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PROJECT PHASE 1

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1.0 Introduction

Nexscholar is a basic social platform that facilitates connections among students and clients. Some may say that Nexscholar is similar to social media giants like Facebook, Twitter, and Instagram due to its similar features. The current social media landscape faces criticism for its misuse among university students and the spewing of hate and anger. Nexscholar aims to harness the positive aspects of social media while incorporating an interactive learning approach. Becoming a social media platform is one of Nexscholar's primary objectives.

Besides that, the website features are divided into several categories, including post-graduate, undergraduate, researcher, and job search, each tailored to the specific needs of its users. Certain features may be unique to one another as all of them have different requirements from users.

Nexscholar aspires to serve as an all-in-one hub for students and lecturers to connect, share ideas, and engage in their learning activities. The platform seeks to reduce the barriers between students and lecturers, hence cultivating an inspiring and engaging interaction.

Despite its noble goals, Nexscholar faces challenges and is far from being a perfect website. As mentioned earlier, it is a newborn website that focuses on fundamental functionality without offering many advanced features. This report aims to address the issues Nexscholar is facing, particularly in event management, and propose efficient solutions to help it contrive into a better future.

2.0 Background Study

An online platform for university students has existed for quite some time since the digital age blossomed in the 2010s. Many attempts have been made to rejuvenate digital education for university students. However, many of these platforms fall short of user expectations, lacking distinctive features and struggling to maintain sustainability.

Each university often has its own E-learning hub that is restricted to that particular university circle. Even so, the features might be lacking and not fully developed. More often than not, such websites are limited to just educational purposes. Since we are concerned with creating a more social-based website, such issues must be addressed in order for our website to be utilized maximally by every student.

Other startup websites such as Virtual Learning Education Frog (VLE Frog) and Blackboard also attempt to be an all-one-hub for university students but often fall short in many areas.

Our study primarily focuses on event management as a significant issue. Currently, Nexscholar offers services in other areas such as e-learning, job hunting, and academic tracking. Such features already exist and can be improved incrementally over time. Since our event management features barely exist, therefore, we place greater emphasis on addressing the significant gap within the platform related to event management.

3.0 Problem Statement

As mentioned in the preceding sections, our primary concern revolves around the need for features in the event management aspect of Nexscholar. In the current context, the main user of this website is university students. It is expected that students will be involved in various activities and extracurriculars, ranging from simple events to prestigious university functions. All of these events require some basic functionalities to enable their execution.

1. **There are no basic event management features available**

Since our targeted audience is mainly university students we can expect there will be a plentiful event that will be held and managed by students. Regardless of the scale of the event, Nexscholar still requires some basic event management features that will serve as the foundation for all of our extra features.

2. **Inefficient use of media platforms (WhatsApp and Telegram)**

The main way students gain information about any event is mostly under two mediums: WhatsApp and Telegram. Because of the saturated market that exists in both applications, most of the time students miss out on key pieces of information since they are being bombarded with new information all the time. The overcrowded provides little to no use when it comes to spreading and receiving information. Tackling the issue of overcrowding of information is one of many problems that we wish to solve.

3. **No proper distribution of information in the current media platform**

There are simply no protocols or guidelines that apply strictly when it comes to event management in the current media. There should be, in some instances, some constraints to allow every user to properly digest new information coming in. A top-down governing body that controls the flow of information just does not exist when it comes to WhatsApp and Telegram

The current methods of spreading information are inadequate and inefficient. Information about particular events is primarily shared on WhatsApp and Telegram, both of which have significant shortcomings in the way they distribute information, making it impractical and chaotic.

4. **Separation between different types of platforms.**

Oftentimes when a user wants to register for an event, they will click on a link and that link will often than not redirect towards different websites or forms. This causes several issues mainly, that it creates friction in the process of delegate registration. The process should be under one website, and seamlessly integrated with one another. There should be uniformity in the medium at which the user receives the information and then decides to register for the event.

5. **Security concern**

It is very hard to keep track of which message is legitimate and illegitimate in Whatsapp and Telegram. Since the entry barrier is so low, everyone can be anyone. Anyone can impersonate to be the director of a certain event. Such issues can cause people to take advantage of the platform hence robbing others of their own money.

