



SECJ/SECV3104: Application Development

PROJECT PROPOSAL & PLANNING

Project Name: **VOTION**

Sustainable Development Goal (SDG): **4-QUALITY EDUCATION**

Software House Name: **ZBL SPIDER**

School of Computing, Faculty of Engineering

Universiti Teknologi Malaysia

Development Team Members:

1. Chiam Wooi Chin (Team Leader)
2. Goh Jo Ey (Scrum Master)
3. Ng Jing Er
4. Ong Yin Ren

Stakeholders:

1. Tan Xue Ying (IPG Intern Student) (Product Owner)
2. Secondary School Student
3. Others (if any)

1. INTRODUCTION

This tutor volunteer application is useful to develop an effective and friendly study application with the tutor and student who need help. This application is **needed** for creating a volunteer platform for the student to ask for help in study. For example, the students can post their question on the platform to ask for help from the tutors without any fee charges. The proposed **approach** to this software application is to allow students to ask the solution for their study and allow the volunteers who may be graduates or teachers to have a platform for them to help the people in need. Besides, it also allows the student to schedule the teaching and learning with the volunteer in order to catch up their study progress. By approaching this volunteer tutor software application, the **benefits** of this application is to solve the study problem for the student as it is a non-profit application development. Without any hesitation, it is an effective solution for the student who does not have enough money to participate in tuition. The current existing systems available are MC+ and Khan Academy. The **difference** between our tutor application and those two existing tutor applications is that our application is free of charge for the students and has provided a welfare for our tutor and student which is the reward points for them to claim something.

Due to the lack of a volunteer platform for the students to ask for help in study, it is a reason why this software application should be approached. Students need help for their studies. For example, they choose home school to continue their studies. It is because maybe they have financial problems, or they are sick and missed out on a lot of progress in school. During Covid-19 pandemic, some students didn't manage to follow the schedule arranged by the school and it is hard for them to catch up with all the progress. They want to find someone for help but they have no ideas on it and most of the platform. Besides, the second issue is the mental problem among secondary students after online learning. It is because students missed out a lot of classes during the Covid-19 online learning period. They are feeling stressed as they still need to sit for the exam such as PT3 and SPM. They might have mental problems and insomnia when they are feeling they didn't manage to complete the test and get the certificate. Hence, in order to design and implement

this volunteer tutor software application, the technologies to be used are C++, Java and GitHub. During the development of this volunteer tutor application, technical feasibility will assess the current resources which are hardware and software , and the technology which are required to accomplish user requirements in the software within the allocated time and budget. For this, we will analyze the technical skills and capabilities of the software development among our team members. Besides, we will also determine whether the problems anticipated in user requirements are of high priority and the solution suggested by the software development team is acceptable. The objectives of our volunteer tutor application development are :

- (i) To analyse requirements from secondary school student during online learning
- (ii) To design the proposed VOTION application
- (iii) To implement and test VOTION application

1.1 Existing System

In the current market, there are several competitors for software applications such as MC+ and Khan Academy.

MC+ are serving a platform for the students to have live tuition classes. They do provide the class replay which allows the students to recap on what they are missing during the live tuition. It is a professional education platform in Malaysia that allows the students to solve their study problems. The students can register an account and start to customize their timetable in the application. The students also can view the tutor profile before they join the tuition class so that they can choose the tuition class that they are suitable with. However, a subscription fee is needed in order to access the tuition class. The user can visit the platform via <https://mcplus.my/> or download the application through the Google Play Store or iOS App Store .

