FACULTY OF COMPUTING

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SECD 2613 SYSTEM ANALYSIS AND DESIGN

SECTION 01

PROJECT 1:

TASK MANAGEMENT FOR PAPER WRITING AND PUBLICATION FOR POSTGRADUATE STUDENTS

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GitHub Link: https://github.com/angelaleesuing/Beauties_Project1_SAD_20232024

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1.0 INTRODUCTION

The case study of this project is about a task management for paper writing and publication for postgraduate students. As we know that in the academic environment, it always involves intensive research. This leads to a number of writing activities and publication is required for the studies and findings to be published to the public.

Before the articles can be published to the public, a serial of studies had to be done. During the writing process, checking and editing the article happens frequently. For the postgraduates, they might be able to have several discussions between the postgraduate students and their respective lecturers. Since it is a two ways communication, the discussions among them can happen via online to facilitate the progress of writing and publication.

The paper writing and publication process for the postgraduate students is a project that takes time to be completed as there are many tasks to be completed. There require several editing phases during the paper writing process before the publication. When postgraduate students submit the completed task to the lecturer, the lecturers give advice to the students to assist them to correct their mistakes in the writing and improve their work done before.

These process in the paper writing and publication for postgraduate students is currently managed by using a traditional way where everything is done manually in each stage. The manual method of handling the tasks is troublesome as it cannot be done effectively. A better way to manage the task to improve the challenges faced in current way is proposed.

2.0 <u>BACKGROUND STUDY</u>

The traditional way of managing the tasks can be detailed to a few manual processes. Basically, these processes can be categorized into five main stages. These stages are task listing, scheduling, progress tracking, collaboration and communication, reminders and alerts. The traditional way handling these processes can be done with the usage of several applications to aid the process of paper writing and publication. The basic stakeholders involve in these processes are the lecturers and the postgraduate students.

Firstly, the task listing stage. This is the stage where the tasks are listed in details. The task can be listed in either Excel spreadsheet or in notepad applications. In this task listing stage, each and every task will be associated with the details of that particular task. The details of task are such as the deadlines, priority levels and the involved stakeholders. Lecturer can list down the tasks that are required to be done. The priority levels of the tasks such as its' percentage of marks can also be listed in this task listing process. The involve stakeholders of the tasks can be the parties that are involve in a certain task.

After the task listing stage, it proceeds with the scheduling stage. Scheduling is vital as it ensures the whole project can be done in time. Scheduling is important as a reminder to both stakeholders involve in the system, which are the postgraduate students and lecturers. Postgraduate students require the schedule or timetable to remind them to arrange their time wisely to ensure the task can be done within the given timeframe. Lecturers require this scheduling as we know that lecturers are busy with different tasks daily. This scheduling provides a better look for them to trace the deadline to monitor students' progress. Scheduling are either created in an Excel column separated with the previous spreadsheet or frequent updates that have to be done manually in calendars.

Besides that, there is a progress tracking stage. The progress tracking is where the progress of the tasks is track by manually checking on the updates of the status of completion of the tasks. The status of the task indicated either by color-coding or students manually mark the tasks as complete, ongoing or pending. This progress tracking stage is important as it indicates whether the task goes smoothly as scheduled or the completion of task has faced some difficulties. Lecturers track the progress of task whether it is completed within the timeline given previously or not. This also assist the lecturers in evaluating the students' performance as those postgraduate students that often delay the completion indicates the students either facing with difficulties they have attitude problem.

Furthermore, the collaboration and communication stage. This stage is a stage that is required throughout the whole task. The communication refers to the communication between the lecturers and the postgraduate students or the communication among the postgraduate students. Lecturers communicate with the postgraduate students to assign the tasks to them, correct their writings and also advise the students based on the task they have done. Postgraduate students communicate among themselves where discussion is required in order to complete the task given. Collaboration happens among the postgraduate students during the process of completing the task given. The communication is always done through email, messages through several applications. The collaboration part will be managed by the sending back of the edited documents and attachments using shared folders.

In addition, the reminders and alerts part. Reminders are manually set up in the traditional way. These reminders can be set up in a digital calendar or in a notepad. This process is troublesome as it lacks of integration with the task list and it requires manual action to ensure that the reminders and alerts are synced in different platforms and applications. Stakeholders are required to manually update the reminders with the progress of postgraduate students from different applications.

