UTM

UNIVERSITI TEKNOLOGI MALAYSIA

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FACULTY OF COMPUTING, UTM

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PROPOSAL 1

SECD 2613: SYSTEM ANALYSIS AND DESIGN

SECTION 01

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1.0 INTRODUCTION

In academia, especially within research-intensive faculties,the importance of efficient task management cannot be overstated. The concept of existing manual task management methods employed by professors and students have drawbacks and constraints to the dedicated task management system. They often face difficulties using conventional tools in their endeavors.

Accordingly, as bioinformatics students enrolled in SECD2613-System Analysis and Design Section 1 within the Tristis group, we have embarked on this project to create a pragmatic system with the potential to transform the academic sphere. We believe that a cloud based system will address the problem of the limitation of the current conventional methods of storing and writing thesis for both students and professors.

2.0 BACKGROUND STUDY

Traditional methods of managing theses in academic institutions often involve a cumbersome process that relies on disparate tools such as Excel spreadsheets, notepads, email communication, and manual calendar scheduling. This fragmented approach leads to inefficiencies, data discrepancies, and challenges in collaboration among students, faculty members, and administrators.

For example, students may find it challenging to manage feedback from multiple reviewers spread across different email chains, while faculty members may struggle to synchronize review schedules and deadlines using manual calendar entries. This lack of real-time updating leads to delays and occasional redundant work. Additionally, administrators encounter challenges in consolidating and analyzing thesis-related data due to its dispersed presence across various platforms.

This fragmented approach not only hampers productivity but also increases the risk of errors, delays in feedback, and ultimately impacts the quality of thesis submissions. As academic institutions strive to modernize their processes and enhance efficiency, there arises a clear need for a centralized and streamlined solution for thesis management.

3.0 PROBLEM STATEMENT

The current methods of thesis management within academic institutions are fraught with inefficiencies and limitations, stemming from reliance on manual processes and disparate tools. These challenges include:

1. Inefficiency and Time Consumption: Stakeholders, including students, faculty members, and administrators, expend considerable time and effort on manual tasks such as data entry, communication, and coordination. This not only detracts from their primary academic responsibilities but also results in decreased productivity and delays in the thesis management process.

2. Lack of Real-Time Collaboration: The absence of real-time collaboration features in existing tools impedes effective communication and coordination among stakeholders. This leads to delays in feedback dissemination, difficulties in scheduling reviews, and occasional duplication of efforts as individuals work with outdated information.

3. Error-Prone Processes: Manual management introduces a heightened risk of errors, including overlooking updates, mismanaging document versions, and missing deadlines. These errors undermine the accuracy and timeliness of thesis submissions, potentially impacting academic outcomes and student success.

4. Limited Accessibility: Accessibility to critical information is constrained by the fragmented nature of existing systems, which may involve locally stored files or single shared drives with restricted access. This limitation impedes transparency and collaboration among stakeholders, hindering the efficient management of thesis-related tasks.

5. Poor Scalability: Manual systems struggle to scale effectively with the growing volume of tasks and collaborations, leading to management challenges and decreased efficiency. As the complexity of thesis management increases, stakeholders face difficulties in maintaining the integrity and effectiveness of existing processes.

Addressing these challenges requires a comprehensive solution that leverages modern technologies to streamline thesis management processes, enhance collaboration, ensure data accuracy, improve accessibility, and facilitate scalability. By addressing these issues, academic institutions can optimize their

thesis management workflows, ultimately enhancing the academic experience for students, faculty members, and administrators alike.

4.0 PROPOSED SOLUTION

To address the inefficiencies and limitations in current thesis management practices within academic institutions, implementing a comprehensive and modernized Thesis Management System (TMS) can significantly improve the overall process. The TMS should incorporate the following key features to streamline operations, enhance collaboration, ensure data accuracy, improve accessibility, and facilitate scalability:

1. Automation of Manual Tasks: Replace manual data entry tasks with automated processes wherever possible. Implement features such as automatic notifications, reminders, and updates to reduce the time and effort spent on administrative tasks.

2. Real-Time Collaboration: Incorporate real-time collaboration tools into the TMS, such as a shared dashboard for all stakeholders to view project statuses, provide feedback, schedule meetings, and collaborate seamlessly. This will enhance communication and coordination among stakeholders.