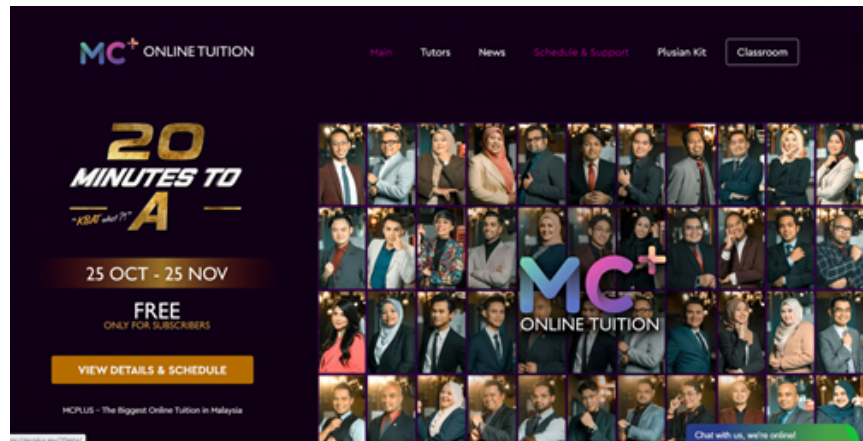


Figure 1: MC+ Online Tuition Main Page

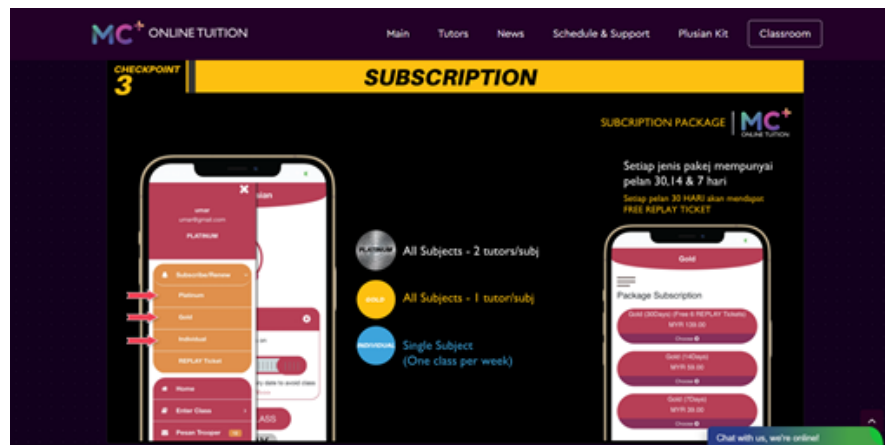


Figure 2: MC+ Subscription Package

Khan Academy is a free educational platform for both students and teachers developed by the American non-profit educational organization. This application provides the user with free courses, lessons, and practice for the students. The user can register an account to access their service. The syllabus in the platform is based on United States education. The subjects provided in the platform are math, science, computing, economics, as well as reading and language arts. However, the free educational platform does not provide real time tuition class for the user to join. The example of the materials provided in the platform to help the students to solve their study problems is the recorded videos, notes and the quiz. The user can visit the

platform via <https://www.khanacademy.org/> or download the application through the Google Play Store or iOS App Store.

