UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Department of Computer Science
Faculty of Computing

GROUP PROJECT

Phase 1

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Subject Code	SECD2523 & SECD2613
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Group Name	GOATS
Prepared by	1. Aidan Andrew Daniel (A22EC0036) 2. Muhammad Amirul Azfar bin Azhar (A22EC0080) 3. Danial Nur Irfan bin Azeze (A22EC0046) 4. Muhammad Haziq bin Saamsol (A22EC0214) 5. Muhammad Nabil Iman bin Mohd Fazli (A22EC0087)
Section	03
Lecturer	Dr Izyan Izzati binti Kamsani & Dr. Muhammad Aliif Ahmad

Table of content

Introduction

NexScholar is an innovative educational hub that caters mostly to the vibrant community of Universiti Teknologi Malaysia(UTM) that include staff members, postgraduate and undergraduate students. It is also open to the general public. In a time of need for a dynamic landscape for educational pursuits that require seamless coordination and engagement among students, NexScholar presents as a comprehensive tool, thoughtfully designed to enhance the academic and social experience of the UTM community.

At its core, NexScholar is equipped with a user-friendly interface that includes tabs and pages that elegantly displays its features. These features include a dynamic newsfeed where it serves as a digital information ecosystem for new member announcements, connections with peers, updates on university events and notifications about scholarship opportunities. It also acts as a platform for an array of courses for continuous learning and skill enhancement. The addition of a messaging/chatting system that assists in fostering community engagement, allowing for users to connect, collaborate and share insight within the NexScholar community.

NexScholar also has a feature offering a visually compelling calendar display of all upcoming events, organized in a clear simple layout resembling a calendar. As of now, the calendar has some user-interactivity that allows for users to click on the desired event and obtain further additional information on said event.

Background Study

In Malaysia, the marketplace for innovative educational hubs are not as prominents and lucrative as in countries like America and the United Kingdom. Generally, we have more standardized and regulated educational hubs governed by the Ministry of Education. Instances of this is the UTM E-learning Hub Website, which is bi-product of the Moodle open-source platform framework. Currently, a weakness that must be addressed with the UTM E-Learning, is the lack of functionality with the calendar, particularly the event customization and interactivity.

As of now, the current calendar and event system of the UTM E-Learning system is very limited. “Events” that can be added into the calendar are only events that can be set by Lecturers who hold courses that the user is enrolled in. The norm is that events are usually set for important exam dates, due dates for assignments and actual dates for their respective courses. To put into perspective, the “events” in the calendar fits more as an announcement rather than an actual held event. Hence, the statement “UTM E-Learning system is very limited. “. It is a wasted opportunity where an established educational hub is widespreadly used by thousands of users but does not implement a visionary event system in the calendar.

With the current expansion of the UTM E-Learning Hub and many others in Malaysia, it is holding back the potential of enticing users to take part in educational events. Educational event directors (which already have a certain authority in a university, ie: staff and lecturers) have to resort to other platforms to gather an audience, which reduces the exposure and impression counts among users, which is contrary to what educational bodies aspire for. Addressing this, presents a transformative change that fosters a more participatory learning environment.

Problem Statement

Returning to our main focus of this proposal, NexScholar has implemented said, event creation/management system. In spite of that, we have reviewed and concluded on a myriad of lacking core features, if taken into consideration, could significantly enhance the overall user experience.

1. Lacking expansive event management features

Despite the initial implementation of an event creation/management system, there is a notable absence in expansive event management features. The current system does not allow for much versatility to accommodate a wide range of event types, formats and structures. Expanding on these features, would help diversify its functionalities. To list a few would be, extensive customization of event templates/details, scheduling capabilities. Taking note of this restriction with the current system will undoubtedly cater for a larger spectrum of educational events, boosting its utilization and attractiveness to users.

2. User experience with event registration

Currently, users are limited to only view upcoming events without the availability of additional functionalities. The existing system mainly allows the user to view upcoming events and the general details of it. It lacks an interactive and user-friendly registration process. The entire user journey is ultimately constrained, primarily being provided no further details on the event. A way to foster a more participatory learning environment, a total overhaul of this aspect in the event registration system is needed. What is envisioned must empower the user to click on a desired event and be presented the details in the most user-centric manner. Beyond this, is the implementation of a seamless registration process. The registration must allow for the diverse nature of type of events, also concerning the option of free or paid events. The payment process being secure and convenient for the user must also be in-line. Further simplification of this complex topic is required.