4.0 Proposed Solution

Putting aside the current system that is currently inside of the Nexscholar website, the client that is handling Nexscholar has shown interest in a few new features that could possibly be added to the website:

1. Adding a ticketing system for someone who has registered for an event
2. Encrypting data regarding transferring of funds
3. Creating a new section for individuals under CLUBS to register
4. Have an analyzing algorithm to see popular events and their respective details
5. Creating a 'Person In Charge' section for the registered events
6. Auto-send feedback forms to users who have joined an event
7. Have a tagging section that differentiates the types of events
8. A refunding system
9. A reminder system regarding the date of an event

With these proposed systems, a clear view can be seen coming from the client. Our task is to design a database for the Event Management System that will allow Admins and selected people to register an event themselves while having more features that could benefit the event organizers.

- **Automated reminder and feedback system**

First and foremost, Nexscholar is a website that requires the user to register an account using an existing email to use the site. This is important to us as we need to have the user's email address to send forms and reminders easily. The users can also manually insert their information in the "My Profile" section inside the website to enter their Full Name, Telephone Number, IC number, and Email address. This information is very valuable to us as it can be auto-filled when the existing user who wants to join another event in the future can just use the 'Autofill' features.

- **Ticketing system**

Our proposed solution to handle the ticket system is to introduce a QR Code system that has a unique ID for everyone. The reason why we opted for a QR Code system is that QR Code can contain long strings of information and also websites in a single small square image. The ticket system will telly with the user's email and a dedicated section will be created in Nexscholar so that users can re-refer all the QR codes for all the events that they have registered. Now when we

introduce a ticket-based system, a security layer must be present, which is why a verification system will check the validity of the QR Code to make sure the user if actually actually participating in the event. This system will do a database check when the QR Code is scanned inside the Nexscholar by the Person In Charge of the event.

- **Types of event and Club tags**

We noticed inside the already made 'Event-Making' system, there are already slots for the admin to put the name, location, time, organization and more but we took note that they are lacking in the 'Type of event' and 'Club' tags. For some students, they might want to only join Webinars or they only want to join Workshops, by having this section implemented in the database it will greatly help the students to find their desired event to join. The same words can be said for the 'Club' as we will implement them in our database for easy referral for the users.

- **Encryption banking information feature**

Our client has given some thoughts on handling the management part of some paid events, so our solution to said suggestion is to have an encryption database when the user is entering their banking details and bank account information, this is important as we need to comply with the existing privacy policy that has been introduced inside Nexscholar. Going against this is not recommended as legal action can be done against Nexscholar and a loss of funds is not something our client wishes to happen. Other than that, as there are going to be free and paid events, we are recommending a tier list for participants, this tier list can be multi-level such as Tier-1 being the most premium, thus being more expensive but it be supported with merchandise or goods that the event organizer will prepare and Tier-2,3,4… will be more cheaper with less benefit to the participant

- **Funding funds system**

As we are still talking regarding the payment method, we also need to implement a 'Refund' feature inside Nexscholar as we humans sometimes make decisions in the heat of the moment but we will regret that decision in the future. Having a refund feature will benefit both users and the client as Nexscholar will be more user forgiving thus raising the confidence of users to use the website even more. Without a doubt there are a few bad apples here and there that will abuse the refund feature, so a time limit section will be added to this system so that people cannot refund during said time limit that the event organizer has set.

- **Data analyzing system**

Data analysis is important to everyone who wants to see if their product is doing well or not, so that is why regarding the data analysis system inside the website, we will take data from:-

- ☐ Clicks the event has received
- ☐ The number of users who have registered
- ☐ The number of users who have registered
- ☐ Profit for an event
- ☐ Numbers of users who have paid

The data collected will only be shown to the admins and event organizers as they can do their post-mortem when the event has finished. Normal users can also see these data but it will be heavily filtered as they do not have enough authority to see these data. It also has to do with personal information and having this information open to the public can be dangerous to the participants.

- **Person In Charge option**

Lastly, we noticed inside Nexscholar that the option to add a Person In Charge(PIC) is not added, so we are proposing a new section inside the Event Management System to include the PIC, PICs are important as they will be the person to contact if there future participants have any question about the event, they can immediately contact said person. To make this option be implemented, we will need the Full Name, and method of contacting either by email, calling, or texting of the PICs.

