UTM

UNIVERSITI TEKNOLOGI MALAYSIA

SECD2613 - ANALISIS DAN REKABENTUK SISTEM

(SYSTEM ANALYSIS AND DESIGN)

SUBMISSION OF

Proposal

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SECTION : 03

GITHUB REPOSITORY LINK:
https://github.com/mnzmii/PERFECTTRIO_Project1_SAD_20232024

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1.0 Introduction

The Campus Resource Management System (CRMS) is a comprehensive digital platform designed to improve the management of core operational and administrative tasks at educational institutions. The system enhances the communication and collaboration between departments by offering a centralized platform, resulting in more efficient facility, academic and human resource management.

Furthermore, the CRMS automates essential processes such as reserving facilities, managing enrollments, and organising staff schedules, which leads to a significant reduction in administrative workloads and enabling staff to dedicate more time to tasks of greater importance. This automation improves the experience for students and faculty by streamlining access to administrative services and

In addition, the CRMS plays a crucial role in enhancing resource allocation efficiency throughout the institution. The system identifies usage patterns and facilitates better planning, which helps in maximising the use of campus facilities and resources , reducing waste and increasing availability without the need for significant additional investments.

In summary, the CRMS serves as more than simply an application. It is a valuable asset that enhances operational efficiency, facilitates decision-making, and merges different administrative duties into a unified and user-friendly system. This platform plays an important part in changing how campus operations are carried out, creating a more efficient and engaging academic environment.

2.0 Background Study

Many colleges and universities use separate systems to handle different parts of campus life. For instance, one system might manage classroom bookings while another keeps track of student grades. These systems often don't talk to each other, which can trigger a few problems:

The first one is conflicting information can happen. When systems are not connected, they might show different data for the same thing. Thus, it will be hard for staff and students to get a clear and accurate picture of what’s going on.

Secondly, it can cause poor communication. Without a way for these systems to share information, departments end up working in isolation. This makes it difficult for them to work together effectively, which can slow down decision-making and disrupt daily operations.

Last but not least, the resources will be wasted. If nobody has a complete view of how campus facilities like lecture halls and labs are being used, these resources might be underused or overcrowded at times. This not only wastes opportunities but can also lead to unnecessary spending to manage these issues.

To summarise, this shows a clear need for a better solution to the current systems. Therefore, a single integrated system would help everyone access the same information and make it easier for different parts of the university to coordinate with each other. Additionally, this would smooth out many operational things which makes the campus run more efficiently and improves the environment for students and staff.

3.0 Problem Statement

Nowadays, colleges and universities often face challenges in efficiently managing their resources due to the utilisation of diverse systems for various functions. This gap leads to several major problems.

To begin with, data management and access issues might occur due to inconsistent data handling. The lack of communication between systems can lead to variations in data representation depending on the source. This lack of consistency brings a difficulty for individuals across all levels including students and administrators to efficiently and promptly accessing reliable data.

Furthermore, it will cause insufficient utilization of campus facilities. The absence of a centralized system to manage room and resource reservations leads to a smaller number of reservations for spaces such as labs and lecture halls. At the same time, it also increases the possibility of accidental double-bookings. This leads to the wastage of resources and the failure to take advantage of potential chances for their utilisation.

Other than that, the inefficiencies of communication. When all departments function independently, it lacks a clear way of exchanging information. In addition, the absence of coordination may result in the delays of crucial decisions and activities which will impact the overall operation of the entire campus.

Besides, students and faculty will encounter complicated procedures while trying to retrieve their schedules, grades, or reserve rooms for activities. These complex processes can be frustrating and time-consuming. As a result, it will diminish the learning experience.

To sum up, these problems emphasize the importance for an integrated system that can merge all these distinct functions. It is because implementing this system would not only optimise operations but also improve the general academic environment by simplifying and increasing the efficiency of daily duties.

4.0 Feasibility Study

Technical Feasibility

In order to ensure the technical feasibility of the Campus Resource Management System (CRMS), we need to conduct a thorough assessment of the existing technical resources and identify any required upgrades.

