FACULTY OF COMPUTING
UTM Johor Bahru

SECD 2613

System Analysis and Design

Section 7

Group 2

Theme: Campus Resource Management System

Module 1: Facility Booking and Management

Phase 2

Lecturer: DR. ROZILAWATI BINTI DOLLAH @ MD ZAIN

Group member:

Name	Matric number
Austin See Yong Hui	A23CS5015
Mohamed Adel Abdullah	A23CS4061
Faisal Abdulhakim Bakouban	A23CS0015

Table of contents

1.0 Overview of the project

The Campus Resource Management System (CRMS) is a comprehensive platform designed to streamline administrative and operational processes within a university or college campus. By integrating multiple functionalities into a single system, CRMS simplifies resource allocation, scheduling, communication, and decision-making processes. The facility booking and management module of the CRMS revolutionizes the way campus facilities are managed, offering a user-friendly interface, robust booking policies, and real-time availability tracking. The Event Management module of the CRMS is designed to simplify organizing and managing events on a university or college campus. It provides a centralized platform where administrators, faculty, and students can easily schedule, reserve venues, register attendees, and promote events. With this module, campus communities can stay informed and engaged with all the exciting events happening around them. The communication and notification module of CRMS fosters communication, collaboration, and engagement within the campus community. By providing a centralized platform for communication and notifications, CRMS enhances information dissemination, promotes collaboration, and strengthens the sense of belonging among students, faculty, and staff. It is all about enhancing efficiency, communication, and resource utilization on campus.

2.0 Problem statement

And in this gathering information process we'll cover:

-facility booking and management:

When it comes to facility booking and management, the main goal is to efficiently manage the booking of resources within a facility. The problem often arises when there is a lack of centralized system leading to double bookings, confusion, and inefficiencies in resource allocation. another common problem is the manual handling of bookings, which can be time-consuming and prone to errors.

-event management:

For event management, the focus is on planning and organizing events effectively. The common problem faced is the coordination of various tasks, vendors, and attendees leading to miscommunication and disorganization. , budget constraints and last-minute changes often pose significant challenges for organizers.

-communication and notification:

Regarding communication and notification, the challenge lies in ensuring timely and effective communication with stakeholders. Inefficient communication methods can lead to missed deadlines, misunderstandings, and lack of engagement. , managing multiple communication channels and ensuring messages reach the right recipients can be complex and overwhelming.

3.0 Proposed solution

-facility booking and management:

To tackle this issue, a proposed solution would be to implement a centralized online booking system that allows users to check availability, book facilities, and receive instant confirmations.

-event management:

A proposed solution would involve using event management software that integrates all aspects of event planning such as scheduling, budgeting, guest management, and logistics. This software facilitates smooth communication among team members, vendors, and attendees, ensuring a well-coordinated and successful event.

-communication and notification:

To address this, a proposed solution is to implement a communication and notification system that allows for automated reminders, updates, and alerts. This system can use various channels like emails, SMS, and notifications to keep stakeholders informed and engaged, improving overall communication efficiency.

4.0 Information gathering process

We began work on a survey to collect data on the current student body's knowledge and opinion on the current system offered By UTM to host events and book facilities on campus, using that data to develop a system we believe would fit our target audience's goals and needs.

4.1 Method used

We devised a survey that we implemented online on GOOGLE FORM to collect data, and distributed links throughout relevant groups to get as much data as possible. We divided the response into three relevant groups:

1. Those that know of UTM's system but have not used it (we will assume they simply found it too troublesome or daunting)

2. Those that used UTM's system but have never hosted an event

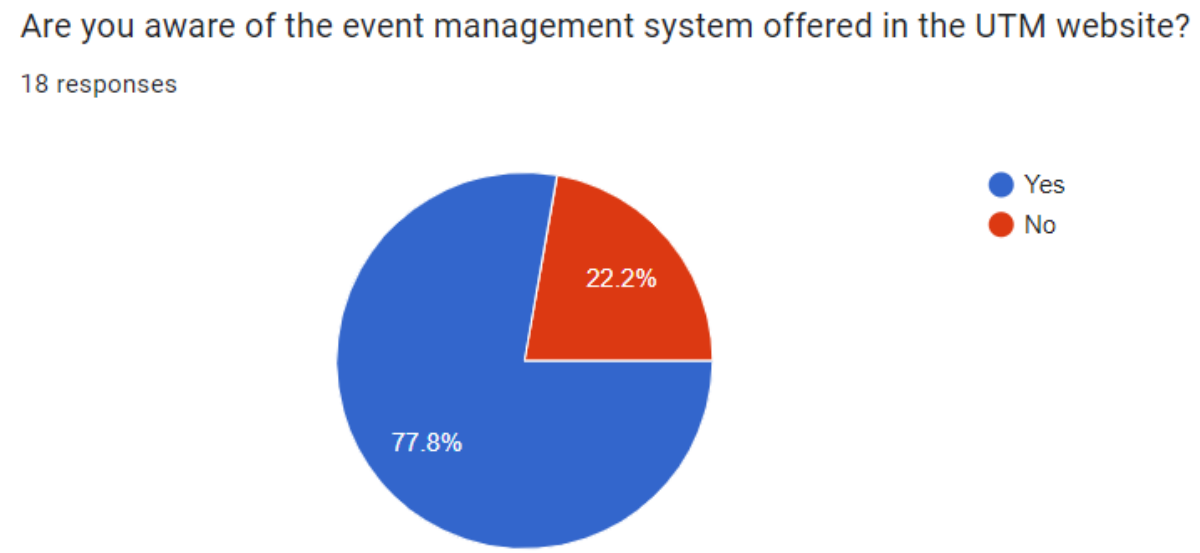
3. Those that use AND hosted events.