Propose Solution

We have proposed a solution that will seamlessly integrate with the existing system to reduce workload. Based on the provided problem statement, our proposal involves enhancing some old features and adding a new feature to the event section. This added feature will solve all the client's problems and present the event section in a new light. We will introduce four new features, which are as follows:

1. New event page
2. Ticketing system
3. Create event feature
4. Event Dashboard

The first feature of our platform is the event page, which has undergone a redesign to offer users a more modernized interface. This updated design boasts a responsive interface and intuitive navigation, ensuring optimal viewing across various devices and enhancing the user experience. We have also streamlined the layout to make it easier for users to navigate and locate essential event information. Previously, the event page lacked essential event information such as the location, organizer details, ticket price, and available seats. These details are vital in capturing user attention, particularly the cost and organizer information. The addition of organizer details provides users with insight into the event host's credibility and background, thereby enhancing their trust in the platform. In addition, we have included a share button and event tag, enabling users to share events efficiently on their preferred platform and tag them with keywords for easier search. We have retained the "add to calendar" function and the comment section, with the latter upgraded to include advanced filtering capabilities that automatically detect and filter out abusive words, creating a positive and inclusive community environment. This new event page offers not only the essential booking functionality but also enriches the user experience with information details and an improved design, resulting in a more engaging and user-centric event browsing and booking process.

Next, we introduce a new website that features a ticketing system that enables users to book event tickets in just one click. The booking process is initiated through the event page, where a booking button is added, along with the cost of the event. Placing the booking button in a prominent position encourages users to book their tickets seamlessly. Our system also provides organizers with the flexibility to create multiple ticket types, such as normal and VIP, with different pricing and privileges. This allows users to choose based on their preferences. The booking process is simple - users click on the booking button, and a pop-up display appears, asking them to add a ticket. An order summary is displayed, outlining the type of ticket, quantity, and total cost. This provides users with a transparent view of the ticketing process before proceeding. If the organizer sets it, a promo code will be provided. After confirming the ticket, users will be asked to fill in the information section, which requires names and email addresses for sending e-tickets. To make the booking process even easier, the system autofills the information with data from previous event participants, thus reducing the data entry burden and enhancing user convenience. If the event is paid, users will be redirected to the payment gateway, which provides various payment methods, offering flexibility and convenience. Cash payments depend on the organizer's preference. Once the payment is successful, users will be shown the ticket details containing the ticket ID and event details with a QR code containing user details. We suggest using Razer Merchant Services (RMS) as the payment gateway, as it has an extensive global reach among merchants and consumers. Users do not need to exit the seller's site to complete payment, as it can be done on-page. Our ticketing system ensures transparency, flexibility, and convenience to users and organizers. The emphasis on diverse payment options and efficient data entry has contributed to an improved user experience in the booking process.

The creation of an event on a website can be a time-consuming process, particularly if the organizer is required to contact the administrator and submit the event document for review before it can be added to the website. To streamline this process, we have introduced the 'create event' feature. This feature allows organizers to complete an efficient form requesting essential event information, such as cost and payment methods. Organizers can also add tags for categorization and keywords, which improves event discoverability. Additionally, the application form requires the organizer to provide their contact information. Organizers can set a refund

policy, which specifies the conditions for refund eligibility, and clearly communicate this on the event page. This policy will be presented on the event page, and users can use the contact details provided to reach out to the organizer. All of this information will be used to populate the event page. Furthermore, we have included a preview button that enables organizers to view a simulation of the event page before submission. This allows organizers to ensure the accuracy and completeness of the entered information. During the preview, organizers can make quick adjustments and witness changes in real-time. The completed form will undergo a review process before being approved for addition to the website. After approval, organizers can still edit the information if there is a change of event through the event dashboard, which we introduced as a final feature. This feature provides a user-friendly and efficient platform for authorized users to submit their events. The preview functionality, post-approval editing, and comprehensive event details significantly contribute to a more streamlined and productive event creation process.

