Faculty of Computing
UTM Johor Bahru

SECP2613: System Analysis and Design

Project Proposal and Planning

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Section	:	01
Group	:	Unicode

Lecturer : Dr. Aryati Binti Bakri

Date : 9th November2023

1.0 Methods for Information Gathering

In order to gather the necessary information to develop the advertisement and construction purchase system for akMaju, we followed a systematic approach. First, we defined the purpose of the information gathering process, which was to understand how staff calculate the overall cost and produce quotations. Next, we identified potential sources such as industry reports, industry social media and related online references.

Our approach included conducting in-depth interviews with key industry expert, Encik Azam. We organized and analyzed the collected data by producing the entire workflow and usecase for the current system. To ensure the accuracy and reliability of the information, we cross-referenced data from multiple sources and sought our lecturer to validate our findings. All the gathered information was documented and stored in a 'Trello' software for future reference. By following this methodical approach, we were able to gather comprehensive and reliable information to inform our market research project effectively.

Interview Questionnaires :

1. How is the workflow from receiving orders to delivering the final product?

2. Is there any difference in workflow for three different types of customer which is government agency, walk-in customer and online customer?

3. How much is charge included in the design idea?

4. Can you provide a company's chart organization?

5. Who is the target user for they system?

6. How do we know the price of the material?

7. Is there any specific theme for the system?

8. How do you record the order report, like weekly or monthly?

9. What are the components of invoice that you want to be included?

10. How do you measure the cost, like weekly or monthly?

2.0 Introduction

The current "as-is" system for advertisement and construction at AkMaju company is characterized by manual processes, fragmented tools, and a lack of standardization. This system poses challenges in terms of efficiency, accuracy, visibility, and reporting capabilities. In order to overcome these limitations and enhance their advertisement and construction processes, AkMaju company has recognized the need for an improved system that automates and streamlines various aspects of the workflow.

This project aims to streamline and optimize the existing workflow, improving efficiency, accuracy, and customer satisfaction. By implementing the proposed system, we aim to address the challenges and limitations identified in the current process, ultimately facilitating smoother operations and better management of orders, quotations, deliveries, and payments.

Project Overview:

The project entails the development and implementation of an advanced advertisement and construction system that will revolutionize the way orders are processed, quotations are generated, deliveries are managed, and payments are handled. The proposed system builds upon the existing workflow, leveraging technology to automate and streamline various tasks, reducing manual effort, and minimizing the potential for errors.

The advertisement and construction system enhancement project focuses on developing six key modules: Authentication, Manage Order, Quotation Generation, Manage Inventory, Invoice Generation, and Report Module. These modules will work in harmony to automate and simplify various aspects of the advertisement and construction process.

In conclusion, the proposed enhancement to advertisement and construction system offers a transformative solution that addresses the limitations of the current workflow. By leveraging technology to automate and optimize key processes, we aim to improve efficiency, accuracy, and customer satisfaction. We are confident that the proposed system will revolutionize your operations, positioning your organization for greater success in the advertisement and construction industry.

