FACULTY OF COMPUTING
UTM Johor Bahru

Semester II 2024/2025

Subject : **Database (SECD2523)**

Section : **06**

Task : **Phase 1**

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Group : **05**

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1.0 Introduction

Nowadays , technology has become a dominant part of everyone's life . making our life more productive and easier . So it would not come to anyone's surprise that the world is moving towards technological advancement and so is our university . UTM's future campus vision is just an example of the effort being put towards achieving this goal .

However, despite the advancements in technology, students at our campus continue to face challenges in accessing timely information about various clubs and societies. The current methods of communication, such as campus group messages, are full of commercial spam, making it challenging for students to find information regarding clubs , events and other co-curricular activities. Additionally, many clubs lack exposure, further exacerbating the issue and hindering students' ability to explore and engage in extracurricular activities effectively.

To address these challenges, our team has embarked on a project planning approach to develop innovative solutions that enhance the accessibility and visibility of club and society information for all students . By leveraging project planning methodologies, we aim to develop a user-friendly platform that offers students in UTM , seamless access to a wealth of club information, empowering them to discover, explore, and engage in extracurricular activities with ease. Additionally, our platform simplifies the lives of organizers by streamlining event registration and certificate awarding processes, all within one cohesive space.

In this proposal, we will outline our plans for the development of the current system, focusing on enhancing user experience, improving information channels, and increasing engagement among students. Our approach will involve conducting thorough research to understand the specific needs and preferences of our target audience. We will then design and implement features that address these needs, ensuring that the platform is intuitive, user-friendly, and effective in facilitating communication between clubs and students.

2.0 Background Study

Khalid is a new international student coming all the way from Egypt to study in UTM , he is so excited to meet new people and try out all the numerous activities that the university has to offer , but to his surprise , instead of easily finding activities that interests him in an organized and fast way , he got bombarded with a flood of spam advertisements and posters that are mostly uninteresting to him . Overwhelmed with these spam messages , he decided against fighting his way through the pile of random spam advertisements .

Khalid is not alone , all students whether junior or senior , face this exact problem the moment they step foot in the university and many have decided to share their frustration online and also address that there could be a possible solution to this .. And indeed there is.

Recognizing the pressing need to overhaul the current system of communication and engagement, our dedicated team has embarked on a mission to develop a comprehensive platform that addresses these challenges head-on. By harnessing the power of technology and innovative thinking, this initiative aims to streamline the process of discovering and participating in club and society activities, making it easier for students like Khalid to find their niche and thrive within the campus community.

In the forthcoming sections of this proposal, we will outline our approach to tackling this issue, through the introduction of Clubhub , and also detailing our strategies for developing this user-friendly platform that caters to the diverse needs of UTM students. Through collaborative efforts and a steadfast commitment to enhancing the student experience, we aspire to usher in a new era of extracurricular engagement at UTM, where every student has the opportunity to explore their passions and forge lasting connections within the campus community.

3.0 Problem Statement

1. **Problem 1: Campus group messages are flooded with spam**

   Event details obtained from social media groups are often time consuming and unsatisfactory as it is often flooded with spams and advertisements, causing students to miss some of the important event promotions. Too many social media groups that are requested for students to join shares the same information and spam messages that causes students to take much time in identifying useful information.

2. **Problem 2: Uncentralized platform for communication of information**

   Many school announcements and information are communicated through the same social media group that is being used as the means to promote club events, at the same time advertising for student businesses. This creates a confusing situation for students when they come across different types of information in the same group and makes it difficult to trace back certain useful information about club events in the future.

3. **Problem 3: Lack of exposure to niche clubs**

   As information fails to reach students on a daily basis through social media groups, it is almost certain that a lot of smaller clubs and societies might not be able to get much event information out when they're hosting an event. The lack of exposure for these clubs is also a key reason why many students are not able to join the events hosted around campus as they are not aware of the existence of these clubs.