The event dashboard feature for event organizers is the latest addition to our suite of tools. This dashboard provides organizers with a comprehensive view of all upcoming and past events, displaying pertinent information about each event. In addition to this, organizers can manage participants and access detailed participant lists. With this information, organizers can use email blast functionality to send updates, announcements, and collect feedback from all participants. The feature is focused on providing analytical and report tools, including visual representation through charts. This provides insight into participant demographics, ticket sales, and overall engagement. It also provides a detailed breakdown of event costs, revenue generated, and profit margins, enabling the organizer to assess financial success and make informed decisions for future events. The dashboard is designed to provide real-time updates, ensuring organizers have access to the most current information about participant registration, feedback, and other critical event metrics. The detailed report can be exported in various formats for documented purposes or to share with stakeholders, sponsors or team members. The event dashboard is a powerful management tool, providing organizers with efficient access to interpret event data, streamline communication capabilities, and an easy-to-navigate interface. With minimal technical expertise, organizers can use the dashboard to ensure successful event management.

Feasibility study

The Nexscholar administration seeks to enhance its event section, addressing issues such as the absence of a registration button, limited event creation functionality, and insufficient event information. This feasibility study assesses the risks and challenges associated with the project, primarily focusing on technical, operational, and cost considerations, including a Cost-Benefit Analysis (CBA).

Technical Feasibility

The proposed solution leverages the existing WordPress platform, mitigating the need for extensive coding skills. The enhancement involves integrating a payment gateway, requiring minimal code additions and thorough testing. Nexscholar's current hardware and software infrastructure, including a robust database server, is deemed suitable for the project.

Operational Feasibility

The current event section allows the listing of events but lacks advanced functionality. The proposed solution aims to upgrade this by introducing a user-friendly interface and simplifying event registration and submission processes. Automation will streamline administrative tasks, allowing admins to focus on review and approval. Moreover, the system's functionalities, such as event registration and information submission, cater to the needs of both event organizers and users, ensuring that they will be actively used. The website will generate event pages dynamically from submission form data. Continuous monitoring and user feedback mechanisms will be established to address any operational challenges promptly, contributing to sustained and optimal system usage.

Cost Feasibility

The project's cost is reasonable, considering it builds upon the existing system. Hardware costs will be incurred for server upgrades to accommodate increased data storage requirements. Integration of a payment gateway and the potential hiring of a WordPress developer for coding and maintenance contribute to the overall cost. Advertisement expenses are also factored in to reach a wider audience beyond UTM students. Based on the CBA analysis, showing that this project is a good investment since the profitable index is not less than one.

Based on a comprehensive evaluation of the project's viability, it can be confidently concluded that the proposed enhancements are in alignment with Nexscholar's objectives and address the key limitations in the event section. The feasibility study has thoroughly examined all technical, operational, and cost considerations, leaving no doubts about the successful implementation of the project.

Cost-Benefit Analysis (CBA)

Estimated Cost	
Hardware	25 000
Software	10 000
Salary	57 600 per year
Maintenance	5 000 per year
Advertisment	12 000 per year
Software Licensing	3 216 per year

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Assumptions	
Discount rate	10%
Sensitivity factor (cost)	1.1
Sensitivity factor (benefits)	0.9
Annual change in production costs	7%
Annual change in benefits	5%

Estimated Benefits	
Increase Sales	25 000 per Year

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Cost	Year 0	Year 1	Year 2	Year 3
Development Costs				
Hardware	25 000			
Software	10 000			
Total	35 000			
Production Costs				
Maintenance		5 500	5 885	6 297
Advertisment		13 200	14 124	15 113
Software Licensing		3 538	3 786	4 051
Salary		63 360	67 795	72 541
Annual Prod.Costs		85 598	91 590	98 002
(Present Value)		77 816	75 694	73 630
Accumulated Costs		111 816	188 510	262 140

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Benefits	Year 0	Year 1	Year 2	Year 3
Increase Sales		22 500	23 625	24 806
(Present Value)		20 455	19 525	18 637
Accumulated benefits (Prensent Value)		20 455	39 980	58 617
Gain or Loss		91 361	148 530	203 523
Profitability Index	5.81			

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System Boundary

The project aims to introduce new functionalities related to the event section of the Nexscholar website. These include a user-friendly event page, a streamlined event creation process, a robust ticketing system, and a comprehensive dashboard for event organizers. Additionally, the project will incorporate external services such as the RMS payment gateway for secure transaction processing. Additionally, all pertinent data will be compiled into a database specifically for event scholars.

It is essential to note that the scope of this project is limited to the event section only. No enhancements will be made outside of it. Furthermore, while the focus of the project is on creating functionalities and database design, the security mechanism will not be discussed in detail to keep the scope well-defined and manageable.

