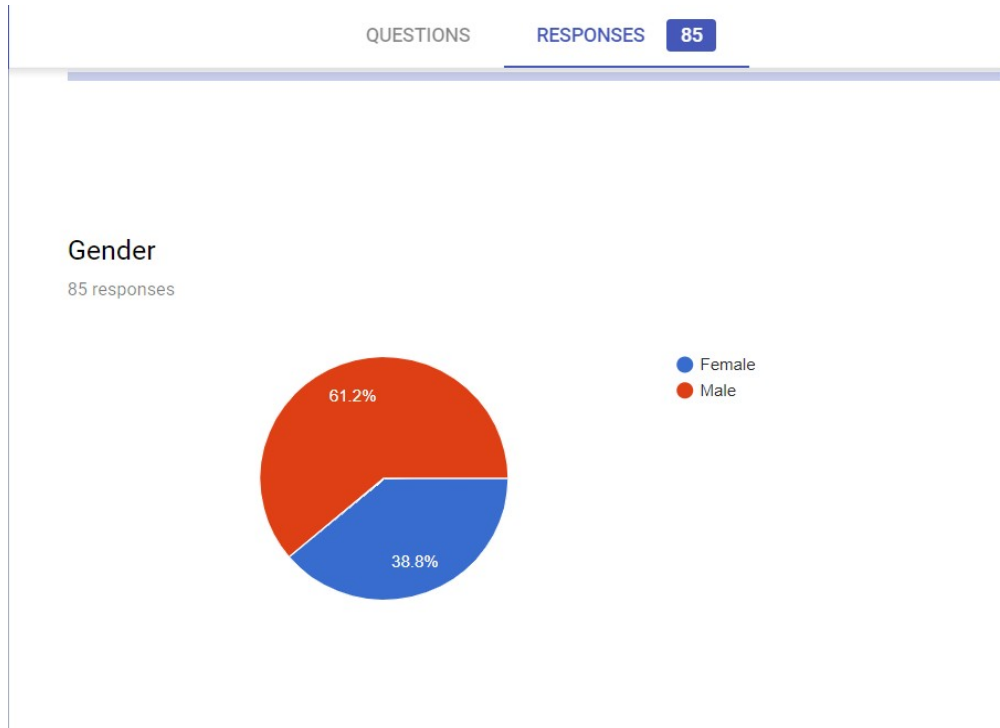


Figure 3.1.2 Pie Chart for Gender

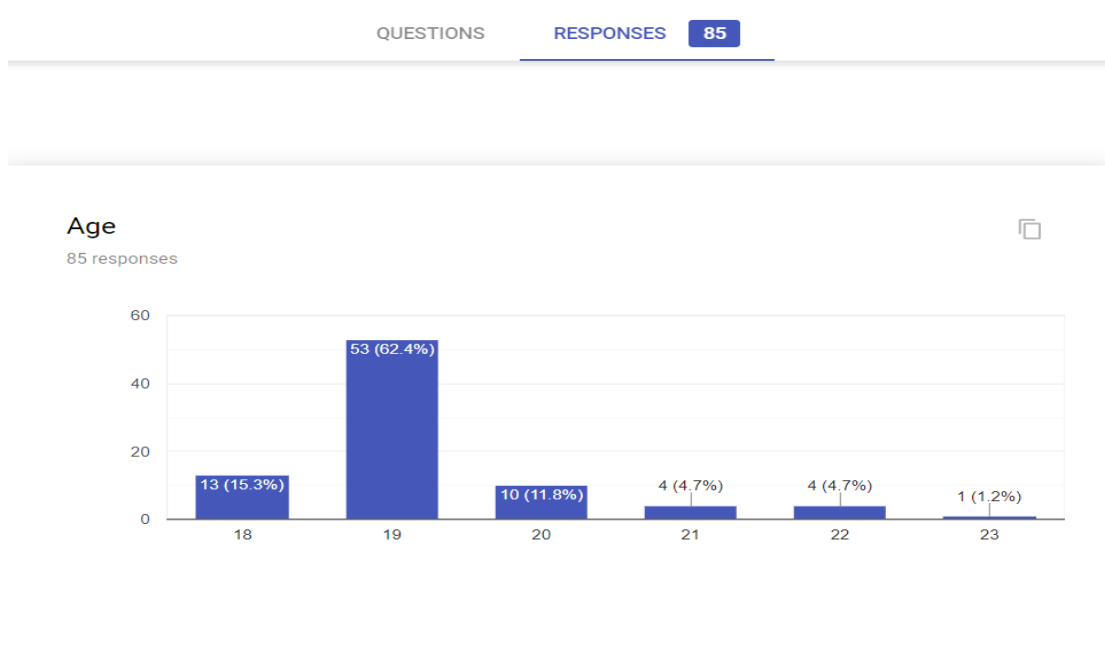


Figure 3.1.3 Graph for Age

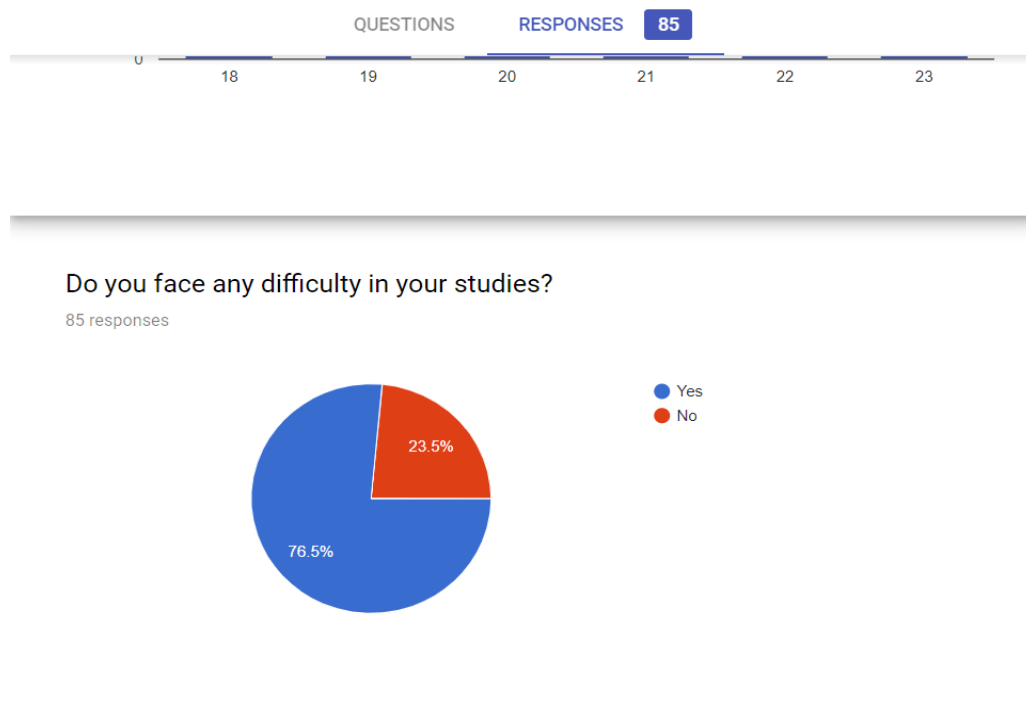


Figure 3.1.4 Pie Chart for facing difficulty in studies

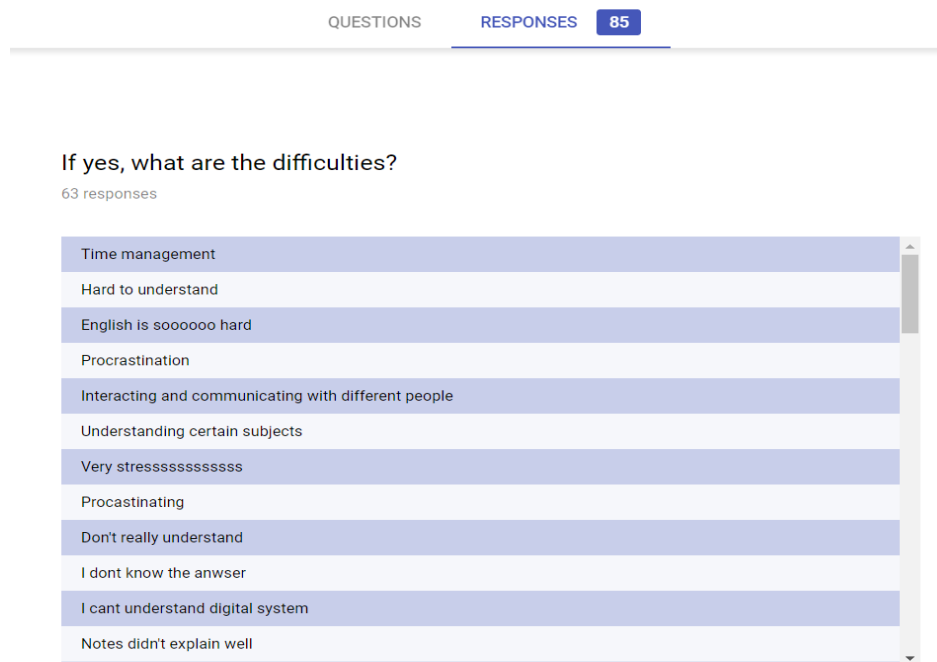


Figure 3.1.5 List of difficulties face by the responses

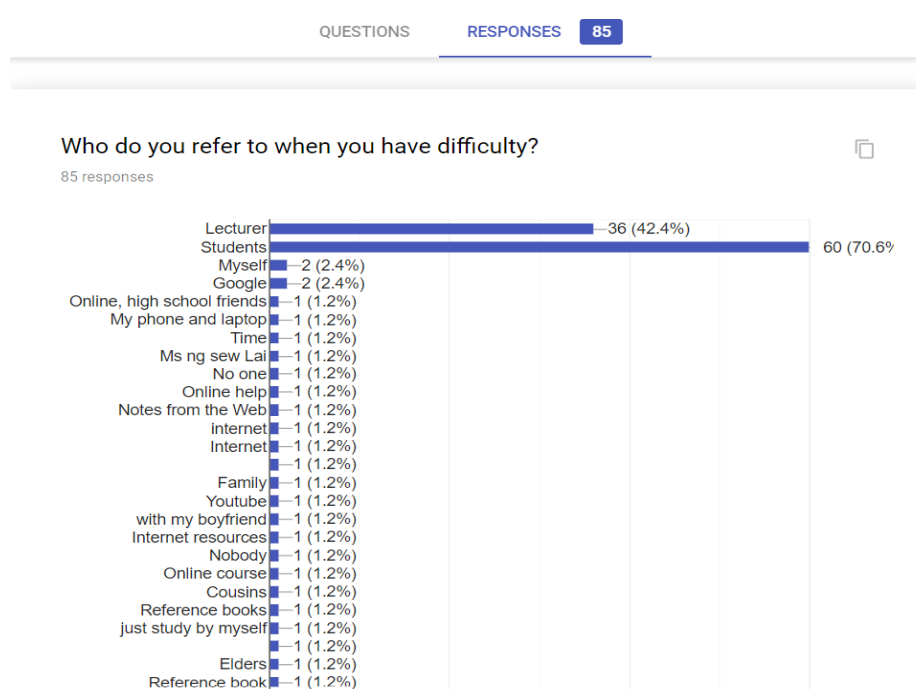


Figure 3.1.6 Graph for person refer when have difficulty

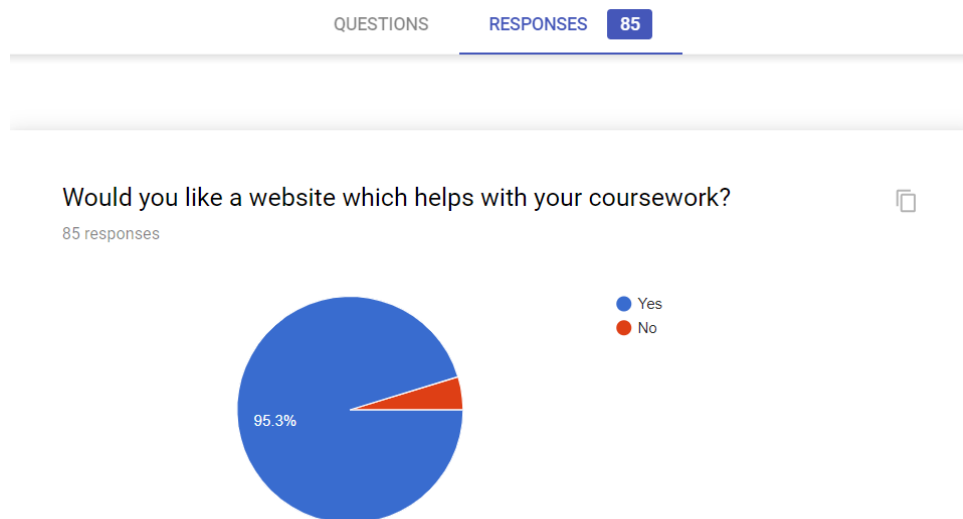


Figure 3.1.7 Pie Chart for opinion to have a website which helps in coursework

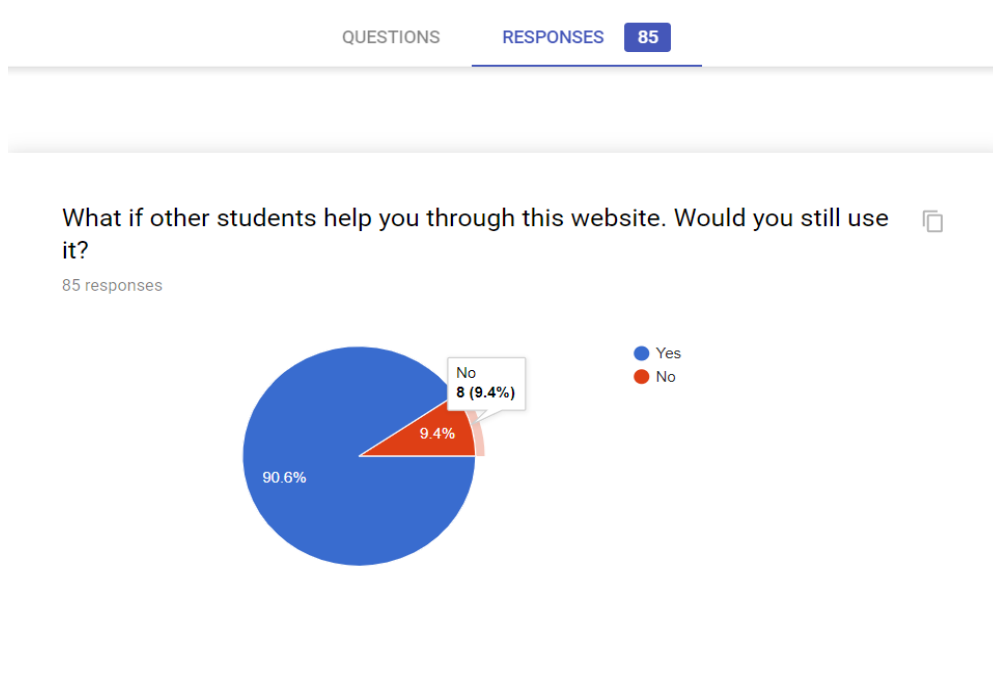


Figure 3.1.8 Pie chart for opinion if the question asked in website is answer by students

