UNIVERSITI TEKNOLOGI MALAYSIA

SECD2613: ANALISIS DAN REKABENTUK SISTEM (SYSTEM ANALYSIS AND DESIGN)

SEMESTER 2, 2023/2024

PHASE 1-PROJECT PROPOSAL AND PLANNING

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SECTION: 03

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1.0 Introduction

In today's technology era that is getting more advanced day by day, effective management of campus operation and resources is essential to ensure the optimal resource use and smooth operation. Universities or college campuses must step forth to more efficient operations management. Therefore, a possible alternative that has the potential to transform the operational and administration process of educational institutions by the creation of a comprehensive Campus Resource Management System (CRMS). CRMS acts as one central system that improves operational administrative procedures across the campus ecosystem. CRMS improves coordination, productivity and resource management among the different departments and stakeholders by integrating multiple features.

2.0Background study

Comprehensive Campus Resource Management System (CRMS) need to be present since universities and college campus struggle to manage their resources and maintain smooth department and cooperation between stakeholders. Conventional methods to resource management and administrative procedures frequently end up in ineffectiveness, a lack of insufficient communication and a complicated operational environment.

In order to overcome these obstacles, the CRMS offers a consolidated platform that makes it easier to optimize campus resources and improves administrative tasks, coordination and communication. The system aims to completely change how campus resources are used and managed with features like facility booking and management, activity planning, student and faculty staff oversight and capability for communication.

By conducting a thorough background study, the implementation of CRMS will improve campus life and productivity while also organizing operations. The Decision-makers will be more capable to make wise decisions thanks to the system's analytics, reports and data-driven insights which will enhance resource usage and improve the overall experience for all campus stakeholders.

3.0Problem statement

In today's dynamic educational landscape, universities and colleges face numerous challenges in efficiently managing their resources, including facilities, events, students, faculty, and staff. The absence of a centralized system often leads to inefficiencies, communication gaps, and resource misallocation, hindering campus operations and potentially impacting the overall student experience. To address these issues, there is a pressing need for a comprehensive Campus Resource Management System (CRMS) tailored to the specific requirements of educational institutions.

The primary problem lies in the lack of a unified platform that can streamline administrative and operational processes across different departments and stakeholders within a university or college campus. Existing systems may be fragmented, outdated, or insufficiently integrated, leading to redundancies, delays, and errors in resource allocation, scheduling, communication, and decision-making processes. This fragmentation not only hampers productivity but also limits the ability to effectively utilize campus resources to their fullest potential.

Therefore, the overarching goal of this project is to design and develop a robust CRMS that addresses these challenges by providing a centralized platform for managing various campus resources. The system should enhance efficiency, communication, and resource utilization while

simplifying administrative tasks and fostering collaboration among different stakeholders.

4.0 Proposed solution

The proposed Campus Resource Management System (CRMS) will centralize administrative processes and resource management within the university or college campus. Key features include user management, facilities and event management, student and staff administration, resource scheduling, communication tools, and reporting/analytics. Developed with modern technologies, the system will prioritize scalability, reliability, and user-friendliness. Integration with existing systems and rigorous testing will ensure seamless operation and compliance with regulations. The CRMS aims to streamline operations, enhance communication, and optimize resource utilization, ultimately improving campus efficiency and student experiences. **Economic Feasibility Study for the Campus Resource Management System (CRMS)**

Technical Feasibility Analysis for the Campus Resource Management System (CRMS)

1. System Requirements:

a. **Software Development:** The allocated budget of $120,000 for software development should be adequate to hire skilled developers and cover the costs associated with developing the CRMS according to the specified requirements.

b. **Infrastructure Setup:** With a budget of $70,000 for infrastructure setup, the institution can procure and configure the necessary hardware and networking infrastructure to support the CRMS.

c. **Integration with Existing Systems:** The allocated budget of $40,000 for integration should be sufficient to ensure compatibility and seamless integration with the institution's existing systems and databases.

2. Development Resources:

a. **Skilled Developers:** With the allocated budget for software development, the institution should be able to hire experienced developers with expertise in the technologies required for building the CRMS.

b. **Technical Expertise:** The institution may need to engage external consultants or leverage existing internal expertise to address any technical challenges encountered during the development and integration phases.

c. **Resources Availability:** Ensure that adequate resources, such as development environments and testing facilities, are available to support the development and testing of the CRMS.