Users are divided into three categories: admin, event organizer, and user (normal user). They can access a list of events on the website and visit the event page to get more information and book tickets. Event organizers can submit their events to the website (either cost-free or paid), and they can also access analytic reports on their current events in the dashboard. Lastly, the admin will review and approve events while overseeing the event section activity.

Objective

The objective for this project are as follows:

1. To streamline the process of joining and adding events on the Nescholar platform.
2. To enhance user experience by providing well-organized and comprehensive information of the event.
3. To foster a positive and respectful community discussion environment.
4. To save time in booking events and boost overall participation.
5. To provide intuitive interfaces and tools that cater to the requirements of event organizer and site administrator.

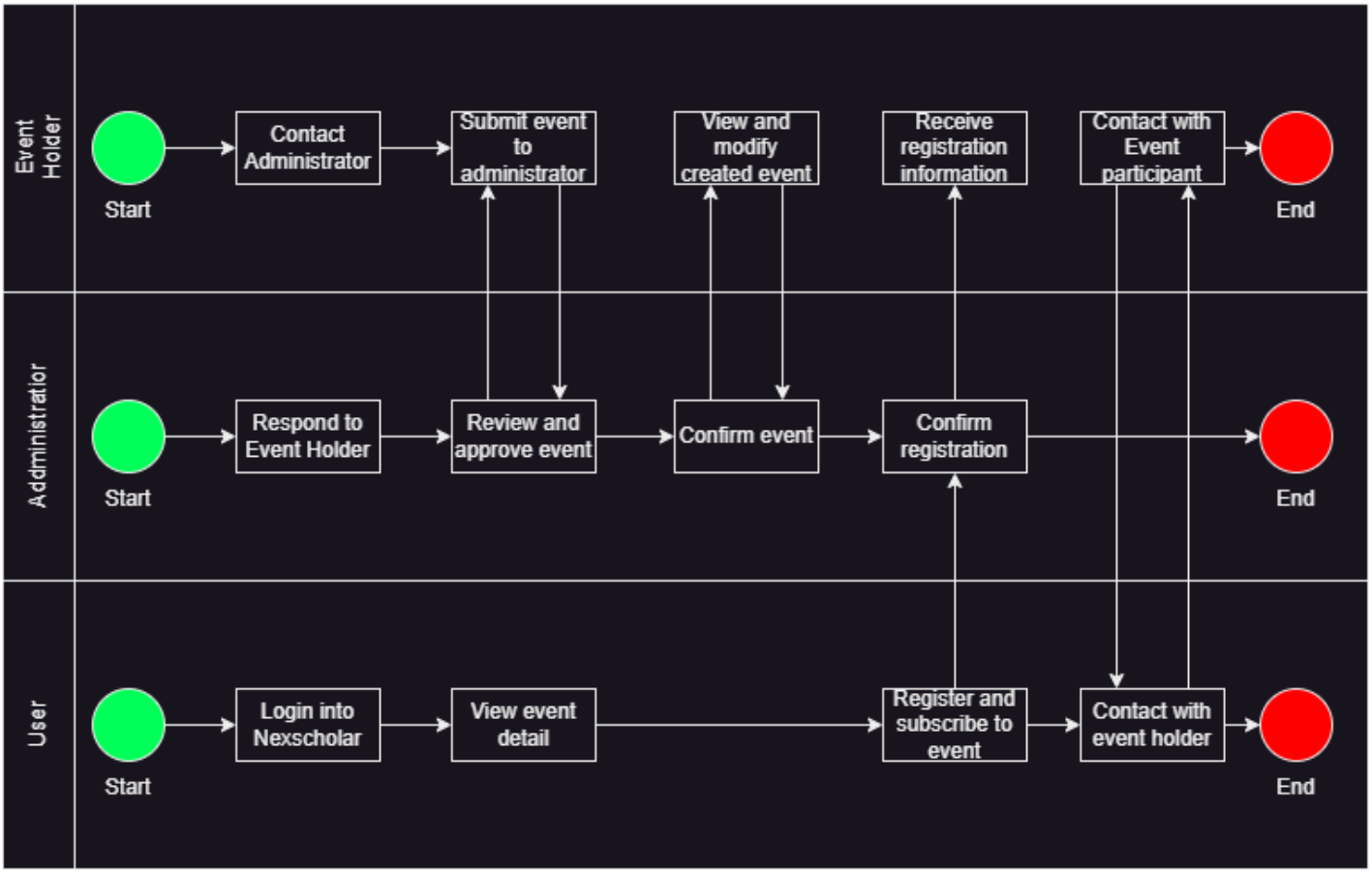
Scope of the project

The scope of this project is to conduct an analysis of the existing Nexscholar website and implement enhancements to its design. In addition, we will design and integrate a database that will store all the relevant information. However, for the purposes of this project, we will focus solely on the event section, which specifically pertains to event management. Our proposed solutions are designed to align with the requirements and issues raised by our client, Dr. Najmi. Specifically, we have introduced a range of features including a user-friendly and informative event page, a booking ticket system, a create event feature, and an event dashboard feature. These features have been designed to facilitate easy navigation, even for users with limited technical knowledge. Additionally, we aim to create an informative event page that effectively communicates key details and promotes user engagement. As part of our approach, we also seek to streamline the process of adding events to the website. We will introduce a preview button and a comprehensive form that will provide ample fields for users to fill in, which will enable us to create an attractive and informative event page. The project's success will be measured by technical improvements and tangible improvements in user engagement and satisfaction.

Requirement Analysis (AS-IS Analysis)

Feature	AS-IS	TO-BE	GAP
Event Page	• Basic details are shown. • Absence of a venue, organizer information, ticket cost, and available seating.	• Important information (venue, organizer, etc.) included in a responsive design. • Enhanced comment section, event tags, and share button.	Improved layout and clear display of information.
Ticketing System	• Just one kind of ticket and the most basic details are shown before confirmation.	• Multiple ticket types, a visible order summary, and one-click booking are all included. • Secure payment gateway integration and autofill functionality (RMS).	Simplified booking procedure and variety of ticket options. Also enhanced security of payments and transparency for users.
Create Event	• Manual procedure for creating events that involves administrators. • Restricted input of data and absence of preview features.	• Form simplification, classification tags, refund guidelines, and preview features. • Complete event details and editing after approval.	Better information input and less administrative engagement. Also additional details, modification after approval, and preview features.