3. Version Control and Deadline Management: Implement robust version control mechanisms to track changes in documents and ensure that all stakeholders are working with the latest information. Integrate deadline management features to provide timely reminders and notifications for upcoming milestones.

4. Centralized Information Hub: Create a centralized platform where all thesis-related information, documents, feedback, and reviews are stored securely and accessible to authorized stakeholders. This will improve transparency and accessibility to critical data.

5. Scalability and Flexibility: Design the TMS to be scalable, allowing it to adapt to the evolving needs of academic institutions with increasing thesis volumes. Ensure that the system is flexible enough to accommodate changes in processes and workflows.

From an economic feasibility standpoint, the proposed solution would still require an initial investment into purchasing hardware such as a few servers to accommodate more users of the system and would imply the need to carry out maintenance work so that the server can function even during peak hours. However with the increasing usage of the system among the academic society, the stakeholders can

expect to gain some amount of profit gradually. In terms of operational feasibility, the TMS is suitable to be used in universities given how the system works to make the daunting tasks that are academic related more manageable and convenient to faculty members, admins and students alike. The proposed system also takes user-friendliness into consideration as the factor will affect whether the system will be the de-facto system where every members in the university would be able to use it as soon as possible, Technical feasibility wise, the system would not deviate greatly from the system before and as much as improvements were made, it would still perform the same tasks so that the stakeholders using the new system can easily pick up the new system. Furthermore, fewer expertise and personnel are needed to develop and lastly maintain the system.

Estimated Cost :	
Consulting Software Training Hardware Design Maintenance Data Security	RM 20 000 RM 18 000 RM 25 000 RM 60 000 RM 10 000 RM 2 000 per year RM 25 000 per year

Estimated Benefits	
Inventory Costs	RM 40 000
Improve strategic alignment	RM 50 000

Assumptions	
Discount Rate	15%
Annual change in production costs	6%
Annual change in benefits (inventory)	18%
Annual change in benefits (improve strategic alignment	20%

Cost	Year 0	Year 1	Year 2	Year 3
Development Cost - Software - Hardware -Training - Design - Consulting	 RM 15 000 RM 26 000 RM 20 000 RM 10 000 RM 18 000			
Total	RM 89 000			
Production Costs - Maintenance - Data Security		 RM 2 000 RM 25 000	 RM 2 120 RM 26 500	 RM 2 247 RM 28 090
Total		RM 27 000	RM 28 620	RM 30 337
Annual Production Cost (Present Value)		RM 23 478	RM 21 641	RM 19 947
Accumulated Costs		RM 112 478	RM 134 119	RM 154 066

Benefits	Year 0	Year 1	Year 2	Year 3
-Reduced inventory costs -Improve strategic alignment(Present value)		RM 40 000 RM 50 000	RM 47 200 RM 60 000	RM 55 696 RM 72 000
Total		RM 90 000	RM 107 200	RM 127 696
Accumulated benefits (Present Value)		RM 78 261 RM 78 621	RM 81 059 RM 159 320	RM 83 962 RM 243 282
Gain or Loss (Accumulated Benefit)		(RM 33 857)	RM 42 799	RM89 216
Profitability Index	1.00			

5.0 OBJECTIVES

The implementation of the cloud-based thesis management system is driven by several key objectives aimed at enhancing the efficiency, collaboration, and overall effectiveness of thesis management processes within academic institutions.

First and foremost, the system aims to **enhance collaboration** among users, including students, faculty members, and administrators. By providing a centralized platform for communication, feedback sharing, and task coordination, the system will nurture seamless collaboration, enabling users to work together more effectively.

In addition to improving collaboration, the system seeks to **improve efficiency** in thesis management processes. By automating repetitive tasks, reducing manual effort, and minimizing delays associated with traditional methods, the system will streamline thesis management workflows, allowing stakeholders to allocate their time and resources more efficiently towards meaningful academic work.

Ensuring **accessibility** to thesis-related information is another key objective of the system. By providing a cloud-based platform accessible from any location with an internet connection, the system will enable users to retrieve and contribute to project data effortlessly, regardless of their physical location or device.

Furthermore, the system aims to **ensure data security** by implementing robust security measures to safeguard sensitive thesis-related data. By ensuring compliance with privacy regulations and fostering trust among users, the system will provide a secure environment for storing and managing thesis-related information.