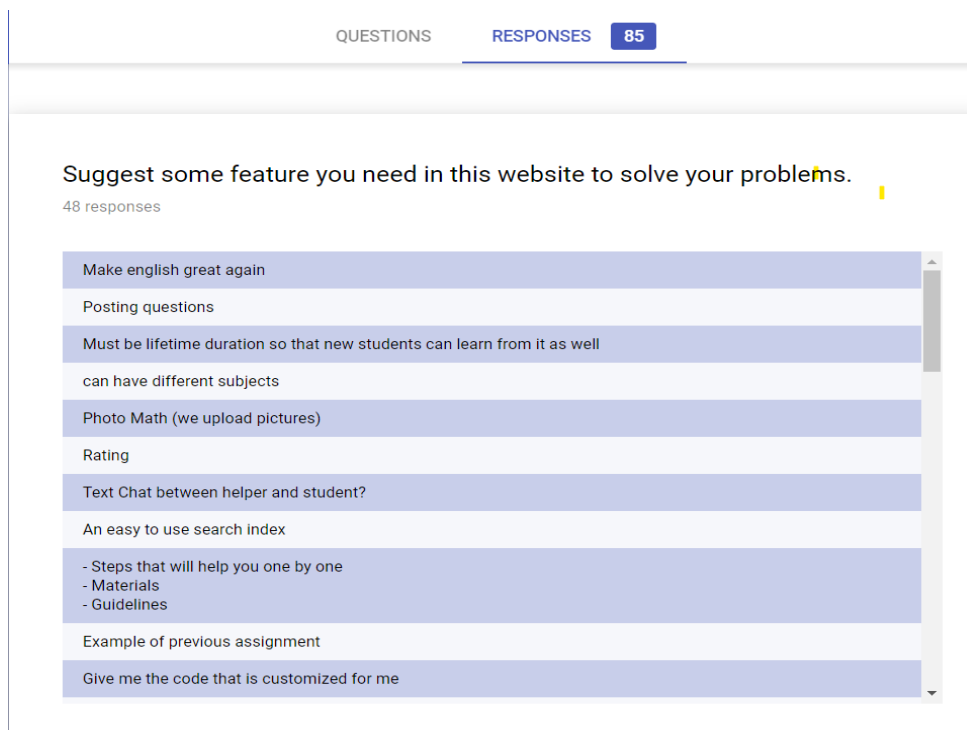


Figure 3.1.9 List of features of an website suggest by the responses.

A survey had been conducted to collect the data and information of gender, age, facing difficulty in studies, list of difficulties facing, person refer when have difficulty, opinion to have a website which helps in coursework and list of features an website for the QnA learning forum, Monday Blur during the completion of the project by using google form. There are total 85 responses from the students of Multimedia University, Cyberjaya. From the survey, there are 61.2% of male and 38.8% of female. Besides, the range of age of the respondents is from 18-23 years old. 15.4% of them are 18 years old, 62.4% of them are 19 years old, 11.7% of them are 20 years old, 4.7% of them are 21 years old, 4.7% of them are 21 years old and 1.1 % of them are 23 years old. Furthermore, the result of survey show that 76.5% of respondents claim that they do face difficulty in their studies while 23.5% of them said they do not face any difficulty in their studies. Moreover, 95.3% of respondents said that they would like to have a website which helps with their coursework. Apart of that, the respondents said that they prefer to refer to their friends and lecturer id they face difficulty in studies. Other than that, 90.6% of the respondents said that they will still use the website even though the question they ask is answered by the students and only 9.4% of them said they would not use it.

3.2 User Satisfaction Survey

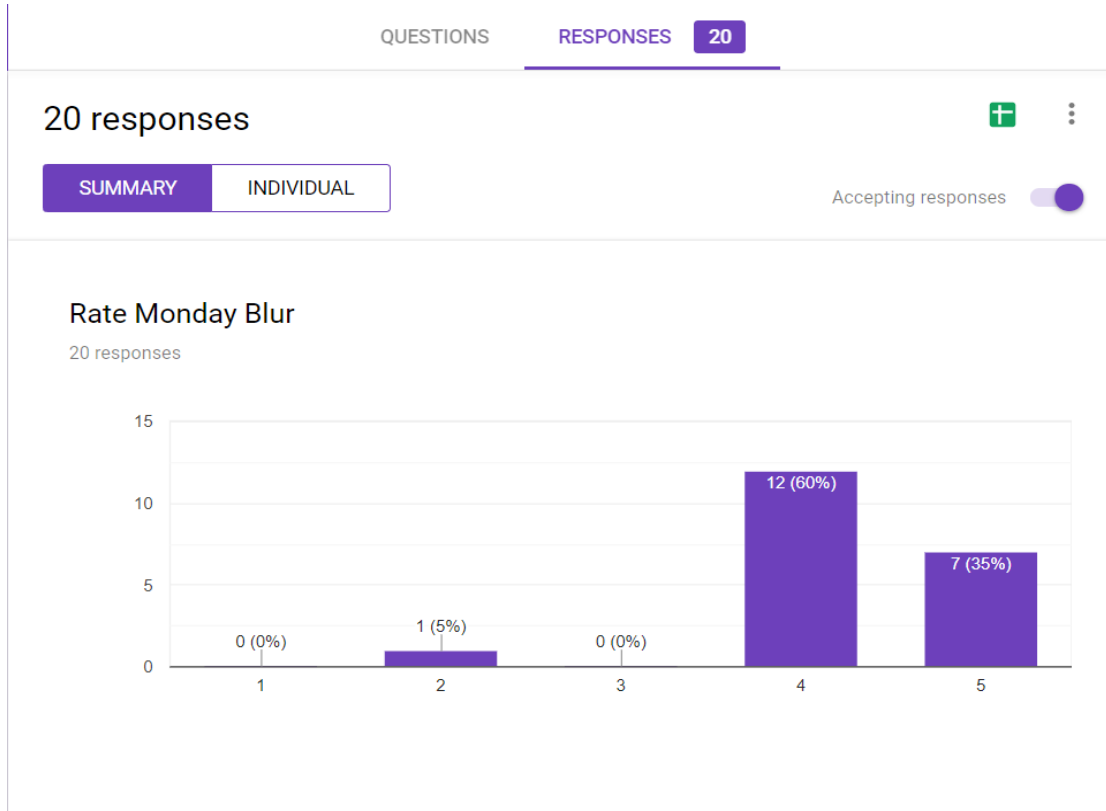


Figure 3.2.1 Graph for Rate of Monday Blur

QUESTIONS

RESPONSES

20

How is the layout/design of the website

20 responses

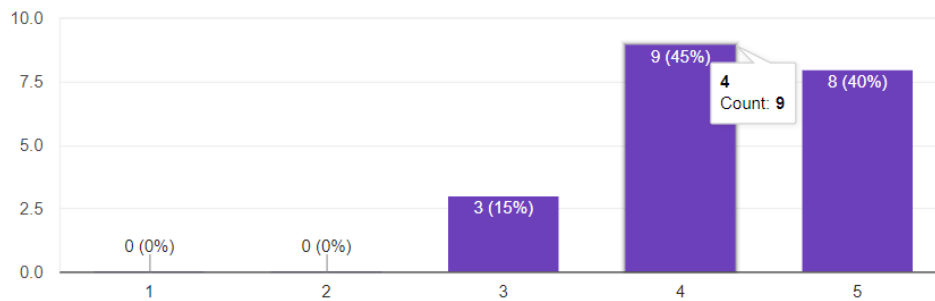


Figure 3.2.2 Graph of the rate of the layout/design of the website

QUESTIONS

RESPONSES

20

Is the website user friendly

20 responses

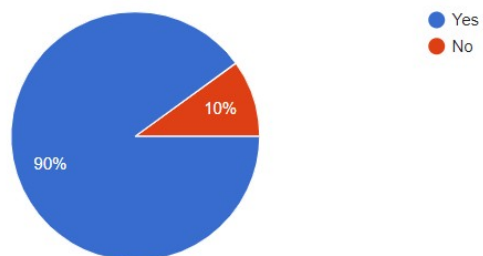


Figure 3.2.3 Pie Chart of whether the website is friendly or not

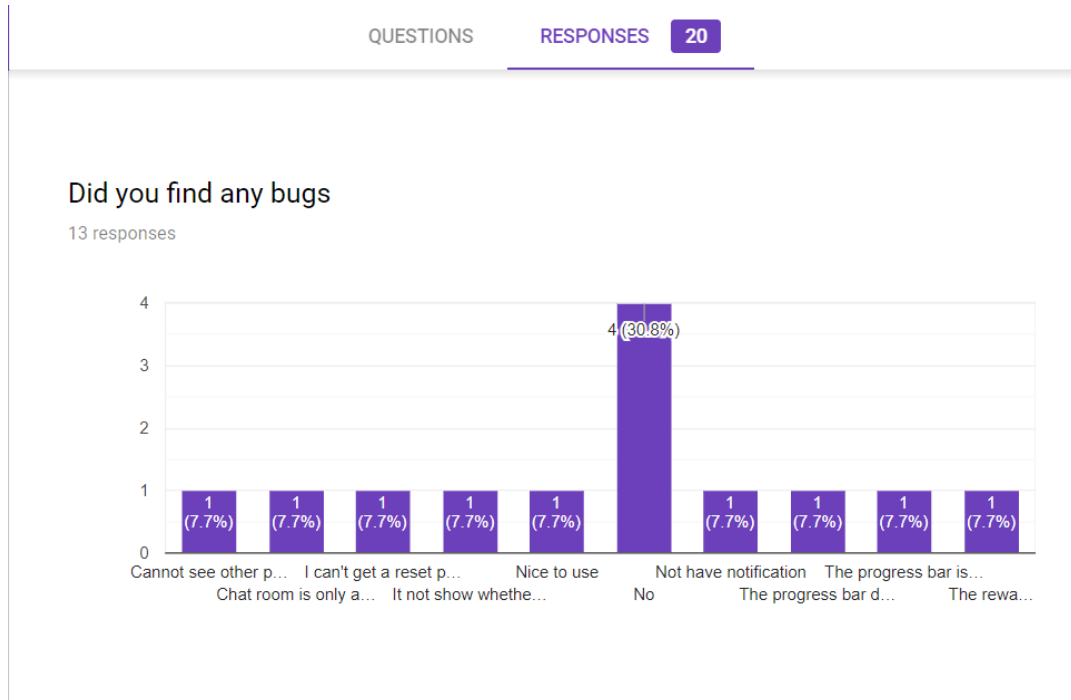


Figure 3.2.4 Graph of user's feedback of any bugs of our website

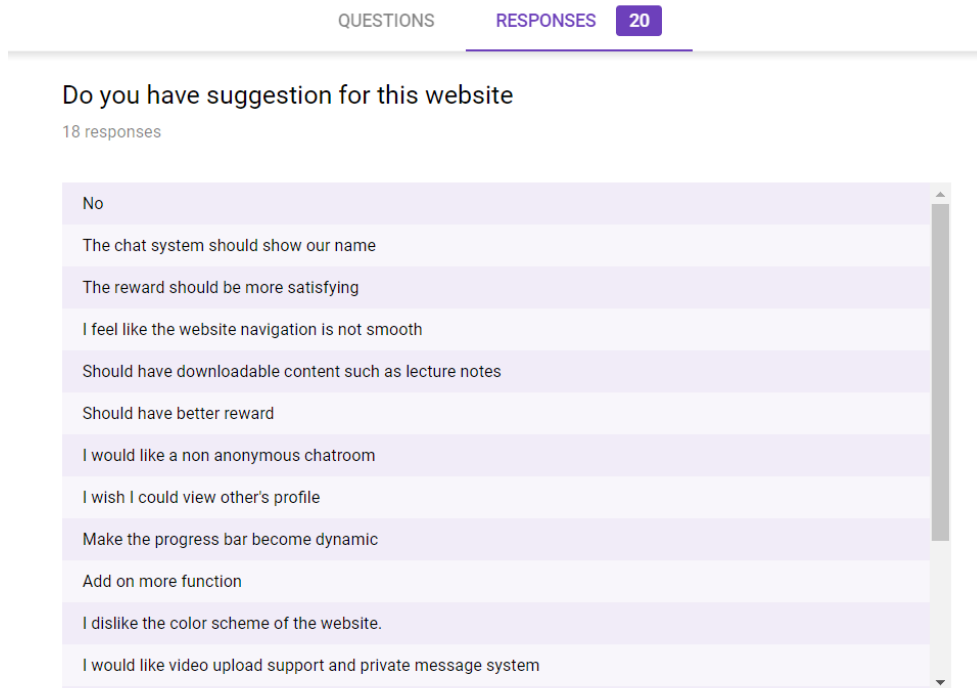


Figure 3.2.5 List of any suggestion from user to improve the website

The student satisfaction survey had been conducted in order to collect the feedback and satisfaction from students after using the website Monday Blur. There are

total 20 respondents from Multimedia University, Cyberjaya. From the survey, there are 60% of the respondents rate the website as 4 star, 35% of the respondents rate the website as 5 star, 5% of the respondents rate the website as 2 star while there are nobody rate the website as 1 star and 3 star. Besides, there are 15% of the respondents rate the layout and design as 3 star, 45% of the respondents rate the layout and design as 4 star and 40% of the respondents rate the layout and design of the program as 5 star; there are nobody rate the layout and design of the website as 1 or 2 star. On the other hand, there are 90% of the respondents think that the website is user friendly and 10% of the respondents think that the website is not user friendly. Apart from that, 6 out of 20 of respondents think that the website got some bugs. Some of them mentioned that the progress bar is not dynamic. Moreover, they also said that they cannot see other user profile and the chat room is anonymous. Last but not least, they also think that we miss up one things which is to specific the status of the user, whether the user is student or lecturer.

In conclusion, the team will consider the user feedback and do some improvement on the website. After some discussion with the member, the team decided to do it in future studies.

Chapter 4: Conclusion and Future Studies

To conclude this report, the team have found that developing a Q&A site targeted towards students is a great idea for mini it project. This is due to analysis in literature review, the team managed to find that there many pros of creating an QnA learning forum. Not only that, the team also manage to find existing QnA learning forums and the flaws that come with them. With this information, the team plans to create an all rounder QnA learning forum with features that other forums lacks and also with unique features that no other platform have.

