Group Project

SECD2523 DATABASE SEMESTER I, SESSION 2023/2024

STAGE : PHASE 1

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1.0 INTRODUCTION

   In this extensive database project designed for the ever-changing field of database administration, we start enhancing the NexScholar online platform to provide users promoting events with a better experience. The existing version of the NexScholar website provides a framework for scholarly communication, but it is devoid of the sophisticated database design required for efficient event advertising. Our project is a calculated strategic intervention that introduces a state-of-the-art, painstakingly constructed database system aimed at maximising the administration and advertising of events in the academic community. Our objective is to provide an interface that is easy to use and intuitive for users by utilising best practises in database design and implementation. Staff members, students, and the general public will be able to easily display and promote their activities thanks to this interface. Beyond the technological improvements, our project has the potential to turn NexScholar into a collaborative centre that will promote a lively academic community by allowing a large number of people to participate and engage in different activities. The database solution greatly improves the user experience for both event organisers and attendees by streamlining administrative procedures and guaranteeing that event information is up to date and readily available.

2.0 BACKGROUND STUDY

   The background study our database project's underlying research is to improve the NexScholar online platform. Specifically, we want to optimise event management and advertising for the academic community by fine-tuning the database structure. As a basis for academic exchanges, NexScholar is currently an essential centre for scholarly communication. However the current system isn't sophisticated enough to effectively promote events, thus a thorough database overhaul is required as a strategic intervention. Realising that a strong database system is essential for smooth event administration, the platform's ability to promote events effectively is constrained by the lack of a specialised and sophisticated database architecture, which affects the general dynamism of student involvement. Driven by the knowledge that an organised database is essential for optimising administrative procedures and offering users a more engaging experience. Utilising best practises in database design and execution is the goal of our project. The updated NexScholar platform aims to make it easier for staff, students, and the general public to highlight and publicise their events by designing an intuitive interface. This establishes NexScholar as a dynamic and responsive platform that can effectively promote events and foster a collaborative academic environment.

3.0 PROBLEM STATEMENT

NexScholar is a crucial platform for scholarly communication but the current version of the NexScholar website has a significant limitation in its ability to efficiently advertise and administer the events within the community. Based on the existing framework NexScholar lacks the sophisticated database design that is necessary for event promotion. The absence of a necessary database system on NexScholar poses challenges in terms of administrative procedures and providing an effective means for users to showcase and promote their activities.

The nexScholar is leaving a gap in its feature that is currently hindering its potential to become the best event management system in the academic community that meets the ongoing demand that the user needs.Furthermore, the active participants of the user such as the staff members, students and also the general public are because of the lack of a user-friendly and intuitive interface for the promotion.

Moreover, there are no ticketing and participant management systems currently. Hence, they lack the participants tracking. The NexScholar does not know how many participants will attend the event, and because of that, the event organizers will be hindered from efficiently managing attendance and participants from securing their spots at these events.

Besides, users may encounter inconvenience in confirming attendance due to the absence of a streamlined ticketing process. This can potentially lead to disorganized events and missed opportunities. The NexScholar will also lack of analyzation on user engagement or lack of communication for critical updates to those users that want to attend. The user will also not be able to give their feedback on how the event is promoted by NexScolar.

4.0 PROPOSED SOLUTION

There is always a method for every problem that is currently been faced. For the NexScholar problem, the proposed solution is that the administrator needs to organize the data based on their own category. The administrator can make a new feature to make the event organizer request their event to be published on the NexScholar. There they will put all of the information about the event, in the same section they need to also put the category of the event so that it can be put into the database in be managed by the following structured database. After that, the administrator will check all the events and make sure the requirements are fulfilled while also filtering the events that are not suitable for the NexScholar website. Then, the administrator can approve the event and publish it to the events calendar and event list.