3.0 Organizational Background

Figure 1 - AK Maju Resources Organizational Chart

AK Maju Resources Sdn. Bhd. is a dynamic company founded by Encik Noor Azam Khalid that was incorporated on April 9, 2014, in Segamat, Johor. With a team of approximately 10 dedicated staff members and 3 of them in charge as admin, they offer a diverse range of services, specializing in design signboards, printing, advertising, ironworks, air conditioning, wiring, and CCTV installations. Despite being located in Segamat, Johor, the company extends its services to clients in Johor Bahru, Melaka, Negeri Sembilan, and Selangor.
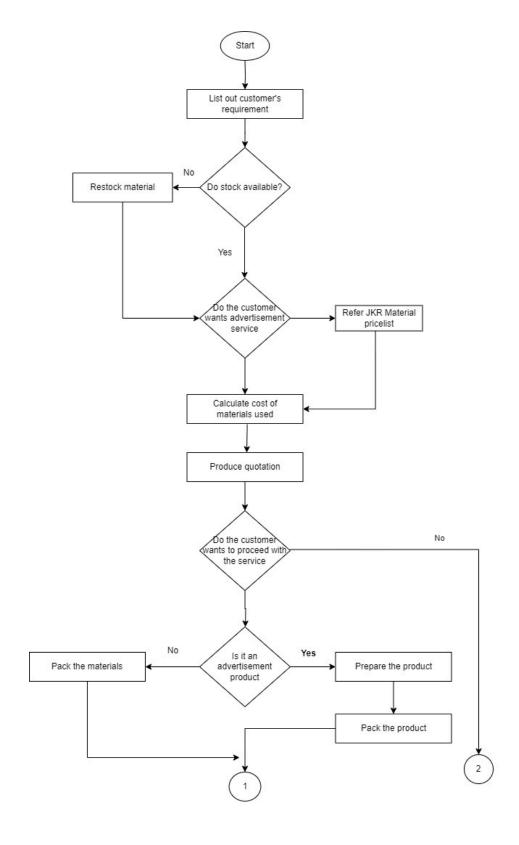
The company's core expertise lies in advertisement design, with their highly knowledgeable staff providing professional advice to customers on suitable materials and designs. They have successfully designed various marketing collaterals, including signboards, banners, brochures, money angpau envelopes, restaurant menu boards, t-shirts, and more. The company has garnered a strong reputation for their exceptional design capabilities and high-quality output.

AK Maju Resources has received outstanding reviews from its customers, earning a perfect 5-star rating on their Facebook page and an impressive 4.2-star rating on Google. Customers have praised the company for their professionalism, excellent communication, and reasonable pricing. The company's commitment to delivering top-notch products, coupled with their easy accessibility and positive customer interactions, has resulted in a high level of customer satisfaction and repeat business.

One of the challenges faced by AK Maju Resources is the time-consuming process of producing quotations. To address this issue, the company seeks a system that can calculate costs quickly and accurately, streamlining the quotation generation process. Additionally, they require a system that enables efficient and easy updating of material stock levels, reducing the time spent on inventory management.

With their exceptional expertise in advertisement design, a strong customer base, and a commitment to delivering high-quality products, AK Maju Resources is poised for continued success in the industry. By implementing an efficient system that addresses their specific needs, the company aims to further enhance their operational efficiency, customer satisfaction, and overall business growth.
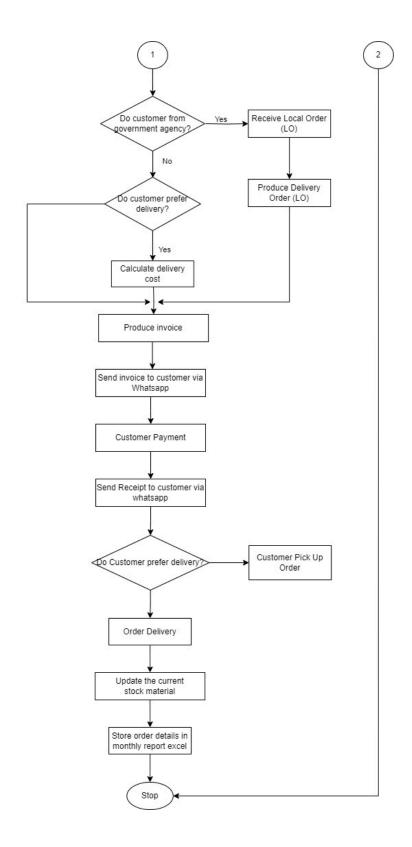
4.0 The Case Study (AS-IS System)

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                    ┌────────▼────────┐
                    │ List out        │
                    │ customer's      │
                    │ requirement     │
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                             │
              No         ┌───▼────┐
  ┌──────────────┐◄──────┤Do stock│
  │Restock       │       │available?
  │material      │       └───┬────┘
  └──────┬───────┘           │ Yes
         │               ┌───▼────┐      ┌──────────────┐
         │               │Do the  │─────►│Refer JKR     │
         └──────────────►│customer │ wants│Material      │
                         │advertisement  │pricelist     │
                         │service │      └──────┬───────┘
                         └───┬────┘             │
                    ┌────────▼────────┐         │
                    │Calculate cost of│◄────────┘
                    │materials used   │
                    └────────┬────────┘
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                    │Produce quotation│
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                         ┌───▼────┐                    No
                         │Do the  │────────────────────────┐
                         │customer wants to                │
                         │proceed with the service         │
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  │materials     │       │product │       │product       │ │
  └──────┬───────┘       └────────┘       └──────┬───────┘ │
         │                                ┌──────▼───────┐ │
         │                                │Pack the      │ │
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Figure 2 - Current System Workflow