4.1 Areas of Feasibilty

Regarding our proposal, we need to comply with the feasibility of this project. These feasibility that are mentioned are Technical feasibility, Economic feasibility, Legal feasibility, Operational feasibility, and Schedule feasibility.

- **Technical Feasibility**

Technical feasibility is focused on the technical resources that are viable to an organization. It is important to know when a product has enough technical resources to make an idea into a working system. We also need to consider the client's technical capacity before making any decisions.

As of right now, our client contains sufficient technical resources to make this idea a success. Thus proposal is deemed technical feasible

- **Economic feasibility**

Economic feasibility is concerned regarding the cost or benefit of the project. We as the developer will aid the client in regards to the cost of the project and the benefits if the client accepts the proposal.

This is a major step before proceeding with the proposal as we need to consider materials such as hardware, software, licence, fees and consulting expertise.

- **Legal feasibility**

This particular feasibility focuses on the legal requirements that we must follow like data protection laws, social media laws and internet laws that we must comply so that legal issues can be avoided in the future.

A legal feasibility can show if a client is not well informed in the laws regarding the project, thus it can save time and effort to make sure our project is not going against any law. As mention above our project are following the scope of the required laws, this the proposal is deemed feasible.

- **Operational feasibility**

Operational is considered as one of the most difficult to accomplished as it requires the client is willing to accepts the proposed system or not. This is because we must follow all of the client's requirement when building the system and we as the provider must give sufficient evidence to support that the propose system is viable and functional at the end of the day.

Based on our paperwork, there is enough human resources and we are following all of the client's wishes on the new system, thus it can considered as feasible.

- **Schedule feasibility**

As all project proposal is made, either big or small, the deliverance must be perfect or functional on time. Schedule feasibility focuses on the estimation of time on how long the project will take to finish.

We would need an adequate amount of time to brainstorm the best plan to provide to the client the best system that is within our power. That is why we are proposing a 15 weeks schedule so that our team will have enough time to design and troubleshoot any issues that may occur when implementing the new system to the current system.

5.0 Objective

1. To ease the work admin when they want to create a new event
2. Have a secure database regarding information that needs to be secured
3. To keep the records of all participants' data and feedback
4. Give assurance to the users regarding the safety of the website
5. Creating a smooth and clean database that can coexist with each other without any issues

6.0 Scope

We have analyzed the problem of the current system and suggestions have been made for the future system. Now we are focusing on what we should prioritize or what we should focus on to make this proposal a successful one.

1. **Focus only on the Event Management System**

This is because we are responsible for making a more polished version of the event management system. Hence our system should be able to adapt and integrate with other features that already exist without having any error in their connections.

2. **Only Admins and Selected Users can Create an event**

As stated above, we should always keep in mind that Admins must have the highest access to the system but normal users should only see and use a limited amount of features so that personal data can be protected and data changes cannot be done by everyone. Having a top-down management system would allow for a better event management system ..

3. **The system must be user-friendly and encourage the users to use the system**

Everyone wants to feel praised when they are doing something, so to encourage more users to use this platform, more user friendly gestures should be implemented especially in error making. This is not to make the user feel hindered or intimidated by the common error message.