the survey divides into three sections focused on filtering answers from group 1 through group 3

4.2 Results and detailing

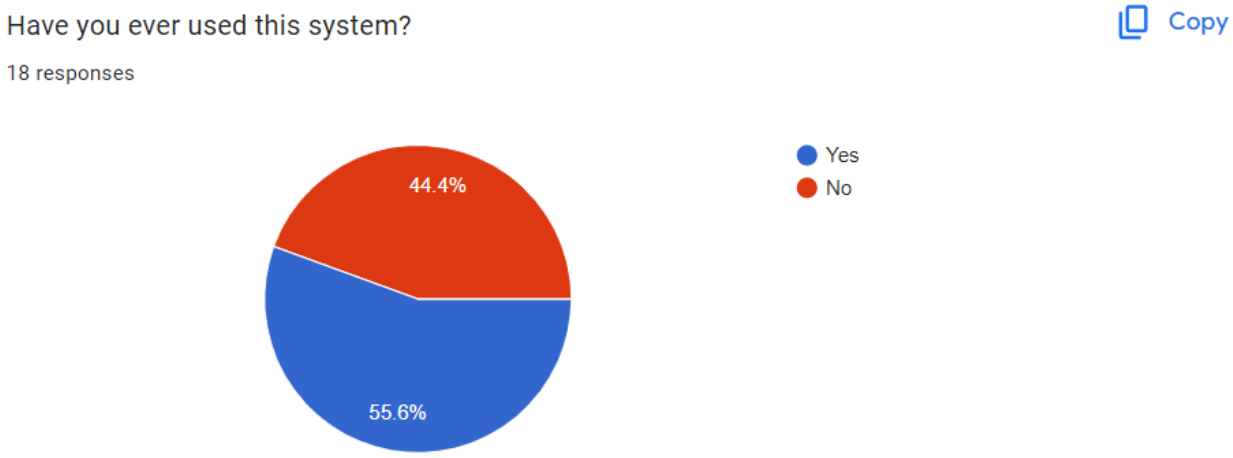
Section 1:

Q1. Are you aware of the event management system offered in the UTM website?



As seen here, nearly a quarter of those who answered are unaware of the existence of the system offered by UTM, indicating a lack of communication or clarification by relevant parties.

Q2. Are you aware of the event management system offered in the UTM website?



As seen here, the better half of those that answered have used this system at least once,

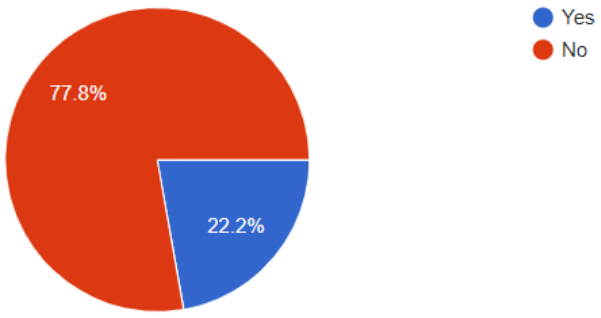
factoring int the quarter of students that weren't aware, the majority of those that answered seem to have an idea at least on the UTM system and have experienced it.

Q3. Have you ever used any other website or application to register for events related to, or taken within the jurisdiction of UTM?

Have you ever used any other website or application to register for events related to, or taken within the jurisdiction of UTM?