The workflow in Figure 1 illustrates the process of the existing system. It begins with customers placing orders for advertisement or construction services with the staff. The staff then lists out the customers' requirements. Subsequently, the staff passes the order to the admin, who checks the material stock based on the customer's order. If the material stock is insufficient, the staff initiates a restocking process to ensure an adequate supply. Once the stock availability is confirmed, the staff calculates the cost and prepares a quotation. For construction projects, the staff refers to the Jabatan Kerja Raya (JKR) pricelist to determine material costs accurately. The quotation is then sent to the customer via WhatsApp for confirmation. If the customer chooses to proceed with the order, the product or service is prepared. If the customer cancels the order, the process comes to a halt. If the customer is a government agency, the company awaits the receipt of a Local Order (LO). After receiving the LO, the staff generates a Delivery Order (DO) and invoice. For non-government customers, the invoice includes the delivery price if they opt for delivery. The staff then waits for customer payment, which can be made in cash or through online payment methods. Once payment is received, a receipt is issued. If the order involves delivery, the packed products or materials are dispatched or picked up by the customer. In the case of government agency orders, payment is received within 14 days after the delivery of the products or materials. After completion of the order, the admin updates the current stock of materials. Finally, the order details are recorded in a monthly report stored in an Excel file.

By following this workflow, the existing system manages the end-to-end process of receiving orders, generating quotations, processing payments, and delivering products or services to both government agencies and non-government customers.

5.0 Problem Statement

There are several notable challenges that Ak Maju Resource are currently facing, and these issues become evident when analyzing the efficiency of the current method employed by the staff to encounter the problems.

First. the way they manage their inventory can be challenging, especially since dealing with a large quantity of items, but having to deal with all of them manually, To address this, the company need a reliable system that allows them to manage their inventories for both construction and advertising. There can be complications for which they wouldn't know which specific items would be available for the customers, and whether or not the materials are running low.

Second, it is noted how Ak Maju Resource are dealing with producing the quotations, invoices and receipts manually. They have the data written manually and proceed to store the data in an excel document by keying them in manually. This can lead to a waste of time and energy consumed by the company's staff. Moreover, it should also be considered on due to the fact that Ak Maju Resource deals with supplying construction materials, this company has to always keep in contact with the Malaysian Public Works Department (JKR) because they are the one who sets the standard specification in terms of the construction materials costs. Due to this, there will be a lot of changes in terms of the manufacturing price for the materials that Ak Maju Resource are providing. This led to a constant change of data and it troubled this company because most of this pricelist were kept by them in a hardcopy form.

Third, Ak Maju Resource also struggles with keeping track of their previous customers, because they don't have the proper system to keep all the customers' information such as their names, contacts, and addresses. Ak Maju also have conflicts in which they are not only providing these services to the public, but they are also dealing with the government when it comes to supplying construction materials. It is also known how basically all the customers and clients of Ak Maju Resource remain the same group of organizations, so it may come off as a hassle on how the company will have to keep track of the repeating clients of them manually.
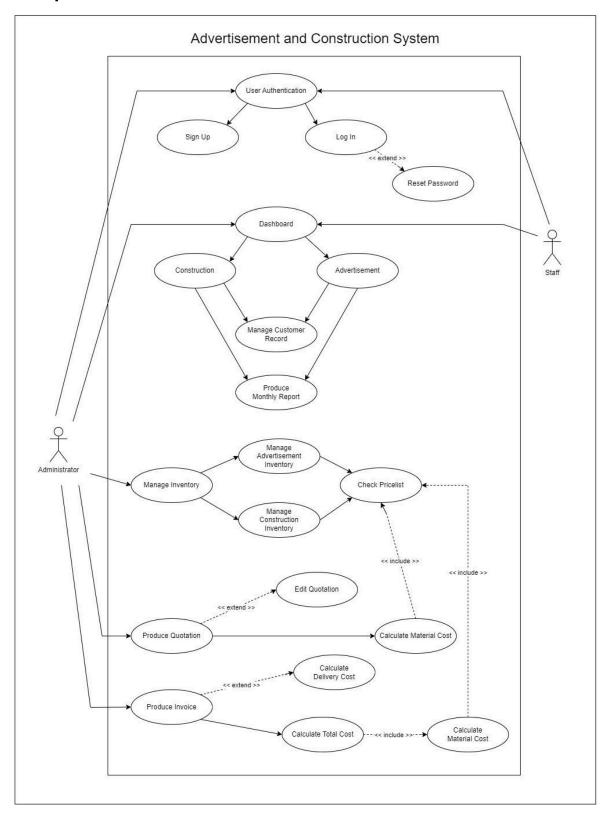
6.0 Proposed Solutions

