UTM

UNIVERSITI TEKNOLOGI MALAYSIA

DATABASE - SECD2523

Section 6

Group 03

Project PROPOSAL & Database REQUIREMENTS

(Phase 1)

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1.0 Introduction

UTM's e-learning system has many flaws, that's why there is a system to report these flaws to the technical support. But this system still uses a traditional email system to report issues and issue requests which also has many flaws. We propose a solution for it called the ticketing system. This ticketing system provides a structured and efficient approach to managing technical support requests which results in an improved e-learning system, and faster issues resolution to users. The given project aims at setting a new standard in the effectiveness of digital learning environments.

2.0 Background Study

Current users of elearning system are facing challenges which need to be addressed quickly and effectively, resulting in frustration and waste of time. The current process relies on the email system which is currently inconvenient for both users and technical staff. The lack of automation, tracking of requests and fast responses leads to delayed responses and lost ones.

To address these issues, we propose the ticketing system that is embedded within UTM's e-learning system to introduce a comprehensive solution that transforms the process of issuing requests. The system combines features such as real time tracking, and centralized digital record keeping to systematically address identified issues. The system not only enhances the user's experience by providing convenient and user-friendly services but also reduces burdens on users and staff.

This project aims to optimize the operational workflow and improve the technical support process. In practice, students and staff can expect quicker response times and insights on the status of their requests. This could enhance user experience and satisfaction.

3.0 Problem Statement

The current email-based system for sending in and managing technical support requests within UTM's E-learning platform cannot handle requests effectively and does not help in the quick resolution of issues. This has presented operational challenges, for example:

1.Email can lead to a cluttered inbox with no way to prioritize or categorize messages.

2.Important messages can get overlooked in a messy inbox.

3.Email doesn't provide an easy way to track customer satisfaction and issue trends.

4.Collaboration on user issues is difficult when using email, as it relies on forwarding messages and keeping track of responses.

1. Inbox's lack of organization:

Managing the support requests via e-mail is mainly by a clogged inbox, where it is actually difficult for the support team to create any sort of organization, prioritization, or information retrieval. The important issues may get missed or delayed, particularly in terms of response time and satisfaction of the end-user.

2. Inability to track and monitor requests:

The existing system lacks means of tracking the status and progress regarding each request, this results in longer response times and frustration for users wanting updates on their issues.

3. Limited collaboration and data sharing:

Because the e-mail system is based on individual tasks, collaboration of support staff is highly limited and does not allow for shared access to request data, which limits the support team's ability to work effectively on complex issues.

4. No real-time analytics or performance monitoring:

No analytics concerning the support requests are generated in the email-based system, like response times,and request volumes Consequently, because it is not possible to access such data, this limits the possibility of analyzing the trends that may allow identification of areas to be improved in the process of offering support.

4.0 Proposed Solution

To solve the problem of the request message for technical support staff through email which was the traditional way.

The proposed system for solving the problem that is indicated using the traditional way of sending technical support requests through email ; involves designing a database-driven ticketing system solution to streamline the management of the technical support request within UTM's e-learning platform. The new system will replace the current email-based approach. The new system will ensure efficient organizing and recording for technical support requests using an electronic ticket leading to facilitating easy tracking of the issues and improving collaboration among technical support teams.

The student or user will submit their issues through a centralized area through an e-learning platform which will log all interactions in the relation database that will be ready for saving all the data. This database will include tables for students, tickets, FAQs, and technical support staff and administrators.

By using this ticket generating system to help the technical support staff and users , we aim to reduce response time and to enhance user satisfaction, and support data-driven decision -making for continuous improvement to the whole system.

4.1 Technical feasibility study:

The proposed database-driven ticketing system has high technical feasibility due to multiple aspects that contribute to its seamless execution. First, the ticketing systems will seamlessly integrate with UTM's present e-learning platform, reducing the need for large shifts or new hardware. The integration of a relational database makes sure the system is scalable, meaning it can handle an increasing number of tickets as the user base grows. This scalability is essential for enabling future expansion and increased demand.