Scalability is also a central objective of the system. By designing the system to accommodate the evolving needs of academic institutions, including the growing volume of thesis-related tasks and collaborations, the system will ensure seamless scalability, allowing it to adapt to changing requirements without compromising performance or functionality.

Furthermore, the system prioritizes **enhancing user experience** through meticulous user experience design, emphasizing intuitiveness, user-friendliness, and customization tailored to user needs. To facilitate continuous improvement and empower user engagement, a dedicated section will be established for users to share their opinions, feedback, and feature requests based on their experiences with the system. Additionally, a built-in voting system will allow users to vote on features and opinions shared by their

peers, with the highest voted suggestions being implemented into the system on a monthly basis. This approach ensures that user input directly influences the ongoing development and refinement of the system, fostering a sense of ownership and collaboration among users.

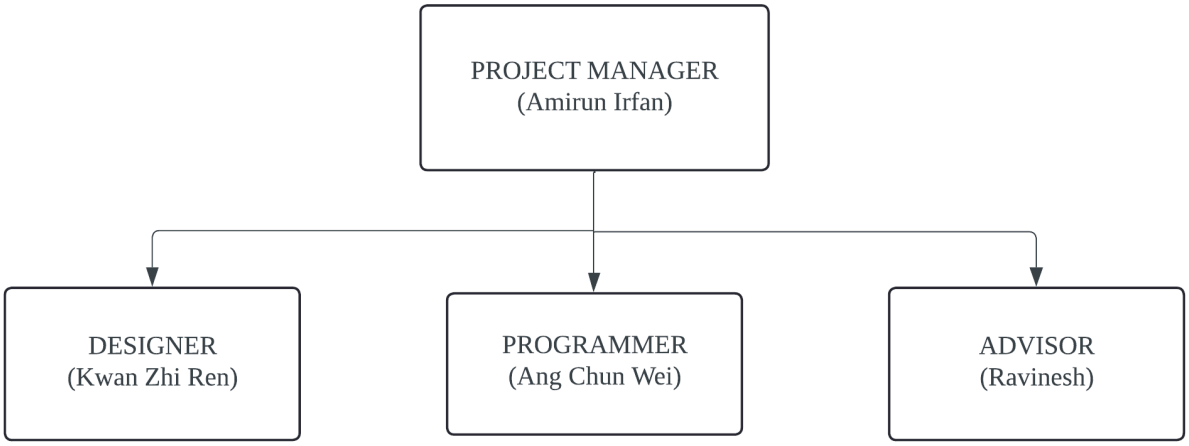
Ultimately, the primary objective of the cloud-based thesis management system is to **promote academic excellence**. By providing efficient, transparent, and collaborative tools for managing thesis projects, the system will enrich the academic experience for students, faculty members, and administrators alike, ultimately supporting the mission of academic institutions in fostering learning, research, and innovation.

6.0 Scope of the Project

This cloud-based thesis management system caters to a specific group of users and stakeholders within the academic sphere. Its primary users are postgraduate students, offering them tools for task management, collaboration with supervisors, progress tracking, and enhanced efficiency in the writing process. Supervisors, such as professors and lecturers guiding postgraduates, will also benefit from improved communication, real-time feedback exchange, and better insight into student progress. Secondary stakeholders include university administrators, who, although not direct users, stand to gain from faster thesis completion times and higher-quality research output, ultimately boosting the university's academic reputation.

7.0 PROJECT PLANNING

7.1 HUMAN RESOURCES



Project Manager: Amirun Irfan

- Have a huge responsibility to oversee the entire project from the beginning.
- Assigns tasks to team members and monitors their progress

Designer: Kwan Zhi Ren

- Prepares design for the wireframe and prototypes to visualize user interface and user experience of the product.