Figure 3 - Propose Use Case Diagram

We attempted to address Ak Maju Resource problems by offering them solutions that will lighten their load, based on the use case mentioned above. In addition to offering a better solution to the issue, the system also has additional features that make it easier for the company's employees to use it.

In order for staff members to access and use the system, they must first register their account with the system. They must log in, and in the event that they forget their password, the system offers a method for staff members to recover their accounts. This is required since the system already has this security measure in place to safeguard the integrity of the business because the information and data it holds are confidential.

Second, a well-organized dashboard is another feature of the system. This could be useful in situations where employees can manage customers' orders based on the services Ak Maju's Resource offers, such as construction and advertising, by simply visiting the dashboard. This is the area where new orders can be entered and adjusted. All of the previous customers' data, which was kept in the database for the company's use, was also visible on this dashboard. This is very advantageous to Ak Maju Resource because it allows for the retrieval of the address and contact information of the company's repeated clients. This improves on Ak Maju's earlier methods of manually maintaining client information by putting it inside a system that is far more approachable and structured.

The system's inventory management feature is another addition that has been made and is very beneficial to Ak Maju Resource. This feature helps Ak Maju Resource manage their inventory and makes it simple for them to determine which materials are available to customers. As a result, Ak Maju Resource is no longer required to manually manage and store these massive amounts of data. Additionally, the system can send an alert to the company informing it when a particular material is running low on hand. This can be advantageous to the company as it allows them to know which materials need to be reordered. This feature can offer valuable assistance to the business by streamlining the process of generating reports that identify the top-selling products and those that might benefit from increased exclusivity. Additionally, it is noteworthy that the costs of materials procured from Ak Maju Resource exhibit periodic fluctuations. Consequently, the utilization of this system enables Ak Maju Resource to readily adapt their pricing strategies, aligning them with both the prevailing market rates of these materials and the established guidelines set forth by JKR.

This system offers a clear solution to this issue by assisting Ak Maju Resource in generating their invoice, receipt, and quotations by assisting them in automatically calculating the cost of materials. It is also known that Ak Maju Resource requires assistance in producing these documents for their clients. It is also known that delivery costs are included in the calculation if a delivery is required at the time the order was entered, depending on the customer's preferences. Additionally, this system offers amenities that are being developed for the delivery slip. Another feature that helps Ak Maju Resource is that, thanks to the data being stored inside the customer information module, the system makes it easier for Ak Maju to send these documents to customers via email. The Akmaju staff will benefit from time savings as a result of not having to worry about misperceptions about their services because all documentation of agreements made between the business and its clients is kept in this system. Additionally, the clients are free to retain the documents for future reference.

The system's module that assists Ak Maju Resource in creating their monthly report for their records is the final feature, but it's still important for them. It is well known that Ak Maju Resource used to manage all of these reports by keeping them in their outdated, tiny system, and that even half of them were hardcopy documents stored in their office. However, this system made it simple to store these reports here thanks to a feature that helps the report generate automatically using data that is stored in the system. This system also permits these reports to be extracted in Excel format prior to the company's request. Staff members gain a great deal from this module overall since the system can help automatically generate the calculation based on the needs of the company, saving them from having to manually calculate all of the profit and costs.

7.0 Objectives

The objective of this project is to develop a web-based system to enhance the efficiency, accessibility, and functionality of a specific process or task for AK Maju Resources in managing their business.