Copy

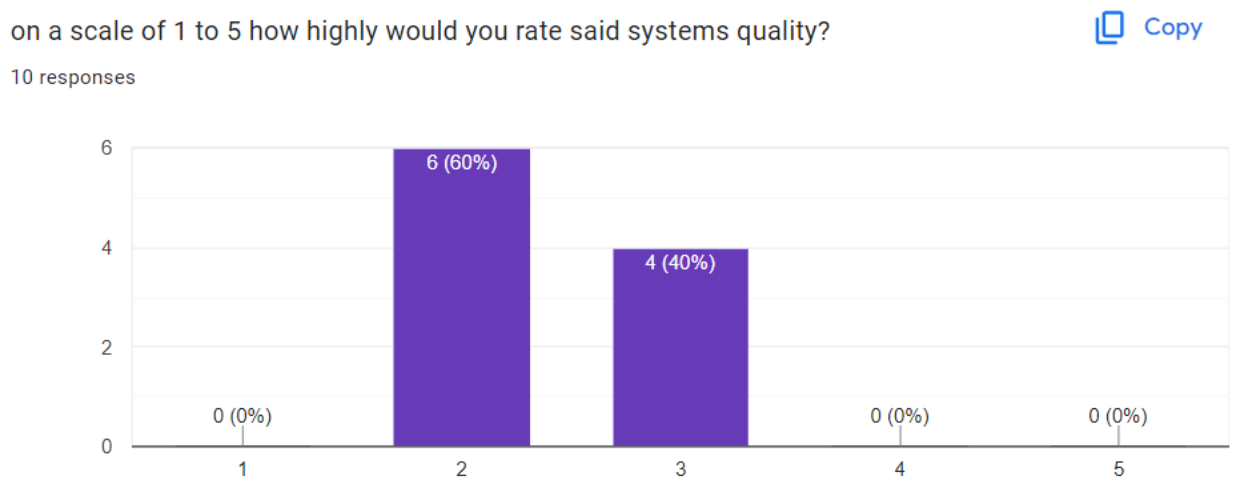
18 responses



As seen here, the overwhelming majority of students have not used external systems to register for events or book venues within the jurisdiction of UTM, thereby showing us that there is a great demand for, though unmet, a system that can replace and upgrade on the old system.

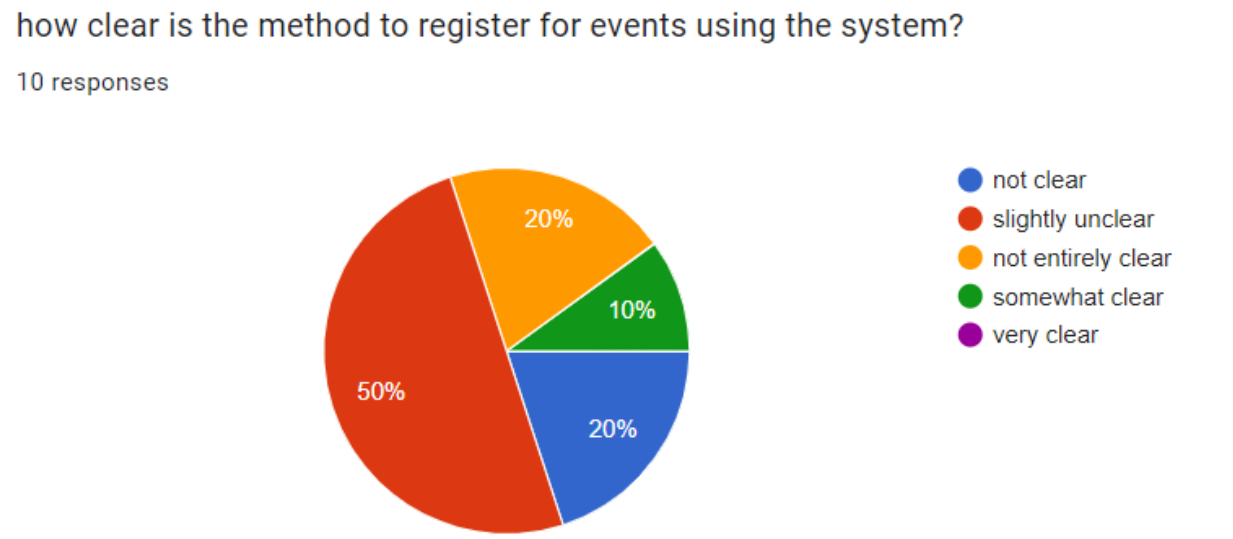
Section 2: from here on out, all responses are from users in group 2 and 3

Q4. On a scale of 1 to 5 how highly would you rate the said system's quality?