Besides that, the ticketing problem can be solved by making a database to carry all the data of the participants who registered for the event. The database can hold all the information for the participant so the administrator can keep track of the participant and give the data to the event organizer so that they can handle the event properly. Other than that administrator can also integrate the database with UTM's authentication system will simplify event submissions for faculty and students, while also promoting user

engagement within the university community. This can make the database system work more efficiently while allowing the students and staff of UTM to be able to use the system more easily.

5.0 OBJECTIVES

The primary objective of the NexScholar event system is to enhance the process of posting events to the needs of UTM personnel, students, and the general public. The objective will implement a robust database infrastructure, and a user-friendly interface will be developed to facilitate seamless entry of event details, including title, date, time, location, description, and visuals. Besides that, based on a great database structure the system will enable efficient categorization of events based on themes, ensuring easy navigation and discovery for users.

Furthermore, to optimize the presentation of event information, We will focus on structuring data in a visually appealing and informative manner, and maximizing visibility. The aim is to cultivate a dynamic events environment within NexScholar, fostering collaboration, networking, and the exchange of information among diverse stakeholders.

Besides, the objective is also to improve the platform's ticketing system, aiming to provide customers with a centralized and user-friendly ticketing solution. The centralized ticketing will make the system run smoothly while being in an organized state. Then, the integration of the database with UTM's authentication system will simplify event submissions for faculty and students, while also promoting user engagement within the university community.

6.0 SCOPE

The project scope is connected to an organized and structured database system that aims to improve the submission, approval, and entry of event data, establishing the best ecosystem for event management. The approval power is in the administrator's hands, so only the administrator can choose whether the events will be published on the web or it will go down the drain. Moreover, by using this method the administrator can uphold the platform's security and quality requirements. This can also, make sure that only the relevant events are posted and that the platform is efficiently managed.

Expanding the scope, user-friendly input tools will be provided to staff, students, and the general public. This enhancement facilitates the seamless entry of event information into the database, allowing users to effortlessly add details such as dates, venues, ticket costs, and other relevant information. By simplifying the event proposal process, this database approach encourages the NexScholar community to contribute a diverse array of events, promoting inclusivity, diversity, and active engagement on the platform.
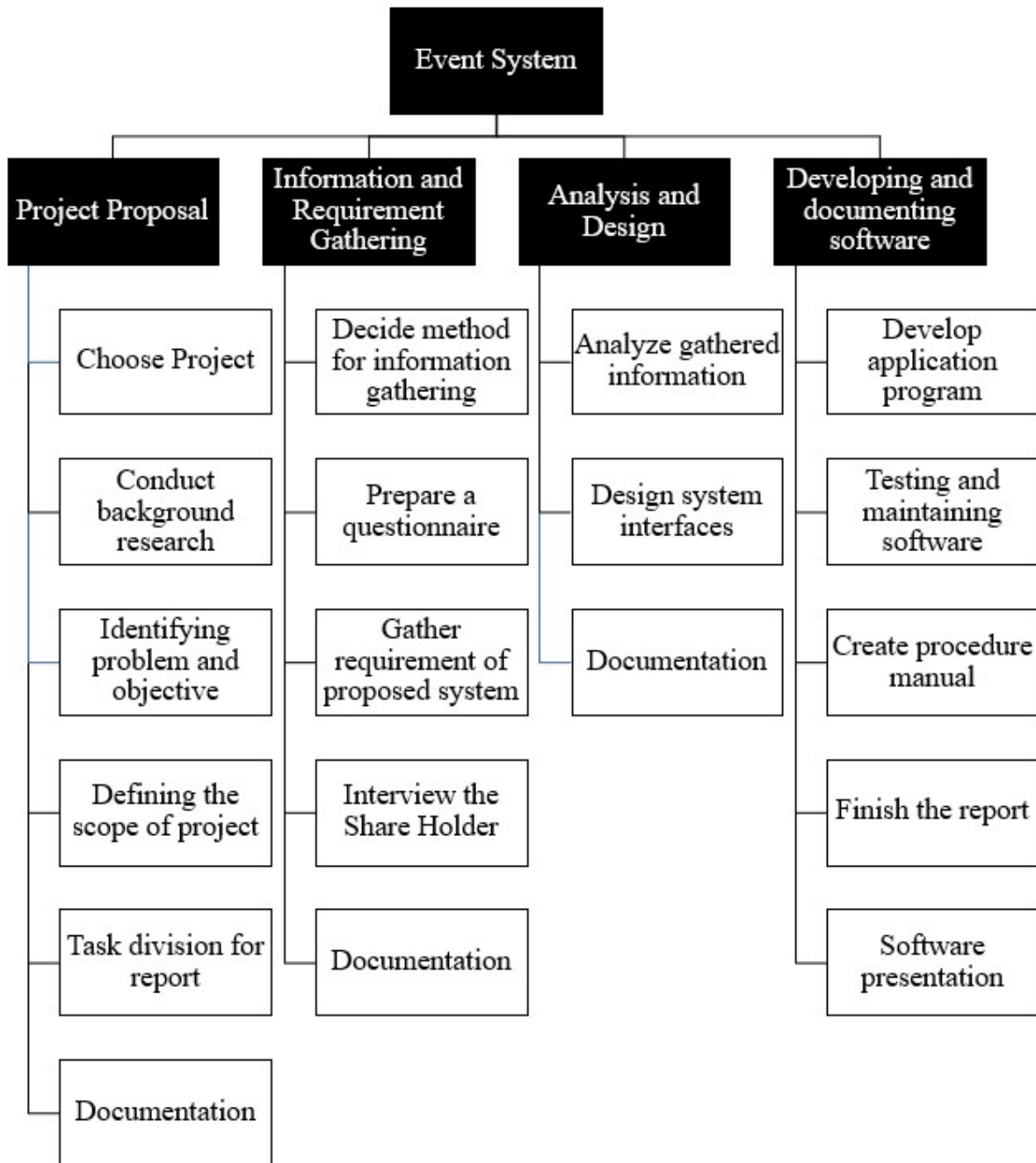
7.0 PROJECT PLANNING