Event Dashboard	• A basic overview of events with little control over participants. • Few real-time updates and no analytical tools.	• Whole perspective featuring analytical tools and participation management. • Real-time updates, exportable reports, and email blast capability.	Enhanced analytics, real-time updates, and participation management. Also Additional features and up-to-date data.
User Experience	• The user interface is not responsive or designed in a modern way. • User interaction and engagement features are restricted.	• Enhanced interaction features and a modernized interface.	Improved visual appeal and improved instruments for engagement.
Security	• Basic security is implemented.	• Improved data protection and advanced filtering feature in the comment section.	Improved security measures implemented.

Current Business Process



Scenarios:

Event holder submitting event

1. The event holder will first contact the administrator of nexscholar. The administrator will then respond to the event holder.
2. The event holder then submits the event to the administrator. Then, the administrator will review and approve the event.
3. The administrator will confirm the event's details and create the event to be showcased on the website for users to view. The event holder will be able to view and modify the event even after the event has been created on the website.
4. The administrator confirm the registration of nexscholar user and the event holder will receive the participant's registration information.

5. The event holder will be able to contact the user who has registered and subscribed to the event.

User Subscribing and registering for an event

1. User will login into nexscholar.
2. The user sees an event they are interested in.
3. The user will be able to view the event details.
4. The user register and subscribe to the event.
5. Administrator will confirm the registration of the user.
6. The user will be able to contact the event holder to ask any questions.

Transaction Requirement

Data Entry:

1. Event Creation
    a. Description : Event holders can add new events through easy-to-use form.
    b. Requirements: Firstly, give event organizers a simple way to enter information about the event, such as the name, date, and location. Next, to guarantee the accuracy and completeness of the data entered, include validation checks. Also make use of the organizer's information for recognition. Next, create a special id for every event. Finally, enabling event holders to add different kinds of events, such paid and free ones.

2. Event Registration/Subscription
    a. Description : Users should be able to subscribe to an event they are interested in in the nexscholar website.
    b. Requirements: Firstly, make a subscription form and link it to the respective event.Next, allow users to subscribe to an event to show their interest in it. Also securely record user details such as name and email for event notifications. Finally, verify the subscription by using email confirmation sent to the user.

Data Update/Delete:

1. Event Modification
    a. Description: Event holders should be able to update their event details even after being created.
    b. Requirements: Firstly, give event holders access to a secure dashboard where they may view and edit event details. Next, implement a review system for changes before posting publicly. Also, keep a verification record by recording any modifications. Finally, make sure that the data across all platforms is consistent.