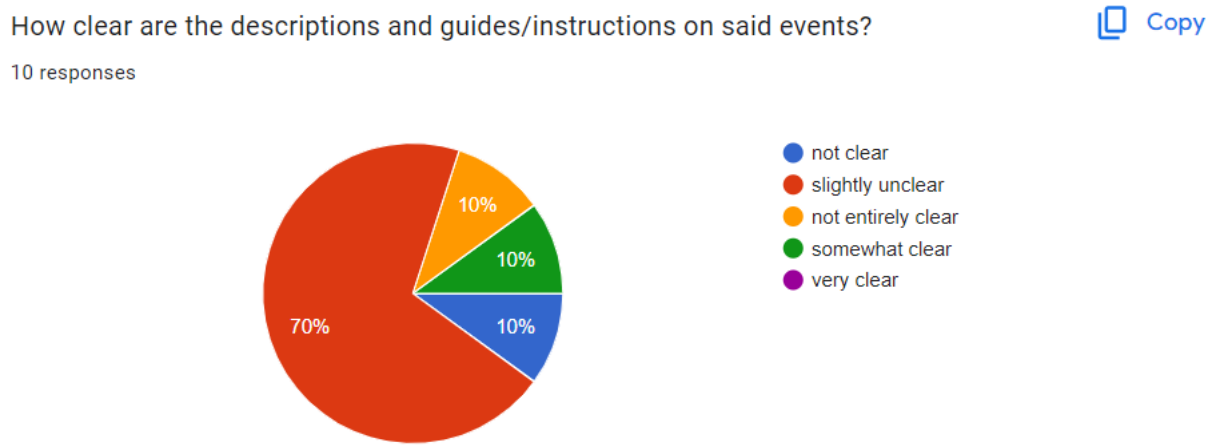
As seen here, the majority of responses flout around the lower end of the scale, this tells us that there is definitely room for improvement on the quality side of things

Q5. How clear is the method to register for events using the system?



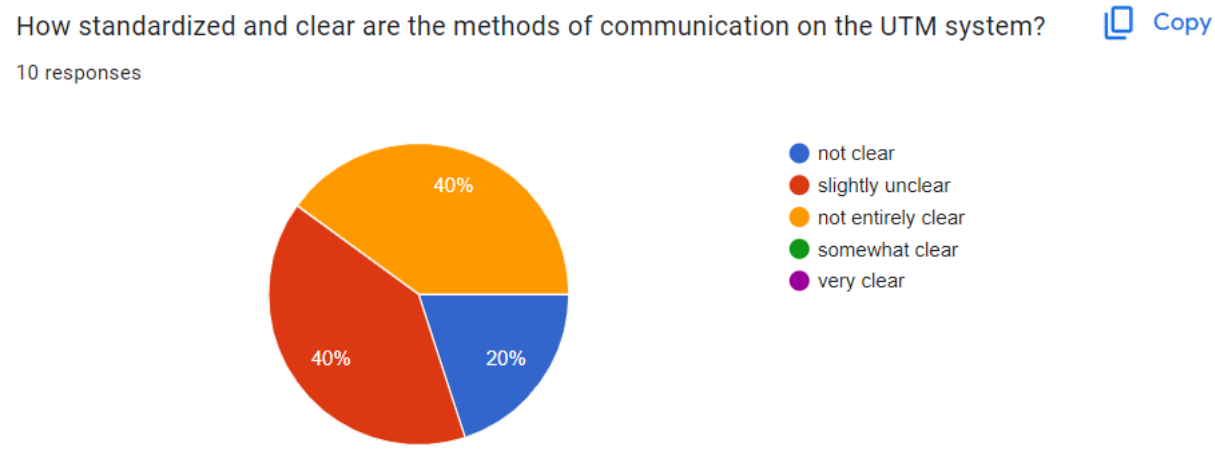
The negative trend continues here with 70 percent of the answers being on the negative end of the scale, indicating that users are in need of clarification on the registration process

Q6. How clear are the descriptions and guides/instructions on said events?



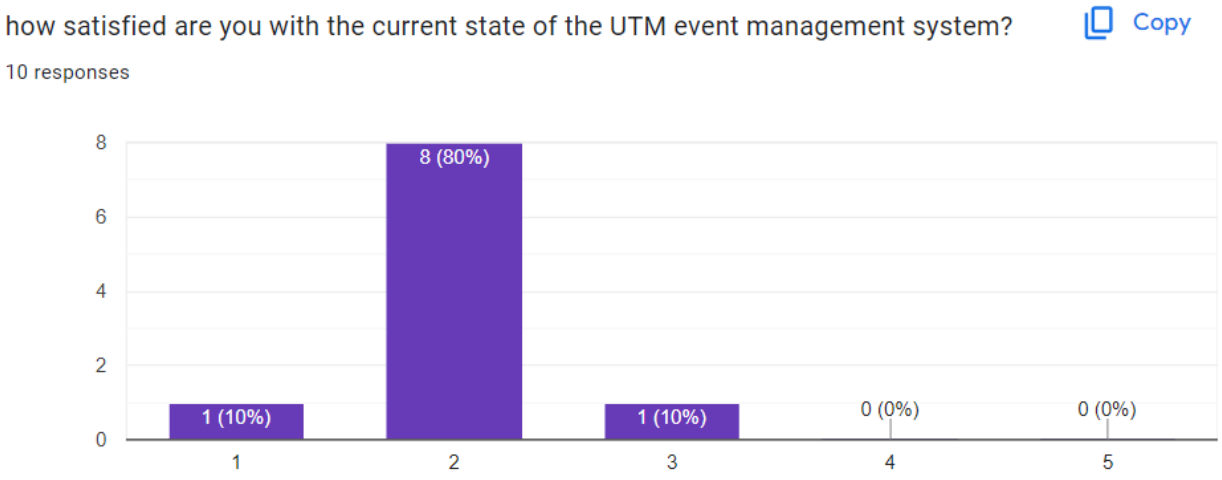
The trend is exacerbated here, where we can see that 80 percent of responses are on the negative end of the scale, this indicates that instructions on events are incredibly unclear.