3.0 **PROBLEM STATEMENT**

Based on the current manual traditional way of managing the task, there exist several challenges identified. There five challenges that are significant are the inefficiency and time consumption, lack of real-time collaboration, error-prone, limited accessibility and poor scalability.

Firstly, the most significant challenge that is faced is the inefficiency and time consumption. The current manual way of handling the task clearly shows that it is inefficient as it is time consuming. All the ways of handling and managing data are conducted in a manual way. Transferring the information of the task and switching through different tools, platforms and application requires more time in completing the task given. While the time spent on switching and handing tasks among different tools can actually be spent in actual academic work. This shows that how inefficient of the traditional way of managing tasks.

Besides that, the lack of real-time collaboration. The process of collaborating with others in order to complete the task given using different applications cause delay. For example, when a team is completing a task, when the members wanted to edit the document, the members need to download the document file and edit and upload the corrected version again. This might cause some redundant work and duplication of effort when there is more than one member wanted to correct the same mistake. The lack of real-time feature leads to the delay of the completion of tasks.

Furthermore, the error-prone is also one of the setbacks in the current way. Managing tasks is very challenging when there is a situation of dynamic environment. When there comes to the situation of handling data and tasks over various tools and applications, there might have the chance of overlooking the updates, mismanaging versions of documents and missing deadlines. When work is done manually, it has higher chances of making error when the steps of managing data increases.

Lastly, the challenges faced is the poor scalability. As the number of tasks increases, the manual system becomes increasingly hard to control. A large scale of tasks causes the manual system becomes increasingly hard to maintain. It requires more effort in managing the system to function well. The poor scalability also inefficiency of the task completion.

4.0 <u>PROPOSED SOLUTION</u>

a) Automated Task Management System

Implement an Automated Task Management System (ATMS) is the proposed solution to address the inefficiency and time-consuming issues of current manual task management processes. ATMS will streamline the entire paper writing and publishing process for postgraduate students. This system will integrate task listing, scheduling, progress tracking, collaboration and communication, as well as reminders and alerts into a single, cohesive platform. By automating these processes, the system will significantly reduce the time required to manage tasks, allowing postgraduate students and lecturers to save times and focus more on academic work.

b) Real-Time Collaboration Features

One of the key features of ATMS is real-time collaboration. Unlike current manual processes that collaborate across multiple applications, resulting in delays and duplication of work, ATMS allows for simultaneous edits and updates. Utilizing cloud-based technology, the system will provide a platform where postgraduate students and lecturers can work on the same document simultaneously. This real-time collaboration will significantly reduce the time required to complete tasks, eliminate redundant work and ensure seamless collaboration among team members.

c) Integration and Accessibility

The proposed solution will integrate all stages of the paper writing and publishing process, ensuring accessibility and ease of use. Lecturers and postgraduate students will be able to access to the system from any device connected to the internet. The system will eliminate the need to switch between different tools and platforms, providing a centralized hub for all tasks and communications. This integration will not only enhance accessibility but also ensure consistency and accuracy throughout the entire process.

d) Error-Proof Task Management

The ATMS will mitigate the error-prone nature of the current manual process. By automating task management, the system will reduce the chances of overlooked updates, mismanaged document versions, and missed deadlines. By using a centralized databases and automated notifications, the system will ensure that all stakeholders are kept up to date with the latest information. In addition, the system will maintain a comprehensive task history so that all changes made can be easily tracked and audited, reducing errors and increasing efficiency.

e) Scalability and Flexibility

The ATMS will solve the problem of poor scalability by providing a scalable and flexible solution that can adapt to the increasing number of tasks. The system is designed to handle large-scale projects with ease. As the number of tasks increases, the system will dynamically adjust to accommodate the growing workload. Additionally, the system will be modular and can be easily customized and expanded. Regardless of the size of the project, this modular approach will ensure the system remains efficient and effective.