Evaluation of Current Technical Resources

The initial phase of the Campus Resource Management System project will involve a detailed assessment of the current technical infrastructure to determine its compatibility with the system's requirements. This will consist of:

1.Hardware Assessment: Verifying the processing power and storage capabilities of the existing servers to confirm their ability to handle the system's workload.

2.Software Evaluation: Checking if the current software, specifically the operating systems and database servers, are relevant and capable to support this system functionalities.

3.Network Assessment: Evaluating the campus network infrastructure's potential to handle the rise in data traffic expected from the system.

4.Skillset Analysis: Assessing the proficiency of the existing IT staff to discover any weaknesses in skills that must be addressed in order to support the new system.

Technology Upgrades

After analysing the initial assessments, we will develop and carry out plans to resolve any flaws in our system.

1.Hardware Upgrades: In the event that the existing servers and storage are considered inadequate, new hardware that is capable of satisfying the requirements of the system will be acquired. This involves better processors, greater RAM capacity, and expanded storage options.

2.Software Upgrades: We need to ensure the current software is updated or develop new database management systems and applications that better and meet the requirements of the system to maintain compatibility and security.

3.Network Enhancements: We will make sure the network infrastructure is improved by increasing bandwidth and upgrading routers and switches to handle higher levels of traffic, ensuring stability and speed.

4.Staff Training and Development: We provide particular training to current IT staff based on the study of their skills gap. If considered necessary, we will recruit more team members who match the precise skills needed for a successful deployment and maintenance of our system.

Operational Feasibility

In order for us to figure out the operational feasibility of the Campus Resource Management System (CRMS), it is important that we conduct a thorough evaluation of the presence of individuals having the required abilities to effectively administer the system In addition, we must think about how to deal with any criticism from users who may have a preference for traditional methods.

Assessment and Preparation of Human Resources

First and foremost, we will assess our current team to determine their capability to manage the new system. This involves determining whether individuals exhibit enough flexibility in their everyday routines and possess the necessary skills. In the event that our team needs help, we will organise training sessions to train them on the new system. If it is determined that extra support is needed after the training, the option of hiring fresh staff members or exporting certain tasks to outside professionals might be considered.

Managing the User Resistance

User resistance against new systems can provide some challenges. For the team to effectively handle this, we will begin early communication with the individuals who will be using the system. In addition, we will establish mechanisms for them to provide us with feedback on the system in both before and after its implementation. Thus, individuals can suggest improvements and feel involved in this process. When deploying the system for campus to use, we will conduct a test run with a limited number of users. The preliminary test will enable us to identify potential issues and make sure that the system functions properly to meet the needs of all users.

Economic Feasibility - CBA

Development Cost (One-time)	
Hardware	70000
Software	75000
Consultant	85000
Training	50000

Production Cost	
Updates	12000
IS Support	25000
Maintenance	16000

BENEFITS	
Improved Customer Service	60000
Increase Productivity	120000
Improved Risk Management	30000
Inventory Management	25000

Assumption: Discount rate	25%
Annual change in Cost	7%
Annual increase in benefits	20%

COSTS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Development Cost (One-time)						
Hardware	70000					
Software	75000					
Consultant	85000					
Training	50000					
Total (Development Cost)	**280000**					
Production Cost						
Updates		12000	12840	13739	14701	15730
IS Support		25000	26750	28623	30626	32770
Maintenance		16000	17120	18318	19601	20973
Annual Production Costs		**53000**	**56710**	**60680**	**64927**	**69472**
(PRESENT VALUE)		**42400**	**36294.4**	**31068**	**26594**	**22765**
ACCUMULATED COSTS		**322400**	**358694.4**	**389762**	**416357**	**439121**