Q8. How standardized and clear are the methods of communication on the UTM system?



the trend finally dies down when it comes to communication, where most response tip to the middle of the scale, meaning there is room for improvement, but it may not be necessary regarding communication, and most students can get in touch with the hosts relatively easily.

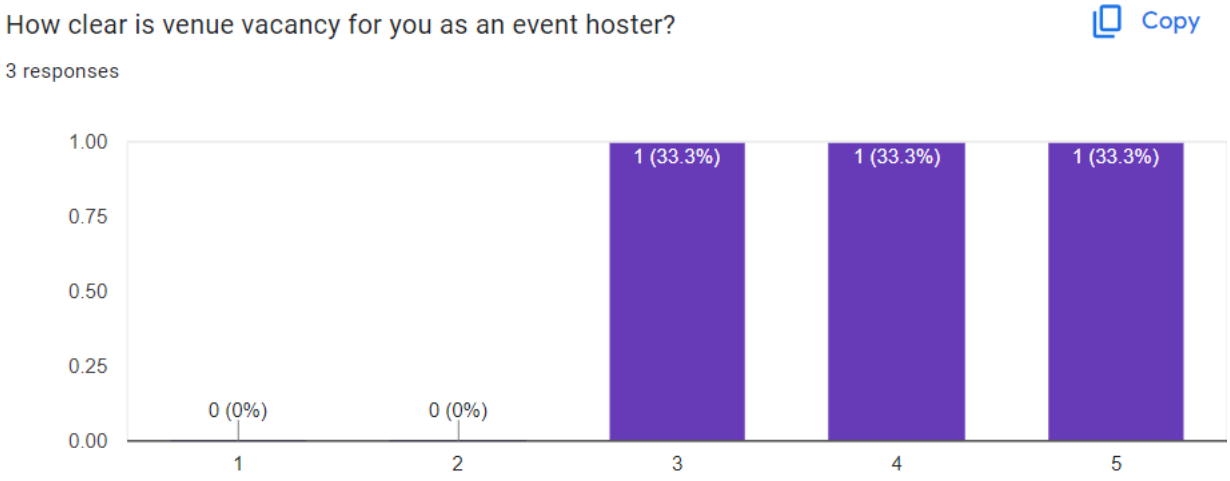
Q9. How satisfied are you with the current state of the UTM event management system?



To end this section, we can see here that nearly all responders are unsatisfied with the current state of the UTM event management system.

Section 3: from here on out, all responses are from Hosters as in group 3 only

Q10. How clear is venue vacancy for you as an event Hoster?



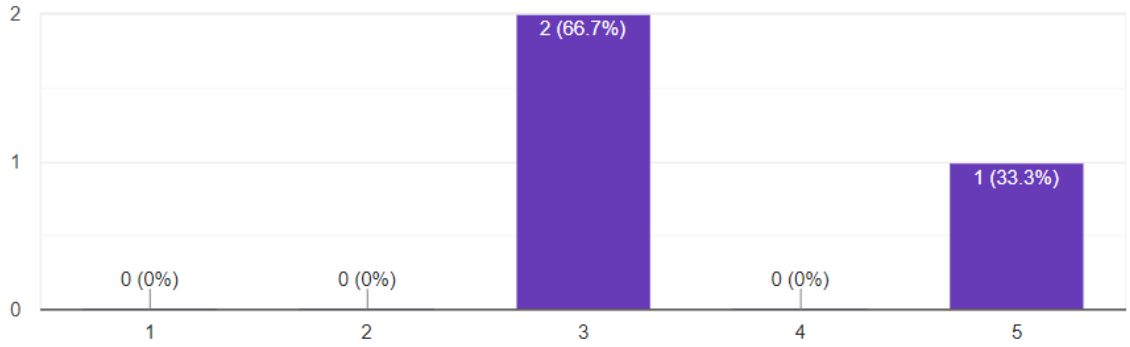
on the other end here, we can see that most Hosters have no issue seeing what venues/facilities are vacant for their use, and as such the system fills that role perfectly (does not mean there isn't room for improvement)

Q11. How Reliable is the schedule vacancy system offered?

How Reliable is the schedule vacancy system offered?