Furthermore, the system's architecture is intended for both reliability and effectiveness. Advanced operations, such as retrieving unresolved tickets or generating performance reports, can be addressed efficiently by centralizing data storage and management in a well-structured database. This structure also promotes data consistency and integrity, ensuring that all user interactions are reliably recorded and that support staff have access to the most recent information.

Security is an additional essential aspect of the system's technical feasibility. The system will use powerful verification and authorization techniques to keep sensitive data secure and available only to authorized people.by using access base on role (RBAC)the system will be utilized to manage the permissions of different Roles, like the users, support staff, and administrators, decreasing the risk of data breaches and unauthorized access.

Furthermore, the system is intended to be highly automated, with features such as automatic ticket assignment and immediate status notifications that reduce manual labor and avoid human error. This automation improves the efficiency of the support process by ensuring that users receive timely updates on their requested issues.

Finally, the system's technology, including the database management system (DBMS), programming languages, and development frameworks, will be selected based on interoperability with UTM's current IT environment (current hardware, software, network infrastructure, and IT policies already in place at UTM)and the team's technical abilities. This particular selection assures that the system can be developed, implemented, and maintained efficiently, contributing to its technical feasibility**.**

4.2 Operational feasibility study :

The proposed ticketing system's operational feasibility is improved by its database-driven design, which assures efficient integration into UTM procedures and enhances both user and support staff experiences. The relational database provides the central hub, containing ticket information, user details, and support responses for easy retrieval and maintenance purposes. Real-time data allows support staff to handle and prioritize requests more efficiently,improving the overall process and response times.

Users benefit from the system's user-friendly interface, which enables for seamless ticket submission and status tracking with little effort. They may easily view the updates and receive notifications about their issues, which improves the experience.

Training sessions will focus on staff, providing them with the understanding they need to efficiently use the database for ticket resolution. The system's scalability allows it to handle increasing ticket numbers, while complete data backup consistency and recovery processes assure low interruptions, making the system both financially and operationally efficient for everyone involved.

4.3 Economic feasibility study:

The database-driven ticketing system appears to be cost-effective because it will save money over time. While there are initial costs for developing and implementing the system, it will save the time and effort required to manage tickets as in the current system . The system may also expand to meet the university's needs without spending huge extra expenses. Overall, the money spent today will result in major savings and improved services in the future.

Terms	Values
Discount rate	25%
Sensitivity factor (Costs)	1,2
Sensitivity factor (Benefits)	0,8
Annual change (Production costs)	10%
Annual change (Benefits costs)	5%
Development costs:	
Software upgrades	10,000 MYR
Production costs:	
Maintenance	3,000 MYR per year
Benefits:	
Funds saved	1500 MYR per month

Costs	Y0	Y1	Y2	Y3
Development costs:				
Software	12.000			
Total	12.000			
Production costs:				
Maintenance		3.600	3.960	4.356
Annual prod Costs		3.600	3.960	4.356
PV		2.880,00	2.534	2.230
Accumulated costs		14.880,00	17.414,40	19.705

Benefits	Y0	Y1	Y2	Y3
Funds saved		14.400	15.120	15.876
PV		11.520	12.096,00	12.701
Accumulated Benefits		11.520	23.616,00	36.317
Gain or loss		-3.360,00	6.201,60	16.612

PI	1,384344

5.0 Objectives

1. Replace the cluttered email-based inbox with a centralized, structured database that enables students to make issue_description and prioritize their support requests effectively, ensuring that serious issues are addressed quickly and are not overlooked due to disorganization.
2. implement advanced tracking and monitoring techniques so that students can track the status and progress of their tickets in real time, while also making sure that technical support professionals can manage ticket lifecycles efficiently.
3. Improve collaboration among technical support staff by offering them shared access to a centralized ticket system , empowering them to work together more effectively and address urgent issues faster.
4. Provide real-time analytics and performance monitoring tools to analyze response times, identify requests that are always submitted , and generate insights that will enhance the support process.

6.0 Scope

Our ticketing system is integrated within UTM's e-learning platform to help solve students' issues quickly and efficiently. It's designed to be easy to use and accessible, so students can easily submit their problems. The system has three main stakeholders: Students, who submit their issues; Support staff, who manage and resolve the tickets; and Administrators, who oversee the system.
This system will include :
1.Developing and implementing a ticketing system for the UTM e-learning platform.