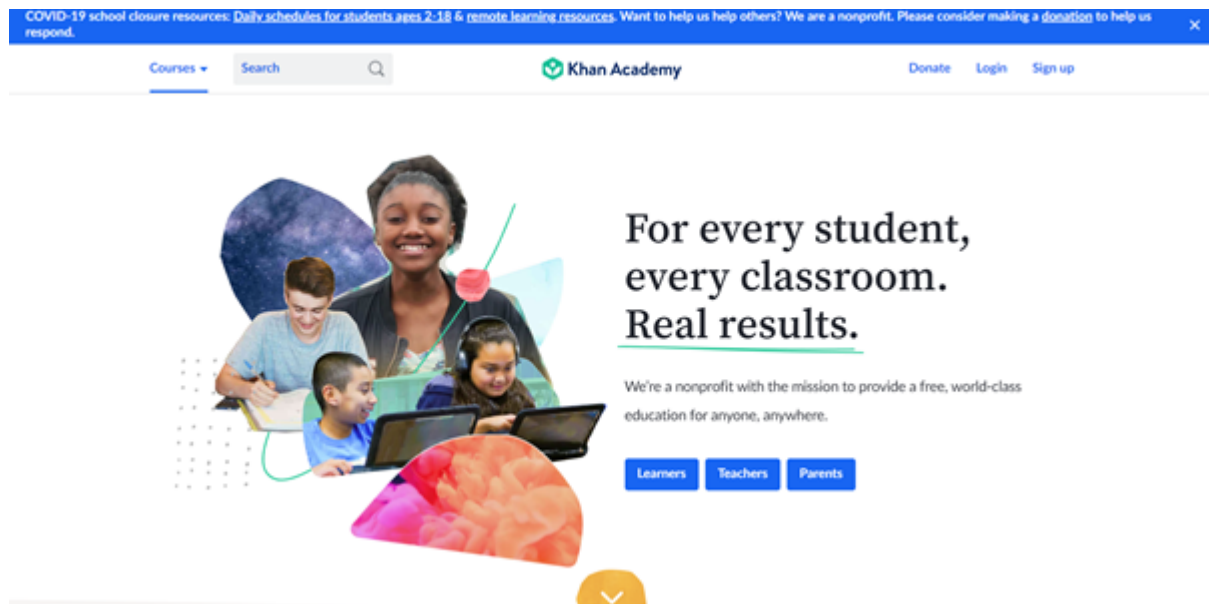


Figure 3: Khan Academy Main Page

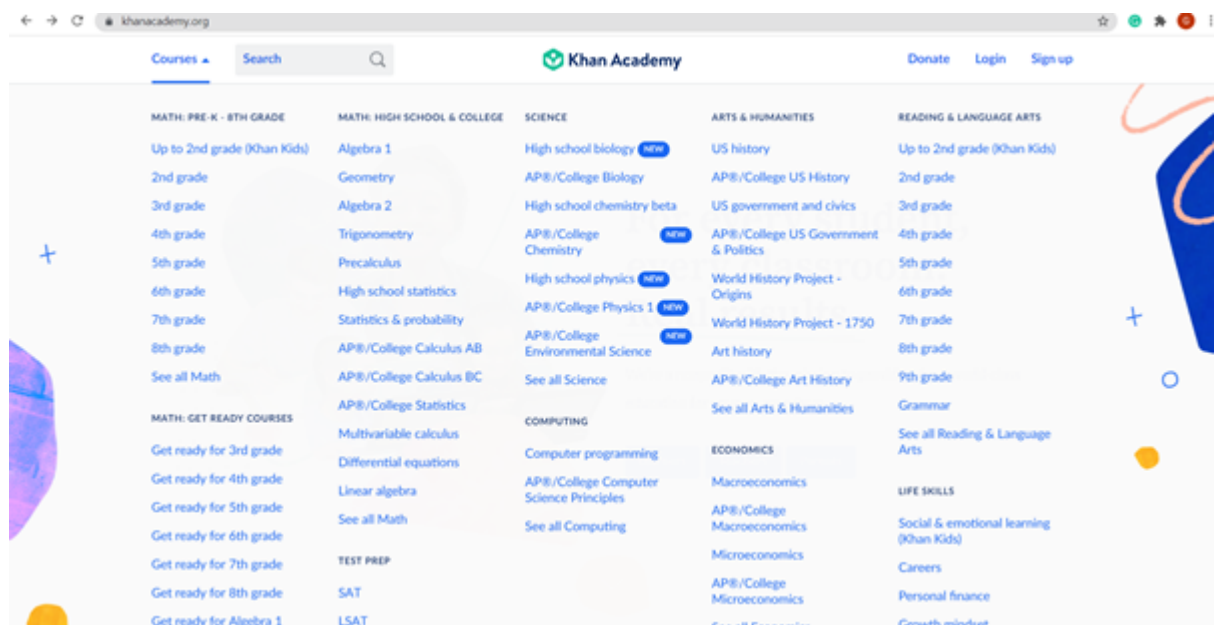


Figure 4: Khan Academy Available Courses

1.2 Proposed System

The proposed system is the Volunteer Tuition Application system which will provide a platform for students to search for help in their study issue. There are seven functional requirements in our proposed system based on the use case diagram below.

1. The tutor and student shall be able to manage user profiles by add, edit and delete.
2. The tutor and student shall be able to manage tuition schedules by add, edit and delete.
3. The student shall be able to upload the question of homework
4. The tutor shall be able to solve question of student's homework.
5. The tutor and student shall be able to view the question box.
6. The tutor and student shall be able to view the reward points.
7. The tutor and student shall be able to claim the rewards using the points.

There are several non-functional requirements in our proposed system.

1. Availability
The tutor and student shall be able to view the application anytime.
2. Usability
The system shall be able to display a good appearance of the user interfaces that are user friendly to the tutor and students.
3. Accuracy
The system shall be able to display accurate information of user reward points.