In the future, the team plans to add on more function in the QnA learning forum. For example, the team might consider to add the function like CGPA calculator, online classroom, and allow user to upload video. Moreover, the team would like to host this QnA learning forum to make it become a “real forum”. With the deployment of this website online, the team will be able to add more functionality. For example, the team will be able to add a functioning private message system similar to facebook; Not only that, uploading video, video call and notification support could be implemented with ease. On top of that, the team will implement a new login system where a user can specify who they are, either student or lecturer. Furthermore, this website can generate revenue for self upkeep by implementing suitable advertisements for students and educators. Lastly, with further studies, the team will be able to add an algorithm to show related post to user or recommend post to users base on their activity.

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Reddit official website, wiki > awards <https://www.reddit.com/wiki/awards>

Task Distribution Table

Name	Role	Documentation	Flowchart/ Algorithm/ Coding
Pritesh Patel a/l Harilal	<ul style="list-style-type: none"> • Group Leader • Ensure the report is complete with meaningful and correct information • Compile the report after the report is ensured complete. • Make sure that the project is progressing according to the team timeline and finishes the project before week 7. • Responsible for the design of the program 	<ul style="list-style-type: none"> • Literature Review • Introduction • Conclusion and Future Studies • Appendices 	<ul style="list-style-type: none"> • Main Module • User Detail
Ang Kelvin	<ul style="list-style-type: none"> • Secretary • Ensure the report is complete with meaningful and correct information • Compile the report after the report is 	<ul style="list-style-type: none"> • Literature Review • Abstract 	<ul style="list-style-type: none"> • Question Module

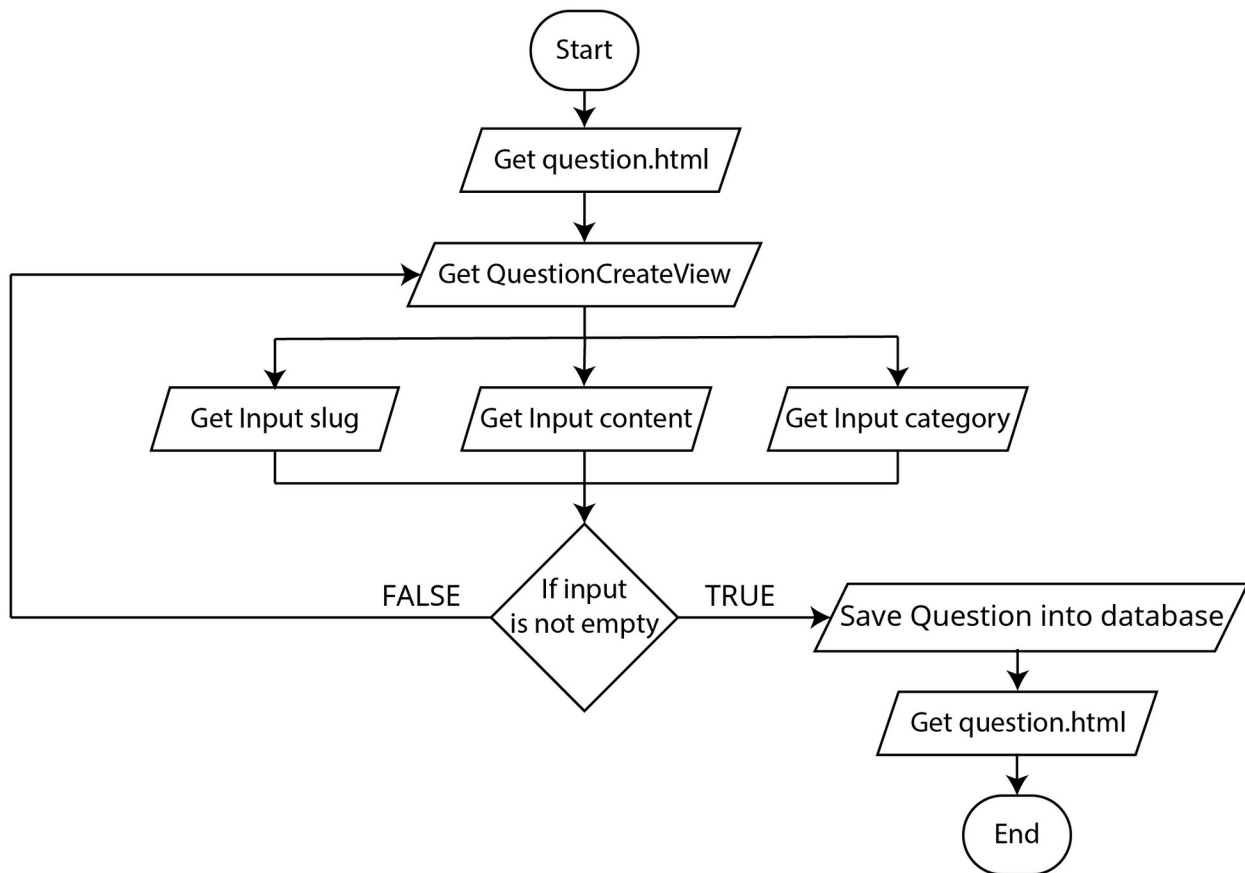
	ensured complete. <ul style="list-style-type: none"> Responsible for the design of the program 		
Jeffrey Ting	<ul style="list-style-type: none"> Debugger, ensure that the program runs without any bug Responsible to check flowchart or pseudocode Responsible for data dictionary 	<ul style="list-style-type: none"> Methodology :Data gathering Problem Statement 	<ul style="list-style-type: none"> Comment Module
Chang Kai Boon	<ul style="list-style-type: none"> Responsible for the design of the program Responsible for the user interface design Debugger, ensure that the program runs without any bug 	<ul style="list-style-type: none"> Methodology :Data gathering Conclusion and Future Studies 	<ul style="list-style-type: none"> Voting Module Reward/Points Module
Pua Khe Fong	<ul style="list-style-type: none"> Responsible for the user interface design Responsible for the design of the program Responsible to check flowchart or pseudocode Check the report for possible missing information. 	<ul style="list-style-type: none"> Literature Review Objectives Reference 	<ul style="list-style-type: none"> Search Module Chat Module