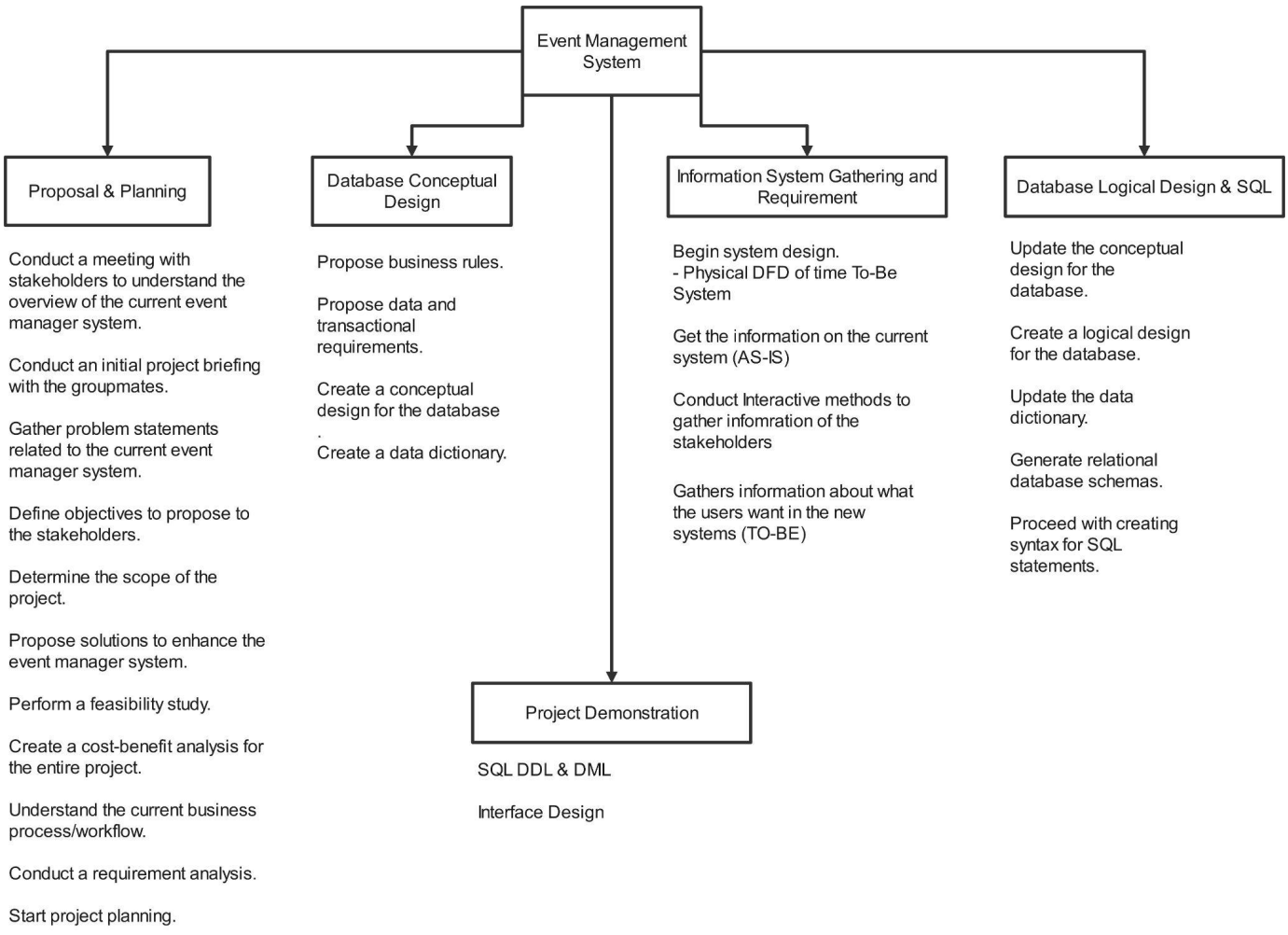
7.0 Project Planning

7.1 Human Resources

To effectively implement the proposed solutions and enhancements within Nexscholar's event management system, a strategic allocation of human resources is crucial. The following is a summary of the tasks, necessary skill sets, projected timelines, and assigned personnel to complete these developments:

Feature	Skills Required	Estimated Time	Assigned Leader
Automated Reminder & Feedback System	Software Development, UI/UX Design	2 week	Adam
Ticketing System with QR codes	Software Development, Security	3 week	Megat
Event Categorization Tags	Database Management, UI/UX Design	1 week	Danial Erfan
Encryption of Banking System	Security, Compliance	2 week	Arif
Refunding System with Time Limits	Finance, Software Development	1 week	Rubillan
Data Analysis Tools	Data Analytics, UI/UX Design	2week	Adam
Designated Person In Charge (PIC)	Communication, User Support	1 week	Arif

7.2 Work Breakdown Structure (WBS)



7.3 Gantt Chart

[Link for the Gantt Chart Spreadsheet]