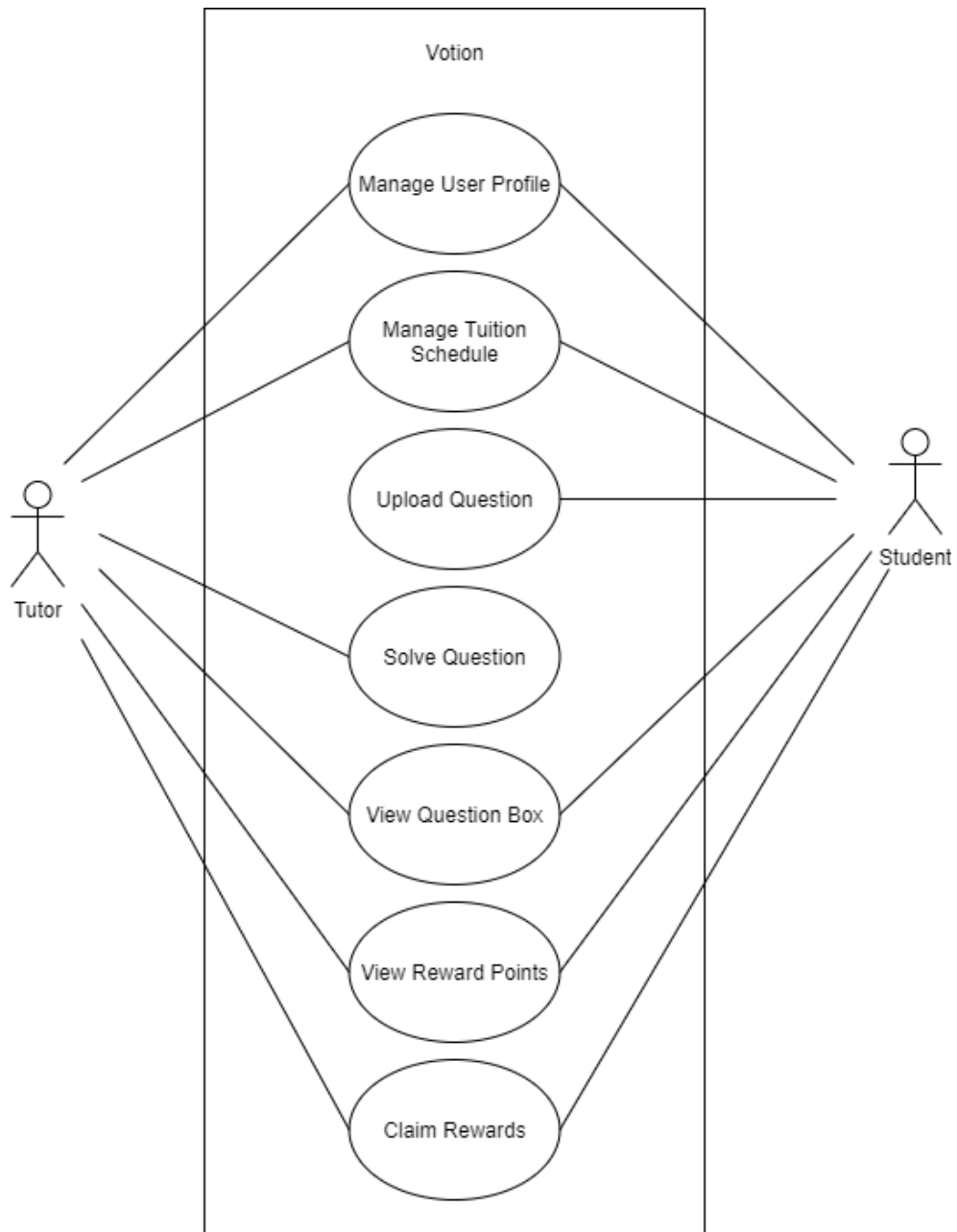


Figure 1.1: Use Case Diagram for Votion

2. USER STORIES

2.1 Use Case UC001 <Manage User Profile>

Tutor and Student can manage their user profile by registering their profile with adding the user profile details. They also can edit and delete their user profile. There are 3 user stories under this use case.

2.1.1 User Story US001

As a Tutor, I want to register the profile by adding the user profile details so that I can be a volunteer tutor in this online tuition system.

Acceptance Criteria

- Ability to register a tutor profile to this system
- Ability to add the user profile details which includes
 - Username
 - Password
 - Email
 - Address
 - Telephone number
 - Date of birth

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- User profile details can be inserted to database based on query inputs

2.1.2 User Story US002

As a Tutor, I want to edit the user profile details so that the user profile details are latest updated.