4.0 Proposed Solutions

1. To Solve the **issue of spam filled and redundant messages** in campus group communications, the solution involves creating a Mobile Application named Clubhub , that filters and prioritizes relevant event details, reducing clutter and ensuring students receive only essential information. By eliminating the dependency on multiple social media groups prone to spam and repetitive messages, the application will provide a cleaner and more efficient way for students to access platforms related to different clubs within UTM's Campus . And Allow them to discover each Club Activities and event updates. This streamlined approach ensures students stay informed about club activities and events without the distraction of unnecessary or redundant messages.

2. To address the **uncentralized platform for communication of information**, the solution involves creating a centralized platform that consolidates all club related information, events, and announcements into one structured and accessible location. This platform will provide separate sections for each club or society, clearly distinguishing their announcements from other types of information and eliminating the confusion caused by mixed messages in shared social media groups. Additionally, the platform will include a repository for past event records, allowing students to easily revisit and trace useful information about club events whenever needed.

3. To settle the **lack of exposure to niche clubs**, the solution involves that each club or society has its own personalized section in the Centralized Platform where they can showcase their history, purpose, membership details, and past activities. This approach ensures that smaller or lesser known clubs will gain visibility and effectively promote their events to the campus community. By including features such as event records, photos, and participant feedback, this will help students discover these clubs and their activities, encouraging broader participation and fostering engagement with a wider range of opportunities on campus .

Technical feasibility

The proposed mobile application can feasibly be developed using existing mobile app development tools, frameworks, and skilled developers. To ensure the long-term viability and effectiveness of the application, several considerations must be addressed. Firstly, the application will require a strong database system to manage user data, club information, and event details efficiently. Additionally, implementing a sorting system within the app will enhance user experience by allowing users to organize and filter club information according to their preferences. Furthermore, measures for data security, scalability, and maintenance will be essential to safeguard user data, accommodate potential growth, and ensure ongoing performance and reliability of the application.

Operational Feasibility

The operational feasibility of the proposed mobile application hinges on the availability and capability of human resources to operate it once it's developed and installed. Smooth operation of the database system and sorting functionality demands ongoing maintenance by IS support. Additionally, we will provide a demonstration video and support to help the students navigate the app effectively. Continuous monitoring and feedback mechanisms will be essential for identifying and addressing any operational challenges, ensuring the application's ongoing effectiveness and user satisfaction.

Economic Feasibility(CBA)

The economic feasibility of our project depends on the careful evaluation of its estimated costs and potential benefits. We need to consider expenses related to hardware, software development, maintenance, marketing, and support in relation to the anticipated revenue from registration fees, promotional charges, event commissions, and sponsored content. By conducting a comprehensive analysis, including calculations of Present Value (PV) and Profitability Index (PI), we can determine if our project is financially viable. This assessment is crucial to ensuring that our project aligns with our organizational goals and demonstrates responsible financial management.

Assumptions	
Discount rate	10%
Sensitivity Factor (Cost)	1.1
Sensitivity Factor (Benefit)	0.9
Annual change in production costs	7%
Annual change in benefits	5%

Estimated Costs	
Hardware	RM10000
Software Development	RM 7000
Maintenance	RM 3000 per year
Marketing and Promotion	RM 3000 per year
IS Support	RM 4000 per year

Estimated Benefits	
Commission(Registration fees/Certificate generation fees)	RM12000 per year
Promotional charges	RM 7500 per year
Club Event Commission	RM 9000 per year
Sponsored Content	RM 5000 per year

Calculate CBA – Costs

Costs	Year 0	Year 1	Year 2	Year 3
Development Costs				
-Hardware	**11 000**			
-Software Development	**7 700**			
Total	**18 700**			
Production Costs				
- Maintenance		**3 300**	**3 531**	**3 778**
-Marketing and Promotion		**3 300**	**3 531**	**3 778**
-IS Support		**4 400**	**4 708**	**5 038**
Annual Production Costs		**11 000**	**11 770**	**12 594**
(Present Value)		**10 000**	**9 727**	**9 462**
Accumulated Costs		**28 700**	**38 427**	**47 889**