Data Queries:

1. Event Search
    a. Description: Users should be able to search for events based on their filter set.
    b. Requirements: Firstly, implement a comprehensive search feature that enables users to look up events by category, name, date, or location. Next, improve search engine performance for quick and effective results. Finally, implement sorting and filtering features in the search engine to provide a more focused search.

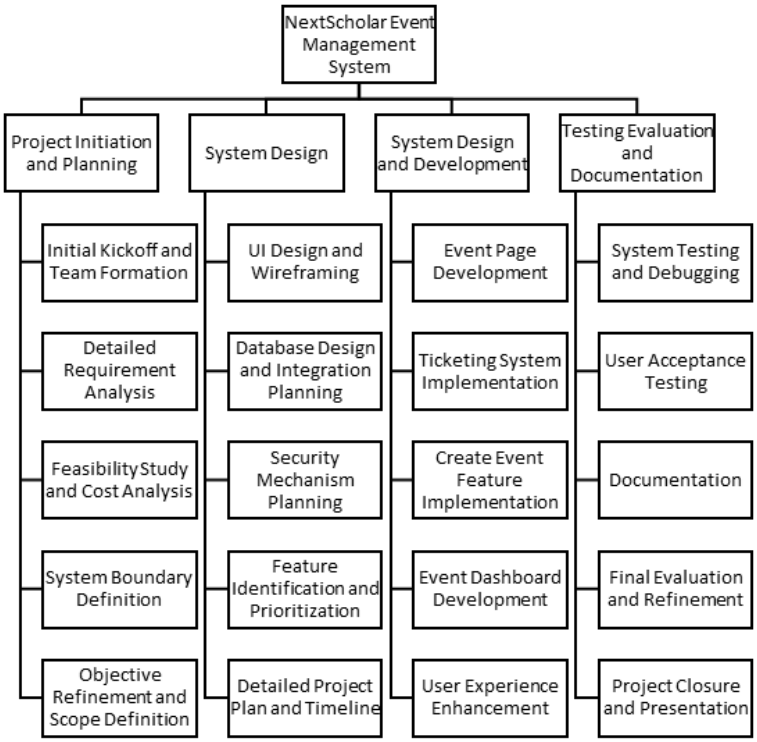
2. Transaction Logging
    a. Description: For validation reasons, maintain documentation of all key transactions.
    b. Requirements: Firstly, implement a transaction logging system to document entry, deletions, and updates to data. Next, Add information like the affected data, user ID, transaction type, and timestamp. Finally, logs should be safely stored and should only be accessed by authorized individuals.