COST-BENEFIT ANALYSIS

ESTIMATED COST

HARDWARE	RM 10,000
SOFTWARE	RM 10,000
TRAINING	RM 1,000
ADVERTISEMENT	RM 2,000 per year
MAINTENANCE	RM 1,000 per year
IS SUPPORT	RM 3,000 per year

ESTIMATED BENEFITS

SAVINGS	RM 20,000

ASSUMPTION

DISCOUNT RATE	10%
SENSITIVITY FACTOR (COST)	1.1
SENSITIVITY FACTOR (BENEFIT)	1.3
ANNUAL CHANGE IN PRODUCTION COST	3%
ANNUAL CHANGE IN BENEFITS	12%

	YEAR 0	YEAR 1	YEAR 2	YEAR 3
Development Cost				
-Hardware	11,000			
-Software	11,000			
-Training	1,100			
Total	23,100			
Production Cost				
-Advertisement		2,200	2,266	2,334
-Maintenance		1,100	1,133	1,167
-IS Support		3,300	3,399	3,501
Total		6,600	6,798	7,012
Annual Production Cost (Present Value)		6,000	5,618	5,261
Accumulated Cost		29,100	34,718	39,979

	YEAR 0	YEAR 1	YEAR 2	YEAR 3
Reduced Inventory Cost -Savings		26,000	29,120	32,614
(Present Value)		23,636	24,066	24,503
Accumulated Benefits (Present Value)		23,636	47,702	72,205
Accumulated Benefits – Accumulated Cost		-5,464	12,984	32,226
Gain or Loss		Loss	Gain	Gain
Profitability Index	32,226/23,100 =1.40			

From the CBA table above, it is shown that the profitability index is 1.40. This index is more than one and shows that it is a good investment. Although we loss RM5464 in the first year, it increases gradually after that. This project is estimated to gain RM32226 in the third year, which shows a good return.

5.0 **OBJECTIVES**

- To understand the challenges faced by postgraduate students and lecturers in managing tasks, communication, and progress tracking, through comprehensive research and stakeholder engagement.

- To design a system that can handle an increasing number of tasks and adapt to the growing needs of postgraduate students and lecturers.

- To develop an intuitive and user-friendly interface that allows postgraduate students and lecturers to easily navigate, view, and manage tasks.

- To improve communication between stakeholders by providing efficient channels for discussions, feedbacks, and inquires related to tasks.

- To implement features for monitoring the progress of tasks, tracking deadlines, and evaluating the performance of postgraduate students.

- To ensure the security of data and information stored in the system through robust security measures and encryption techniques.

6.0 SCOPE OF THE PROJECT

The scope of this project is to generate an automated task management system (ATMS) for the postgraduate paper writing and publication. The system is basically to allow postgraduate students to manage writing and publication tasks efficiently. The system aims to provide a platform for real-time collaboration between the postgraduate students and lecturers. It it to ensure seamless integration and accessibility for all stakeholders. The system plans to implement error-proof task management to reduce errors and missed deadlines. The system offers scalability and flexibility to adapt to the increasing number of the tasks.

Besides that, the scope of the project is the user that is also known as stakeholders. In this project the stakeholder involves two main categories, which is the postgraduate students and the lecturers. Both the postgraduate students and the lecturers are in UTM. The website designed to allow postgraduate students and lecturers to view, edit and manage tasks efficiently. Additional function of the website is to enable postgraduate students to insert necessary details for the tasks. The website provides real-time collaboration features for simultaneous editing and updates. The website requires user login functionality for secure access. The scope of the project also aims to allow postgraduate students to inquire about the task details. The system implements a notification system for alerts and reminders, this is to reduce the overlooking of tasks.

Lastly, the scope of the project includes the feasibility study. The feasibility study comprises technical feasibility, operational feasibility and economic feasibility.

The technical feasibility means the ability of the technology to meet the users' needs. Technical feasibility is also the add on to the present system. In this project, automated task management system (ATMS) as the main platform is the technology used to meet users' needs. ATMS utilize a database system to store task information securely. The add on function is the implementation of security measures for the online information and payment.

Operational feasibility is whether the system will operate when installed and whether the system will be used by the users. Advertising is required to promote the system to the stakeholders. Collaboration with the human resource management about the details of operating the system, which includes the budget and the timeline. Further discussion is required to ensure the system efficiency and maintenance.