Calculate CBA-Benefits,Gain/Loss and Profitability Index

Benefits	Year 0	Year 1	Year 2	Year 3
Commission		10 800	11 340	11 907
Promotional Charges		6 750	7 088	7 442
Club Event Commission		8 100	8 505	8 930
Sponsored Content		4 500	4 725	4 961
Total		30 150	31 658	33 240
(Present Value)		27 409	26 164	24 974
Accumulated Benefits		27 409	53 573	78 547
(Present Value)				
Gain or Loss		(1 291)	15 146	30 658
Profitability Index		1.64		

Profitability Index = 30 658/18 700

=1.64

Since the Profitability Index is 1.64, showing that it is a good investment because its index is greater than 1.

5.0 Objectives

The Objectives of our project are :

- To Reduce spam and clutter in event communication channels.

- To Provide a centralized platform for club related communications and activities .

- To Increase visibility and accessibility for niche clubs.

These objectives are aimed at addressing the identified challenges and improving the overall experience for students involved in extracurricular activities on campus. By reducing spam in communication channels, providing a centralized platform for club related information, and increasing visibility for niche clubs, our project seeks to create a more efficient and inclusive environment for students to explore and participate in various clubs and societies. Through the effective implementation of these objectives, we aim to foster a stronger sense of community and enhance student engagement, supporting their holistic development beyond academic pursuits.

- Clubhub is a Mobile Application designed for students to streamline the process of discovering and participating in extracurricular activities organized by various clubs and facilities across the university campus.

- Clubhub will enable students to discover events organized by campus clubs and facilities, with categorization by genres like music, cultural, and sports for easy exploration.

- Clubhub features Advanced filtering options allowing users to refine event searches by criteria such as date , time, ticket cost, genre, or hosting club or faculty.

- Clubhub enables direct event registration and attendance tracking, offering digital certificates and university merit points to recognize student participation.

- Clubs and facilities will have dedicated profiles on Clubhub to showcase their activities, upcoming events, and contact information, with administrative tools for updating listings and managing attendance.

- Clubhub will feature a built-in ticketing system for events that require ticket purchases, allowing clubs to manage ticket sales efficiently.

- Clubhub will prioritize user experience with an intuitive and visually appealing interface, with customizable filters and search options tailored to individual preferences.

- Clubhub will provide dedicated support channels for students and club administrators, offering assistance with account management and event registration ,the Feedback mechanisms will be integrated to gather input from users and improve platform functionality.

6.2 Boundaries of database application

This section states what the database use will be included and what will be excluded in the project The database of Clubhub, has defined boundaries that focus on data management for students, clubs, and event interactions within the campus . Key elements include :

1. **User Data Management**: Stores user profiles with essential fields (e.g., username, password, email, profile picture, and payment details) to facilitate secure login and transaction functionalities.

2. **Club Information Storage**: Each club's official name, contact details, description, logo, and membership requirements are maintained, providing centralized access to club profiles.

3. **Event Details**: Captures essential details such as event title, location, schedule, and registration fees. For historical purposes, past events are archived with identifiers, titles, event summaries, reviews, and feedback.

4. **Notifications and Announcements**: Contains information about announcements, including the title, date, and details, enabling timely updates on relevant events and club news .

5. **Certificate** : the database will also store certificates issued to participants linked with their account . For future reference , participants are also allowed to download this certificates .

6.3 Major User views

1. Student View

- **Event Discovery**: Students can browse a centralized list of events, categorized by types (e.g., cultural, sports), and use filters for refined search based on date, time, ticket costs, or specific clubs.
- **Event Registration**: Students can register for events directly within the app, tracking their own engagement and viewing their attendance history.
- **Profile Management**: Each student has a personal profile where they can update their login details, add a profile picture, and save payment details for event registrations.
- **Certificate Access**: Students can download digital certificates for attended events, recognizing their participation.