Flowchart

Question Module

Create Question

Drew By: Ang Kelvin
Student Id :1181101297

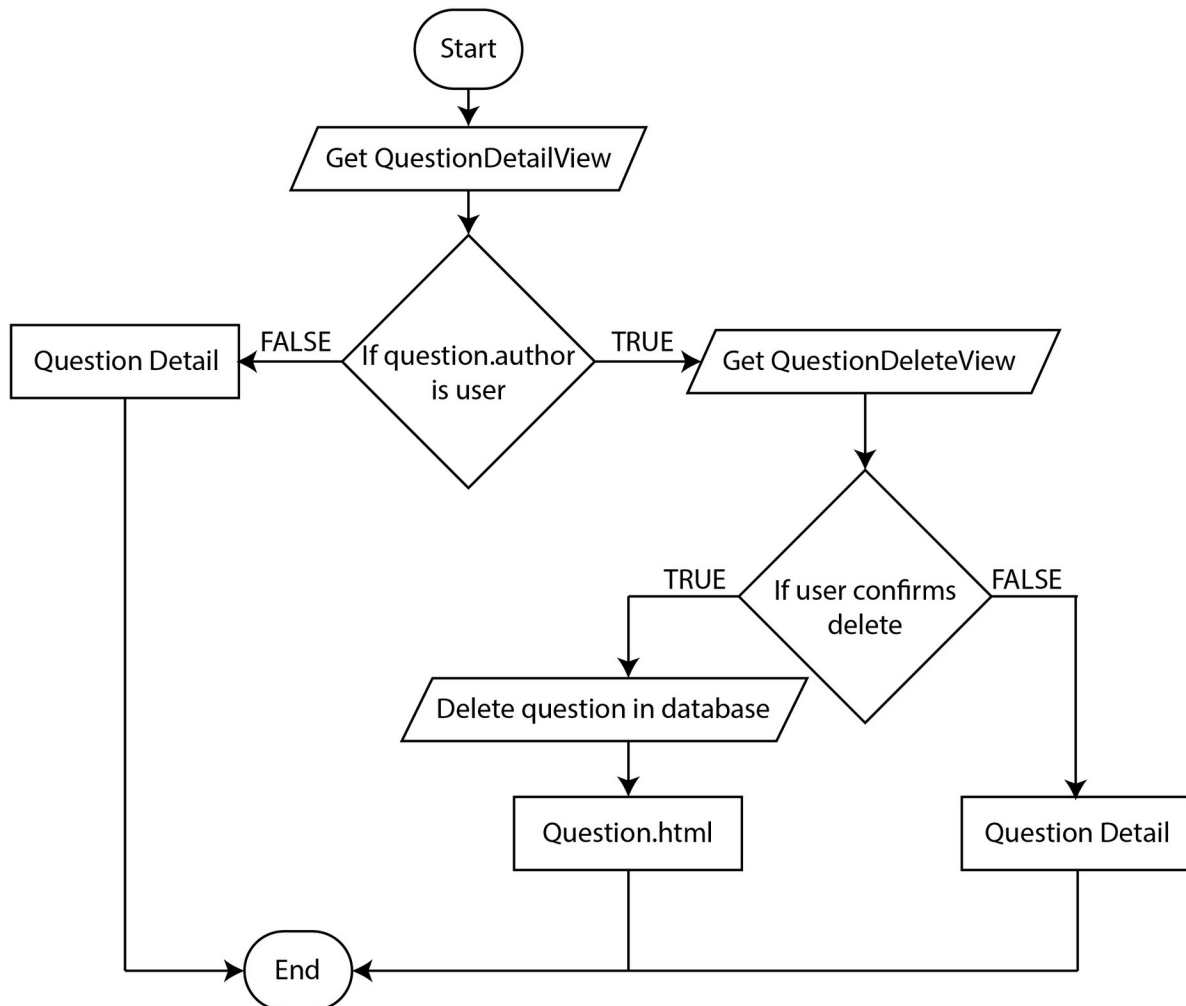


Question Module

Delete Question

Drew By: Ang Kelvin

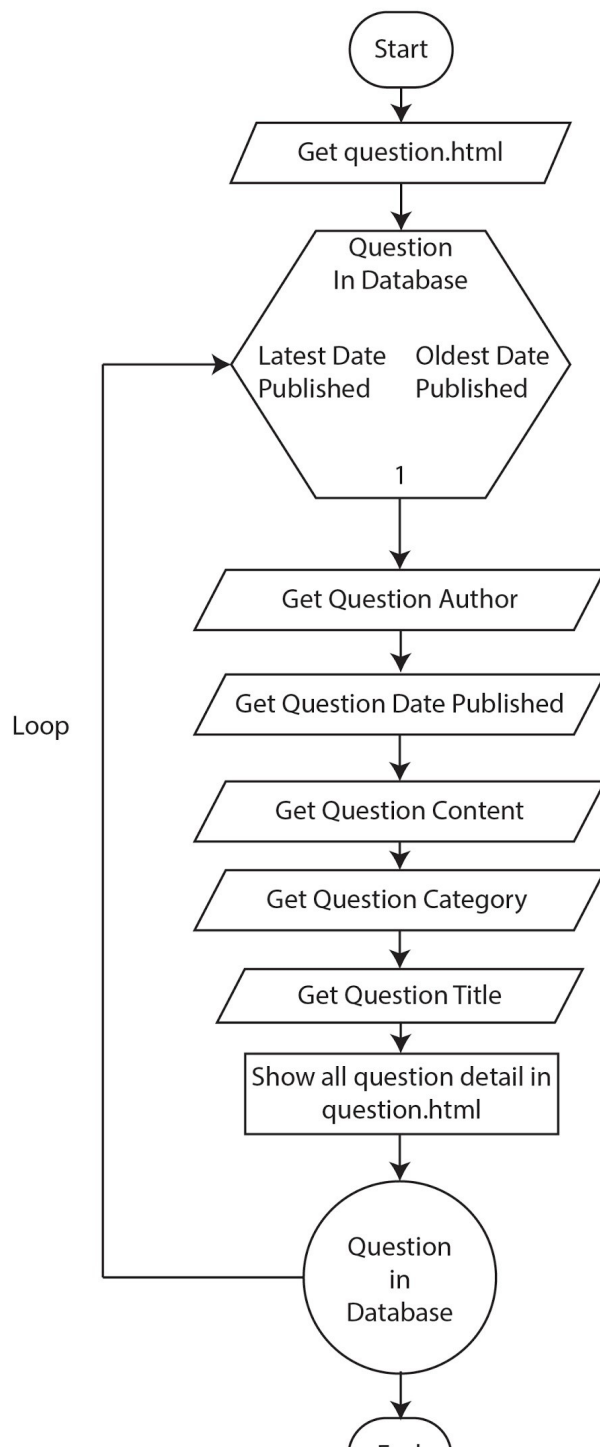
Student Id :1181101297



Question Module

Question List View in Homepage

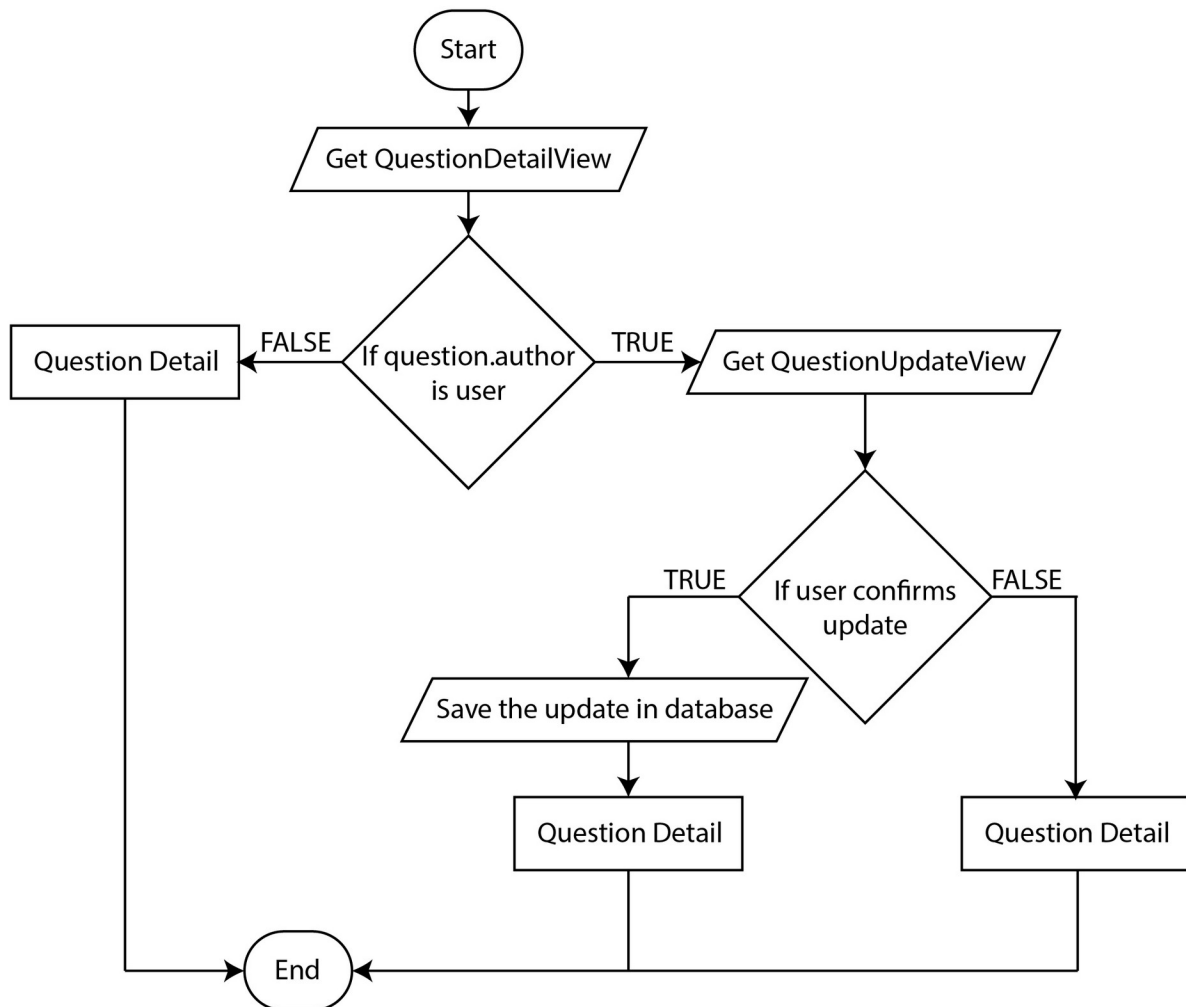
Drew By: Ang Kelvin
Student Id :1181101297