BENEFITS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Improved Customer Service		60000	72000	86400	103680	124416
Present Value (Improved Customer Service)		48000	46080	44236.8	42467.33	40768.63
Increase Productivity		120000	144000	172800	207360	248832
Present Value (Increase Productivity)		96000	92160	88473.6	84934.66	81537.27
Improved Risk Management		30000	36000	43200	51840	62208
Present Value (Improved Risk Management)		24000	23040	22118.4	21233.66	20384.32
Inventory Management		25000	30000	36000	43200	51840
Present Value (Inventory Management)		20000	19200	18432	17694.72	16986.93
TOTAL BENEFITS (PRESENT VALUE)		**188000**	**180480**	**173260.8**	**166330.4**	**159677.2**
ACCUMULATED BENEFITS		188000	368480	541741	708071	867748
GAIN OR LOSS		-134400	9786	151978	291715	428627
PROFITABLE INDEX		**1.530811**				

Profitability index = 0.71, showing that it is a good investment because its index is more than one.

5.0 Objective

1. Centralize Resource Management Across the Campus
The system is designed to centralize the administration of all campus resources into one single and integrated platform. This system will provide complete supervision of facility accessibility, including classrooms and laboratories. Hence it enables a more efficient process for making reservations. Facility managers will have the ability to set booking guidelines, monitor reservations, and effectively manage the utilization of campus resources.

2. Simplify and enhance administrative and academic procedures
The system will simplify administrative operations, improving the management of student enrollment, course registration, and the maintenance of academic records. Students will have the capability to independently control their academic involvement, including enrollment and tracking their progress in an easily accessible way. At the same time, the system will benefit faculty and staff members by offering a platform for managing class schedules, grading, and direct communication with students which lead to enhancement of operational efficiency in academic procedures.

3. Improve Communication Among Students, Faculty, and Administrative Staff
The system will function as a driver for better communication within the campus environment. It will serve as a platform for exchanging information, allowing students to rapidly and effectively communicate with faculty and administrative staff. This promotes a unified educational environment where the focus is on making knowledge easily accessible and at the same time ensures rapid communication.

4. Enhance the Efficiency of Campus Facilities Usage
The system aims to boost the allocation and use of campus facilities. Through the implementation of automated scheduling and real-time monitoring, the system offers optimum utilization of campus areas. As a result, it minimizes the times of inactivity and prevents conflicts in scheduling. All in all, this improvement increases operational productivity.

6.0 Scope of Projects

The scope of this Campus Resource Management System project encompasses several important functions that are necessary for improving the efficiency in managing campus operations and resources.