- Refines the design for the website

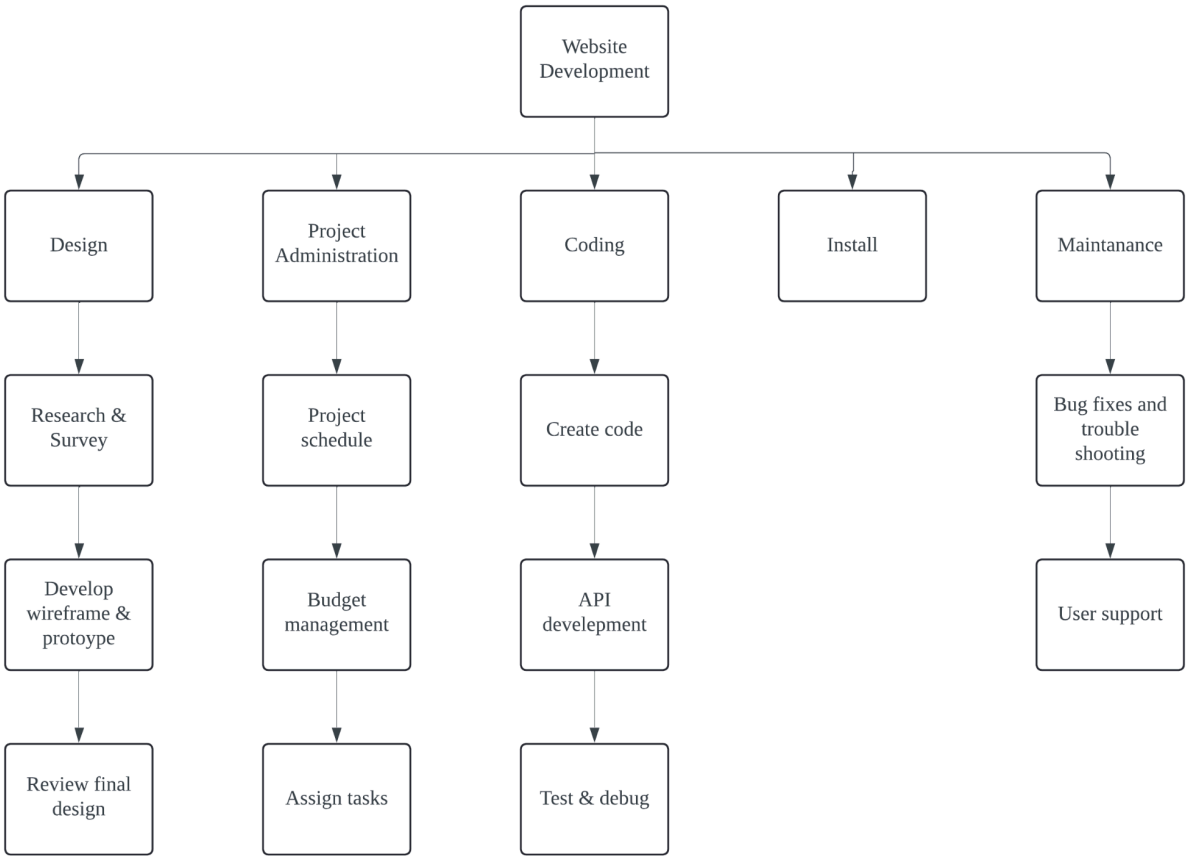
Programmer: Ang Chun Wei

- Develop the features and components that required for the project.
- Test and debug to identify and resolve issues, ensuring the quality of the final product

Advisor: Ravinesh

- Provide guidance and strategic advice to the project team based on their domain knowledge.
- Reviews the progress and track errors