1. To upgrade the current system in managing business for advertisement and construction of Ak Maju Resources.
2. To develop a web-based management system that is accessible for the staffs and administrators of Ak Maju Resources.
3. To produce an accurate calculation of quotations and invoices of orders from construction and advertisement of Ak Maju Resources.

8.0 Scope of the Project

The following are some aspects of the project scope that must be taken into account: the system may automatically calculate prices using a markup that is managed by AK Maju Resources.

- The system will use real-time inventory management to update and verify stock levels so that alerts can be sent to the company when stocks are running low
- The system will limit access to authorized workers by requiring user authentication for security so only staff and admins of Ak Maju Resource are able to have access to the system.
- The system can process the orders placed by customers by generating quotations, invoices, and order deliveries.
- The system has the capability to build a reporting dashboard that gives AK Maju Resources an overview of the client data, transaction history, and ordering record.

9.0 Project Planning

9.1 Human Resource

1. **Project Manager**

This is Nik Zulaikhaa Binti Zuraidi Afandi, and she holds the role of the project manager in this project. As the project manager of the team, it is her task to oversee that the entire project is completed within the timeline set, and fit the scope required by the client. She also communicates with the stakeholders, including clients and team members, to gather requirements, provide updates and clear out any concerns among these people.

2. **Programmer**

This is Nur Arini Fatihah binti Mohd Sabir, and she holds the position of the programmer in the team. She's the one responsible for writing the code on forming the website. Arini works with various programming languages like HTML, CSS, JavaScript, and PHP to build the front end of the system. Arini is flexible in terms of how she can work with both the front-end and back-end of the system, and the system structure depends heavily on her.

3. **Designer**

This is Nurul Erina binti Zainuddin, and she holds the responsibility of being the Designer, more known as the UX/UI Designer. The aspect of the job that Erina handles is she ensures that the visual and user experience aspects of the web project is fulfilled. Erina creates the overall look and feel of the website, as she plans the layout, color scheme, typography and graphical elements. Erina focuses on the user interface, ensuring that it is user-friendly and intuitive to navigate.

4. **Database Administrator**

This is Navasarathy A/L Ganeswaran, and he has the position as the Database Administrator in the team. His job scope is for managing the database system that stores and retrieves data for the system. Navasarathy designs the database schema, sets up the database server, and ensures data integrity and security. Navasarathy has a wide knowledge of mySQL with basics of php which helps him develop a solid database for the system.
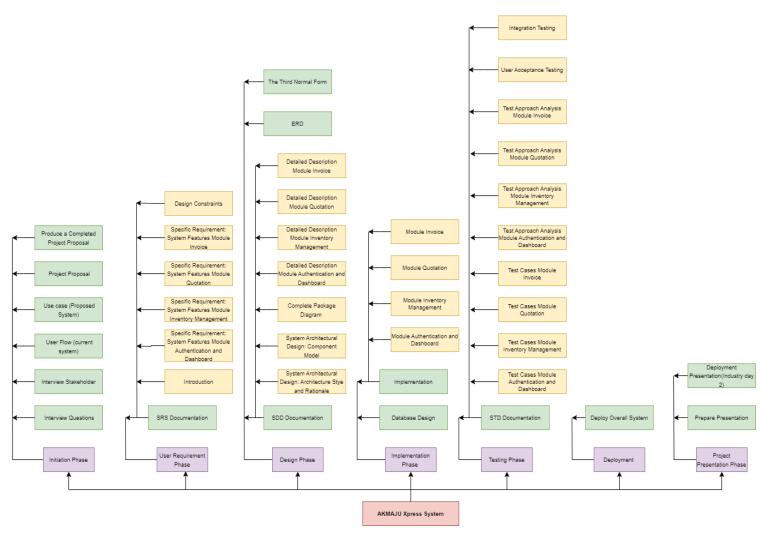
9.2 Work Breakdown Structure (WBS)

Figure 4 - Work Breakdown Structure (WBS) Diagram
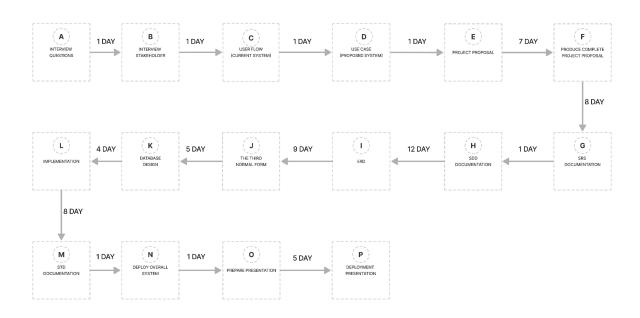
9.3 PERT Chart (based on WBS)