Question Module

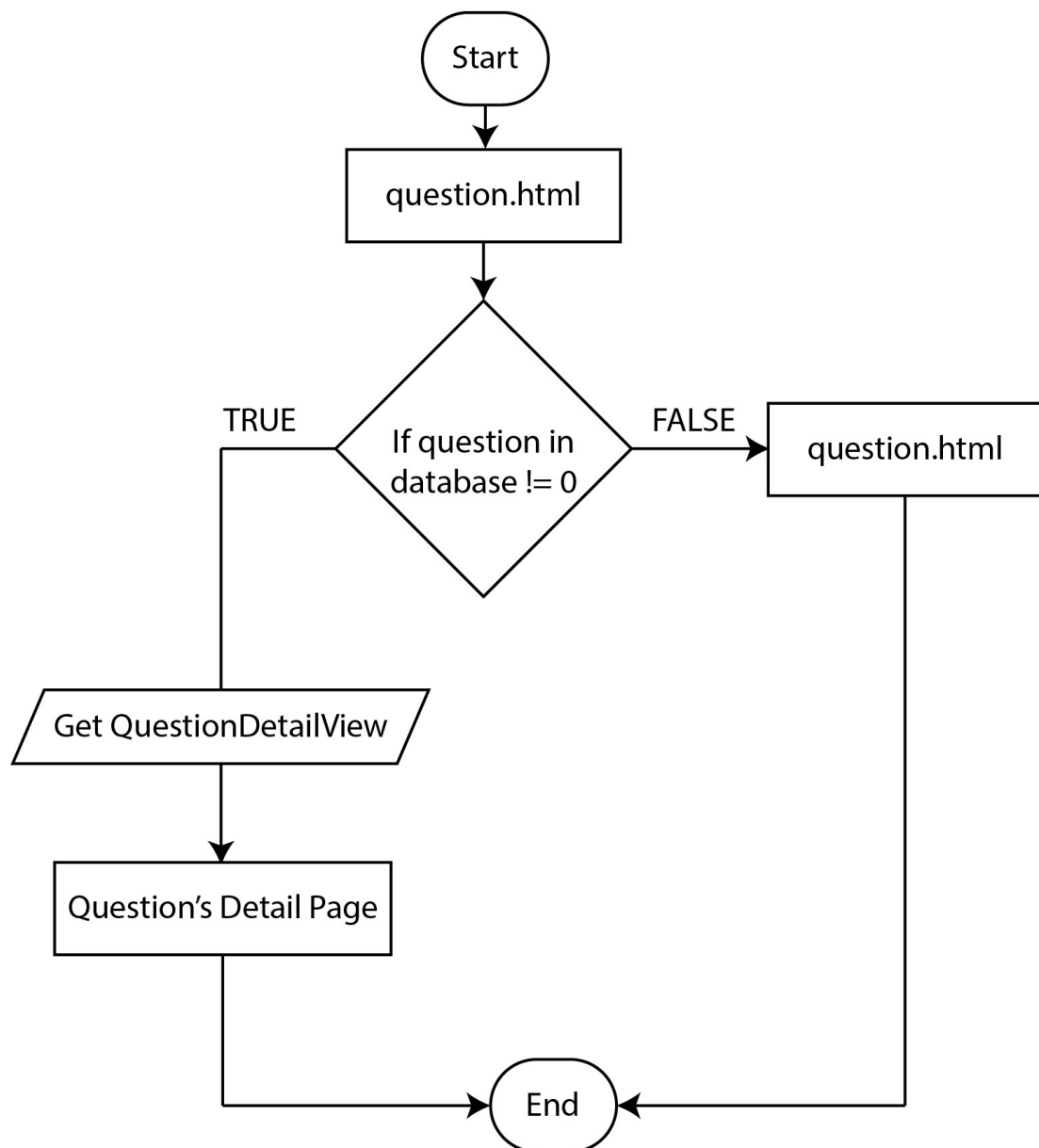
Update Question

Drew By: Ang Kelvin
Student Id :1181101297



Question Module

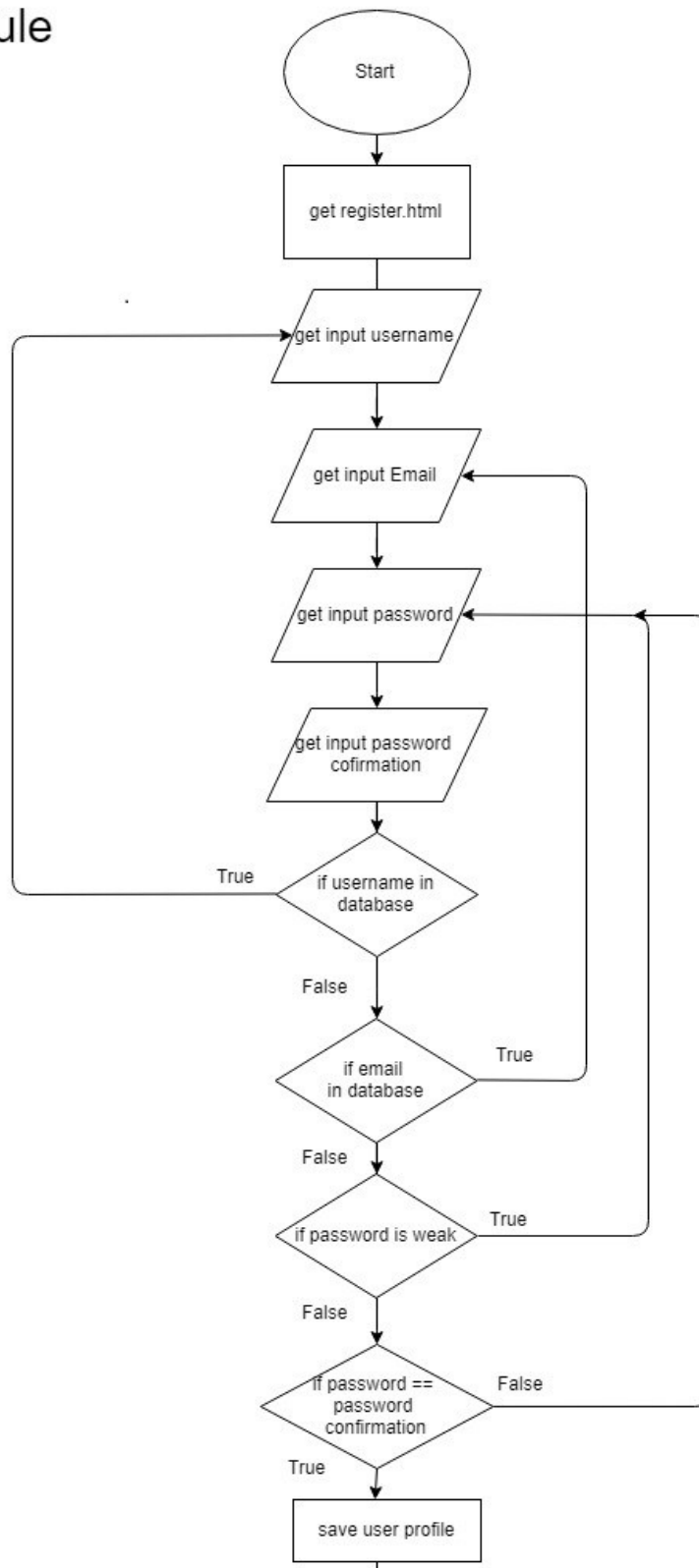
Show Question In Detail

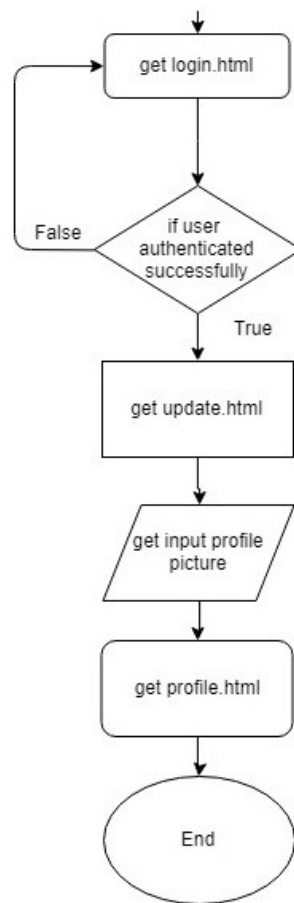


Main Module

Register

Drew by: Pritesh
id: 1181101645

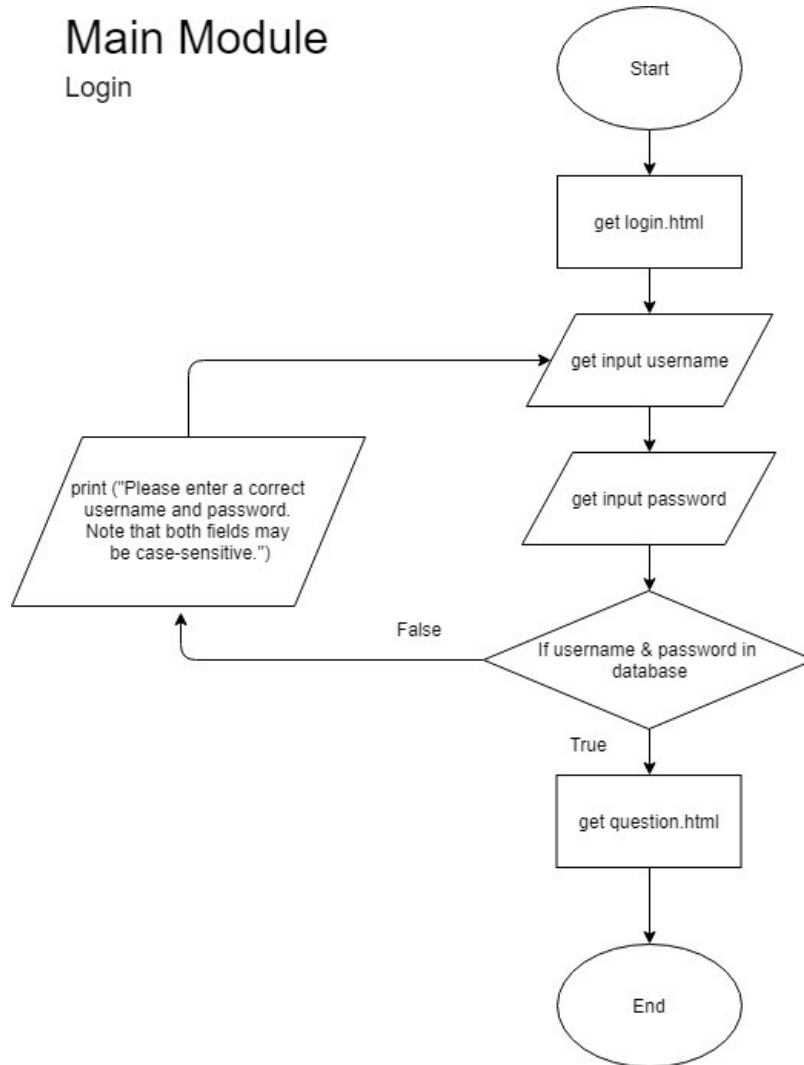




Main Module

Login

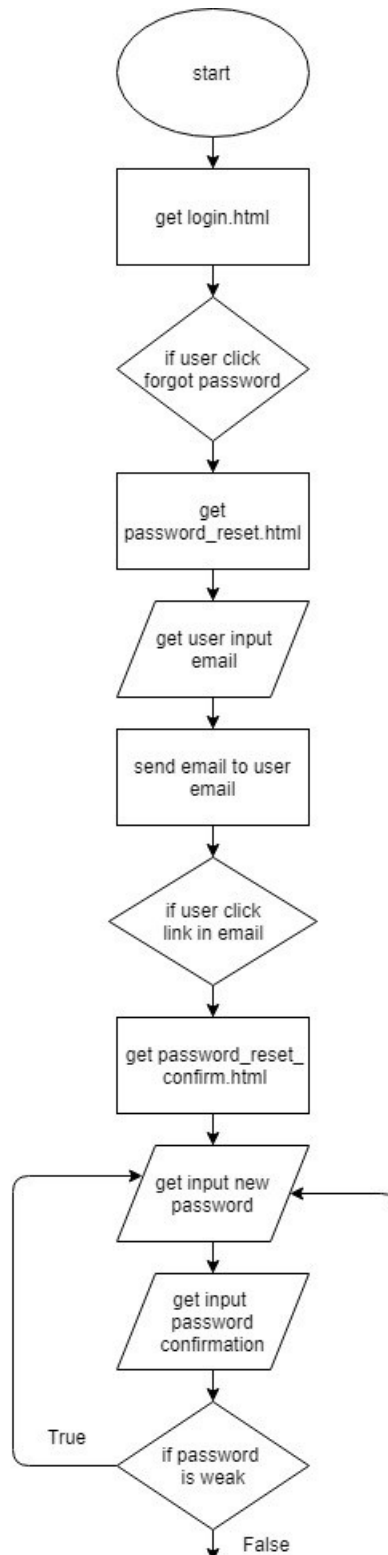
Drew by: Pritesh
id: 1181101645

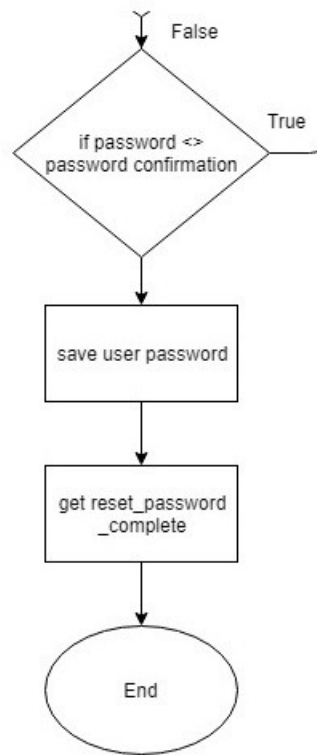