2. Club Organizer View

- **Event Creation and Management**: Organizers can create, update, and manage events, including adding descriptions, setting ticket fees, and tracking attendance.
- **Club Profile Management**: Each club has a dedicated profile that organizers can edit, showcasing the club's purpose, activities, membership criteria, and contact details.
- **Review Monitoring**: Organizers can view event feedback to assess user satisfaction and improve future events.
- **Ticket Sales and Tracking**: Organizers have access to an integrated ticketing system to manage sales, offering students multiple payment options for ticket purchases.
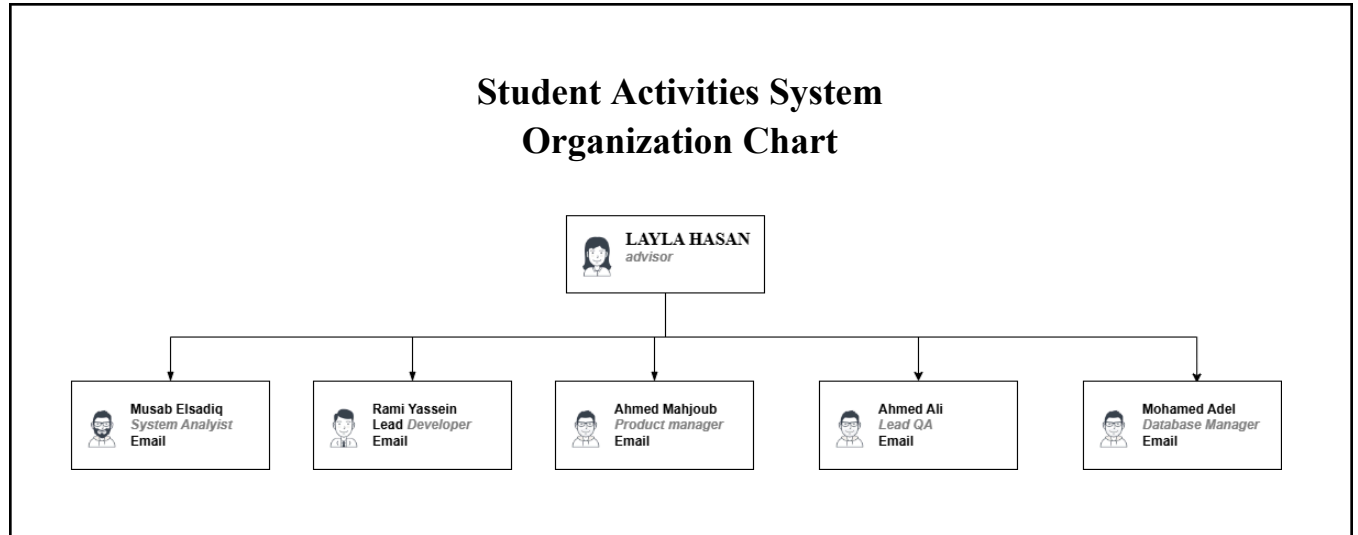
3. Administrator View

- **System Oversight**: Administrators oversee overall platform operations, ensuring smooth functionality and data integrity across student, organizer, and event data.
- **User Management**: Administrators manage user roles, update permissions, and address any reported issues or complaints from students or organizers.
- **Announcement Management**: Administrators can post campus-wide announcements to keep students informed about important updates and events.
- **Data Analytics**: Administrators can access data analytics on event attendance, user engagement trends, and feedback summaries to make data driven decisions for platform improvements.

These views create a cohesive experience, tailored to each user role's needs and responsibilities, fostering a streamlined and engaging environment for campus activities.