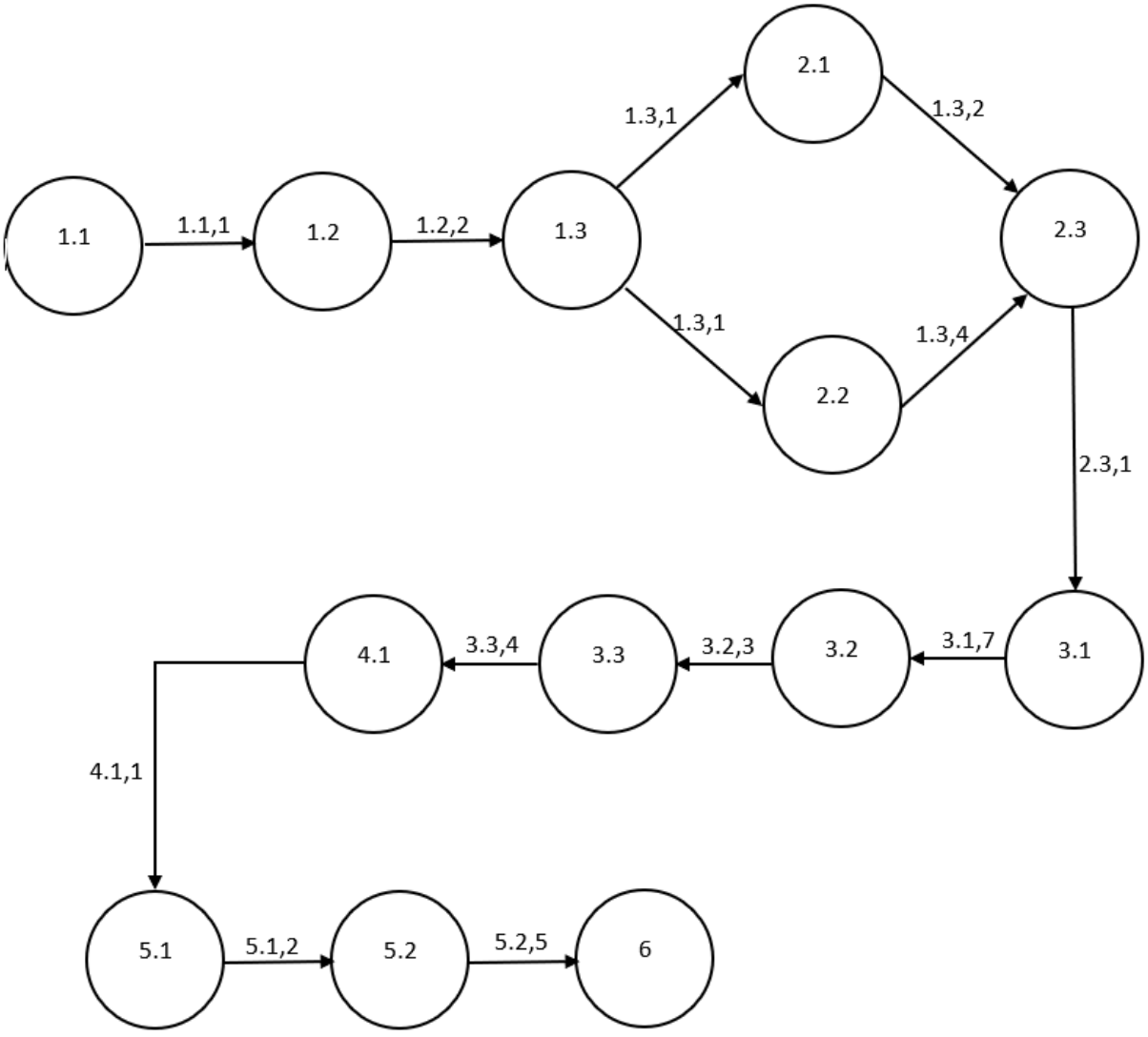
7.2 Work Breakdown Structure (WBS)