   7.1 Human Resource

Team members	Task
MUHAMMAD FAIZ BIN ZAKARIA	· Identifying problem and objective · Distribute e-questionnaire · Analyze gathered information · Design system interfaces · Develop application program · Testing and maintaining software · Documentation · Software presentation
MUHAMMAD ILMAN BIN MOHD KHAIRI	· Identifying problem and objective · Prepare an e-questionnaire · Analyze gathered information · Design system interfaces · Develop application program · Testing and maintaining software · Documentation · Software presentation

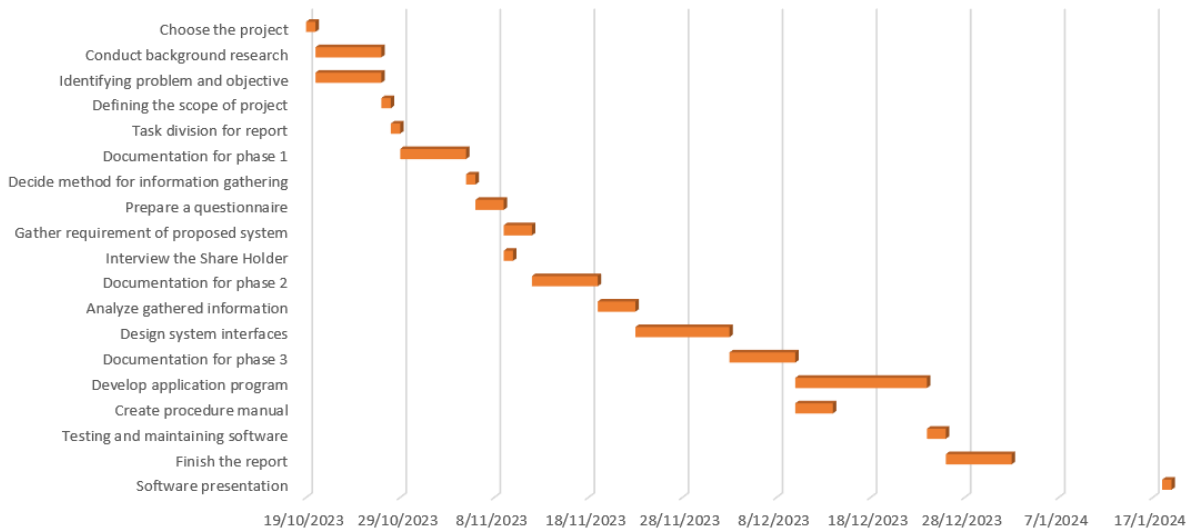|	
ALIF AIMAN BIN MANSOR	· Identifying problem and objective · Prepare an e-questionnaire · Analyze gathered information · Design system interfaces · Develop application program · Testing and maintaining software · Documentation · Software presentation
MUHAMMAD IMAN AMIER BIN ABU BAKAR	· Conduct background research · Prepare an e-questionnaire · Analyze gathered information · Design system interfaces · Create procedure manual · Documentation · Software presentation
MUHAMAD HAZIQ AMSYAR BIN MOHD HIZWAN	· Defining the scope of project · Distribute e-questionnaire · Analyze gathered information · Design system interfaces · Create procedure manual · Documentation · Software presentation