2.The new system will be integrated seamlessly into UTM's e-learning platform which is compatible with iOS and android, making it accessible.

3.The system will only address issues related to the e-learning platform.

4.The system will serve students of UTM only for ticket submission and tracking status of their tickets , technical support staff for ticket response , management, and updating status , and also administrators for overseeing the system, ensuring data integrity and security.

5.The system records and manages support staff requests messages using a relational database.

6.System includes a user-friendly interface for students submitting tickets, a support staff for sending ticket responses and managing it .

7. The system ensures student satisfaction, reliability and availability to students to submit tickets, efficiency and security.

This system will not include:

1. It cannot support other UTM systems or applications.
2. It doesn't include log in or sign up features for the user because the user needs to be already logged in into the e-learning system as our system is just an integrated sub-system.
3. The system can't address issues unrelated to e-learning platform.

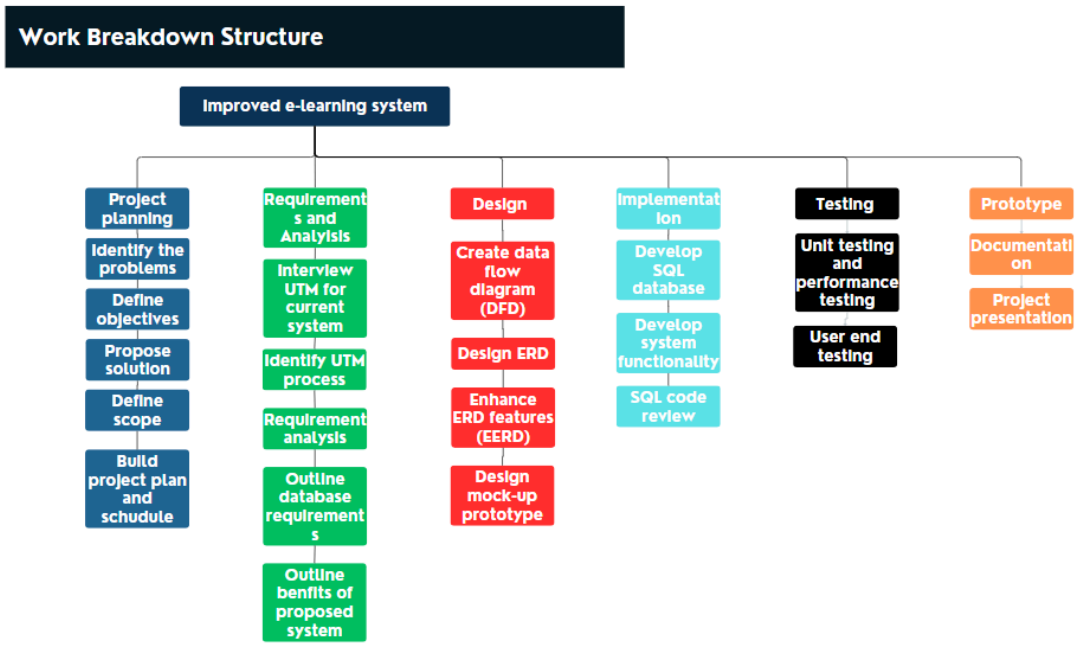
7.0 Project planning

Going on with our project plan. In this part we will discuss Human Resources, Work Breakdown Structure(WBS) and Gantt chart.

7.1 Human Resource

This design shows the roles of each member of the team and states clearly how they contribute to the project.

7.2 Work breakdown structure (WBS)



This is our WBS where we split our tasks into manageable steps to enhance our performance both efficiency and speed of doing the tasks.