7.0 Project Planning

7.1 Human Resource

Student Activities System
Organization Chart

LAYLA HASAN
advisor

Musab Elsadiq
System Analyist
Email

Rami Yassein
Lead *Developer*
Email

Ahmed Mahjoub
Product manager
Email

Ahmed Ali
Lead QA
Email

Mohamed Adel
Database Manager
Email

7.2 Work Breakdown Structure (WBS)

	Assigned	Progress	NOVEMBER 2024	DECEMBER 2024	JANUA
Clubhub		0%			
▼ Preparation Stage		0%			
Define problem and need		0%			
gather information		0%			
research and analyze		0%			
identify objectives		0%			
▼ Planning Stage		0%			
Analyze key features		0%			
Outline budget and function		0%			
Proposal making		0%			
▼		0%			
▼ Design Stage		0%			
Select technology stack		0%			
Design system structure		0%			
Design database		0%			
Design user interface		0%			
▼ Development and refinement		0%			
Develop Prototype		0%			
prototype testing		0%			
prototype enhencement		0%			
Project demonstration		0%			

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8.0 Requirement Analysis (based from AS-IS analysis):

In requirement analysis . the stakeholder requirements have been identified and analysis to come out with the best system design that is suitable to the stakeholders expectations

8.1 Current business process :
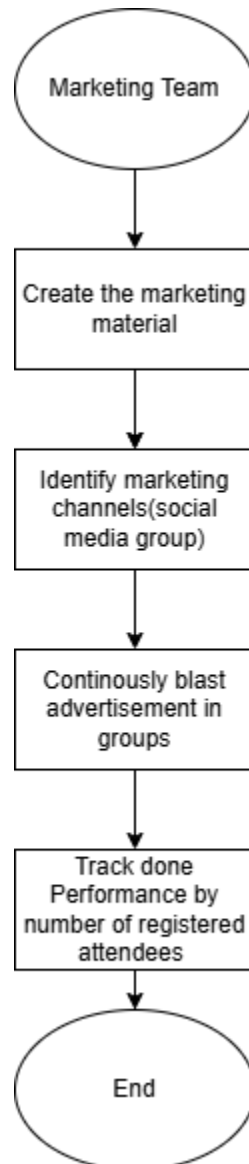
1.Club Marketing team Promotional strategy

Figure 8.1

Figure 8.1 shows the process in which marketing team advertise for their event with the lack of the centralized platform to advertise and manage events . They are forced to blast advertisements in Social media groups , like whatsapp , telegram and wechat , to get the attention of potential Attendees . The only way for the marketing team to track their engagement is through the number of registered attendees. It is not possible to see how many people entered the form or view the post

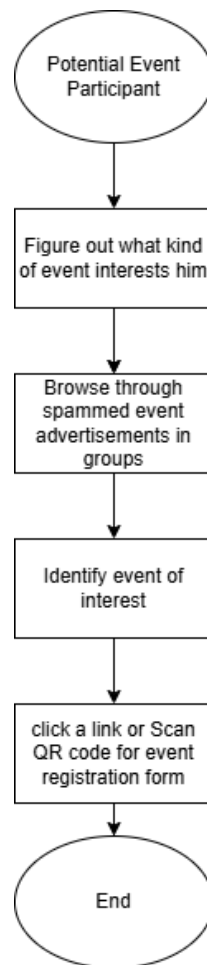**2. Participant Event registration**

Figure 8.2

The process of finding an event and registering for it is demonstrated at **Figure 8.2** which shows the need for the Potential event participant to reflect what kind of event interests him and then to browse through the spammed groups for an event of his liking . This hinders the efficiency of the process . afterward he have to click a link
Inorder to register for the event .

3.Participant receival of Certificate

Figure 8.3

Process of issuing the certificate is shown on figure 8.3 . Which is based on 2 stages . one done by the participant . which is registering for his attendance and completion of the event and the other the manual process of creating the certificate and individually mailing it to each participant who attended the event.