Copy

3 responses



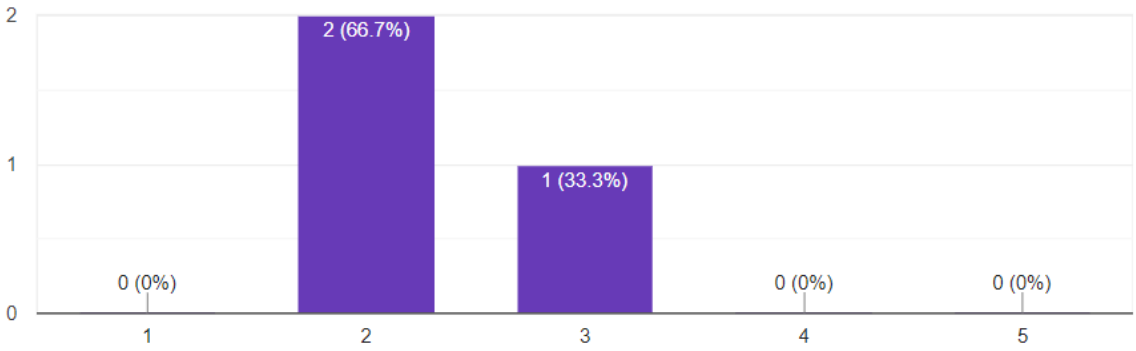
The results begin to skew to the left as we push forward, here it seems most Hosters have mediocre opinions on the system's ability to display/show the vacancies on a schedule system.

Q12. How easy is it to communicate with relevant UTM faculties and facilities to host said events?

how easy is it to communicate with relevant UTM faculties and facilities to host said events?

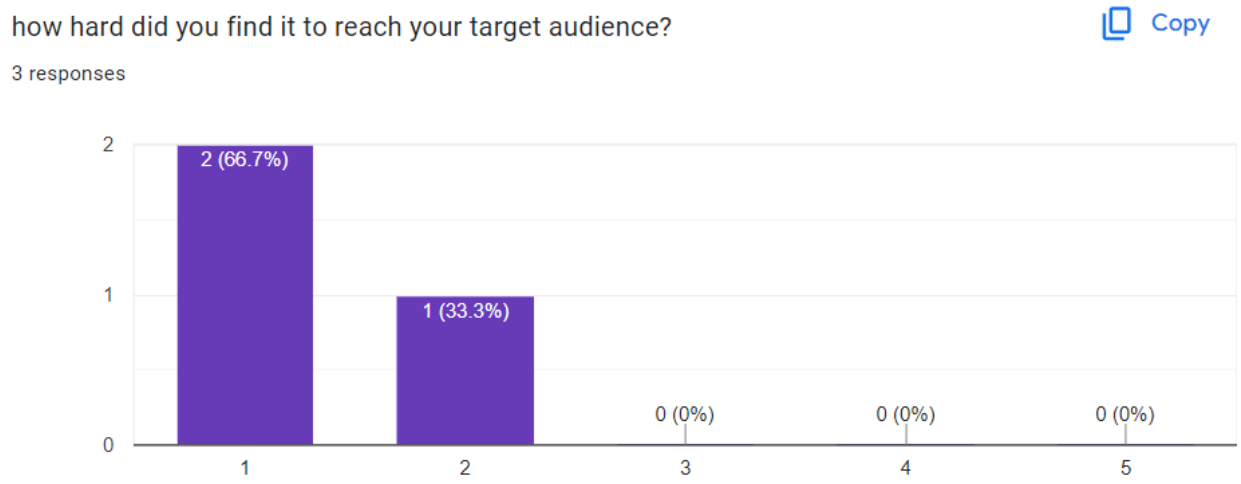
Copy

3 responses



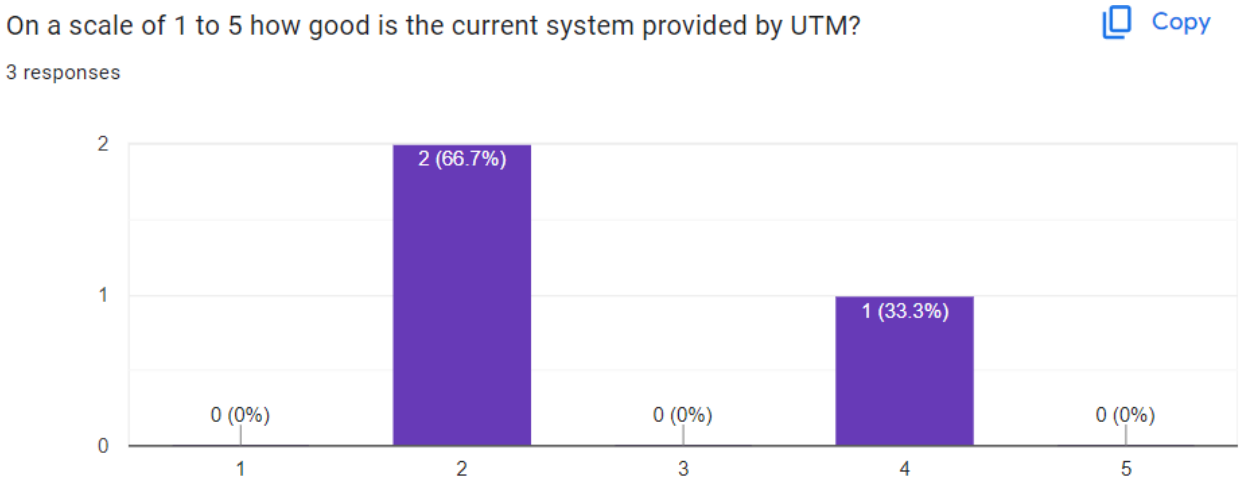
The negative trend persists here as we move on to inter-level communication where most Hosters seem to have trouble getting in contact with relevant parties to host events and book venues, vital for hosting anything.