7.4 Pert Chart

List of Activities

A. Conduct a meeting with stakeholders to understand the overview of the current event manager system.

B. Conduct an initial project briefing with the groupmates.

C. Gather problem statements related to the current event manager system.

D. Define objectives to propose to the stakeholders.

E. Determine the scope of the project.

F. Propose solutions to enhance the event manager system.

G. Perform a feasibility study.

H. Create a cost-benefit analysis for the entire project.

I. Understand the current business process/workflow.

J. Conduct a requirement analysis.

K. Start project planning.

L. Propose business rules.

M. Propose data and transactional requirements.

N. Begin system design.

O. Get the information on the current system (AS-IS).

P. Conduct interactive methods to gather information from stakeholders.

Q. Gather information about what the users want in the new systems (TO-BE).

R. Create a conceptual design for the database.

S. Create a data dictionary.

T. Update the conceptual design for the database.

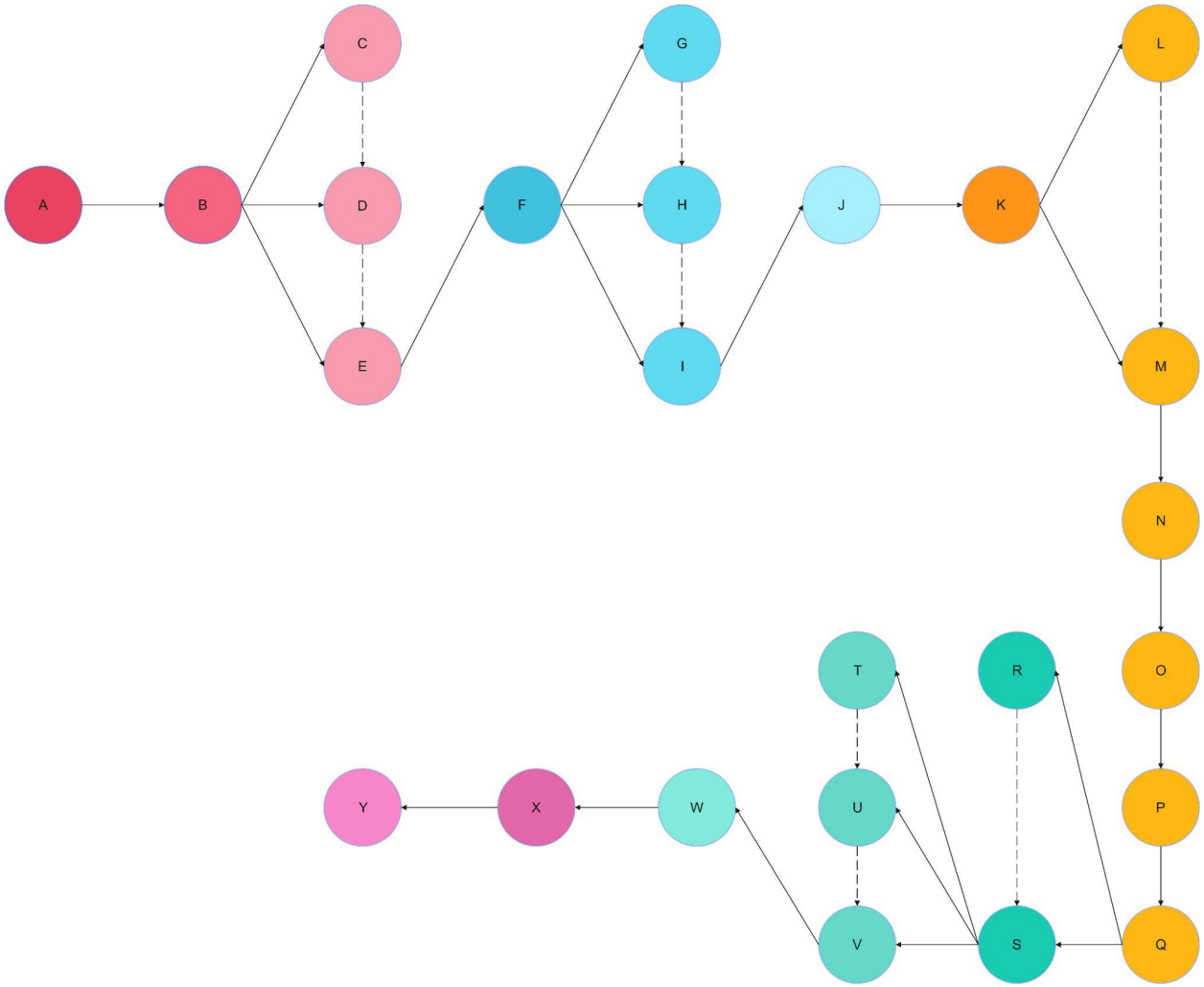
U. Create a logical design for the database.