Project Planning

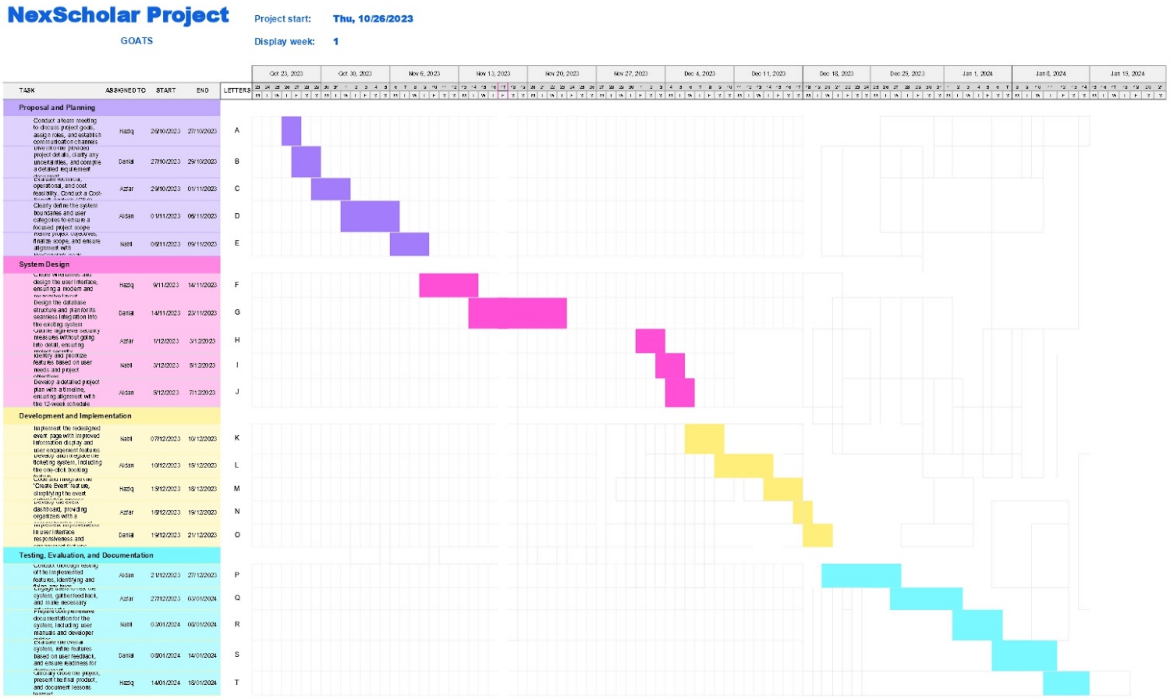
Human Resource

Each member will be contributing in each phase of the project. This is to maintain fairness in tasks distribution to each member.

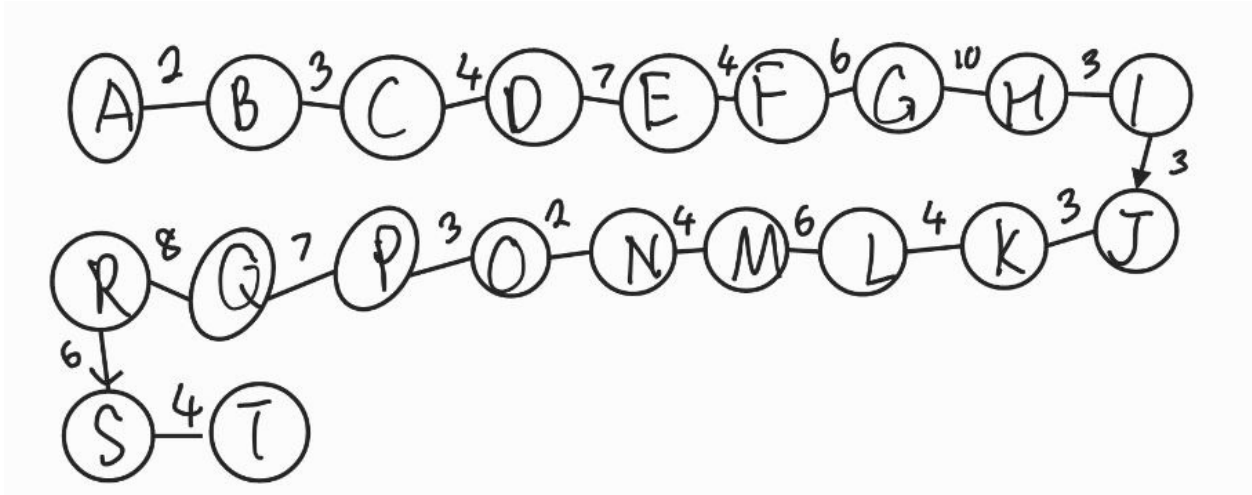
Work Breakdown System



Gantt Chart



Pert Chart



Benefit and Summary of Proposed System

When producing the new main event page, we can enhance the user experience by modernizing the interface and utilizing responsive design, making it more useful for users. This approach makes it easier and more enjoyable for users to explore features and interact with the platform, contributing to a more engaging and user-centered design, ultimately increasing user-friendliness.

Additionally, the improved booking system enhances user-friendliness. The strategic placement of a prominent booking button on the event page, along with the event cost, tailored to user preferences, encourages one-click ticket bookings, making it convenient for users to secure their tickets. A pop-up display with an order summary allows users to review details before confirming the booking and proceeding to payment. Moreover, the inclusion of various payment methods, facilitated by Razer Merchant Service (RMS), adds convenience and flexibility to the system.

One of the latest benefits of the proposed system is the event dashboard, providing organizers with a centralized and comprehensive view of upcoming and past events. This enhances efficiency as organizers can easily track and manage multiple events simultaneously. The event dashboard also offers real-time updates, ensuring organizers stay informed about participant registration and other events.

In summary, the event dashboard feature offers benefits such as centralized event management, improved participant communication, data-driven decision-making, real-time updates, efficient data export, and a user-friendly interface. These improvements collectively contribute to a more robust and user-friendly platform, enhancing user engagement and satisfaction.

Summary