Q13.how hard did you find it to reach your target audience?



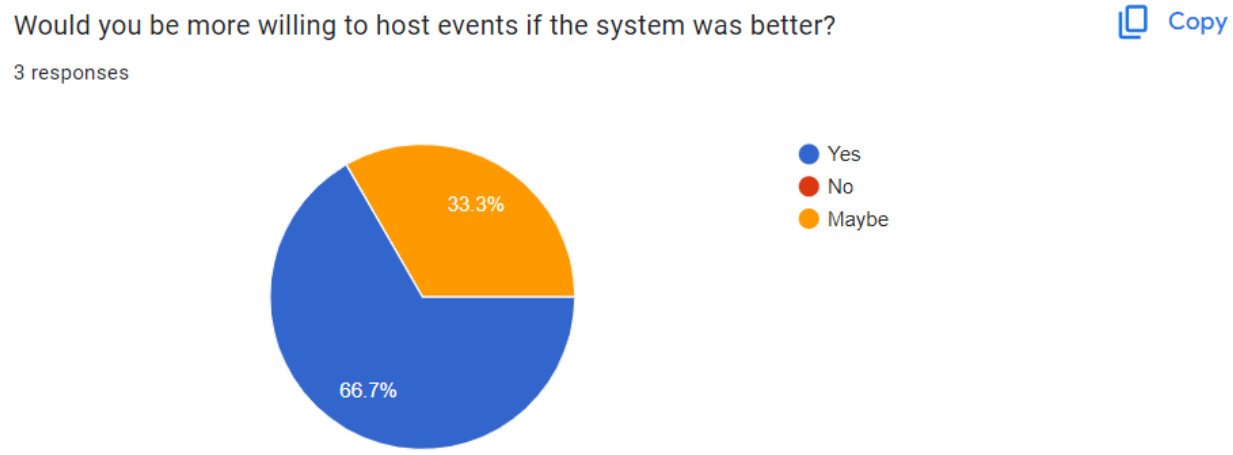
The negative trend reaches its worst here, where we can see most all hosters have trouble getting traction on events and having their target audience exposed to them.

Q14. On a scale of 1 to 5 how good is the current system provided by UTM?



In this question we can see that responses are divided on the two ends of the scale, as some believe it's fairly good, others fairly bad, but no extremes, this means that the system is functioning fairly well, though it leans better on the left, meaning that improvements will need to be done to retain these users and hosters.