3. Compatibility and Integration:

a. **Hardware and Software Compatibility:** Verify that the selected hardware and software components are compatible with the CRMS requirements and can support its functionalities effectively.

b. **Data Integration:** Assess the feasibility of integrating the CRMS with existing student information systems, HR systems, and other databases to ensure seamless data flow and interoperability.

c. **APIs and Interfaces:** Ensure that the CRMS provides APIs and interfaces for easy integration with third-party systems and applications, facilitating data exchange and interoperability.

4. Scalability and Performance:

a. **Scalability:** Design the CRMS architecture to be scalable, allowing it to accommodate future growth in user base, data volume, and system complexity without significant performance degradation.

b. **Performance Optimization:** Implement performance optimization techniques such as caching, load balancing, and database indexing to ensure that the CRMS delivers optimal performance under varying loads and usage patterns.

5. Security and Compliance:

a. **Security Measures:** Allocate resources and budget for implementing robust security measures to protect sensitive data and ensure compliance with data protection regulations.

b. **Compliance Assessments:** Conduct regular compliance assessments and audits to ensure that the CRMS meets regulatory requirements and security standards.

6. Conclusion: Based on the allocated budget and resources, the technical feasibility analysis indicates that the development, integration, and deployment of the Campus Resource Management System (CRMS) are technically feasible. By ensuring compatibility, scalability, performance, security, and compliance, the institution can mitigate technical risks and successfully implement the CRMS to streamline administrative processes and resource management within the campus environment.

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Operational Feasibility Analysis for the Campus Resource Management System (CRMS)

1. User Acceptance:

- Engage stakeholders for buy-in.
- Provide user-friendly training.
- Establish feedback mechanisms.

2. Training Requirements:

- Allocate budget for training.
- Develop flexible training schedule.

3. Change Management:

- Develop comprehensive plan.
- Secure leadership support.
- Foster employee engagement.

4. Pilot Testing:

- Conduct pilot deployment.
- Gather user feedback for improvements.

5. Operational Impact:

- Evaluate efficiency metrics.
- Assess resource allocation.

Conclusion:

The CRMS implementation is operationally feasible with user engagement, effective training, change management, pilot testing, and evaluation of operational impact.

Economic Feasibility Study for the Campus Resource Management System (CRMS)

1. Cost Based Analysis:

COSTS		Year 0	Year 1	Year 2	Year 3	Year 4
Development Cost (One-time)						
Hardware	50000	**55000**				
Software	7500	**8250**				
Consultant	20000	**22000**				
Training	20000	**22000**				
Total (Development Cost)		**107250**				
Production Cost						
Supplies	2400		2640	2825	3023	3234
IS Support	18000		19800	21186	22669	24256
Maintenance	2500		2750	2943	3148	3369
Annual Production Costs			**25190**	**26953**	**28840**	**30859**
(PRESENT VALUE)			**22900**	**22275**	**21668**	**21077**
ACCUMULATED COSTS			**130150**	**152425**	**174093**	**195170**

BENEFITS		Year 0	Year 1	Year 2	Year 3	Year 4
Inventory Savings	1500	108000	97200	102060	107163	112521
(PRESENT VALUE)			**88364**	**84347**	**80513**	**76853**
ACCUMULATED BENEFITS			88364	172711	253224	330077
GAIN OR LOSS			-41786	20285	79130	134907
PROFITABLE INDEX		**1.25787**				

2. Conclusion:

Based on the economic feasibility analysis, the Campus Resource Management System (CRMS) project yields a profitability index of 1.25787, which indicates that the present value of expected benefits is more than 0.25 times the present value of costs. Therefore, the project is economically feasible, with a profitability index above 1.0, suggesting that the investment in the CRMS is likely to generate positive returns for the institution over its expected lifespan.

5.0 Objective

The objective of this project is:

1)Optimize campus resource usage and allocation.

2)Simplify administrative procedures and improve the effectiveness of operations.

3)Improve coordination and communication between various departments and stakeholders.
4)Make campus resources and services more easily accessible and transparent.
5)Make campus resources easily accessible and usable for staff, instructors, and students through an intuitive user interface.
6)Provide analytics and reports to aid in data-driven decision-making.
7)Facilitate efficient tracking and administration of campus facilities, including reservation and booking systems.
8)Improve the staff, faculty, and student experience on campus as a whole.

6.0 Scope of the projectThe objective of the project is:

1. Facility Booking and Management: - Students can look up, check out, and reserve campus spaces like classrooms, auditoriums, labs, and athletic fields. Facility managers have the ability to track resource utilization, manage bookings, and define booking policies.

2. Activity Management: - Workshops, seminars, extracurricular activities, and campus events can all be planned, scheduled, and overseen by event coordinators. Features include collecting feedback, managing attendees, registering for events, and running promotions.