9.0 Transaction requirement (data entry, data update/delete, data queries) :

In Transaction requirements we specify the required conditions and criteria that must be met for our project to be implemented successfully. These include the identification and authorization of the parties involved , and the details of the data Entered into the system and the processes being performed on the data to generate Queries and retrieve Information.

9.1 Data Entry :
We meticulously assess the data being input into the system, along with the data types associated with all parties involved. This process ensures a comprehensive understanding of the system components and helps us summarize the requirements effectively.

Student Data :

1. User name : unique username to identify the user (student) , the user name is a string data type and it's required information.
2. Password : password field is necessary for user authentication , password is a string data type and it's a required information.
3. E-mail address : e-mail address is important for student account verification and for sending notifications to the student , e-mail address is a string data type and it's a required information.
4. Profile picture : profile picture is an important requirement to identify the student , image should be in .jpg format and it's optional information.
5. Payment Details : Credit card information or other payment details that can be saved for later use in event registration.

Club / community Data :

1. Club name : the official name of the community/club , it should be a string data type and it's a required information.
2. Contact information : contact information should be a phone number or an e-mail address to contact the representatives of the community/club , it's a string data type and it's required information .
3. Club description : a text contains summarized description about the purpose of the club and important club activities , it's a required information.
4. Club logo: an image to represent the club ,it should be in .jpg , it's a required data.
5. Membership Requirements : contains the demanded criteria to join the club , it's required information.

Event Information :

1. Event title : the Name of the Event ,it's a required information.
2. Event Location's Information : contains the venue that will host the Event , it's a required information.
3. Event Schedule : contains the date and the time of the Event ,a string data type ,it's a required information.
4. Registration Fee: the required fees to attend a particular Event.

Past Events Information :

1. Event ID: Unique identifier for each past event , it will be generated automatically .
2. Event Title : the name of the past Event .
3. Event Information: contains information about the location and the date of the past events, it will also be generated automatically.
4. Reviews and Feedback : text entries for the event participants about their experiences ,it's optional information.
5. Event photos : contains the photos captured in each event , it should be in .jpg format and it's optional information.

Notifications And Announcements :

1. Announcement Title : the title of the announcement .
2. Announcement Date : the date and the time when the announcement was made.
3. Announcement details : contains the body of the announcement .

9.2 Data update/delete:

Data update is mainly the ability to update and modify the data that has been entered, and in our case it is divided into updating the student's data and updating the club/ community data.

Member Information

Update/Delete Login Information: The user can update their login details, which include:

1. Username: Must remain unique.
2. Password: Requires identity verification (via security question or email).
3. Email: Requires verification emails to both old and new addresses.
4. Profile Picture: Must be a .jpg file.

Club/Community Information

Update/Delete Club Details:

1. Club Name: Editable by the club admin.
2. Contact Information: Editable by the club admin.
3. Description: Editable by the club representative.
4. Logo: Can be updated to a .jpg file by the club representative.
5. Membership Requirements: Editable by the club representative.

Event Information

Update Event Details:

1. Title: Name of the event (required).
2. Location: Venue details (required).
3. Schedule: Date and time, in string format (required).
4. Registration Fee: Cost to attend the event.

Notifications and Announcements

Update delete Announcement:

1. Title: Name of the announcement.
2. Date: Date and time the announcement was made.
3. Details: Body text of the announcement.

9.3 Data queries:

In the context of our project the proposed mobile application for campus clubs and Communities, here are some key data queries that would be essential for accessing and managing relevant information:

1. a Query to retrieve all the club's within UTM , This Query should contain a list of all Clubs and communities within UTM and a brief description of each club , this Query aims to show the students all the clubs they can potentially join or learn about .

2. a Query to retrieve a list of all the upcoming events associated with a specific club , this Query basically allows the students to view all scheduled events for a particular club, helping them to engage with the club's activities .

3. a Query to retrieve the events happening within a specific date range , all the events scheduled in NOV 2024 for example , this Query helps the students participating in multiple clubs to make plans based on their availability .