7.2 Work Breakdown Structure (WBS)

```
                              Event System
        ┌───────────────┬──────────────┬──────────────────┐
  Project Proposal    Information and   Analysis and   Developing and
                      Requirement       Design         documenting
                      Gathering                        software

  Choose Project      Decide method     Analyze        Develop
                      for information    gathered       application
                      gathering          information    program

  Conduct             Prepare a         Design system  Testing and
  background          questionnaire      interfaces     maintaining
  research                                              software

  Identifying         Gather            Documentation  Create procedure
  problem and         requirement of                    manual
  objective           proposed system

  Defining the        Interview the                    Finish the report
  scope of project    Share Holder

  Task division for   Documentation                    Software
  report                                                presentation

  Documentation
```

7.3 Gannt Chart

8.0 REQUIREMENT ANALYSIS

8.1 Current Business Process

8.1.1 General requirement for the database on features

The NexScholar database holds a variety of data on users. For example :

1. Personal information. This include the user's name, email address, phone number, and date of birth.
2. Course enrollment history. It include the courses that the user has enrolled in, their progress in those courses, and their scores on any assessment.
3. Certificate and certification history. The certificates and certifications that the user has earned.
4. Learning preferences. Preferred user's learning style, the topics that they are interested in, and the devices that they use to access NexScholar.

There are some specific examples of how the data in NexScholar website database is used.

Course recommendations. The NexScholar algorithm uses the user's course enrollment

history and learning preferences to recommend other courses that the user may be interested in. This helps the user to discover new courses and to find the courses that are most relevant to their interests.

Secondly, Personalized learning experience. The NexScholar platform uses the user's learning preferences to provide them with a more personalized learning experience. For example, the platform can adjust the difficulty of the course material based on the user's progress and provide the user with personalized feedback.

Other than that, Achievements recognition. The NexScholar platform uses the user's certificate and certification history to recognize their achievements. This helps the user to stay motivated and to track their progress.

Lastly, Job search assistance. The NexScholar platform uses the user's course enrollment history and certificate and certification history to help them with their job search. For example, the platform can generate a resume that highlights the user's skills and accomplishments.

8.1.2 general requirements (korg buat proper tajuk)

The purpose of this document is to lay out the general needs for expanding NexScholar to include powerful event production and administration capabilities. The system intends to deliver a streamlined and efficient experience for those interested in event planning and participation.

1. **Performance Requirements**
    1.1. **Response Time**
        - The aim is to ensure a responsive user experience by responding to user queries and transactions within an average time. To achieve this, implementation of query optimization strategies, indexing, and caching mechanisms to achieve and maintain the specified response time.
    1.2. **Scalability**
        - Implementation of load balancing to enhance the scalability of the system performance. The system should be scalable to handle multiple servers across distributed queries and maintain optimal performance during peak usage.