Acceptance Criteria

- Ability to update the tutor profile details to latest
- Ability to edit the user profile details which includes

- Username
- Password
- Email
- Address
- Telephone number
- Date of birth

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- User profile details can be generated from database based on query inputs
- User profile details updates contain only most recent data from the database

2.1.3 User Story US003

As a Student, I want to delete the user profile so that I will no longer have the user profile in this online tuition system.

Acceptance Criteria

- Ability to delete the user profile in the database system.
- Ability to delete the user profile which includes
 - Username
 - Password
 - Email
 - Address
 - Telephone number
 - Date of birth

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- User profile details updates contain only most recent data from the database
- User profile details can be deleted from database based on query inputs

2.2. Use Case UC002 <Manage Tuition>

In this use case, the students and tutor can manage tuition appointments in the application based on their need. They can arrange a tuition appointment, edit the tuition appointment, and delete the tuition appointment in this use case. There are three user stories under this use case and will be explained in detail in the next section..

2.2.1 User Story US004

As a Student, I want to add tuition appointments so that I can arrange tuition for the topic that I'm unclear about.

Acceptance Criteria

- Ability to insert a new tuition appointment in the system
- Ability to generate a tuition schedule which includes
 - Username
 - User ID
 - Telephone numbers
 - Tuition Subject
 - Tuition Date
 - Tuition Times
 - Tutor Name
- Ability to use report data to export tuition schedule to the system profile

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- Tuition schedule report can be generated from database based on query inputs
- Tuition schedule report data can be exported to MS Excel spreadsheet
- Tuition schedule updates contain only three most recent month data from the database.

2.2.2 User Story US005

As a Tutor, I want to edit my tuition schedule in the application so that I can adjust my tuition time as needed.

Acceptance Criteria

- Ability to update the tuition appointment in the system
- Ability to update the tuition schedule which includes
 - Username
 - User ID
 - Telephone numbers
 - Tuition Subject
 - Tuition Date
 - Tuition Times
 - Tutor Name
- Ability to update report data to export tuition schedule to the system profile

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- Tuition Schedule report can be generated from database based on query inputs
- Tuition Schedule report data can be exported to MS Excel spreadsheet
- Tuition schedule updates contain only three most recent month data from the database

2.2.3 User Story US006

As a Student, I want to delete my tuition schedule so that I can cancel the tuition appointment if I have an emergency and cannot attend the class.

Acceptance Criteria

- Ability to delete the tuition appointment in the system
- Ability to update the tuition schedule which includes
 - Username

- User ID
- Telephone numbers
- Tuition Subject
- Tuition Date
- Tuition Times
- Tutor Name
- Ability to update report data to export tuition schedule to the system profile

Acceptance Testing

- Database is accessible internally but not from outside company firewall
- Tuition schedule report can be generated from database based on query inputs
- Tuition schedule report data can be exported to MS Excel spreadsheet
- Tuition schedule updates contain only three most recent month data from the database

2.3 Use Case UC003 <Upload Question>

Students shall be able to upload questions of homework exercises to ask the tutor. There are 2 user stories under this case.

2.3.1 User Story US007

As a student, I want to upload homework questions so that I can get help from an expert tutor to solve my academic problems.

Acceptance Criteria

- Ability to upload the homework questions.
- Ability to get notification email once receive a new answer.

Acceptance Testing

- The uploading function is accessible as long as the internet is connected.
- The notification email can be generated and sent to the student.

2.3.2 User Story US008

As a student, I want to edit the questions uploaded so that I can make changes on questions uploaded as needed.

Acceptance Criteria

- Ability to edit the question uploaded on the system.
- Ability to delete the question uploaded from the system.
- The notification email can be sent to the user involved when any changes are made.

Acceptance Testing

- The editing function is accessible as long as the internet is connected.
- The question will no longer exist once deleted.

2.4 Use Case UC004 <Solve Question>

Tutor shall be able to solve questions uploaded by the students. There are 2 user stories under this case.

2.4.1 User Story US009

As a tutor, I want to answer the questions uploaded by students so that I can help them to solve their academic problems.

Acceptance Criteria

- Ability to answer the questions uploaded on the system.
- Ability to send notification email once answered the question.