4. a Query to Show a list of all the events that a specific student has participated in , This query allows students to see a history of their involvement in events.

5. a Query to Retrieve the latest announcements for clubs .This query allows users to access the most recent updates or announcements from a particular club, ensuring they are aware of the important news and events.

6. a Query to Search for clubs based on keywords in their descriptions,This query helps users find clubs that align with their interests .

7. a Query to retrieve reviews and feedbacks for a specific past event ,this query allows users to see what others thought about a particular event, providing valuable insights into the event's quality and relevance . It also enables clubs and organizers to use this feedback to improve future events based on participant experiences and suggestions.

10.Benefit and Overall Summary of Proposed System

Clubhub is a transformative Application designed to revolutionize campus life at UTM by providing students with a centralized hub for discovering and participating in a diverse range of events organized by clubs and facilities. With streamlined event management features such as event registration, attendance tracking, and integrated ticketing, clubs can efficiently organize and promote their activities, leading to increased engagement and participation. Through a comprehensive feasibility study and profitable Cost-Benefit Analysis (CBA) indicating a favorable investment return, Clubhub is financially viable, with multiple income streams including but not limited to promotional fees , commissions and sponsorship , this therefore ensures the sustainability. With a development timeline estimated at three months, Clubhub emphasizes thorough research and rigorous testing to ensure a seamless launch without technical issues.

By leveraging technology to address campus wide challenges and enhance the overall campus experience, Clubhub contributes to UTM's vision of a future-ready campus that fosters student engagement and academic excellence.

11.0 Summary of proposed system

Clubhub is a proposed system designed to significantly enhance the campus experience for students at UTM by providing a centralized platform for managing and communicating information about campus clubs and societies. It addresses three major issues: the prevalence of spam in campus group messages, the lack of a centralized communication platform, and the limited exposure for niche clubs. By introducing a user-friendly mobile application, Clubhub aims to streamline communication and engagement. The app will feature personalized club profiles, event registration, attendance tracking, and an integrated ticketing system, ensuring students receive relevant notifications about club activities without spam. Additionally, it will offer a repository of past event records, including photos, reviews, and participant feedback, aiding students in making informed decisions about future participation.

Clubhub's development is grounded in a comprehensive analysis of the current challenges and needs of the student body, ensuring the proposed solution is both effective and relevant. Each club will have its own dedicated section within the app, showcasing its history, purpose, membership details, and past activities. This personalized approach empowers students to make informed decisions about which clubs to join and fosters a deeper appreciation of the diverse array of opportunities available on campus. The app's sustainability is supported by a detailed feasibility study, including technical, operational, and economic assessments.

Moreover, Clubhub will support different user roles, including regular users (students), organizers, and administrators, each with tailored interfaces and functionalities to manage their specific tasks efficiently. Regular users can register, browse events, and manage their profiles; organizers can create and manage events, track attendance, and handle promotions; and administrators can oversee the entire system, ensuring smooth operation and addressing user feedback. By centralizing event management and communication, Clubhub aims to reduce the burden of navigating through multiple social media groups and channels, ultimately fostering a vibrant and engaged campus community. In summary, Clubhub is a transformative initiative that aligns with UTM's vision of a future-ready campus by fostering a vibrant, engaged student community and enhancing the overall campus experience.

Appendix :-
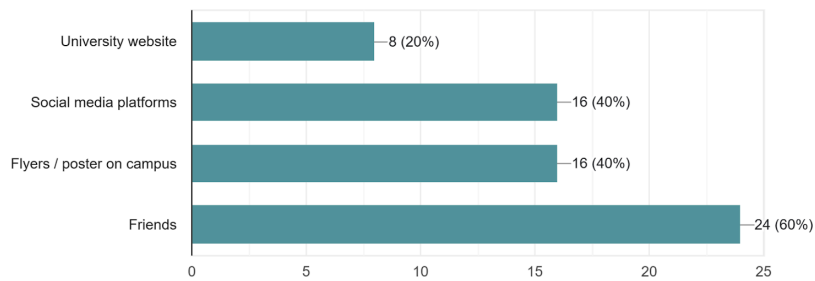# Result of an online questionnaire conducted to gather information :-