7.3 Gantt chart

We are making the gantt chart to organize our project scheduling and be more clear with our plans. Below is the Gantt chart:

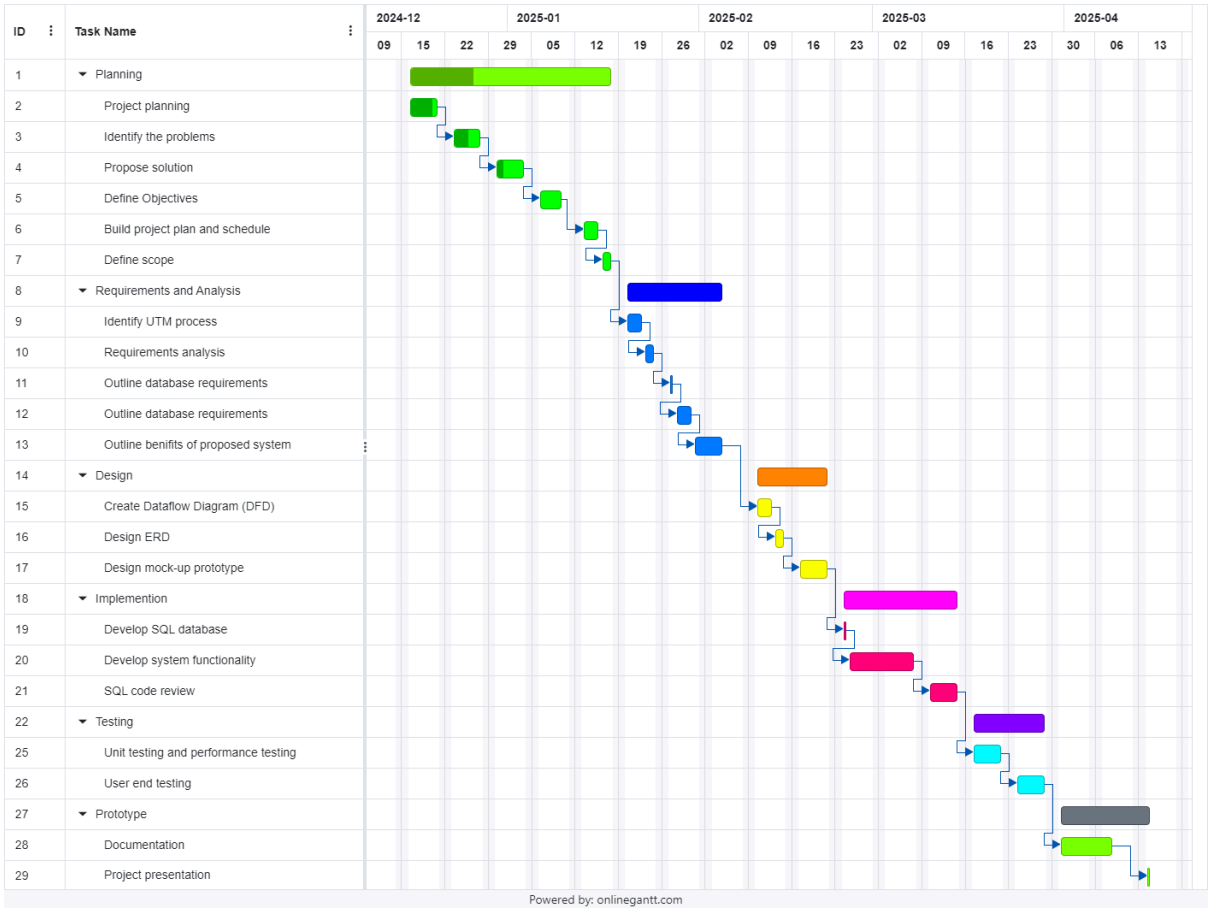


Figure 1: Gantt Chart

8.0 Requirement Analysis

8.1 General system Process

Start

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User Identifies Issue

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User Sends Email

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Support Team Receives Email

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Email Sorting & Prioritization

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Issue Assignment

↓

Issue Resolution

↓

Response Sent to User

↓

End

8.2 Explanation of the current systems procedure

Start

1. **User Identifies an Issue:**

The user is facing technical issues with the e-learning platform .

2.**User Sends an Email:**

The user drafts an email detailing the issue, including relevant information like their name, issue description, and urgency..

3**.Support Team Receives Email**:

The technical support staff receives the email in their inbox.

4-**Email Sorting and Prioritization**:

Support staff manually sort through emails, prioritizing them based on urgency or type of issue.

5. **Issue Assignment**:

The support team assigns the email to a specific staff member or department.