V. Update the data dictionary.

W. Generate relational database schemas.

X. Proceed with creating syntax for SQL statements.

Y. Conduct a project demonstration (DDL & DML) / Design the interface.



8.0 Requirement Analysis (based from AS-IS analysis)

After a productive discussion with client Ahmad Najmi on November 9th, 2023, via Webex, a thorough requirement analysis was obtained, highlighting the essential improvements that Nexscholar's Event Management System has to undergo.

1. User Registration and Profile Management:

- **Current System Problem:** The existing registration lacks essential user details, prevents personalized experiences and ease of event participation. There are no autofill options available in profiles for future event registration convenience.

❖ **Requirement:**

1. Users should register using existing email addresses and provide personal details for their profiles.
2. Profiles should include fields for Full Name, Telephone Number, IC-Number, and Email Address.
3. An option for autofill using existing profile information when joining future events.

2. Event Creation and Management:

- **Current System Problem:** Allowing unrestricted event creation leads to potential chaos, lacking a vetting process, resulting in haphazard or irrelevant events. The absence of designated 'Person In Charge' for events leads to confusion and hampers communication.

❖ **Requirement:**

1. Only Admins and selected users should have the authority to create events.
2. Features for event creation should include event details such as name, location, time, organization, event type, and club affiliation.
3. The system should allow the addition of a designated Person In Charge (PIC) for each event.

3. Ticketing System:

- **Current System Problem:** The absence of a secure and easily accessible ticketing system results in ambiguous event registration methods. Lack of verification leads to potential misuse or unauthorized event participation.

❖ **Requirement:**

1. Implement a ticketing system using QR codes for event registration.
2. Verify the validity of the QR code to ensure participation in the event.
3. Create a dedicated section within Nexscholar for users to access their registered event QR codes.

4. Encryption and Security:

- **Current System Problem:** Banking and financial information isn’t well protected, which could pose risks to users' privacy and security.

❖ **Requirement:**

1. Encrypt banking and financial information entered by users to comply with privacy policies.
2. Implement a robust security layer to prevent unauthorized access to sensitive information.

5. Refund System with Time Limits:

- **Current System Problem:** Refunds aren't structured, which might be misused, and there are no time limits, making it hard to manage.

❖ **Requirement:**

1. Offer a refund system for users with a set time limit to prevent abuse.
2. Tier-based refunding based on different levels of event participation.

6. Automated Reminder and Feedback System:

- **Current System Problem:** Users aren't reminded about events, and there's no system to collect feedback, resulting in lower user engagement and less input for improving events.