3. Student Management: - Administrators are able to oversee academic records, student activities, course registration, and student registration. Students can see timetables, register for courses, check their academic profiles, and monitor their progress.

4. Faculty and staff management: Human resources administrators are able to oversee the administration of faculty and staff data, encompassing hiring,

scheduling, performance reviews, and leave administration. Instructors have access to lesson plans, can turn in grades, and can interact with students.

5. Communication and Notification: - The system enables stakeholders to communicate with each other via email, messaging, and other notification methods. Users are informed about deadlines, reservations, and future events.

7.0 Project Planning

7.1 Human Resource

1)Project Manager:Charged with supervising the module's development and implementation and making sure it complies with all requirements and timelines.

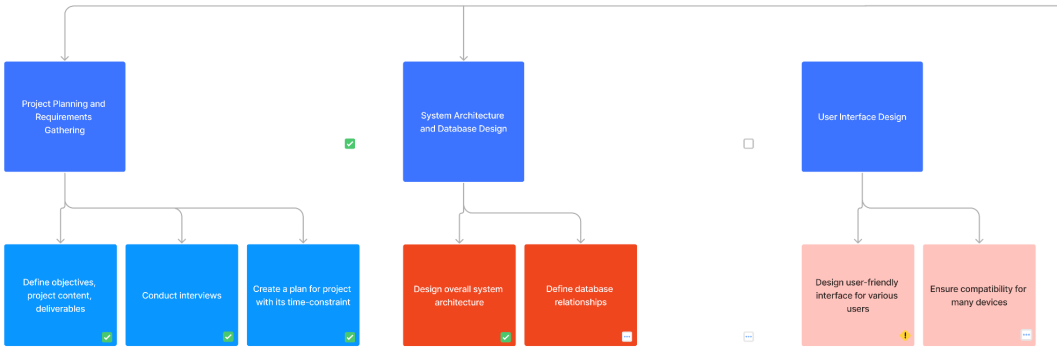
2)Software Developers:Depending on the technology stack selected for the project, these professionals have expertise with web development and are fluent in programming languages like Java, Python, or PHP.

3)UI/UX Designer:In charge of creating user-friendly and intuitive email, messaging, and notification features' user interfaces to guarantee smooth interaction between stakeholders.

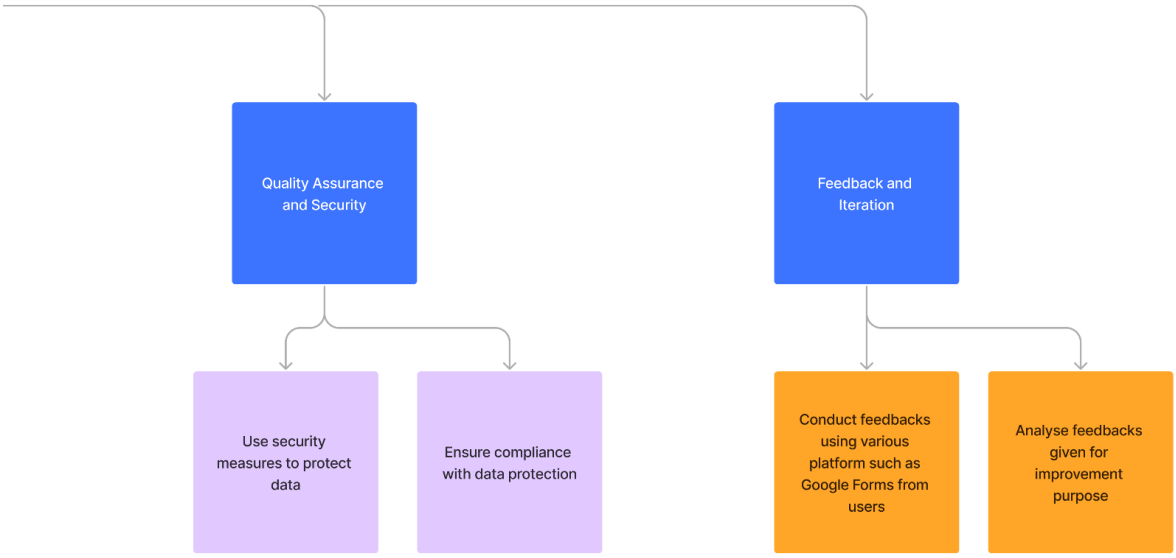
4)Database Administrator:Capable of designing and managing databases, this individual is in charge of developing and refining the database schema to effectively store and retrieve communication data.

5)The Quality Assurance (QA) EngineerIn charge of testing the module to find and address any defects or problems prior to deployment, guaranteeing the dependability and efficiency of the interpersonal features.