If yes, how many extracurricular activities are you involved in current semester?
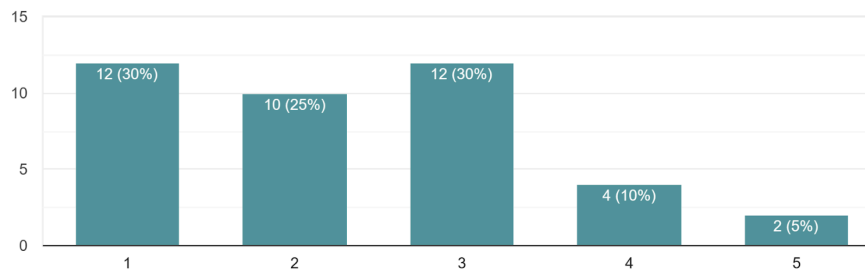40 responses

- 1
- 2
- 3
- 4
- 5
- More than 5
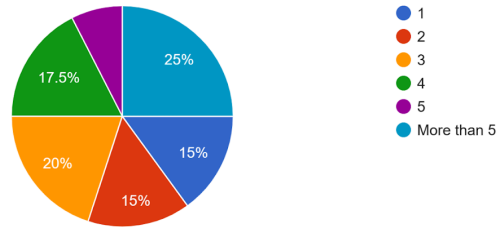
How do you currently find information about club activities and events on campus?
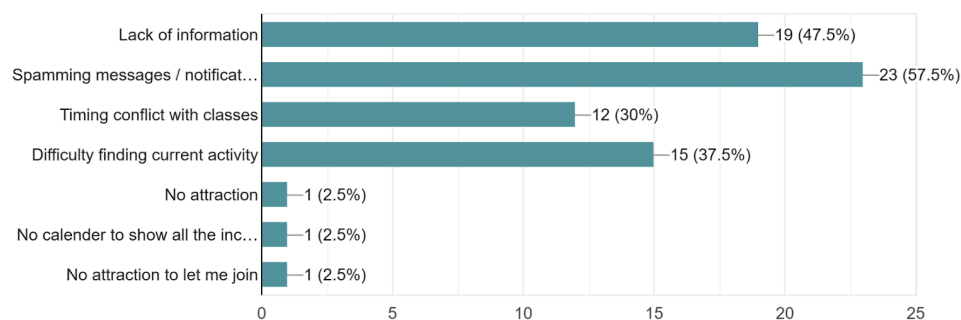40 responses

How would you rate the current extracurricular system in your university?
40 responses

What obstacles have you faced while trying to search for extracurricular activities to join?

40 responses

Category	Value
Lack of information	19 (47.5%)
Spamming messages / notificat…	23 (57.5%)
Timing conflict with classes	12 (30%)
Difficulty finding current activity	15 (37.5%)
No attraction	1 (2.5%)
No calender to show all the inc…	1 (2.5%)
No attraction to let me join	1 (2.5%)

If there was a brand-new system to organize everything related to extracurricular activities, what features would you like to see in it?

39 responses

Ability to search and filter activities based on interests and availability.

Calendar view with color-coded events.

Attendance tracking for meetings and events.

Being able to filter and look for events based on interest

User-friendly interface for easy navigation

Customizable profiles for students, teachers, and administrators

Integration with academic schedules for seamless planning.

Notifications for upcoming events and deadlines.

Secure messaging system for communication between members.

Option to track participation and achievements.

Mobile app for on-the-go access.

Resource library for sharing materials and resources.

Easy to use

No spamming message :)

showing current activities with accurate details

Show more history and the future event

filter to find different kind of activity

Need a centralized platform to organise all the info