Acceptance Testing

- The uploading function is accessible as long as the internet is connected.
- The notification email can be generated and sent to the student.

2.4.2 User Story US010

As a tutor, I want to edit the answer uploaded so that I can make changes on the answer uploaded as needed.

Acceptance Criteria

- Ability to edit the answer uploaded on the system.
- Ability to delete the answer uploaded from the system.

Acceptance Testing

- The editing function is accessible as long as the internet is connected.
- The answer will no longer exist once deleted.
- The notification email can be sent to the user involved when any changes are made.

2.5 Use Case UC005 <View Question and Answer>

The tutor and student shall be able to view the particular question uploaded on the system. There are 2 user stories under this case.

2.5.1 User Story US011

As a student, I want to view the question history for a specific question uploaded so that I can review the best answer for my question.

Acceptance Criteria

- Ability to display the total answer received and the list of answers

Acceptance Testing

- The list of answers can be generated and arranged according to the time posting.

2.5.2 User Story US012

As a tutor, I want to view the answer history for a specific question uploaded so that I can review others' answers.

Acceptance Criteria

- Ability to display the total answer received and the list of answers

Acceptance Testing

- The list of answers can be generated and arranged according to the time posting.

2.6 Use Case UC006 <View Rewards Points>

Tutors and students shall be able to view their reward points after using the application. There are 2 user stories under this case.

2.6.1 User Story US013

As a tutor, I want to know how to get where to view my rewards points so that I can view my total rewards point.

Acceptance Criteria

- Ability to view the rewards point in the profile page.

Acceptance Testing

- The profile is active.
- The rewards points can be generated from database based on auto calculation from the system

2.6.2 User Story US014

As a student, I want to view the details of the rewards point so that I can know how I earn the rewards point.

Acceptance Criteria

- Ability to view the rewards point in the profile page.

Acceptance Testing

- The view rewards points function is accessible as long as the internet is connected
- The rewards points can be generated from the database based on auto calculation from the system.
- The details of the rewards can be generated from the database of the user used.

2.7 Use Case UC005 <Claim Rewards>

Tutors and students shall be able to claim their reward points in the application. There are 2 user stories under this case.

2.7.1 User Story US015

As a tutor, I want to know the way to claim rewards so that I can claim it successfully.

Acceptance Criteria

- Ability to view the claim rewards option.
- The rewards points are enough for the claiming features

Acceptance Testing

- The claiming rewards function is accessible as long as the internet is connected
- The rewards points can be generated from database based on auto calculation from the system
- The rewards points can be used to claim the rewards.

2.7.2 User Story US016

As a student, I want to know which rewards can I claimed so that I can claimed my rewards in an easy way

Acceptance Criteria

- Ability to view the claim rewards option.
- Ability to view the rewards that match the criteria

Acceptance Testing

- The rewards points can be generated from database based on auto calculation from the system
- The rewards that match with the user can be generated from the database.

3. PRODUCT BACKLOG

A backlog is a list of tasks that must be completed in order to achieve a larger strategic goal. The entire estimated time for our product backlog is 56 days. Our proposed application contains 4 subsystems which are user, tuition, homework and rewards. Each team member is in charge of a specific subsystem. Following our discussion, we balanced stakeholder demands against risk and balance, and set priorities for each job.

The table below shows the product backlog for the Votion application:

Table 3.1: Product backlog for Votion

Task ID	User Story ID	Estimate (Day)	Priority	Team Member
ZBLS-1	US001	4	1	Chiam Wooi Chin
ZBLS-2	US002	4	5	Chiam Wooi Chin
ZBLS-3	US003	3	13	Chiam Wooi Chin
ZBLS-4	US004	4	2	Goh Jo Ey
ZBLS-5	US005	4	6	Goh Jo Ey
ZBLS-6	US006	3	9	Goh Jo Ey
ZBLS-7	US007	3	3	Ng Jing Er
ZBLS-8	US008	4	10	Ng Jing Er
ZBLS-9	US009	3	7	Ng Jing Er
ZBLS-10	US010	3	11	Ng Jing Er
ZBLS-11	US011	3	14	Ng Jing Er
ZBLS-12	US012	3	15	Ng Jing Er
ZBLS-13	US013	3	4	Ong Yin Ren
ZBLS-14	US014	3	8	Ong Yin Ren
ZBLS-15	US015	4	12	Ong Yin Ren
ZBLS-16	US016	5	16	Ong Yin Ren