A INTERVIEW QUESTIONS — 1 DAY → **B** INTERVIEW STAKEHOLDER — 1 DAY → **C** USER FLOW (CURRENT SYSTEM) — 1 DAY → **D** USE CASE (PROPOSED SYSTEM) — 1 DAY → **E** PROJECT PROPOSAL — 7 DAY → **F** PRODUCE COMPLETE PROJECT PROPOSAL

8 DAY ↓

L IMPLEMENTATION ← 4 DAY — **K** DATABASE DESIGN ← 5 DAY — **J** THE THIRD NORMAL FORM ← 9 DAY — **I** ERD ← 12 DAY — **H** SDD DOCUMENTATION ← 1 DAY — **G** SRS DOCUMENTATION

8 DAY ↓

M STD DOCUMENTATION — 1 DAY → **N** DEPLOY OVERALL SYSTEM — 1 DAY → **O** PREPARE PRESENTATION — 5 DAY → **P** DEPLOYMENT PRESENTATION

Figure 5 - PERT Chart

9.4 Gantt Chart

Gantt Chart Link:
[Gantt Chart](#)

10.0 Benefit and Overall Summary Of Proposed System

The implementation of the enhanced advertisement and construction system is poised to introduce a multitude of advantages to AkMaju company. Among these are:

Increased Efficiency: The automated modules promise a substantial reduction in the time and effort needed for tasks like generating quotations, managing orders, monitoring inventory, and producing invoices. This enhanced efficiency will undoubtedly yield quicker responses to customer inquiries and expedited project timelines, ultimately amplifying our overall productivity.

Improved Accuracy: Through the automation of calculations and the utilization of standardized templates, the system will serve to curtail errors, ensuring precision in quotation generation, order management, inventory tracking, and invoice production. This elevated accuracy is not only a cost-saving measure but also a testament to our dedication to delivering dependable and meticulous service.

Enhanced Professionalism: The system will facilitate the creation of quotations and invoices that exhibit a polished and professional demeanor. Detailed itemization of costs and the option for customization will impart a level of sophistication to our documentation, elevating our company's image and instilling trust in potential clients.

Streamlined Operations: The integrated modules are tailored to enhance collaboration and communication between various phases of advertisement projects, promising a more seamless project management experience. The improved interdepartmental synergy and cooperation are likely to expedite project deliveries and enhance client satisfaction, cementing our position in the industry.

Conclusion:
In summation, the impending enhancement of our advertisement and construction system holds the promise of a more efficient, accurate, and professional approach to quotation generation, order management, inventory tracking, and invoice production. These improvements are not only poised to boost our operational capabilities but also elevate our standing in the competitive landscape of advertisement and construction. We eagerly await the implementation of these modules and the positive outcomes they are set to bring.

11.0 Log Meeting

FACULTY OF COMPUTING
UTM Johor Bahru

SECP2613 – System Analysis & Design (WBL)
Log Meeting

MEETING AGENDA

Group Name:	Unicode	Time:	10pm
Date of Meeting: (MM/DD/YYYY)	24/10/2023	Location:	CLS lab

1. Meeting Objective
To discuss and state about proposal requirement To divide the task for each member

2. Attendees

Name	Department/Division	E-mail	Phone
Nurul Erina binti Zainuddin	School of Computing	nurulerina@graduate.utm.my	+60 13-920 4698
Nik Zulaikhaa Binti Zuraidi Afandi	School of Computing	nikzulaikhaa@graduate.utm.my	+60 17-278 9819
Nur Arini Fatihah binti Mohd Sabir	School of Computing	nurarinifatihah@graduate.utm.my	+60 11-2330 5904
Navasarathy A/L Ganeswaran	School of Computing	navasarathy@graduate.utm.my	+60 12-676 9195

3. Meeting Agenda

Topic	Person in Charge (PIC)	Action
Stating all proposal requirement	All members	List down the requirement based on the dicussion
Divide task for each member	Nik Zulaikhaa	Leader divide the task fo each group member based on their working style

4. Meeting Reflection
Overall, the meeting was productive in achieving its objectives. We were able to compile a list of requirements and foster a common understanding of the project's scope among the team members. Moving forward, we should continue to maintain open communication and monitor the progress of the project to ensure it aligns with the defined requirements.