2. Security Requirements

2.1. Access Control

- Authentication and authorization protocols are used to define user roles such as event organizer and participants to specify the access levels for each role to ensure appropriate data access.

2.2. Data Encryption

- Data for the participants are confidential and needs to be secured by the event organizer. By implementing data encryption for sensitive data could protect the data against unauthorized access.

3. Data Integrity and Quality

3.1. Data Validation

- Define data validation rules to ensure the accuracy and consistency of data entered into the system.

3.2. Error Handling

- To manage errors and minimize losing of data.

4. Availability and Reliability

4.1. Backup and Recovery

- The system would be able to establish regular backup and recovery strategies in the event of data loss and system failures.

5. Usability and User Experience

5.1. User Interface

- The design needs to be an intuitive and user friendly interface such as visibility, efficiency and constraints for event creation, management and participation.

5.2. Training Requirements

- Conduct user training sessions to ensure users can effectively use the system. Besides, developing a material for the users would become easier for the users to use the system.

6. Testing and Quality Assurance

6.1. Performance Testing

- To ensure the system meets the needs of the user's behavior, performance testing would be conducted under various scenarios to validate the system performance.

6.2. Security Testing

- Conduct frequent security assessments and penetration testing to identify and address potential vulnerabilities.

7. Compliance

7.1. Legal and Regulatory Compliance

- Discover that the system conforms with all applicable data protection laws, regulations, and industry standards.

8.1.3 Managing user views of the current database systerm of Nexscholar

It is strategically critical to manage user views for event marketing inside the NexScholar online database system. We enable users to find, interact with, and actively participate in a wide range of recreational and academic events by fostering a user-centric environment. Personalization, organisation, communication, and user-generated material are all necessary to effectively promote events and improve everyone's educational experience.

The first ways that we can do is personalized event recommendations. Curating the user experience requires careful consideration of personalised event suggestions. Through the use of user data, such as their preferences and event history, our system is able to provide intelligent suggestions for events that are more likely to connect with each individual. One may propose future scientific lectures or seminars to a science enthusiast, for example. This tailored strategy greatly raises the likelihood that users will participate in the event and also boosts user engagement. It's about customising the platform to the individual interests of every user.

Moreover, event categorization and tagging is also one of the way that we can implement. An effective and user-friendly navigation system is provided by classifying occurrences and allowing tagging. It's easy for users to browse events according to their own interests, so they find things that actually interest them. Conversely, event planners have the ability to precisely categorise their events, which facilitates their intended audience's ability to locate and interact

with their offers. By speeding up the discovery of pertinent material and decreasing search times, this company improves user experience.

Next, event notifications and reminders. Having the option to create event-specific reminders in a notification system keeps consumers informed and involved. To receive event alerts customised to their interests, users can subscribe. By ensuring that consumers are informed about the events they care about, this feature promotes better event planning and higher attendance. This guarantees event planners that their gatherings will get the recognition they merit.

Other than that, user-generated content and reviews is very significant for managing the user views. User-generated material gives the event advertising approach a dynamic, community-driven feel. Examples of this type of content include reviews, images, and comments. Individuals who have participated in events may give their own knowledge and perspectives, assisting potential attendees in making well-informed choices. User-generated material encourages community involvement and provides authenticity, whether it's a positive review or helpful critique. It enhances the process of promoting events by fostering contact and trust.

Last but not least, event spotlight and featured listings. High-priority events have a special showcase in the "event spotlight" section. Featured listings provide event planners with a calculated method to raise awareness of their events. Major conferences, keynote addresses, and unique campus-wide events are excellent opportunities to maximise visibility. We make sure these events get the attention they deserve and draw in more attendees by positioning them appropriately. This strategy gives event planners a useful tool for publicising their most significant events.