Backlog

GA NA OR CA

Epic

Insights

▼ Backlog (16 issues)

56 0 0

Create sprint

















 ZBLS-1 Register User Profile	4	TO DO ▼	CA
 ZBLS-2 Edit User Profile	4	TO DO ▼	CA
 ZBLS-3 Delete User Profile	3	TO DO ▼	CA
 ZBLS-4 Add Tuition Appointment	4	TO DO ▼	GA
 ZBLS-5 Edit Tuition Appointment	4	TO DO ▼	GA
 ZBLS-6 Delete Tuition Appointment	3	TO DO ▼	GA
 ZBLS-7 Upload homework questions	3	TO DO ▼	NA
 ZBLS-8 Edit Uploaded Question	4	TO DO ▼	NA
 ZBLS-9 Solve Homework Question	3	TO DO ▼	NA
 ZBLS-10 Edit Uploaded Solution	3	TO DO ▼	NA
 ZBLS-11 View Question History	3	TO DO ▼	NA
 ZBLS-12 View Answer History	3	TO DO ▼	NA
 ZBLS-13 View Total Reward Points	3	TO DO ▼	OR
 ZBLS-14 View Reward Points Details	3	TO DO ▼	OR
 ZBLS-15 View Rewards Option	4	TO DO ▼	OR
 ZBLS-16 View Claimable Rewards	5	TO DO ▼	OR

Figure 3.1: Backlog for Votion

4. SPRINT

A sprint is a set of tasks that must be completed and ready for evaluation in a specific period of time. In our agile product development, there are a total of four sprints. Each sprint consists of two weeks. The period for sprint #1 is between 7th November 2021 to 20th November 2021 while sprint #2 is between the 21st November 2021 and 4th December. For sprint #3, it will start from 12th November 2021 to 25th December 2021. Lastly, sprint #4 is between 26th December 2021 and 10th January 2022. Every team member is included in every sprint in order to complete the tasks listed in each agile. After the sprint planning meetings, we review the task, estimate the time limit, and arrange the task into different sprint according to their priority.

In our proposed application, it consists of two types of user: tutor and students. In order to identify the user when they are using the application, we will prioritise the basic function first. We will start sprint #1 with four tasks which are "Register User Profile", "Add Tuition Appointment", "Upload Homework Questions" and "View Total Reward Points". The figure below shows our sprint #1 in JIRA:

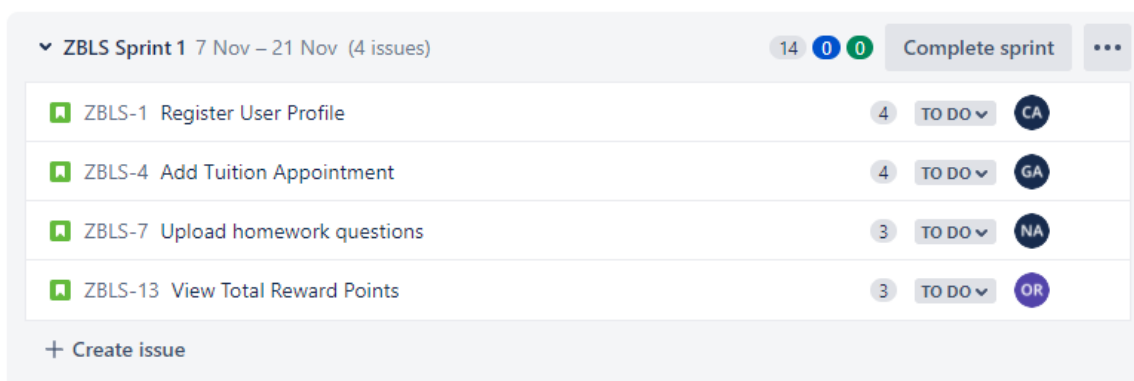


Figure 4.1: Sprint 1 for Votion

Next, we will next estimate to arrange the task that can improve the basic function in the sprint #2. For instance, we will continue sprint #2 with the "edit" function. The "Edit User Profile" and "Edit Tuition Appointment" are involved in this sprint. Besides, "Solve Homework Question" feature, which allows the system to do

Q&A, is involved in this sprint. The user will also be able to view the details of the points. The figure below shows our sprint #2 in JIRA:

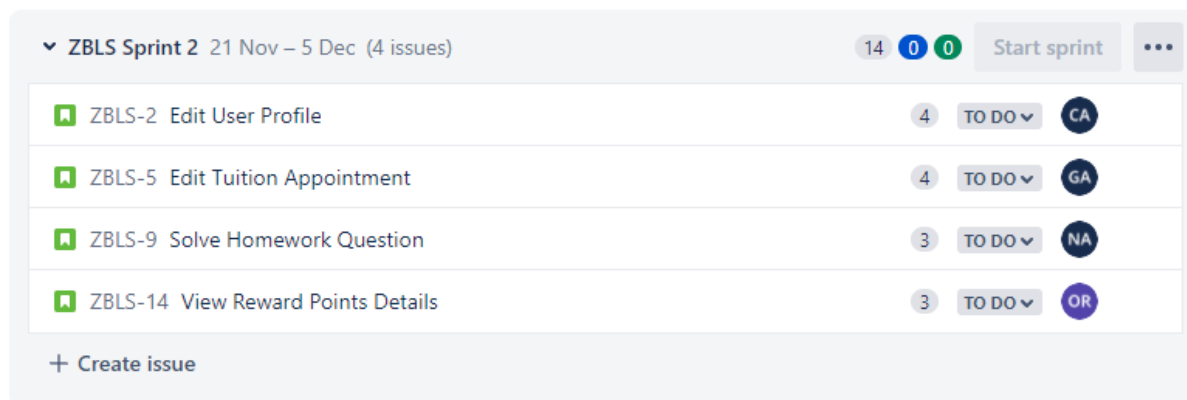


Figure 4.2: Sprint 2 for Votion

After that, sprint #3 will also consist of four tasks. It includes the “Delete Tuition Appointment”, “Edit Uploaded Question”, “View Rewards Option” and the “Edit Uploaded Solution”. The figure below shows our sprint #3 in JIRA:

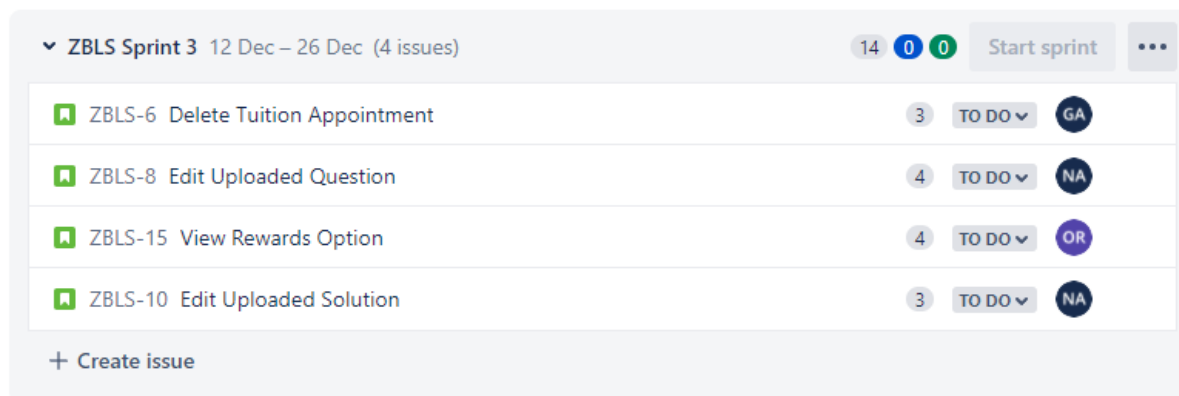


Figure 4.3: Sprint 3 for Votion

In the last sprint, it will involve the least priority function. The tasks that involved in this sprint are “Delete User Profile”, “View Question History”, “View Answer History” and “View Claimable Rewards” The figure below shows our sprint #4 in JIRA:

▼ ZBLS Sprint 4 26 Dec – 9 Jan (4 issues)

1400Start sprint...

ZBLS-3 Delete User Profile	3	TO DO ▼	CA
ZBLS-11 View Question History	3	TO DO ▼	NA
ZBLS-12 View Answer History	3	TO DO ▼	NA
ZBLS-16 View Claimable Rewards	5	TO DO ▼	OR

+ Create issue

Figure 4.4: Sprint 4 for Votion