Main Module

Reset password

Drew by: Pritesh
id: 1181101645

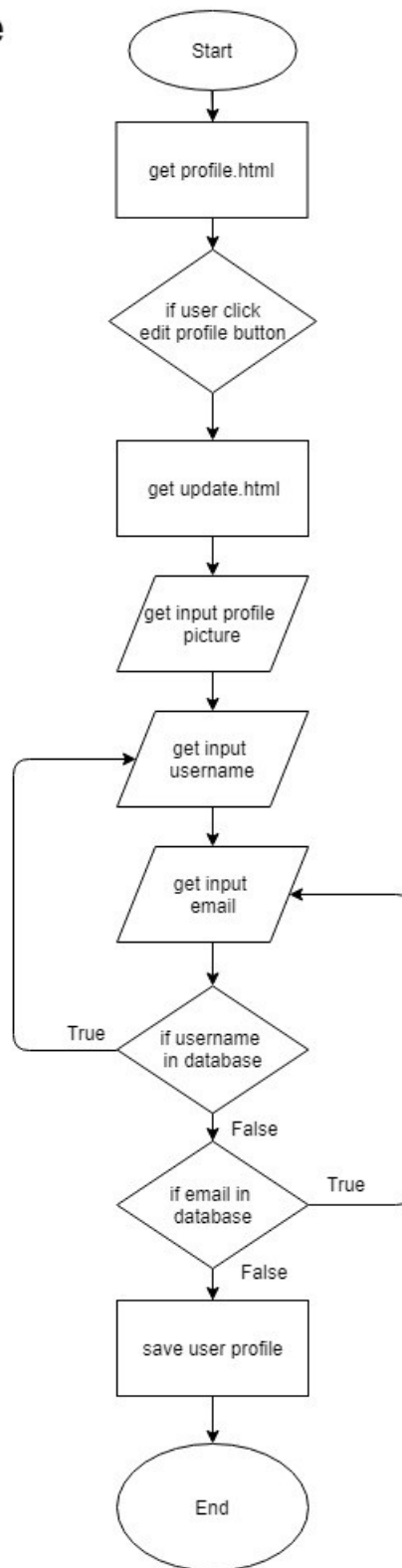




User detail Module

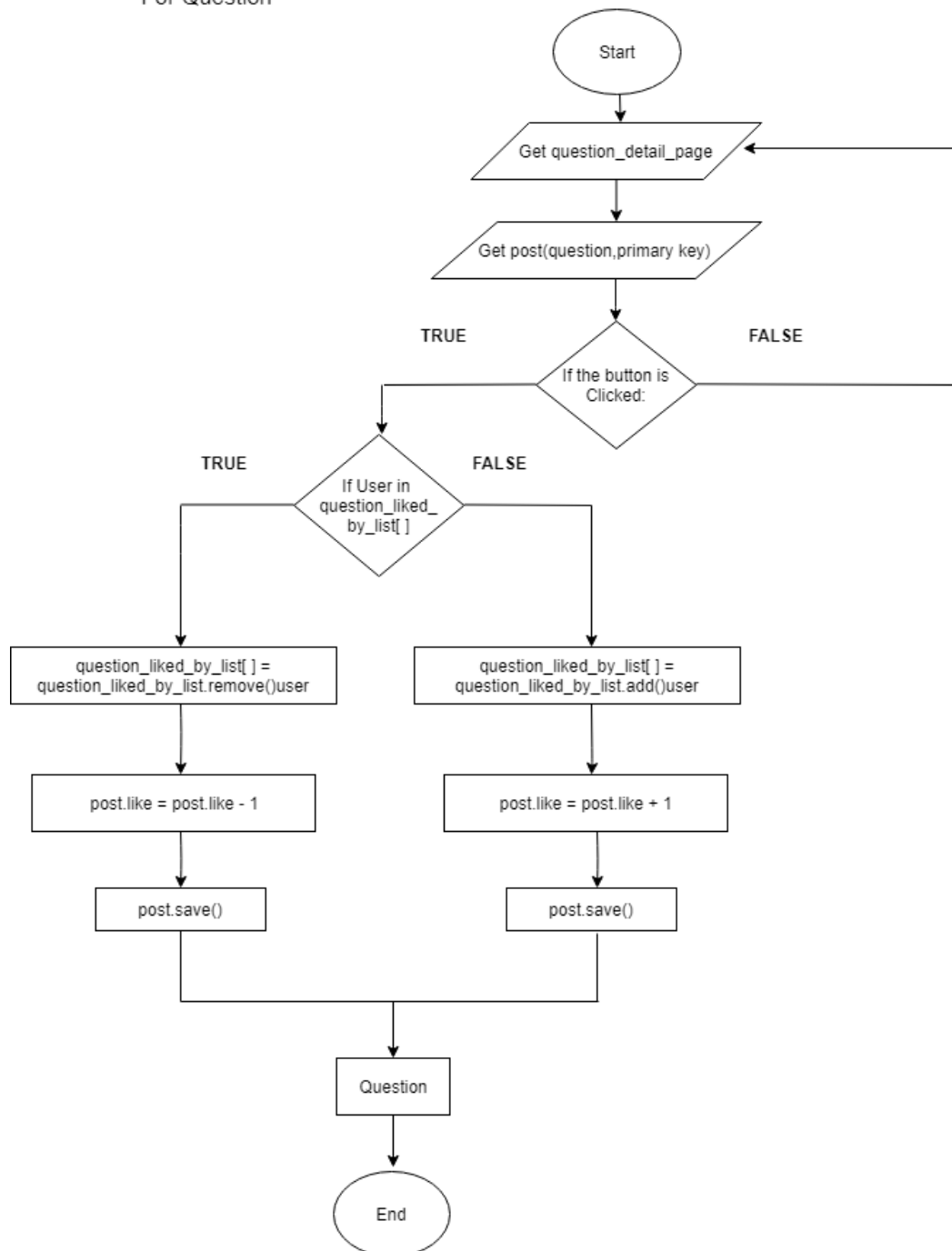
Update

Drew by: Pritesh
id: 1181101645



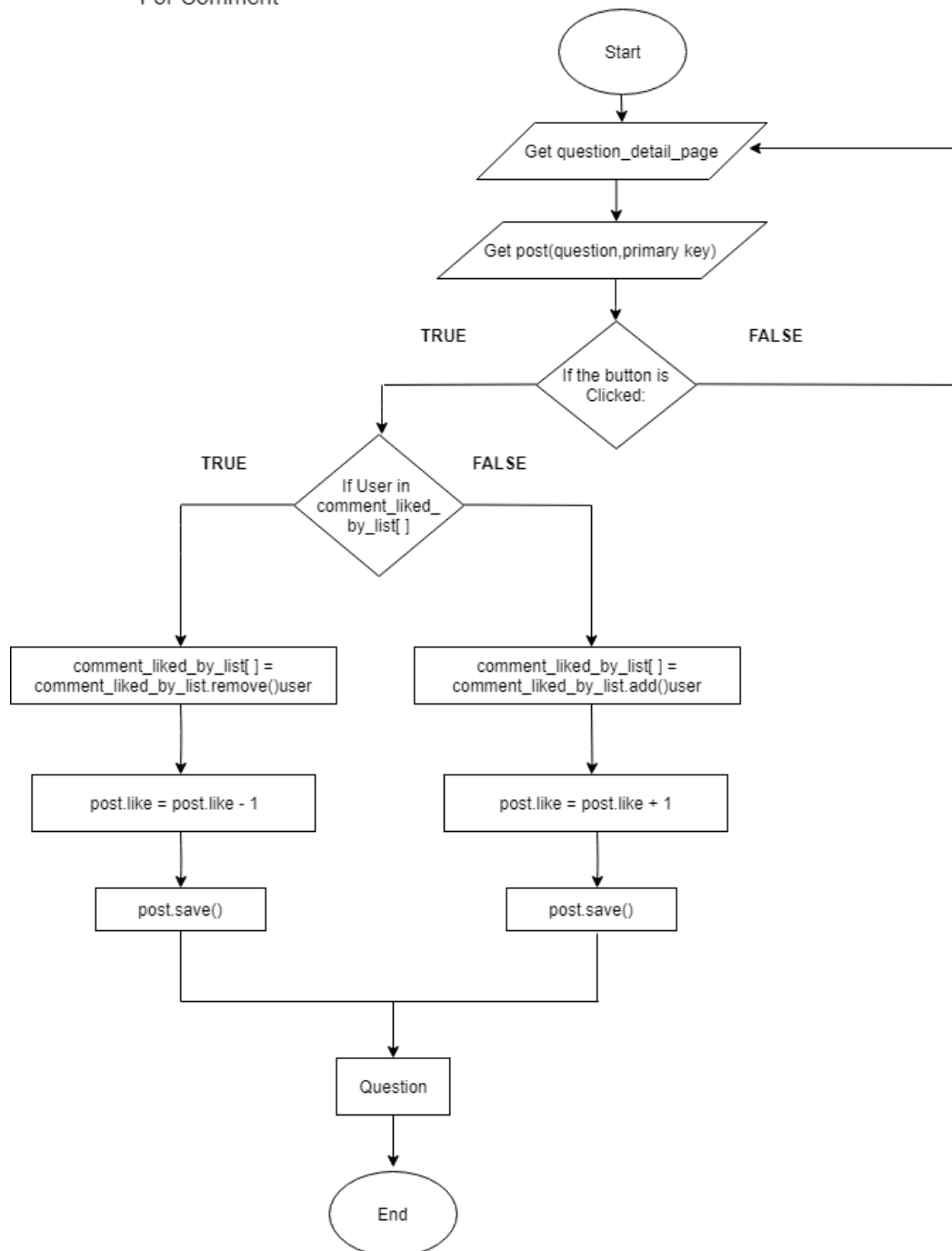
Like and Dislike Module

For Question

Drew by: Chang Kai Boon
Student Id: 1181101282

Like and Dislike Module

For Comment

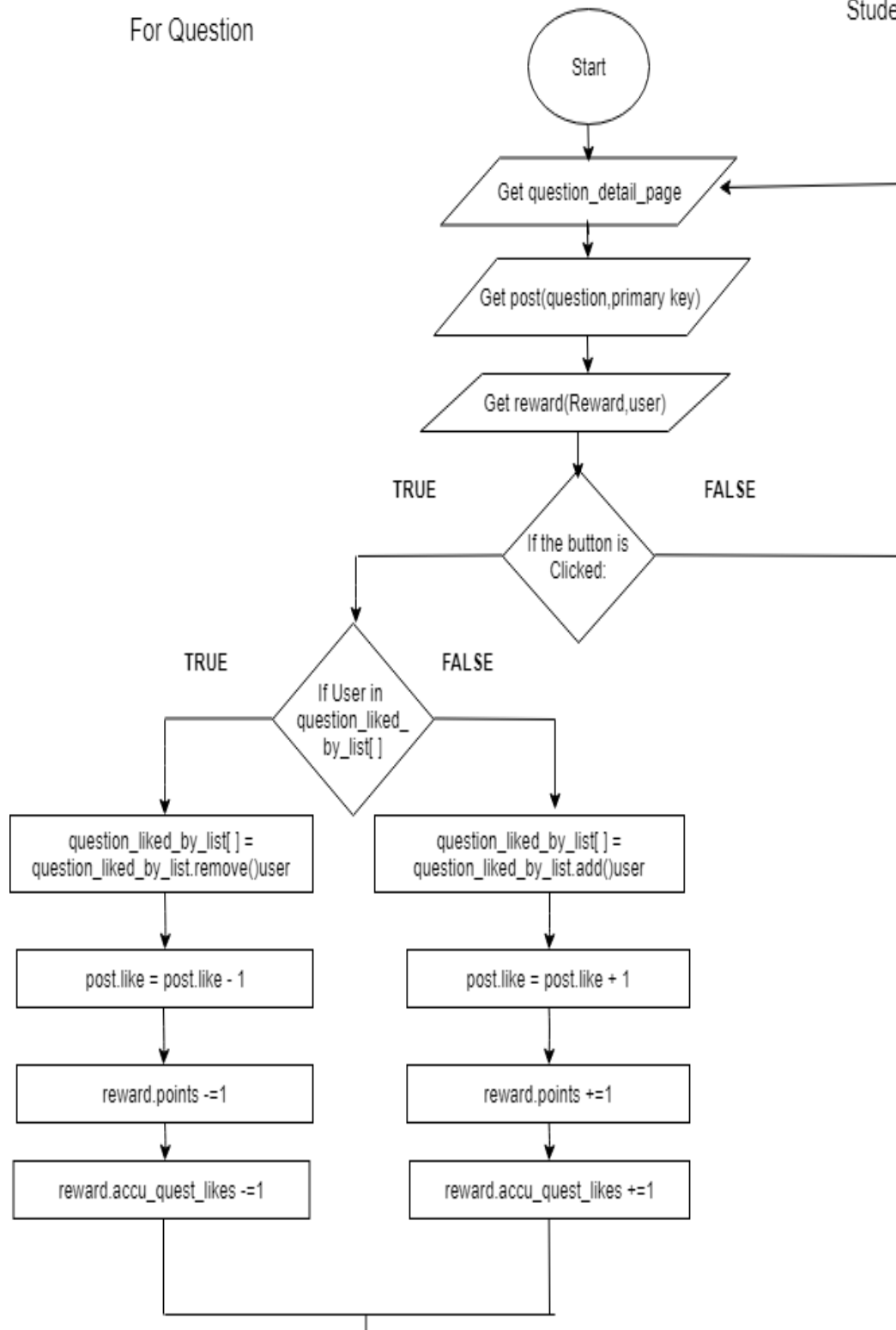
Drew by: Chang Kai Boon
Student Id: 1181101282