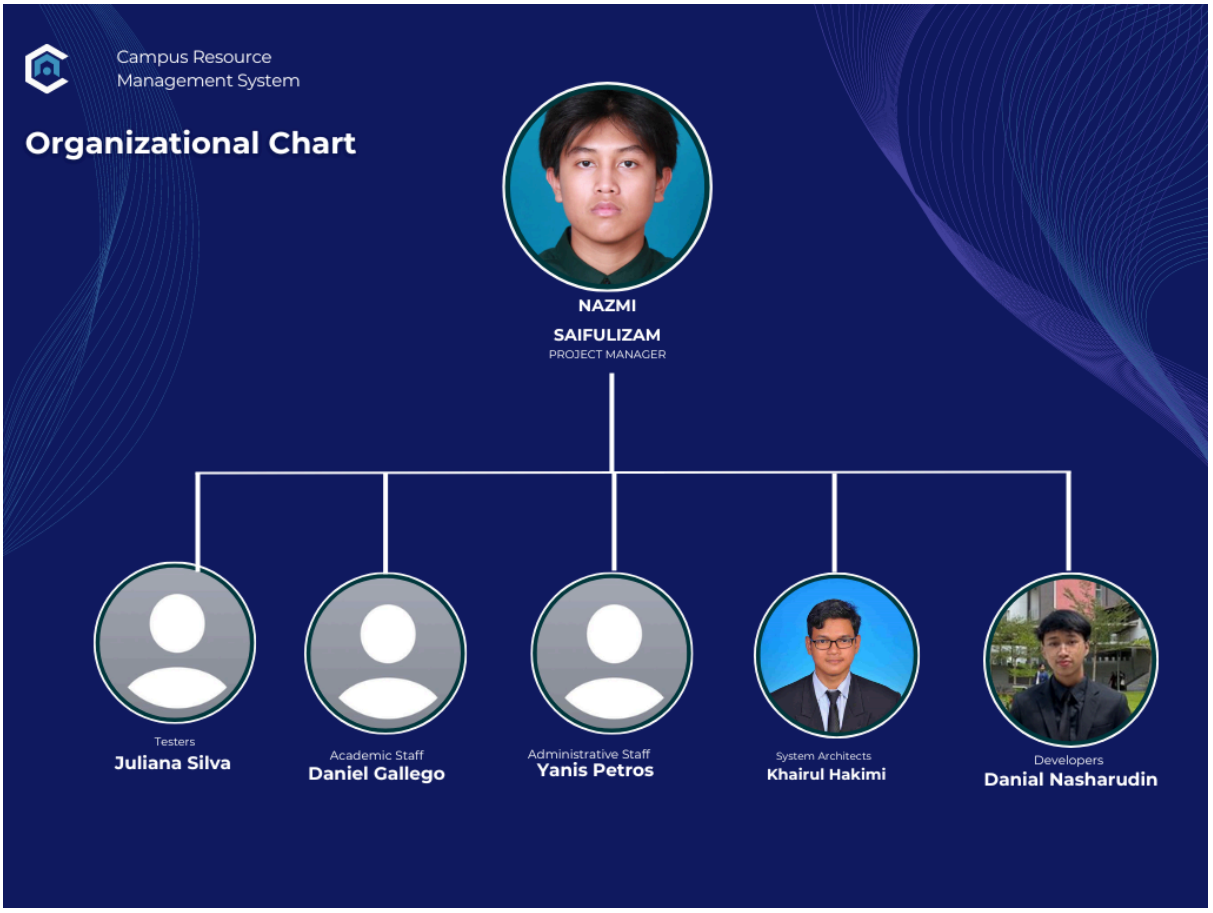
1. Book and Manage Facilities
The system will provide a centralized platform for the reservation and administration of campus facilities, including classrooms, lecture halls, laboratories, and sports fields. The system will enable users to instantly check the current availability of facilities, allocate spaces for classes, activities, or meetings, monitor current reservations, and provide the option for cancellations or modifications. Additionally, it aims to maximize the utilization of available spaces.

2. Manage Student
The system will offer capabilities for efficiently handling the diverse requirements of students. This involves the development of a student portal that allows students to register for courses, access their timetables, and monitor their academic progress. Administrators will be able to manage the enrollment of students, course registration, and academic records, as well as student activities. A robust database will be utilized for securely storing and managing personal and professional information.

3. Manage Faculty and Staff Members
The system is designed to assist faculty members in effective classroom scheduling, grading, and facilitating interaction with students. HR administrators will be equipped to perform tasks such as recording attendance, arranging leave, and conducting performance evaluations.