Prepared by:

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(Nurul Erina binti Zainuddin)

SECP2613 – System Analysis & Design (WBL)
Log Meeting

MEETING AGENDA

Group Name:	Unicode	Time:	8pm
Date of Meeting: (MM/DD/YYYY)	27/10/2023	Location:	Google Meet

1. Meeting Objective

To discuss 9.0 project planning

2. Attendees

Name	Department/Division	E-mail	Phone
Nurul Erina binti Zainuddin	School of Computing	nurulerina@graduate.utm.my	+60 13-920 4698
Nik Zulaikhaa Binti Zuraidi Afandi	School of Computing	nikzulaikhaa@graduate.utm.my	+60 17-278 9819
Nur Arini Fatihah binti Mohd Sabir	School of Computing	nurarinifatihah@graduate.utm.my	+60 11-2330 5904
Navasarathy A/L Ganeswaran	School of Computing	navasarathy@graduate.utm.my	+60 12-676 9195

3. Meeting Agenda

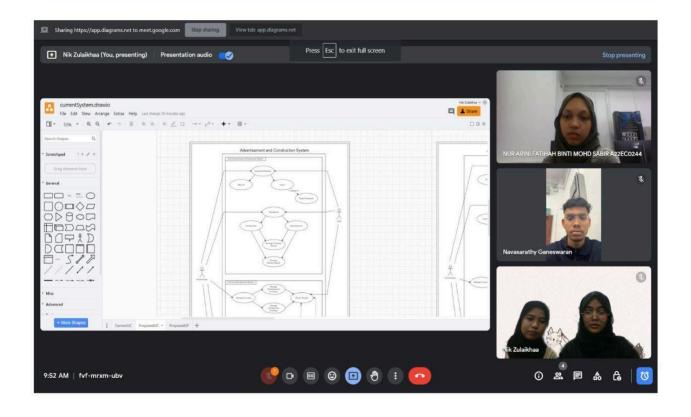| Topic	Person in Charge (PIC)	Action
Complete Usecase and GanttChart	All members	Share draw.io link as all the member can edit and find suitable template for Ganttchart
Discuss WBS and Pert Chart	All members	Refer lecture note to complete WBS and Pert Chart

4. Meeting Reflection

In conclusion, the meeting was a success in achieving its objectives, and it is evident that effective communication and collaboration among the attendees were instrumental in its success. As we move forward, it's essential to maintain this level of engagement and commitment to drive the project or initiative to its desired outcome

Prepared by:

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(Nurul Erina binti Zainuddin)

MEETING AGENDA

Group Name:	Unicode	Time:	8pm
Date of Meeting: (MM/DD/YYYY)	8/11/2023	Location:	Google Meet

1. Meeting Objective
To finalised the proposal

2. Attendees

Name	Department/Division	E-mail	Phone
Nurul Erina binti Zainuddin	School of Computing	nurulerina@graduate.utm.my	+60 13-920 4698
Nik Zulaikhaa Binti Zuraidi Afandi	School of Computing	nikzulaikhaa@graduate.utm.my	+60 17-278 9819
Nur Arini Fatihah binti Mohd Sabir	School of Computing	nurarinifatihah@graduate.utm.my	+60 11-2330 5904
Navasarathy A/L Ganeswaran	School of Computing	navasarathy@graduate.utm.my	+60 12-676 9195

3. Meeting Agenda

Topic	Person in Charge (PIC)	Action
Finalised the proposal based on Dr's comment	All members	Edit the proposal based on DR's comment and each group member opinion

4. Meeting Reflection

The meeting was successful in achieving its intended objectives, we able to add on based on Dr's comment and finalised our proposal . As we move forward, it is crucial to maintain this level of engagement and collaboration to ensure the continued success of our initiatives.

Prepared by:

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(Nurul Erina binti Zainuddin)

SECP2613 – System Analysis & Design (WBL)
Log Meeting