Economic feasibility is the economic factors that comprises of time and cost. The cost that needs to be considered includes the development cost which is the hardware and the software costs, training cost. There are also production costs such as the maintenance cost, advertising cost and Information System supporting cost. The time for economic feasibility refers to the duration of the designing and developing of the system. A system needs to be completed within the duration and the budget allocated.

7.0 **PROJECT PLANNING**

7.1 HUMAN RESOURCE

Project manager: responsible for overall project coordination, planning, and execution.

System analysts: to analyze the current manual system, gather requirements, and design the ATMS.
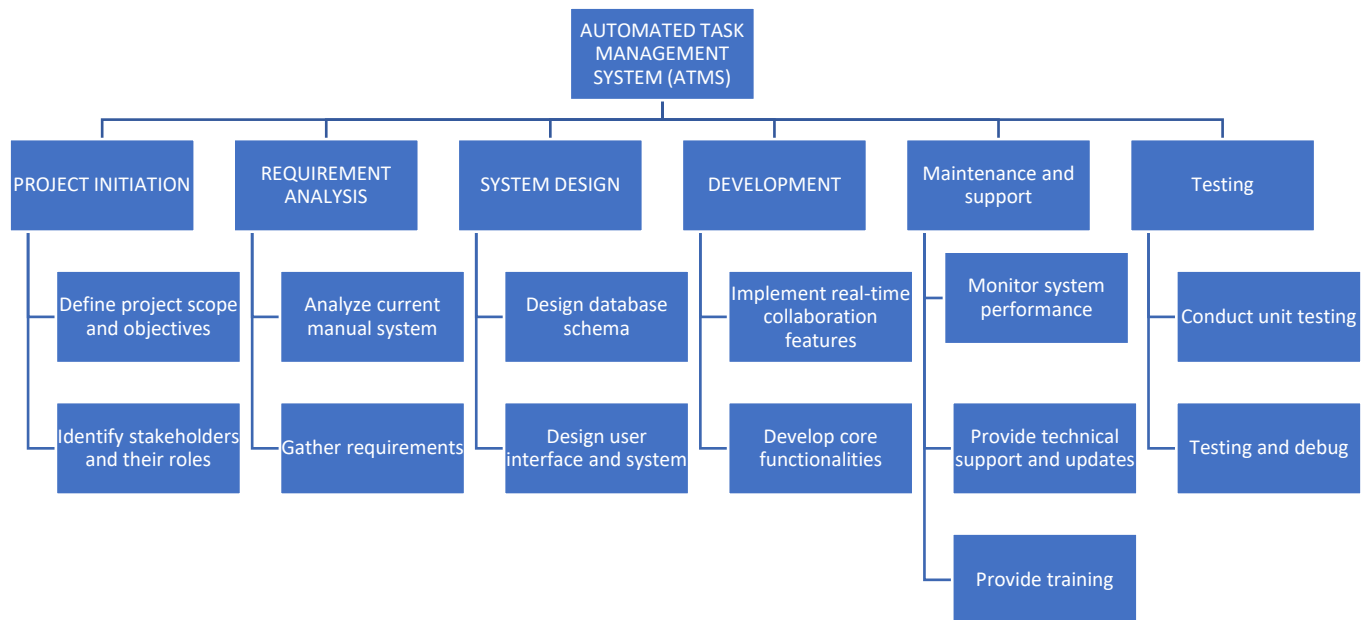
Software developers: to develop and implement the ATMS.

Quality and assurance team: to test the system for bugs, errors and ensure it meets the requirements.

Technical support: to provide support and maintenance post-deployment.

Marketing and promotion: to advertise and promote the ATMS to postgraduate students and lecturers.