7.2 Work Breakdown Structure(WBS)



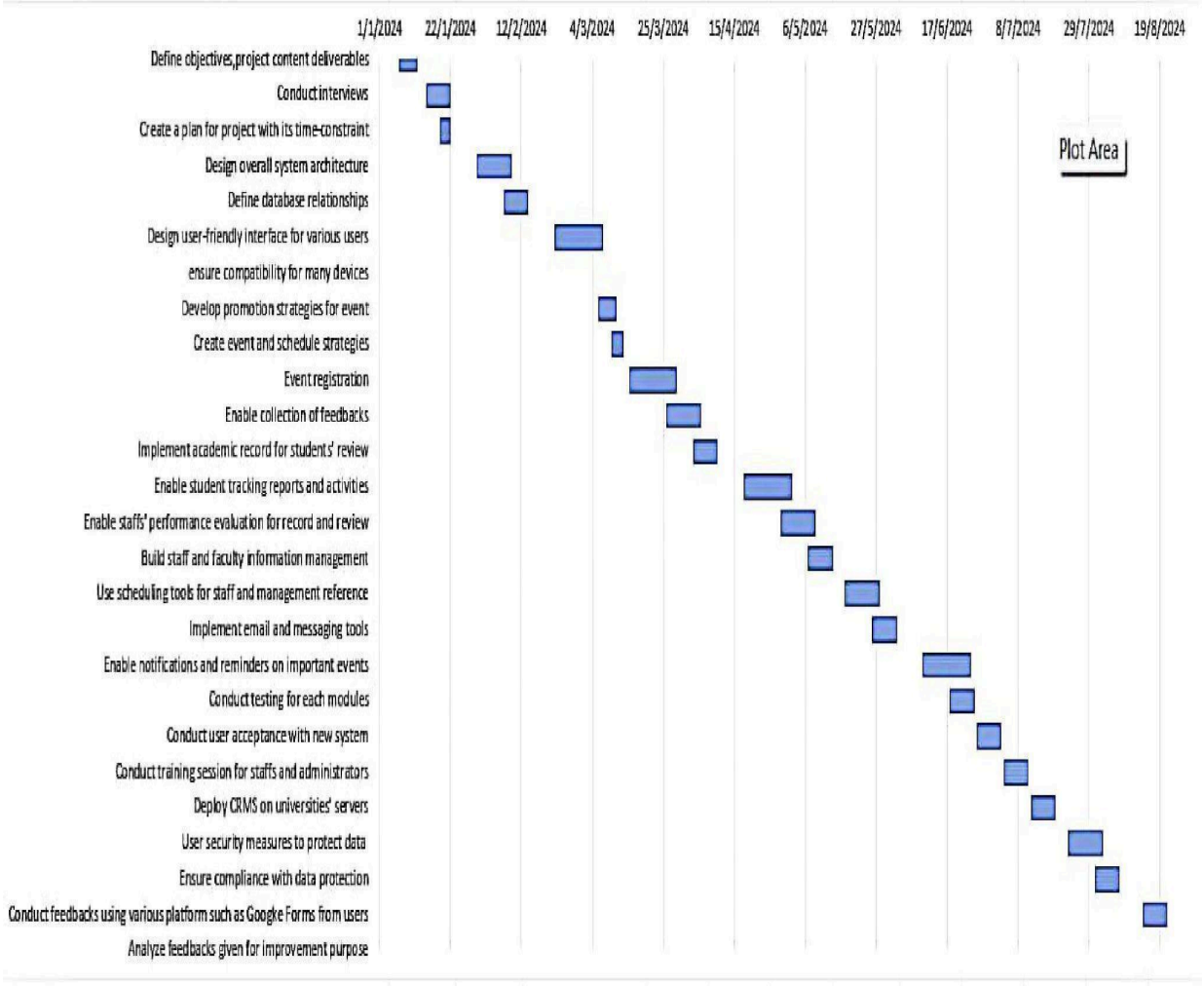
Work breakdown structure



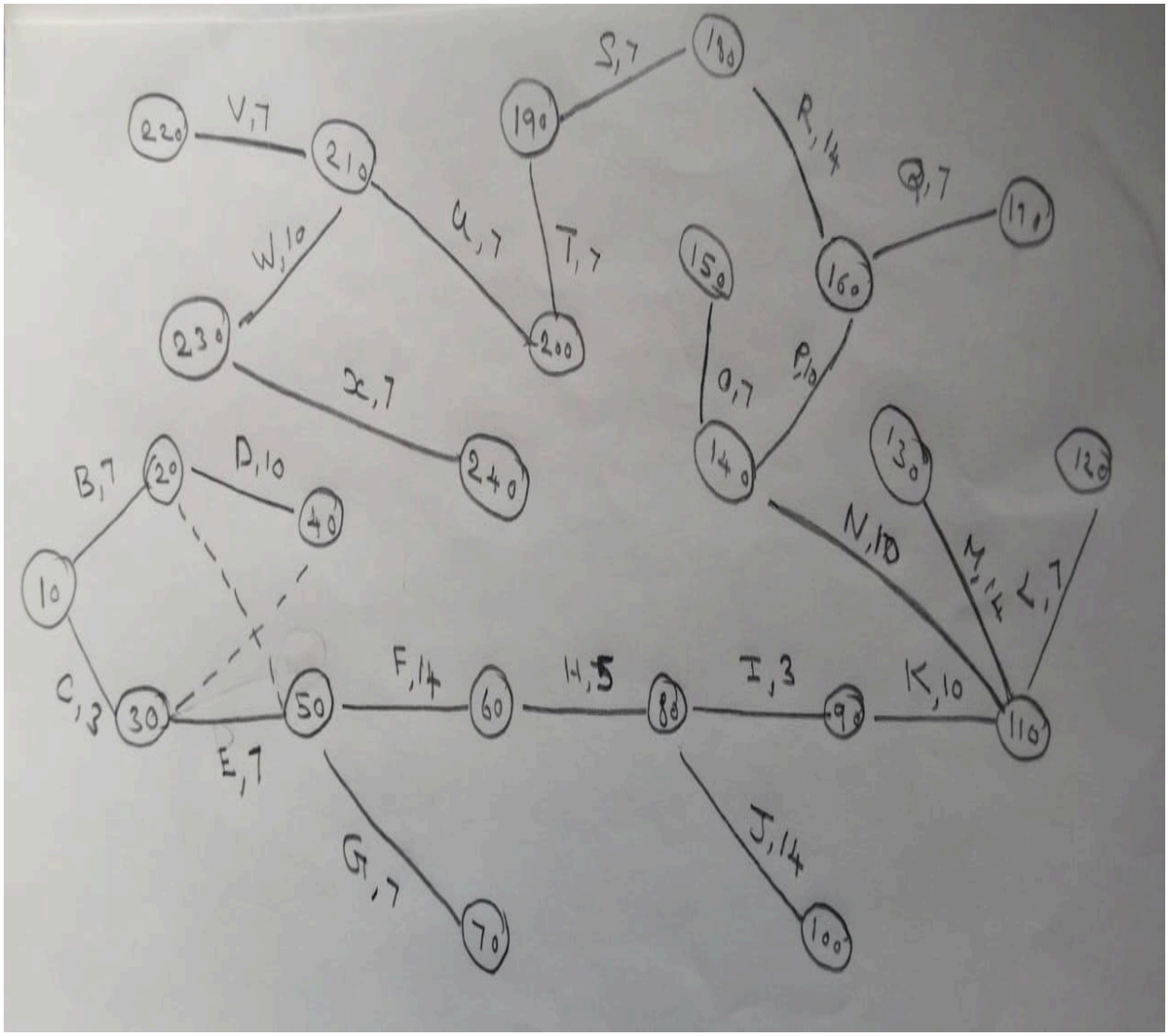
Note: For a full view of the work breakdown structure, click on the link given.

Link1

7.3Gantt Chart



7.4 Pert Diagram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H,5
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K,10
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E,7
G,7
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J,14
100

8.0 Benefit and overall summary of proposed system

Benefit of the proposed system

The new system at the University will make it easier for us to borrow things like books and computers. It will help us keep track of where important things are, like classrooms and books. The system will also help us save time and stay organized by providing a calendar for scheduling events. The system helps the people in charge make smart decisions by managing important information in one place. It also helps people communicate and work together effectively. Overall, the system makes it easier for students to access information, participate in school activities, and ensures that resources are used efficiently. It also helps staff members perform their tasks more efficiently.

Overall Summary

The Campus Resource Management System (CRMS) is a comprehensive solution that helps educational institutions streamline their administrative and operational processes. By combining features like event management, student and faculty/staff management, and communication tools, the system improves efficiency, communication, and resource utilization across different departments. The CRMS simplifies resource allocation, scheduling, communication, and decision-making, leading to better campus operations and student experiences. Through automation and data analysis, the system allows institutions to focus on teaching and learning while enhancing administrative effectiveness.

URL for Github repository:
https://github.com/adriana-munirah/Group5_Project1_SAD_20232024.git