❖ **Requirement:**

1. Automatically send event reminders and feedback forms to users who have joined an event.

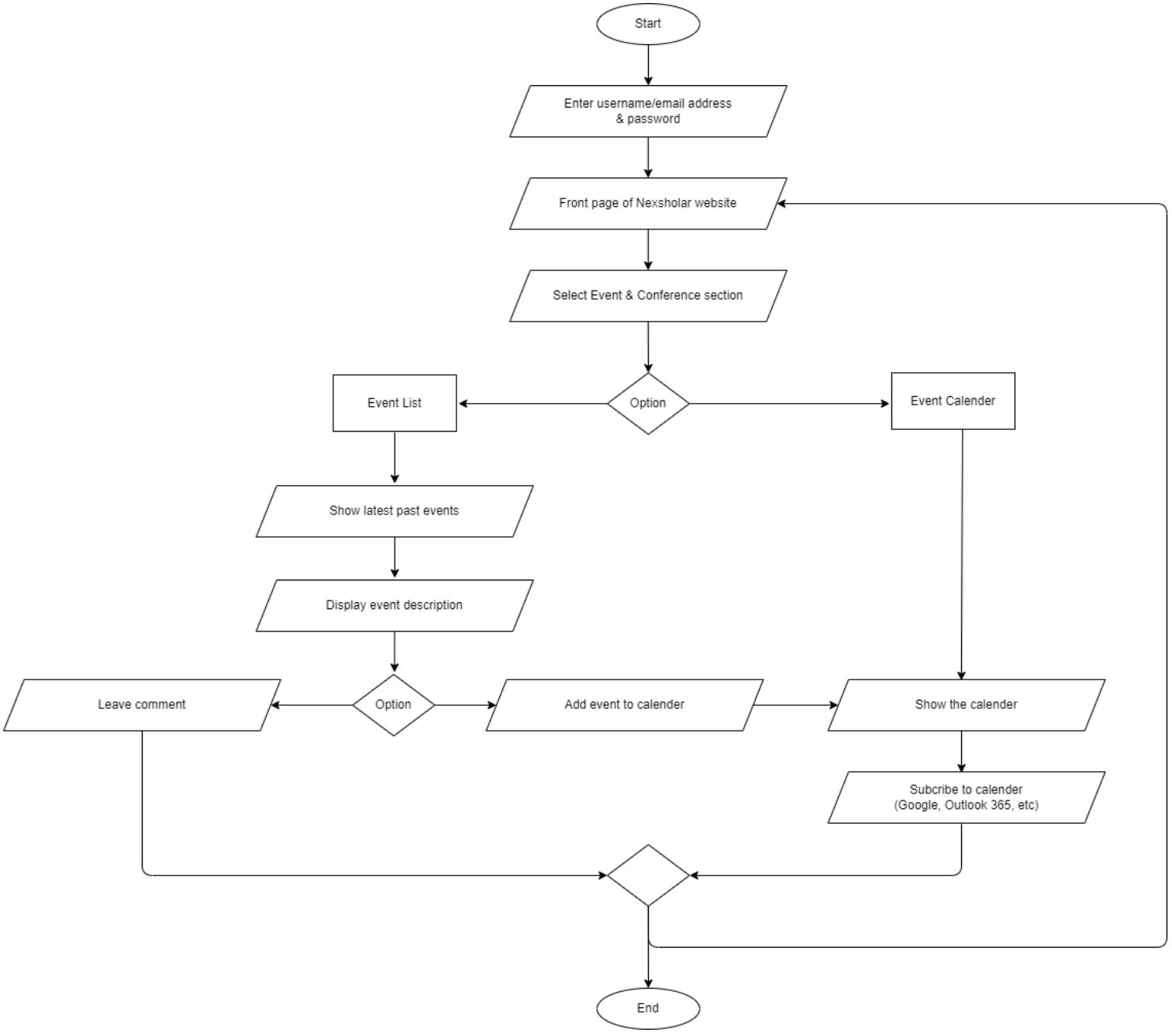
7. Event Data Analysis:

- **Current System Problem:** The system lacks comprehensive data analysis, hindering insights for admins and event organizers. Users don't have access to essential event performance data for informed decisions.

❖ **Requirement:**

1. Collect and analyze event-related data including clicks, registrations, payments, and profits.
2. Provide data access to Admins and event organizers for post-event analysis.

8.1 Current Business Process (scenarios, workflow)



9.0 Transaction Requirement

Transaction in the database is considered a single logical unit of work that basically accesses or modifies the content of the database.

The purpose of implementing transaction requirements in an Event Management System Database project is to ensure the integrity and consistency of the database. The database can improve accuracy and reliability by maintaining these two properties (integrity and consistency), resulting in uniform data across all systems and minimizing errors.

ACID Properties in DBMS is one of the frameworks often used by developers worldwide to maintain the essential properties, integrity and consistency in our database. ACID consists of Atomicity, Consistency, Isolation, and Durability, each of which plays an important role, thus the reason they were combined into one framework. Each of the acronyms will be explained below:-

- Atomicity

  All the changes made by the transaction are committed to the database (completed), or none of them will be committed, and the entire transaction is rolled back.

- Consistency

  It brings the database from one valid state to another. It means that integrity constraints must be maintained to maintain the database consistency before and after the transaction.

- Isolation

  To ensure that multiple transactions can happen at once without leading to the inconsistency of the database state.

- Durability

  Once the transaction has been made, the updates and modifications to the database are stored in and written to disk, and they will do so even if a system failure occurs.

Now that we know the frameworks that will be used for our transaction requirements, we can finally start listing them out.