7.2 WORK BREAKDOWN STRUCTURE(WBS)

7.3 PERT CHART

Activity	Description	Predecessor	Expected time
A	Define project scope and objectives	None	4 days
B	Identify stakeholders and their roles	A	3 days
C	Analyse current manual system	B	7 days
D	Gather requirements	C	7 days
E	Design database schema	D	10 days
F	Design user interface and system	E	11 days
G	Implement real-time collaboration features	F	21 days
H	Develop core functionalities	F	30 days
I	Conduct unit testing	G, H	14 days
J	Testing and debug	I	14 days
K	Provide training	J	7 days

Figure 1

7.4 GANTT CHART

Gantt Chart

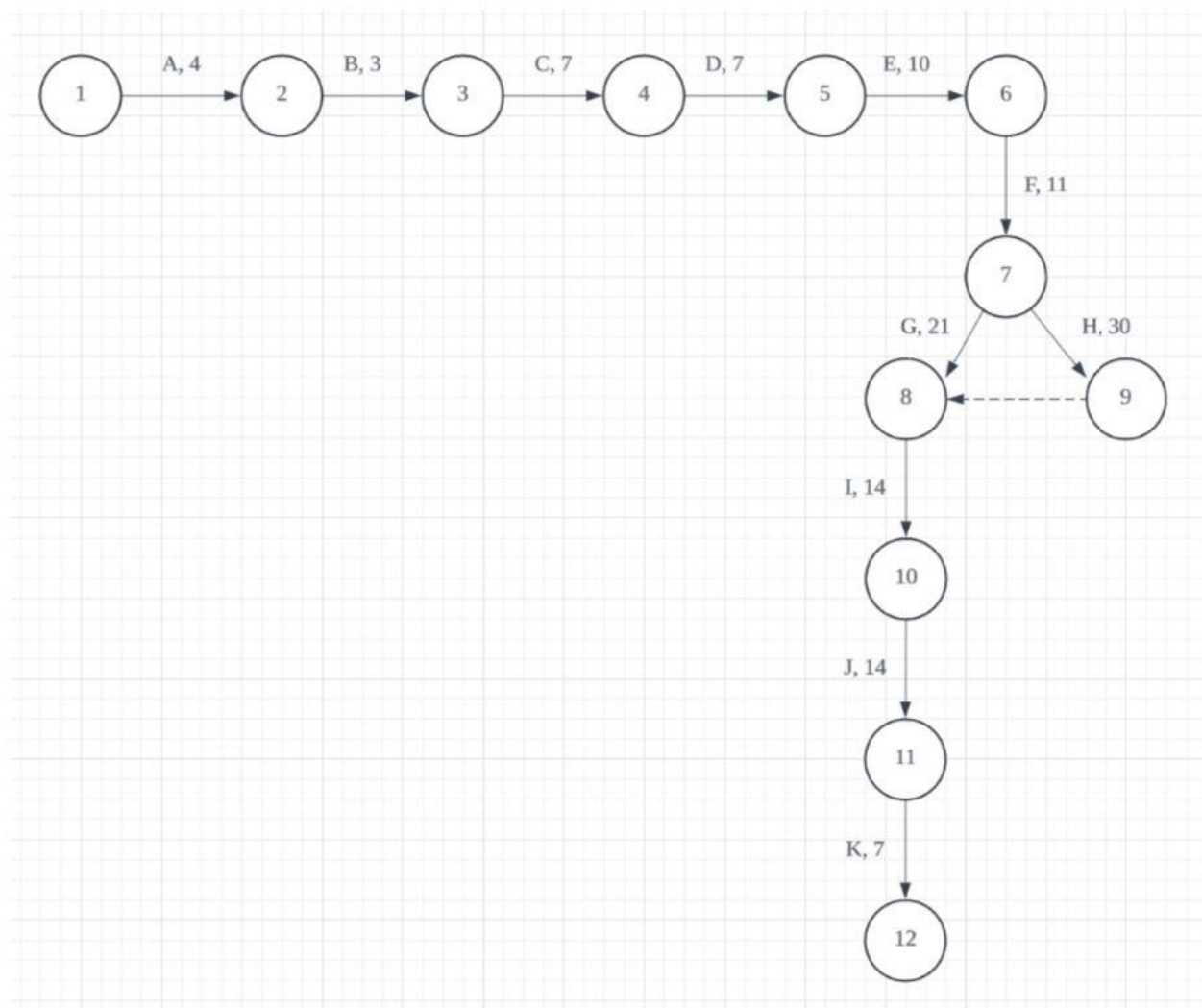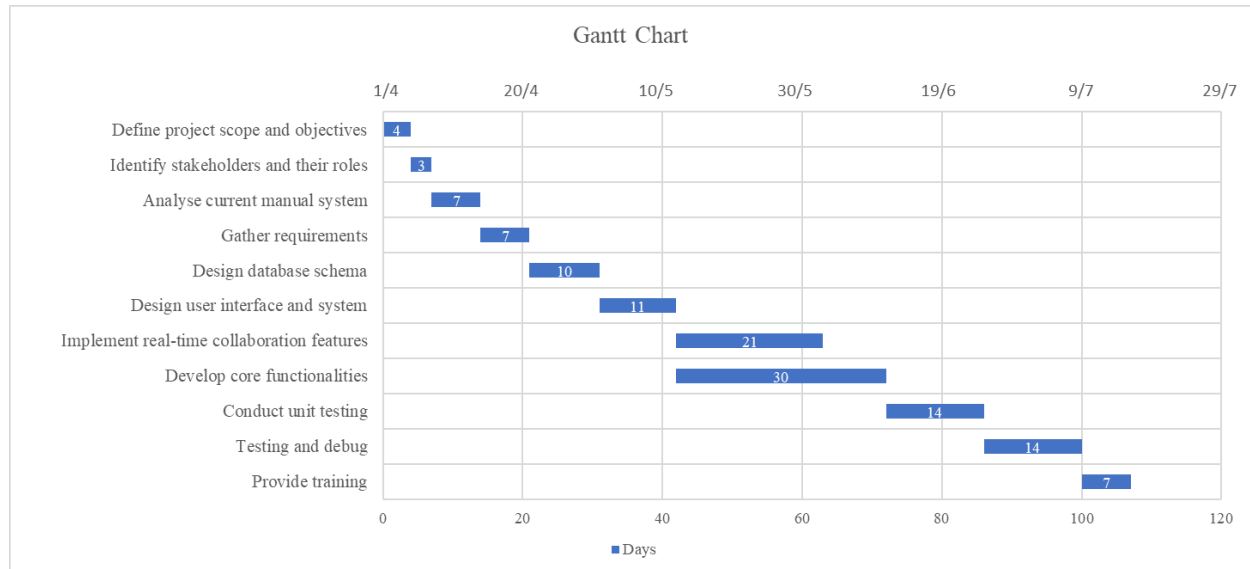| Task	Days
Define project scope and objectives	4
Identify stakeholders and their roles	3
Analyse current manual system	7
Gather requirements	7
Design database schema	10
Design user interface and system	11
Implement real-time collaboration features	21
Develop core functionalities	30
Conduct unit testing	14
Testing and debug	14
Provide training	7