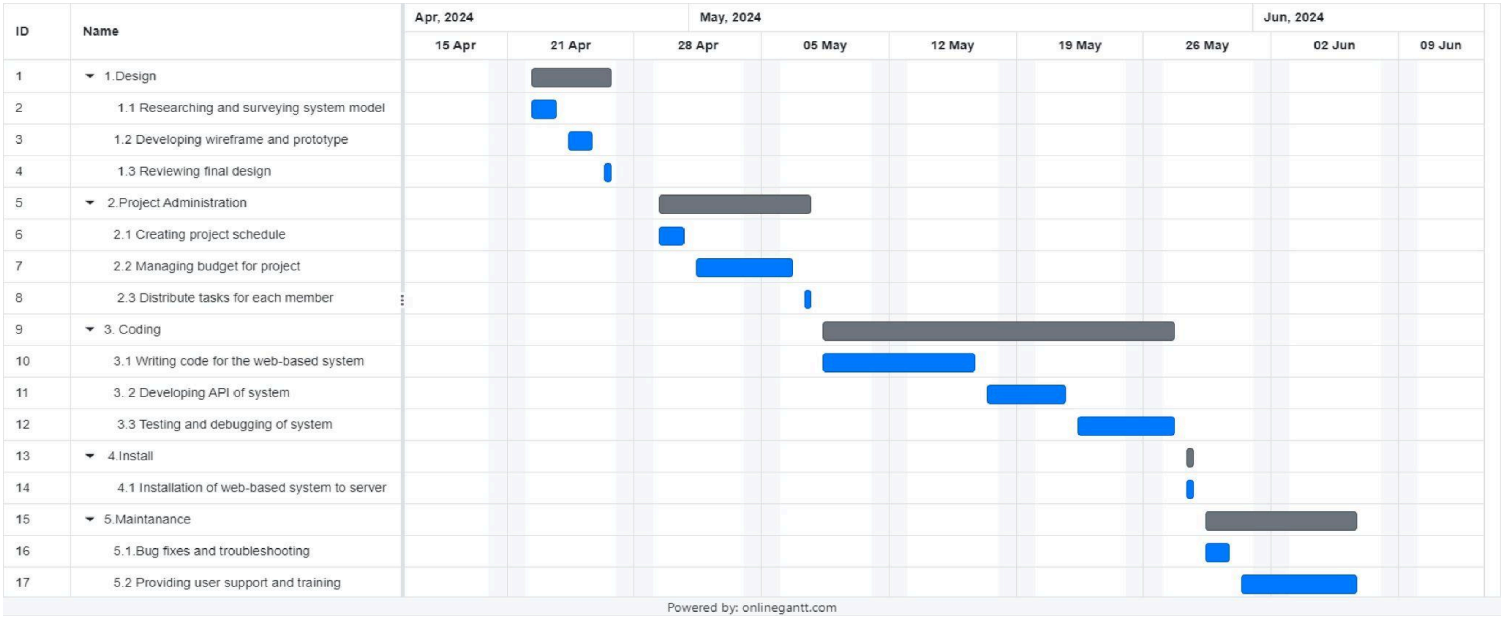
7.3 PERT CHART

Phases and Activities	Predecessor	Duration
1. Design		
1.1. Researching and surveying system model	None	1 day
1.2. Developing wireframe and prototype	1.1	2 days
1.3. Reviewing final design	1.2	1 day
2. Project Administration		
2.1. Creating project schedule	1.3	2 days
2.2. Managing budget for project	1.3	4 days
2.3. Distribute tasks for each member	2.2, 2.3	1 day
3. Coding		
3.1. Writing code for the web-based system	2.3	7 days
3.2. Developing API of system	3.1	3 days
3.3. Testing and debugging of system	3.2	4 days

4. Install			
4.1.	Installation of web-based system to server	3.3	1 day
5. Maintenance			
5.1.	Bug fixes and troubleshooting	4.1	2 days
5.2.	Providing user support and training	5.1	5 days



7.4 GANTT CHART



8.0 Conclusion

The proposed Thesis Management System (TMS) aims to revolutionize the way academic institutions handle thesis-related processes by leveraging modern cloud-based technologies. By addressing the inefficiencies and limitations of traditional manual methods, the TMS promises to streamline operations, enhance collaboration, ensure data accuracy, improve accessibility, and facilitate scalability.

Through automation of manual tasks, real-time collaboration tools, robust version control, and a centralized information hub, the TMS will significantly reduce the time and effort expended on administrative tasks, enabling stakeholders to focus on their core academic responsibilities. The system's scalable and flexible architecture will allow it to adapt to the evolving needs of academic institutions, accommodating increasing thesis volumes and evolving workflows.

The TMS's objectives extend beyond mere process optimization. By fostering seamless collaboration among students, faculty members, and administrators, the system will nurture a culture of transparency and effective communication, ultimately enhancing the overall academic experience. Furthermore, the system's emphasis on user experience, through intuitive design and continuous improvement based on user feedback, will ensure that the TMS remains relevant and user-friendly, encouraging widespread adoption within academic communities.

From an economic standpoint, the TMS represents a strategic investment that promises long-term benefits through increased efficiency, reduced operational costs, and potential revenue generation. The system's operational and technical feasibility further solidify its viability as a practical solution for academic institutions seeking to modernize their thesis management practices.

Ultimately, the cloud-based Thesis Management System represents a transformative solution that addresses the challenges faced by academic institutions in managing thesis-related processes. By leveraging cutting-edge technologies and prioritizing user experience, the TMS has the potential to redefine the academic landscape, fostering a culture of collaboration, efficiency, and academic excellence.