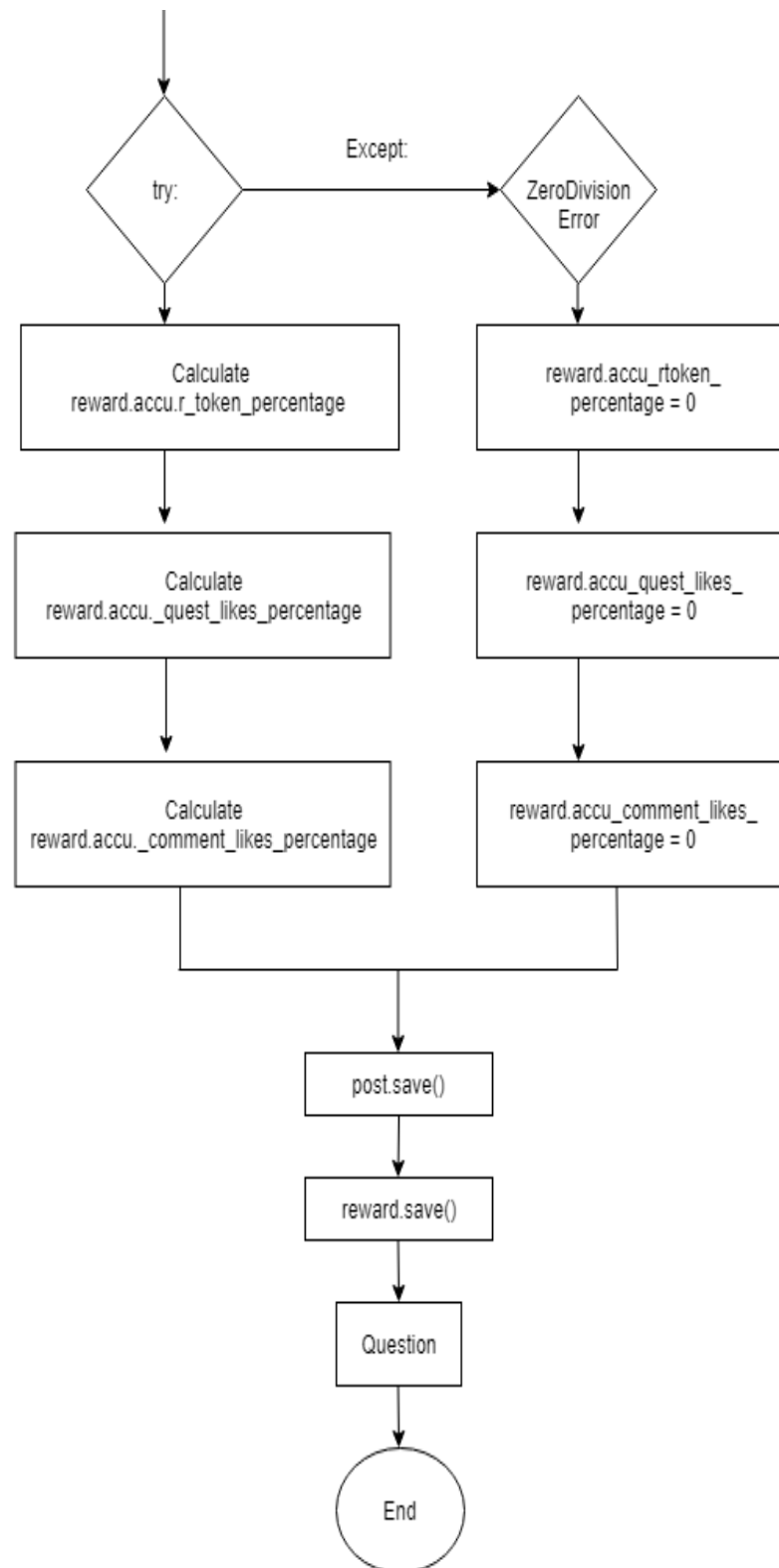
Reward Module

For Question

Drew by: Chang Kai Boon

Student Id: 1181101282



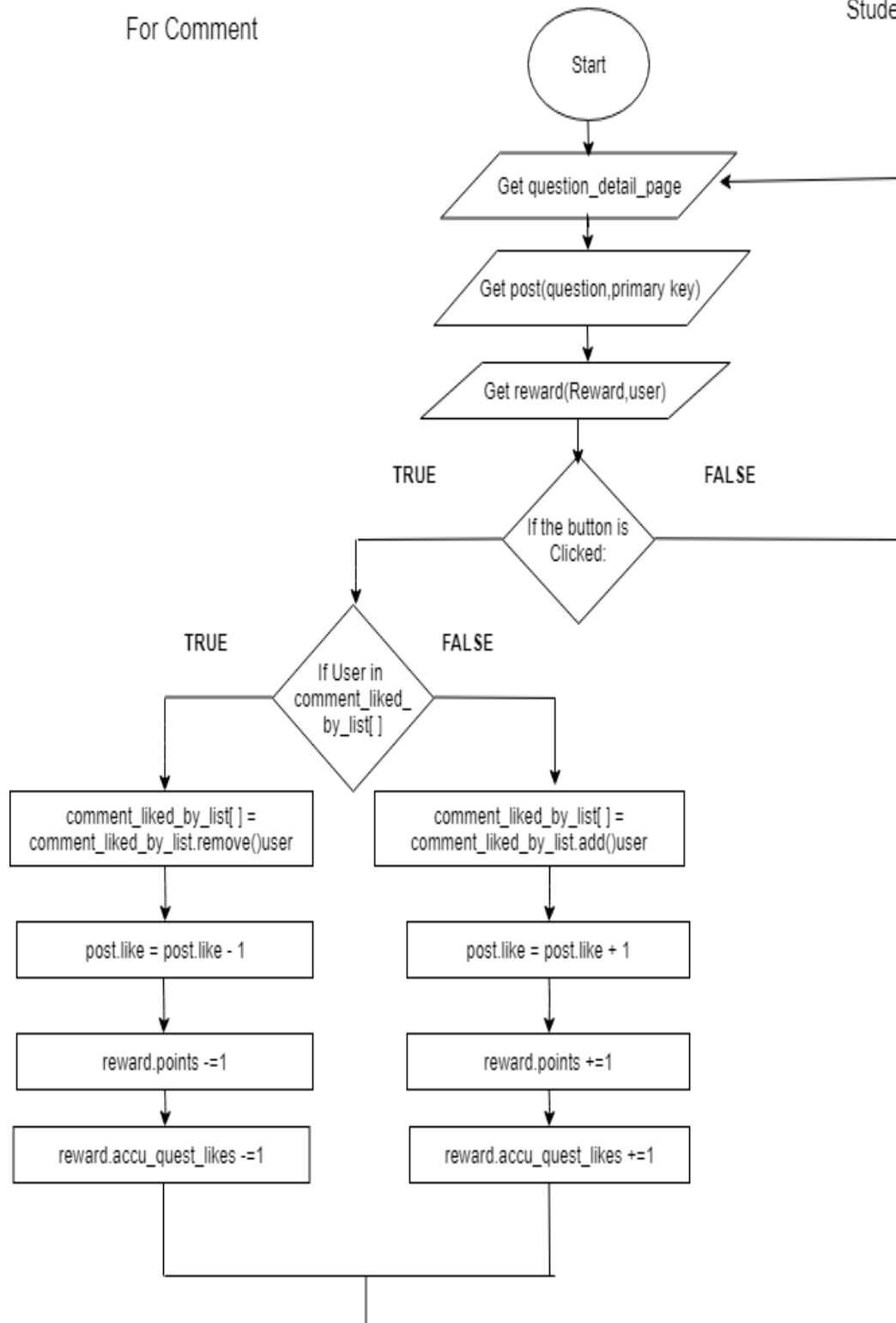


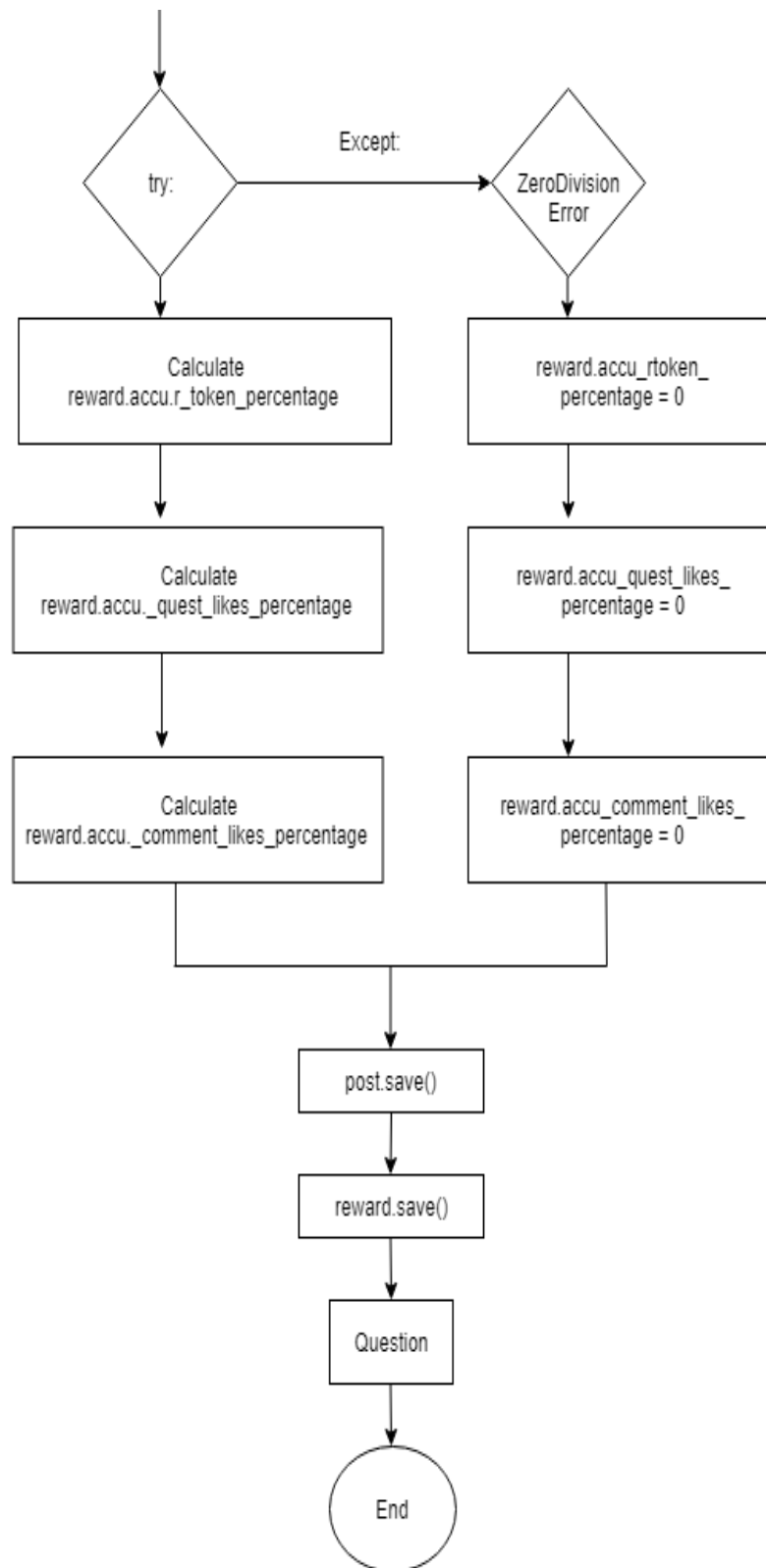
Reward Module

For Comment

Drew by: Chang Kai Boon

Student Id: 1181101282



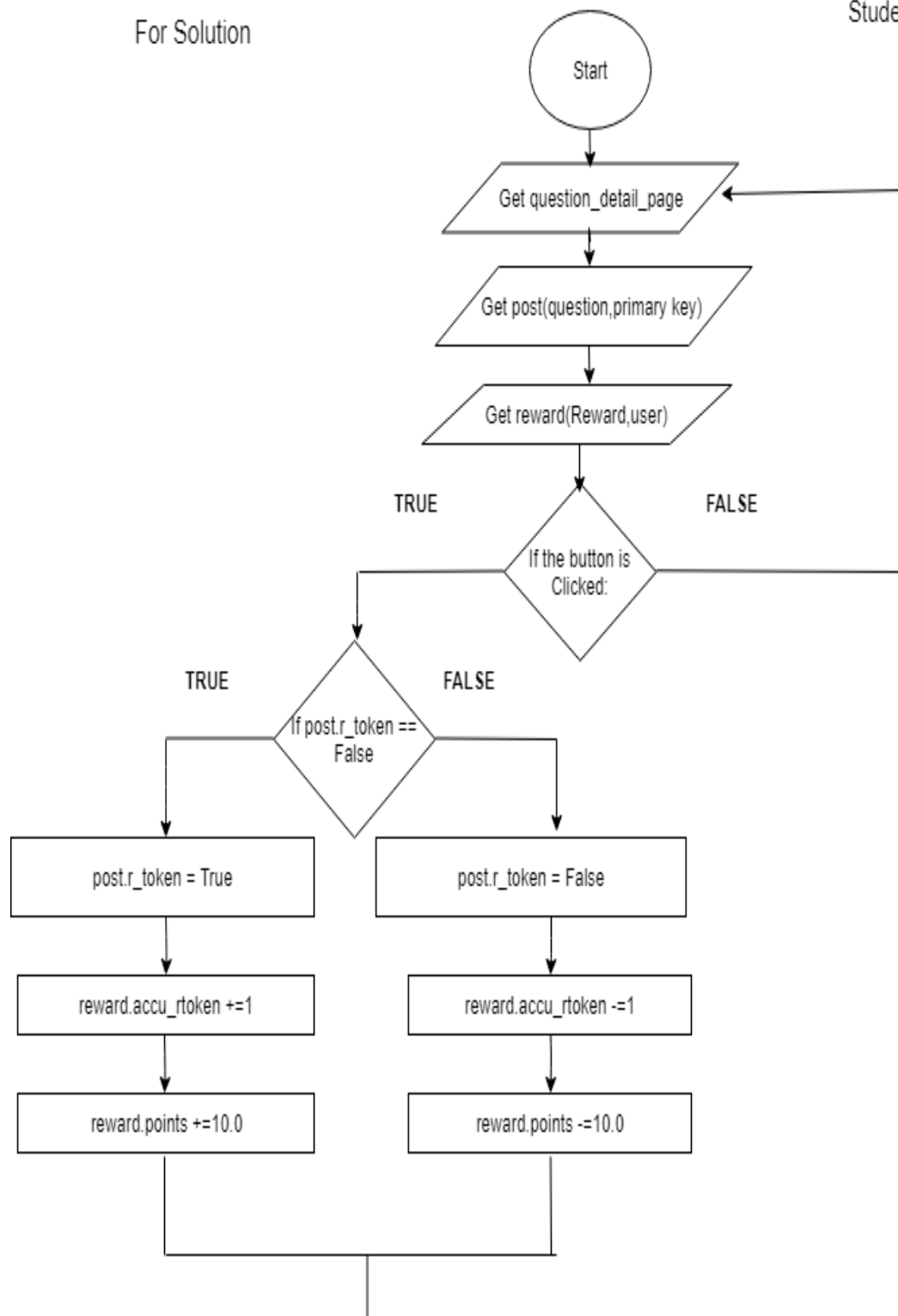


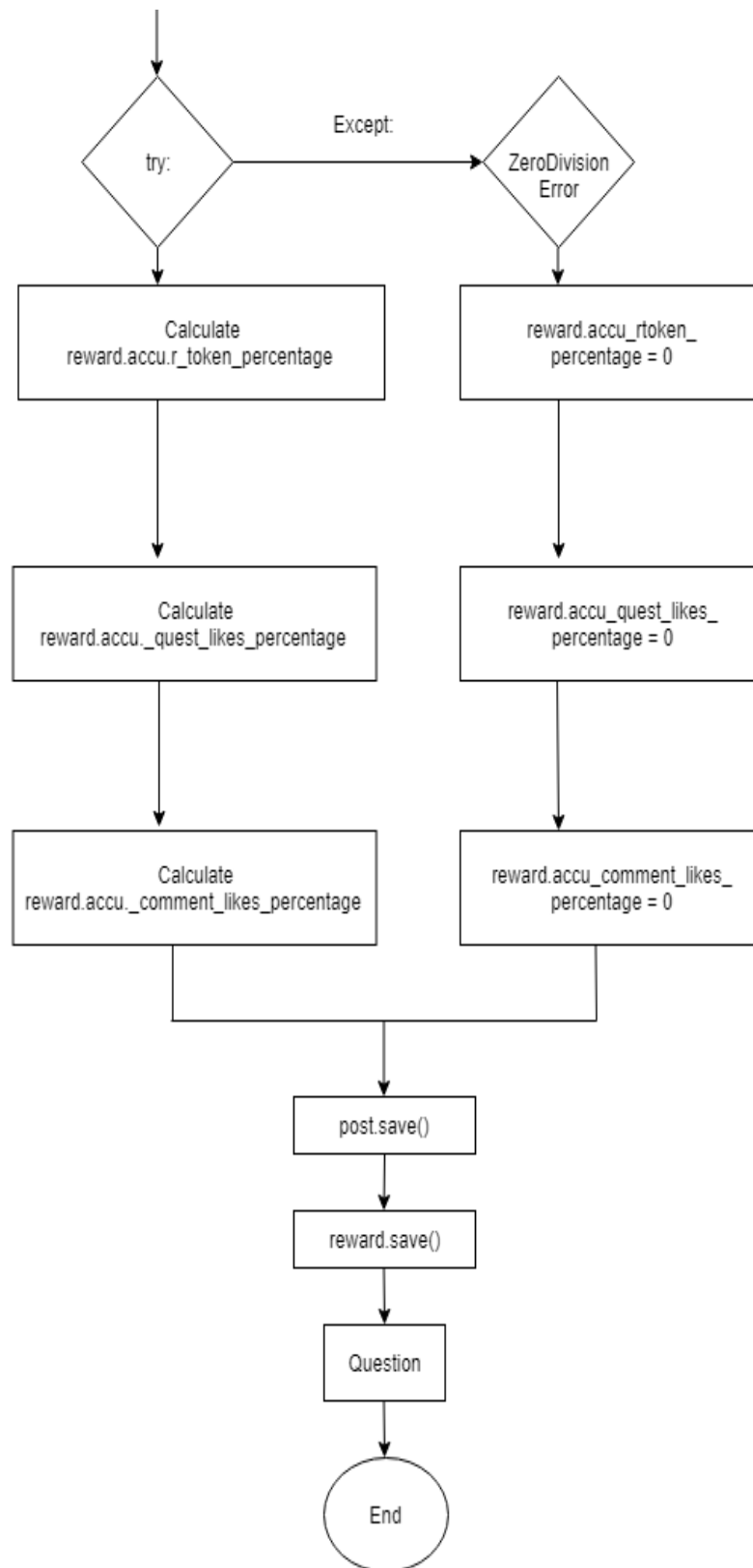
Reward Module

For Solution

Drew by: Chang Kai Boon

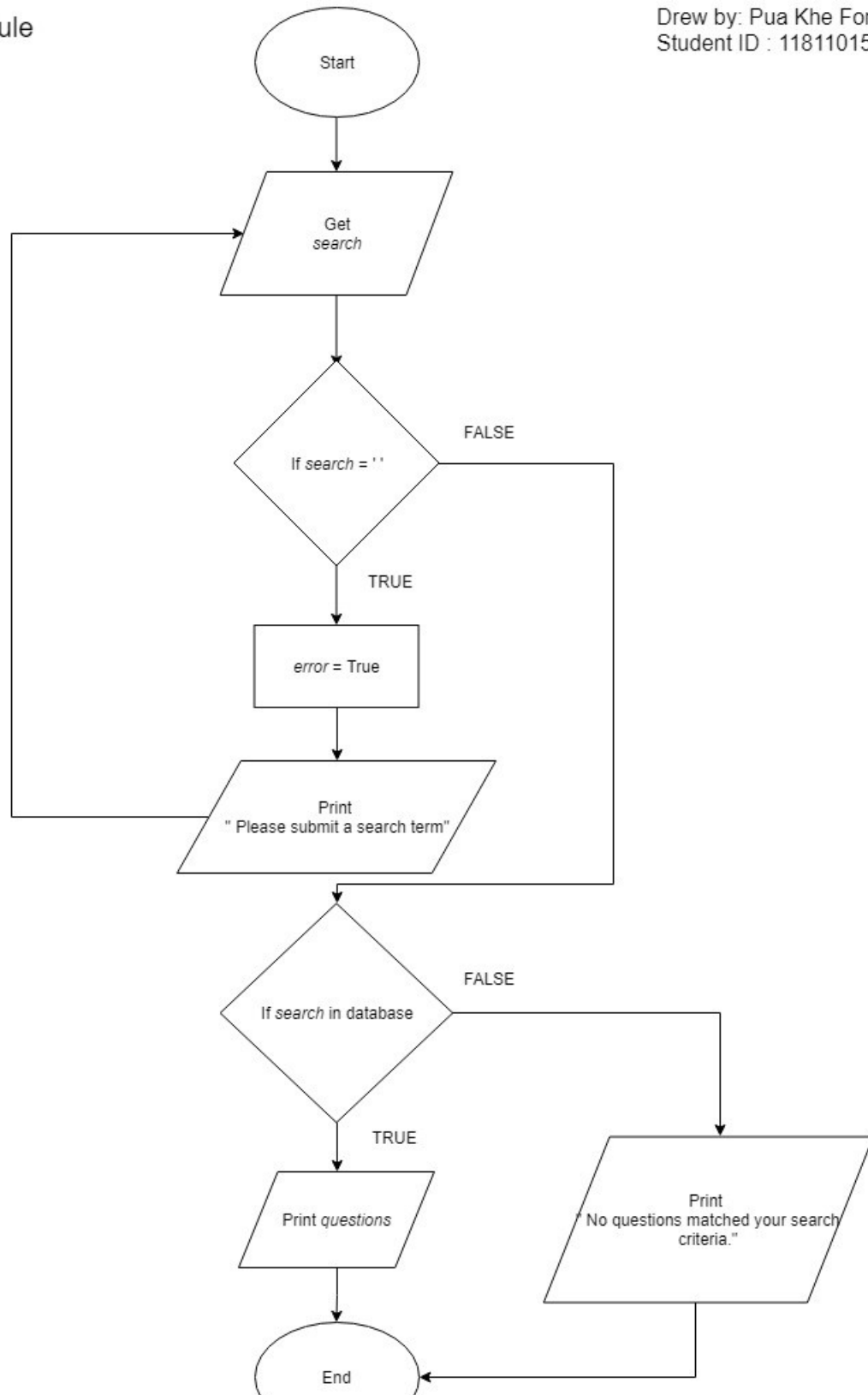
Student Id: 1181101282





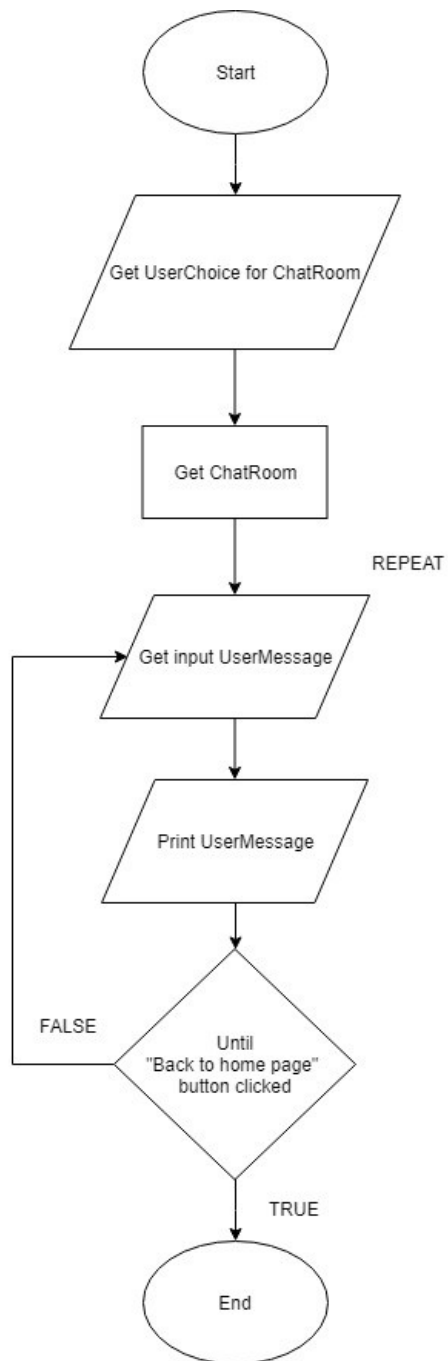
Search Module

Drew by: Pua Khe Fong
Student ID : 1181101501



Chat Module

Drew by: Pua Khe Fong
Student ID : 1181101501



Pseudocode

MainModule

Start

Display homepage

If login button is clicked:

 process Login()

EndIf

If register button is clicked:

 process Register()

EndIf

If QnA button is clicked:

 process QuestionListView()

EndIf

Exit

Login() Module

Start

Display login_page
process Authentication()

If user is authenticated:

 process QuestionListView()

else:

 Print " You entered wrong username/password, please enter again. "
 process Authentication()

EndIf

Exit

Logout() Module

Start

Print "You have been logged out."

If loginInAgain button is clicked:

 process Login()

Endif

Exit

Authentication() module

Start

Get username

Get password

If username is in database:

 If password is correct:

 Authentication = success

 EndIf

EndIf

Exit

Register() module

Start

Display register_page

Get username

Get email

Get password

Get password_confirmation

If username is not in database:

 If email is not in database:

 If password is not:

 If password = password_confirmation

 Register == success

 Save profile

 EndIf

 EndIf

 EndIf

EndIf

If register == success:

 Display profile_page

EndIf

Exit

Reset_password() module

Start

Display login_page

If reset password is clicked:

 Display reset_password_page

EndIf

Get email

If email is valid:

 send password_reset_link to email

EndIf

If password_reset_link is clicked:

 Display confirm_reset_password_page

EndIf

Get Password

Get Password_confirmation

If Password = Password_confirmation:

 If password is not weak:

 Save password

 EndIf

EndIf

Display login_page

Exit

Profile() Module

Start

Display userProfilePicture

Display username

Display userEmail

If viewYourReward is clicked:

 Display rewardpoint

 Display accumulate_question_like_percentage

 Display accumulate_comment_like_percentage

 Display accumulate_rtoken_percentage

Endif

If edit button is clicked:

 Process Update_Profile()

Endif

If ResetPassword() module is clicked:

 Process Reset_password()

Endif

Process QuestionAskedByAuthor()

Exit

Update_Profile() module

Start

Display profile_page

If update_profile button is clicked:

 Display profile_update_page

EndIf

Get new_username

Get new_email

Get get new_profile_picture

If username is not in database:

 If email is not in database

 Save profile

 EndIf

EndIf

Display profile_page

Exit

Search() Module

Start

If question found in database:

 Display question_title

 If question_title is clicked:

 Process QuestionInDetail()

 Endif

Else:

 If User Input is empty:

 Print "Please submit a search term."