9.0 TRANSACTION REQUIREMENT

Transaction requirements for an Nexscholar Event system consist of the processes of data entry, data update/delete, and data queries. These transactions are crucial for maintaining an accurate and up-to-date database that supports the functionality of the system. Here are transaction requirements related to these processes:

<u>**Data entry**</u>

- **Create Event**
    - **Data Entry Requirement:** Allow organizer to add a new event to the system, including things such as event title, date and time, location, description, event category/tag and organizer information.
- **User-Generated Content**
    - **Data Entry Requirement:** Allow user to enter their account with their details such as User ID, and Event ID. And actively engage with event by providing feedback, comments, and visual content
- **Customize Ticket**
    - **Data Entry Requirement:** Allow organizer to customize their ticket with Event ID, ticket type, ticket price, and available quantity.

Data Update/Delete

- **Update Event Details**
    - **Data Update Requirement:** Enable organizer to update event title, event description, date and time, location, and organizer information.
- **Edit organizer information**
    - **Data Update Requirement:** allow organizer to change their own information such as contact information.
- **User Profile Update:**
    - **Data Update Requirement:** allow user to modify their content such as feedback, comment, or any visual content.

Data Queries

- **Search for Events**
    - **Data Queries Requirement:** Allow user to search for event using the events criteria as in event title, category, date.
- **Get Event Notification**
    - **Data Queries Requirement:** Enable user to get event notification by subscribing to a specific event.
- **View User-Generated Content**
    - **Data Queries Requirement:** Users can view reviews, comments, and images related to a specific event.
- **Booking Management**
    - **Data Queries Requirement:** Allow users to manage their event bookings, such as viewing past booking and future bookings.
- **Ticket Availability**

■ **Data Queries Requirement:** Enable the users to check the availability of tickets for a specific event.

These transactional requirements guarantee the effective management of data entry, updates, deletions, and queries within the Nexscholar event system. They cover to both user interactions and administrative tasks, enhancing the overall functionality, security, and data integrity of the system.

10.0 BENEFITS AND SUMMARY OF SYSTEM

10.1 Benefit

There are several benefit for the improvement of the NexScholar, such as community building between the researcher, staff, student and also general public. When, the system become better the user will increase and there will be more event and also more people to attend to the event. While at the event people will be socialise between each other so that when the community building will happen. That will also help the student on finding the opportunity to ask their lecturer that can help them on their study or their project.

Besides, it will increase the participation and collaboration so that many people will be interested on joining the event that have been publish on the comfortable platform like NexScholar.Then, it can help on optimizing the event advertising, the sophisticated database design will enable more effective event advertising because the advertising can be categorized, showcased, and promoted in a visually appealing manner, ensuring maximum visibility and participation.

Other than that, it will be able to enhance the user experience because of the user-friendly interface improves the overall experience for staff, students, and the general public. Users can easily navigate and interact with the platform, contributing to a more engaging and satisfying experience.

Lastly, the benefits of the enhanced NexScholar system extend from improved efficiency in event administration to a more engaging user experience, increased event visibility, and a strengthened sense of community within the academic community.

10.2 Summary

As a summary, NexScholar is an online education platform for UTM students that offers free and paid courses in a variety of subjects, including computer science, business, and design. The courses are taught by experienced instructors and are designed to be self-paced and easy to

follow. NexScholar also offers a variety of certificates and certifications that can be earned upon completion of courses. The database holds a variety of data on users, including personal information,course enrollment history, certificate and certification history, and learning preferences. This data is used in a variety of ways to improve the user experience on NexScholar, such as by personalizing their experience, providing them with relevant recommendations, and helping them track their progress.

11.0 SUMMARY

NexScholar is a system that we proposed to facilitate the organizer to create an event management and the participants to participate. We decided to propose this system based on what we observed during an interview session with an admin from NexScholar to enhance the event management at NexScholar system. For instance, the system should handle multiple servers across distributed queries and maintain optimal performance during peak usage. Based on the interview session with stakeholders, we lay brainstorming our ideas to make sure the stakeholder meets their needs in enhancing the system. Therefore, by proposing a better solution as our project we hope that our ideas can make useful for the stakeholders in enhancing the Nexscholar system.