6.**Issue Resolution**:

The assigned staff member works on resolving the issue, communicating with the user via email if more information is needed.

7.Response Sent to User:

Once resolved, the support staff sends an email back to the user with the solution or further instructions.

End .

9.0 Transaction requirement

9.1 Data Entry

1. Enter Student Info: Add the details of students, such as ID, name, and email.
2. Enter Staff Info: Add the details of staff, such as ID, name, email, and department.
3. Enter Administrator Info: Add the details of administrators, such as ID, name, and email.
4. Enter Ticket Issue: Add the details of tickets, such as ID, student, staff, subject, description, urgency, and creation time.
5. Enter Ticket Response: Add the details of ticket responses, such as ID, ticket, staff, text, and response time.
6. Enter FAQs: Add the details of FAQs, such as ID, type, and question.
7. Enter FAQ Answer: Add the details of FAQ answers, such as ID, FAQ, and answer.
8. Enter Ticket Status: Add the details of ticket statuses, such as status type (e.g., "Open," "In Progress," "Solved").

9.2 Data Update/Delete

1. Update/Delete Student Info: Modify or delete the details of students.
2. Update/Delete Staff Info: Modify or delete the details of staff.
3. Update/Delete Administrator Info: Modify or delete the details of administrators.
4. Update/Delete Ticket Issue: Modify or delete the details of tickets.
5. Update/Delete Ticket Response: Modify or delete the details of ticket responses.
6. Update/Delete FAQs: Modify or delete the details of FAQs.
7. Update/Delete FAQ Answer: Modify or delete the details of FAQ answers.
8. Update/Delete Ticket Status: Modify or delete the details of ticket statuses..

9.3 Data Queries

1. Display Student Info: Retrieve and display the details of students.
2. Display Staff Info: Retrieve and display the details of staff.
3. Display Administrator Info: Retrieve and display the details of administrators.
4. Display Ticket Issues: Retrieve and display the details of tickets, including their status.
5. Display Ticket Responses: Retrieve and display the details of ticket responses.
6. Display FAQs: Retrieve and display the details of FAQs.

7. Display FAQ Answers: Retrieve and display the details of FAQ answers.
8. Display Ticket Status: Retrieve and display the current status of tickets, along with the update times.
9. Display Unresolved Tickets: Retrieve and display all unresolved tickets based on their status.
10. Display Tickets by Urgency: Retrieve and display tickets categorized by urgency level.
11. Display Tickets by Assigned Staff: Retrieve and display tickets based on the assigned staff.

10.0 Benefit and Overall Summary of Proposed System

The proposed ticketing system offers many benefits for both users and technical support staff.

1.Benefits for users:

- Providing an easier and straightforward way to make a request, through elearning platform by providing a user-friendly interface to issue the ticket request.
- Providing a tracking feature provides the user with instant updates instead of waiting without clear and regular updates, reduces redundancy where users sometimes repeat their email requests, resulting in the inbox becoming unorganized and cluttered, or users sometimes ask a question that has been frequently asked, so the user can check the FAQ "Frequently asked questions" first to find the answer directly.
- Reducing the response time, ensuring that this request will be processed and prioritized by the technical support staff.

2. Benefits for technical support staff:

- This system would make their job easier, as it can automatically keep track of requests, organize them into categories and prioritize the requests accordingly.
- It provides a clear requests dashboard and avoids the issue of the requests being overlooked in the email system.
- All of the data can be analyzed to identify common problems, and areas to be improved.
- Reducing the amount of redundant requests to be processed by implementing the FAQ feature and the tracking feature.

3. Benefits for stakeholders:

- The system is scalable enough to handle increasing numbers of students in UTM.
- Reducing the amount of working staff needed, which can reduce the costs.

11.0 Summary

Overall, we have proposed a system that will benefit all the users and become a critical addition to UTM's e-learning system to replace the existing regular email complaints and requests processes. We have mapped out the workflow of the project to be accomplished during a specified timeline, current business processes have been stated and diagrammed to show the functionalities of the proposed system.

Analysis on the data requirements has been conducted forming a fundamental understanding to later be implemented using DBMS software tools.