 Else:

 Print " No questions matched your search criteria. "

 Endif

Endif

Exit

Chat() Module

Start

Display chat_room_selection

Get chat_room_selection

If chat_room button clicked:

 Display chat_room

EndIf

Get user input

If send button is clicked:

 Print "user input"

EndIf

If back_to_home_page button is clicked:

 Process QuestionListView()

EndIf

Exit

QuestionListView() Module

Start

Display question_title

Display author_name

Display author_profile_picture

Display date_created

Display faculty

If question_title is clicked or comment button is clicked :

 Process QuestionInDetail()

EndIf

If author_name is clicked:

 Process QuestionAskedByAuthor()

EndIf

If faculty is clicked:

 Filter by faculty

Endif

Get user input for search

If search button is clicked:

 Process search()

EndIf

If Profile button is clicked:

 Process Profile()

EndIf

If Chat button is clicked:

 Process Chat()

EndIf

If New_question button is clicked:

 Process QuestionCreate()

EndIf

If Logout button is clicked:

 Process Logout()

EndIf

Exit

QuestionInDetail() Module

Start

Display question_title

Display question_description

Display date_created

Display like

If user is author:

 If update button is clicked:

 Process QuestionUpdate()

 EndIf

 If delete button is clicked:

 Process QuestionDelete()

 EndIf

EndIf

If like button is clicked:

 Process QuestionLike()

Endif

Loop : comment in question step 1

 Display comment

Loop - End : comment

If user is author:

 If like button is clicked:

 Process CommentLike()

 Endif

 If solve_my_solution button is clicked:

 Process RewardToken()

 End if

 If leave_a_comment button is clicked:

 Process CommentCreate()

 EndIf

 If update button is clicked:

 Process CommentUpdate()

```
    Endif
    If delete button is clicked:
        Process CommentDelete()
    Endif

Endif

Exit
```

QuestionCreate() Module

Start

Get title

Get content

Get image

Get category

If title and content and category is not empty:

 If yes button is clicked:

 Question added to QuestionListView()

 EndIf

Else:

 Display error_message

EndIf

Exit

QuestionUpdate() Module

Start

Get title

Get content

Get image

If title and content is not empty:

 If yes button is clicked:

 Question = Question

 Endif

Else:

 Display error_message

Endif

Exit

QuestionDelete() Module

Start

Display delete_confirmation page

If yes button is clicked:

 Delete question in database

 Process QuestionListView()

EndIf

If Cancel button is clicked:

 Process QuestionListView()

EndIf

Exit

QuestionAskedByAuthor() module

Start

Display all_question_titles_from_the_same_author

Display author_name

Display author_profile_picture

Display category

Display date_created

If question_title or comment is clicked:

 Process QuestionInDetail()

EndIf

Exit

CommentCreate() Module

Start

Display comment_box

Get comment_text

If submit button is clicked:

 Save comment

EndIf

Process QuestionListView()

Exit

CommentUpdate() Module

Start

If update_comment button is clicked:

 Display comment_update

 Get new_comment

EndIf

If submit button is clicked:

 Save comment

EndIf

Process QuestionListView()

Exit

Comment Delete() Module

Start

Display question

Display comment

If delete_comment button:

 Display confirm_delete_page

 If yes button is clicked:

 Delete comment

 Else:

 Process QuestionListView()

 EndIf

EndIf

Exit

QuestionLike()Module

Start

If yes button is clicked:

 Add user into likedby_list[]

 question_like = question_like +1

 rewardpoint = rewardpoint + 1

 accumulate_question_like = accumulate_question_like + 1

 Try:

 Calculate accumulate_question_like_percentage

 Except ZeroDivisionError:

 accumulate_question_like_percentage = 0

 Process QuestionListView()

EndIf

Exit

QuestionDislike() Module

Start

If yes button is clicked:

 Remove user from likedby_list[]

 question_like = question_like -1

 rewardpoint = rewardpoint - 1

 accumulate_question_like = accumulate_question_like - 1

 Try:

 Calculate accumulate_question_like_percentage

 Except ZeroDivisionError:

 accumulate_question_like_percentage = 0

 Process QuestionListView()

EndIf

Exit

CommentLike()Module

Start

If yes button is clicked:

 Add user into likedby_list[]

 comment_like = comment_like +1

 rewardpoint = rewardpoint + 1

 accumulate_comment_like = accumulate_comment_like + 1

 Try:

 Calculate accumulate_comment_like_percentage

 Except ZeroDivisionError:

 accumulate_comment_like_percentage = 0

 Process QuestionListView()

EndIf

Exit

CommentDislike()Module

Start

If yes button is clicked:

 Remove user from likedby_list[]

 comment_like = comment_like -1

 rewardpoint = rewardpoint - 1

 accumulate_comment_like = accumulate_comment_like - 1

 Try:

 Calculate accumulate_comment_like_percentage

 Except ZeroDivisionError:

 accumulate_comment_like_percentage = 0

 Process QuestionListView()

EndIf

Exit

RewardToken() Module

Start

If yes button is clicked:

 Get r_token_status

 If r_token_status == False:

 r_token_status = True

 accumulate_rtoken = accumulate_rtoken + 1

 rewardpoint = rewardpoint + 10

 Try:

 Calculate accumulate_rtoken_percentage

 Except ZeroDivisionError:

 accumulate_rtoken_percentage = 0

 Else:

 r_token_status = false

 accumulate_rtoken = accumulate_rtoken - 1

 rewardpoint = rewardpoint - 10

 Try:

 Calculate accumulate_rtoken_percentage

 Except ZeroDivisionError:

 accumulate_rtoken_percentage = 0

 Endif

 process QuestionListView()

EndIf

Exit

Data Dictionary

Main Module

Variable Name	Parameter/Base Class	Explanation
UserRegisterForm():	UserCreationForm	A class under forms.py in the users app, which defines the form for registration.
UserUpdateForm	forms.ModelForm	A class under forms.py in the users app, which defines a form to update username and email of existing user data
ProfileUpdateForm	forms.ModelForm	A class under forms.py in the users app, which defines a form to update profile picture of existing user data
__str__	self	A function to make returned string readable on admin side.
save	self, *args, **kwargs	A function to save profile data to database.
create_profile	sender, instance, created, **kwargs	A function defined to create a profile at backend, when it is called.
save_profile	post_save, sender=User	A function defined to save a profile when its created.
register	request	A function defined to register a user in database.Calls template for registration, check form validity, saves user to database and display success message.
profile	request	A function to update user data on database.

Question Module

Variable Name	Parameters/Base class	Explanation
question	models.Model	This is a class where it is the definition of question. When ever this class is called it would expect parameters like Title,liked_by,content,image,date_published,category and author
__str__	self	This function is need so that it returns a readable string in the admin page
category	models.Model	This is a class where it contains the definition of category. This class needed to sort the question according to faculty.
get_absolute_url	self	This function is used to redirect the user after they have created a new question in question module
QuestionListView	ListView	The base class of this function is listview.It is a prepared django library where it will show everything related to your model in a list.For this function the model is question and template_name is question.html. It will then display everything according to my arrangement in my template
model		This variable is need to state the class you needed
template_name		This variable will tell the program which template is needed to display the information
context_object_name		This variable is needed so that the program can identify the variable inside your model

ordering		To arrange your displayed data
paginate_by		To limit how many data is displayed in a page
QuestionDeleteView	LoginRequiredMixin, UserPassesTestMixin, DeleteView,	The base class of this function is Deleteview.It is a prepared django library. It will automatically delete the Question if the condition is True.For example,in my program I make use of if the request user is the post author then it will return True.
QuestionCreateView	CreateView	The base class of this function is CreateView.It is a prepared django library.It is needed so that you can specify the model you wanted which is question for our case and you will have to specify the fields which you wants the use to fill in.
success_url		To redirect the user after any action is done successfully
test_func	self	It checks that the user passes the given test
QuestionDetailView	DetailView	The base class of this function is DetailView. It is a prepared django library .It is needed to show the details of the question. For it to work, you will need to specify the primary key in the url.
fields		It specify the input that the user is allowed to input.
form_valid	self,form	It is used to describe what to do after the form is valid
QuestionUpdateView	UpdateView	The base class of this function is updateview.It is a prepared django library.It is needed so that it allows user

		to make any necessary changes for their posted questions. In this function i have the variable model = question which is needed so that the program knows which question the users are referring to. Fields is also declared to allow user to make changes on only their content.
QuestionCategory	ListView	The base class of this function is ListView. It is a prepared django library where it will show everything related to your model in a list. This function is needed so that the questions can be sort according to their category.
get_queryset	self	Returns the queryset that will be used to retrieve the object that this view will display.
get_context_data	Self, **kwargs	To get context dictionary from the parent class

Search Module

Variable Name	Parameter/Base Class	Explanation
error		To declare when the error will be True or False
search	request	A function for search
questions		A variable to get questions
request.GET		To access query string variable. It is used to check if 'search' exists in request.GET and to verify that there is a non-empty value before passing through database query.
question.objects.filter	title__icontains=search	Return question that matches the given lookup parameter
title__icontains		This variable is to query our questions for all questions whose title includes the given submission. The icontains is a lookup type.
'search'		An variable for request.GET to check whether the user submits an empty value.

User details module

Variable Name	Parameter/Base Class	Explanation
Profile	forms.ModelForm	A class under models.py, which defines the user profile. It contains all user data, like Username, email and profile picture.
user		A variable created to make sure only 1 set of user data exist in database, eg. no duplicate usernames/email
image		A variable create to define that this is an image field.
ProfileListView	ListView	A class defined to tell how the profile should be displayed.
RewardView()	DetailView	
Reward	models.Model	A class defined to accumulate reward points from all the upvote a user receive.

Reward Module

Variable Name	Parameter/Base Class	Explanation
Reward	models.Model	A class under models.py which define the reward module. It contains all the information need for the reward module like user,points,accu_quest_likes, accu_comment_likes,accu_rtoken,accu_quest_likes_percentage,accu_comment_likes_percentage,accu_rtoken_percentage.
RewardView	DetailView	The base class of this function is DetailView. It is a prepared django library .It is needed to show the details of the user's reward..
model		This variable is need to state the class you needed
SolutionView	request,pk	This function is let the post owner decide which comment has solved his question. This function only can function when the request user is the post owner and the primary key of the comment is get.
post	comment,pk	To get the specific comment you want. Primary key is used to differentiate each comment
reward	Reward,user	To get the specific reward points that belong to specific user. Parameter user is used to get the post author
get_object_or_404		It's prepared by django library.This function is used to get the object, if object is valid, return object, else,

		raise 404 error(Page not found)
request.method		This variable is to determine which request method used by user.
post.r_token		This variable is to determine the status of the comment. We use default value post.r_token= False to indicate that the comment is not solution. If the post author select that comment to be solution, post.r_token = True.
reward.accu_rtoken		To store the accumulate number of r_token be rewarded to the user. Higher value means many of user's comment be selected as solution.
reward.points		Reward point of the user
reward.accu_rtoken_percentage		Store the ratio of comment being selected point to the overall total reward point.
reward.accu_quest_likes_percentage		Store the ratio of question being like point to the overall total reward point.
reward.accu_comment_likes_percentage		Store the ratio of comment being like point to the overall total reward point.
round()		Python built in math function. It is used to round off the number into 2 decimal places
post.save()		Save the changes on the specific post module into the database.
reward.save()		Save the changes on the specific reward module into the database.
ZeroDivisionError		It is python built in function. It

		will raise out error if you divide a number by zero
redirect()	template_name	This function is redirect the user to a new page after the current request is completed
render()	request,template_name	It is a response that combines a given template with a given context dictionary. Two required parameter are needed. Request is the request object used to generate this response while the template name is the template that you want to go.

Likes and Dislike system

Variable Name	Parameter/Base Class	Explanation
question_like	request,pk	This function is to get which question you want to like or dislikes according to its primary key
comment_like()	request,pk	This function is to get which comment you want to like or dislike according to its primary key
post	question/comment,pk	To get the specific question or comment you want. Primary key is used to differentiate each question or comment
request.method		This variable is to determine which request method used by user.
post.liked_by.filter().exists()	userid	This function is to determine the whether the user is liked the question or comment. If user is already like the question or comment, his

		name will be in the database. Userid is used to differentiate the user.
post.liked_by.remove()	request.user	If user already like the question or comment but now he want to dislike, this function will remove his name in the database and dislike process is done
post.like		Store the number of like in the question or comment.
post.save()		Save the changes on the specific post module into the database.
post.liked_by.add()	request.user	If user has not like the question or comment yet and now he want to like, this function will add his name in the database and like process is done
redirect()		This function is redirect the user to a new page after the current request is completed
context		It is a dictionary of values to add to the template context. By default, this is an empty dictionary. If a value in the dictionary is callable, the view will call it just before rendering the template.
render()	Request, template_name, context	It is a response that combines a given template with a given context dictionary. Two required parameter are needed. Request is the request object used to generate this response while the template name is the template that you want to go.
get_object_or_404		It's prepared by django library. This function is used to

		get the object, if object is valid, return object, else, raise 404 error(Page not found)
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Comment module

Variable Name	Parameter/Base Class	Explanation
comment	models.Model	A class under models.py which define the comment module. It contains all the information need for the comment module like title,liked_by,like,content,image,date_published,category and author
add_comment()	request,pk	This function is used to add comment.It will take user request and determine the comment belong to which question according to its primary key.
post	question,pk	To get the specific question that you want to add comment. Primary key is used to differentiate the question.
get_object_or_404		It's prepared by django library.This function is used to get the object, if object is valid, return object, else, raise 404 error(Page not found)
request.method		This variable is to determine which request method used by user.
form		A variable to create form
CommentForm	request.POST	A class under forms.py in the users app, which defines a form to enable user to add comment.
form.instance.author		This variable means the instance user who add the

		comment
request.user		The current user who do the request
form.is_valid()		It is used to describe what to do after the form is valid
form.save()	commit=False	The save() method of a ModelForm is to creates and saves a database object from the data bound to the form. This save() method accepts an optional commit keyword argument, which accepts either True or False. We call save() with commit=False to return an object that hasn't yet been saved to the database.
comment.save()		Comment.save() method here is to save the comment created by the user into database.
message.success()	Request, "message"	Return a string message
context		It is a dictionary of values to add to the template context. By default, this is an empty dictionary. If a value in the dictionary is callable, the view will call it just before rendering the template.
render()	Request,template_name, conext	It is a response that combines a given template with a given context dictionary. Two required parameter are needed. Request is the request object used to generate this response while the template name is the template that you want to go.
redirect()	template_name	This function is redirect the user to a new page after the current request is completed

CommentDeleteView	LoginRequiredMixin,UserPassesTestMixin,DeleteView	The base class of this function is Deleteview.It is a prepared django library. It will automatically delete the comment if the condition is True.For example,in my program I make use of if the request user is the post author then it will return True
model		This variable is need to state the class you needed
success_url		To redirect the user after any action is done successfully
test_func()	self	It checks that the user passes the given tes
get.object()		This function is to get the particular post which the comment belongs to.
post		The particular post which the comment belongs to.
request.user		The current user who do the request
post.user		The post owner, user who create the post

Chat Module

Variable Name	Parameter/Base Class	Explanation
index	request	A function that will take in request and show index.html
room	request, room_name	A function that will take in request and show room.html
ChatConsumer	AsyncWebsocketConsumer	A class which receive message from user and forward it to the group corresponding to the room name.
connect	self	A function to call an connection.
self.room_name		It is to obtain room_name parameter from the URL route in routing.py
self.room_group_name		Constructs a Channels group name directly from the user-specified room name, without any quoting or escaping.
self.channel_layer.group_add	self.room_group_name, self.channel_name	To join a group.
self.accept		Accepts the WebSocket connection.
disconnect	self, close_code	Called when the socket closes
self.channel_layer.group_discard	self.room_group_name, self.channel_name	Leaves a group.
receive	self, text_data	A function to receive message from websocket
text_data_json		A variable which go through the data conversion from json to python.
json.loads	text_data	To convert the text_data from

		Json to Python.
message		Store message in python dictionary.
self.channel_layer.group_send	self.room_group_name	Sends an event to a group.
chat_message	self, event	Receive message from room group.
self.send		Send message to websocket.