8.0 BENEFIT AND OVERALL SUMMARY OF PROPOSED SOLUTION

One of the benefits of the proposed system is enhanced efficiency. Task assignment, deadline tracking, and progress monitoring are just a few of the administrative duties related to producing and publishing academic papers that are automated by the ATMS. Postgraduate students can devote more time to genuine research and content development because of this automation, which saves time and effort on these duties. Besides, proposed system can improve collaboration. Features for real-time collaboration make it easier for instructors and postgraduate students to communicate smoothly, promoting a collaborative learning environment where corrections and suggestions can be made quickly. Moreover, error reduction is also a vital benefit of proposed system. By implementing error-proof task management, ATMS ensures that jobs are done precisely and on time by lowering the possibility of errors and missed deadlines.

In summary, the proposed Automated Task Management System (ATMS) that has been suggested for postgraduate paper writing and publication intends to completely transform the way academic assignments are handled. Effective task management, real-time collaboration, and safe access to task-related information are made possible by the system, which offers a comprehensive platform that meets the demands of instructors and postgraduate students alike.

Through the integration of advanced features such as real-time collaboration, error-proof task management and a notification system, the ATMS enhances productivity, reduces errors and fosters a conducive environment for academic excellence. Moreover, the system's feasibility study demonstrates its technical, operational and economic viability, ensuring that it can be effectively implemented and sustained in academic institutions.

Overall, the proposed system not only tackles the difficulties associated with task management in academic settings but also establishes new benchmarks for effectiveness, teamwork, and security in the composition and publication of graduation papers.