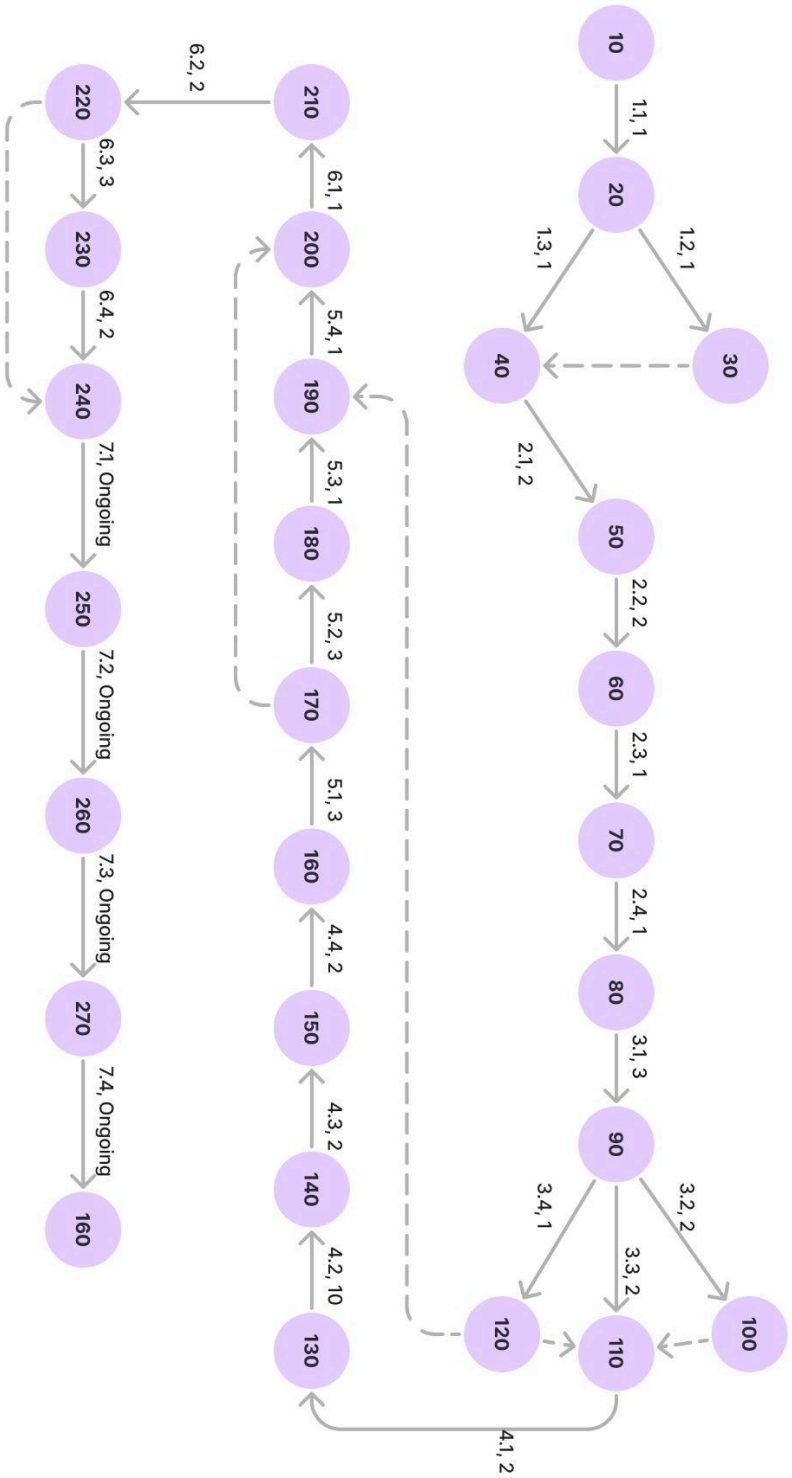
7.0 Project Planning

7.1 Human Resource

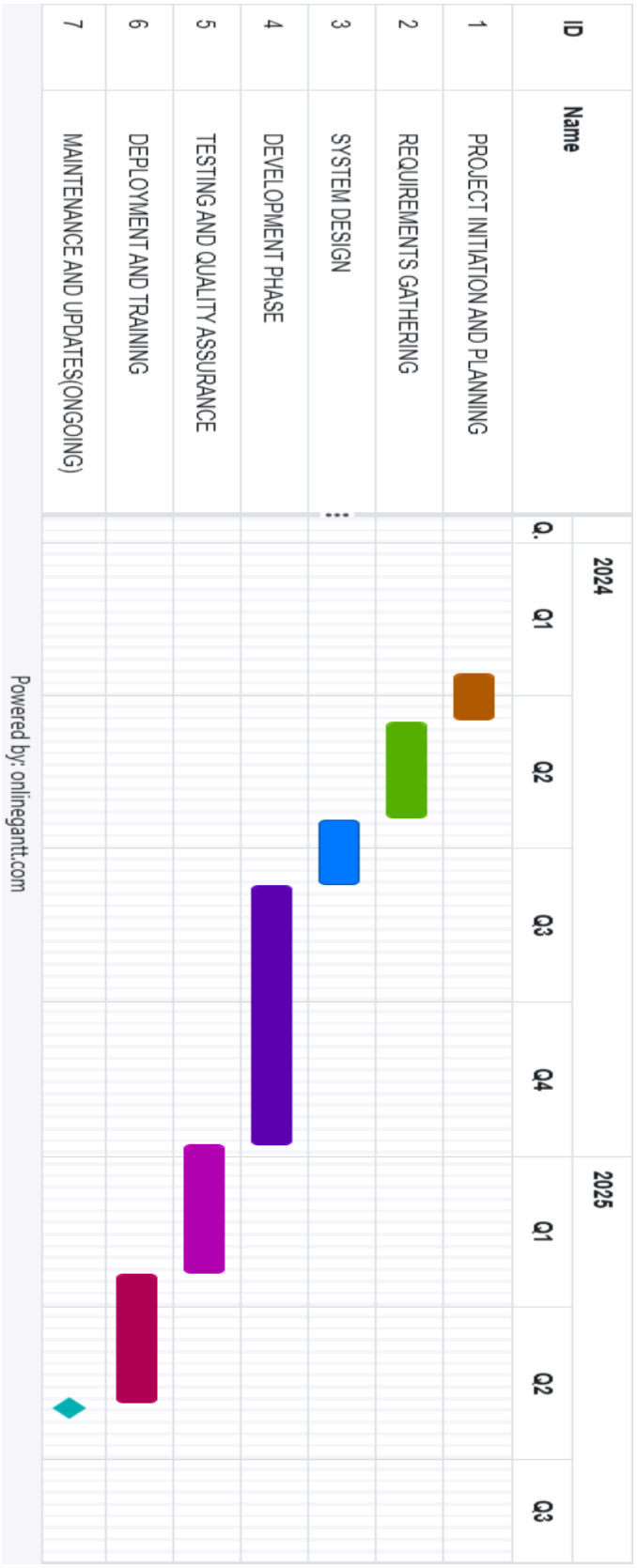


7.2 Work Breakdown Structure (WBS)

7.3 PERT Chart (based on WBS)



7.4 Gantt Chart



8.0 Benefit and Overall Summary of Proposed System

The implementation of the Campus Resource Management System (CRMS) aims to transform the management of campus resources. It provides major improvements in multiple operational areas of the institution.

First and foremost, this system will improve the efficiency of campus operations.Through the centralization of campus facilities and resources, this system will greatly simplify procedures that were previously distributed and time-consuming. This unified approach will enable quicker access to resources, optimized booking procedures, and better management of academic and administrative tasks. As a result, staff can spend less time on routine tasks and more on activities that enhance the student experience and improve campus life.

Besides, administrative duties will be reduced with the implementation of this system, which will automate various operations such as manual student enrollment, course registration, and facility bookings.This automation will result in a decrease in errors, faster processing times and a significant relief of the administrative workload on staff. The system's ability to integrate with existing academic systems also will ensure data remains consistent and accurate across all platforms, further reducing workload and potential administrative confusion.

Other than that, the system will help in boosting the academic environment. The primary goal of this integrated system is to enhance the academic environment by making it easier for students and faculty to access and use campus resources effectively. With streamlined processes and less time required for administrative tasks, students can focus more on their studies, and faculty can give more attention and concentration to do teaching and research. The improved efficiency and accessibility provided by the system then will support the campus mission to achieve excellence in education and administration while creating a more supportive and productive campus environment.

Lastly, resource allocation indeed can be improved by this system. The institution will be able to make more informed decisions about how to allocate resources efficiently. The system's analytics capabilities will provide detailed reports on the usage of campus facilities, helping administrators understand and predict patterns in resource demand. Therefore, this insight will enable better planning and utilization of campus resources in the future.

In summary, the implementation of the Campus Resource Management System (CRMS) will result in better management of the campus resources. This indirectly benefits all members of the campus community. Overall, this system promises to enhance the overall efficiency, effectiveness, and educational quality of the institution, aligning with its strategic goals and commitment to excellence.