Data Entry

Event Creation/Registration

- Atomicity: When the user/middleman registers for an event, if any part of the registration fails, the entire registration will be rolled back
- Consistency: The registration process will make sure that there are available slots for the event, and if there is any consistency constraints are violated, the registration will be rolled back

Ticket Payment/Booking

- Atomicity: The payment processing should be atomic, if any part of the process fails, the entire payment process will be rolled back.
- Consistency: The system should be viable enough to verify the availability of tickets before confirming the booking.

Verification ID (QR Code/ID itself)

- Atomicity: Verification ID will be added only if the registration process is completed, if any of the operations fails, the Verification ID will be reverted/deleted.
- Consistency: Every Verification ID will only be given to the registered users only.

Data Update/Delete

Event Updates

- Atomicity: If there is any update, the update operations should be atomic, one operation fails, the database should remain in a consistent state (reverting the changes).
- Consistency: Ensure that the changes do not break any violations/conditions

Cancellations and Refunds

- Atomicity: Canceling an event or processing a refund should be an atomic operation, one operation fails, the rest of the operation will be reverted.
- Consistency: The canceled seats should be available, and the paid money will be returned to the owner, making the database consistent

Data Query

Analyzing Trendy Events

- Consistency: If the number of people joining a trendy event changes, the queried data should be updated to reflect the latest information and display it correctly.

Amount of clicks received

- Consistency: If the number of people clicking on the event increases, the queried data should be updated to reflect the latest information and display it correctly.

Profit for an event

- Consistency: When the number of people paid to join the specific event increases, the queried data should be updated to reflect the latest information and display it correctly.

10.0 Benefits of Proposed System

1. User Registration and Profile Management

Registration is usually done to facilitate transactions and analyse the event participation. Having one database full of user registration would make it easier to update the user information and query any of their related data.

2. Event Creation and Management:

Admins and selected users are the only ones with specific access to event creation to avoid misled actions. One of the selected users is called Person in Charge (PIC). During an emergency, this information would be necessary for the admins to contact as fast as possible.

3. Ticketing System:

The verification system has been implemented to ensure registered users can only join the event. This is to ensure no trespassers are allowed access to the event, especially the paid ones. Apart from that, there will be improvements in UI for the user to access the QR Code efficiently, rather than going through email, which is a bit of a hassle.

4. Encryption and Security:

Let's say a threat actor managed to break into our database. They don't have any sensitive info regarding our client's merchant details because we managed to encrypt it, and reversing the encrypted SHA-32 content is almost impossible. Even if they managed to delete all of our database, we can recover it with the real-time backup that Oracle offers. This method is usually called data redundancy.

5. Refund System with Time Limits:

Humans make mistakes. We cannot deny that. Therefore, having a refund system would improve customer service; regardless of any circumstances, the customers have the right to get their money as long as they haven't participated in the event yet. However, as stated in the requirement analysis, the refunding system is based on a tier-based system and time limit to ensure that the event organizer's economy is not harshly affected.

6. Automated Reminder and Feedback System:

Event reminders and feedback systems are also methods to improve the Nexcholar website's user experience. A better website will attract many more customers to the website eventually.

7. Event Data Analysis:

This analysis will be helpful for admins and event organisers; in the future, the admins can improve the website's scalability, while the admins can focus on the events that usually attract outsiders and don't need to rely on counter registration anymore since everything is being done online.

11. Summary

Nexscholar would be another upcoming all-in-one platform that has the potential to replace any other social media that targets youngsters. This statement will soon be a reality if the website improves its quality regarding basic event management features and security concerns.

Before deciding to proceed with the projects, we took logical precautions known as areas of feasibility to ensure whether the project was achievable and sustainable. A comprehensive analysis by us covering more than one area is highly detailed and informative to consider by the stakeholders and the provider.

The stakeholders will also understand that the offers that we, the providers, will contribute are only based on the objectives and scopes given.

To ensure everything is on track, we have created a whole topic regarding human resources to pinpoint the experts assigned to implement the requested features. Everything is neatly arranged with the Gantt Chart, Work Breakdown Structure, and Pert Chart to ensure we complete the whole project before the requested deadline.

If both of the issues regarding the essential event management and security problems managed to be resolved by using our proposed solutions, such as improving the quality of user experience, applying encryption, and having more than one layer of security system, we wouldn't be surprised if this website would be the center of attention regarding event participation system, or whole purpose website itself.