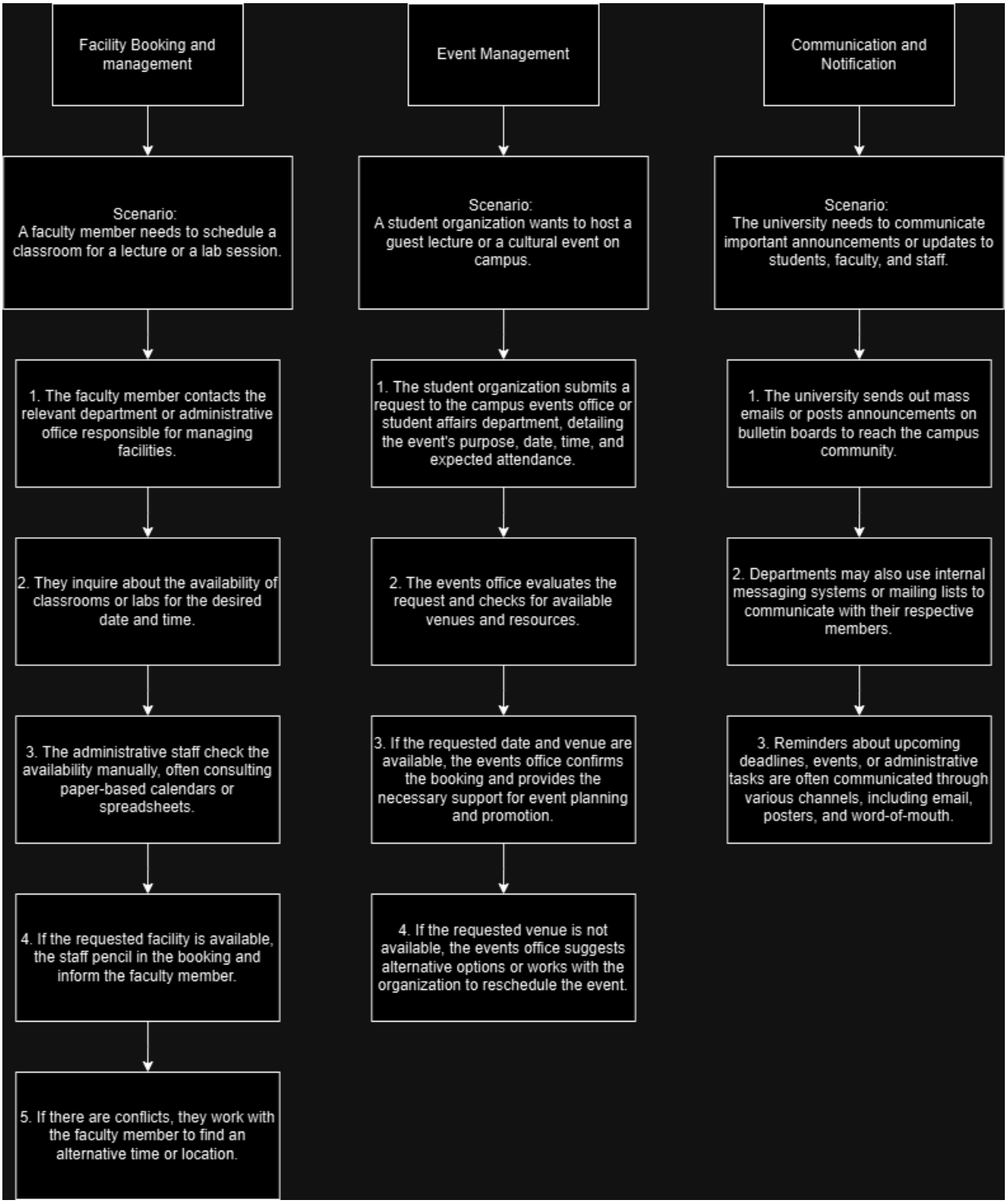
Q15. Would you be more willing to host events if the system was better?



Finally for the last question we ask, how likely are responders to host events if a better system was offered. All responses lean on the better side of the scale, meaning more likely than not, that if a better platform was introduced, that users would very likely migrate/prefer it, and would be more willing to host events.

5.0 Requirement Analysis

5.1 Current business process



5.2 Functional Requirement

Facility booking and management	Event management	Communication and notification
Input: • User requests for booking a facility • Facility availability data • Booking policies and rules set by administrators.	Input: • Event details • Organizer information (student organization, faculty member, department). • Attendee registration data	Input: • Announcement or message content. • Recipient list.
Process: i. User searches for available facilities based on criteria. ii. System retrieves and displays available facilities matching the user's criteria. iii. User selects a facility and provides booking details. iv. System validates the booking request against booking policies. v. If the booking is valid, the system updates the booking schedule and sends confirmation to the user. vi. If the booking is invalid, the system notifies the user and suggests alternatives.	Process: i. Organizer creates a new event and provides all necessary details. ii. System validates the event details and checks for conflicts with existing bookings or events. iii. If no conflicts, the system adds the event to the calendar and sends confirmation to the organizer. iv. Attendees register for the event (if required). v. System manages attendee data and sends event reminders or updates as necessary.	Process: i. Sender drafts the message and selects recipients or recipient groups. ii. System sends the message via chosen communication channels. iii. Recipients receive the message and can respond or take action as needed. iv. System tracks message delivery and provides read receipts or delivery status updates.
Output: • Confirmation of booking • Updated booking schedule reflecting the new reservation. • Notification of any conflicts or issues with the booking request.	Output: • Event confirmation. • Event added to the campus calendar. • Attendee registration data. • Event reminders and updates sent to attendees.	Output: • Message delivery confirmation. • Read receipts or acknowledgment from recipients. • Responses or actions taken by recipients.

5.3 Non-functional Requirement

Performance	Control
I) Response Time The system should respond to user interactions such as searching, booking and event creation within a maximum time of 5 seconds to provide a seamless user experience. II) Scalability: The system should be able to handle a significant increase in concurrent users during peak times without degradation in performance. III) Reliability: The system should have a minimum uptime of 99.9% to always ensure accessibility and reliability for users. IV) Resource Utilization: The system should optimize resource utilization, ensuring efficient use of computing resources to minimize server load and response times. V) Data Retrieval Speed: Database queries for retrieving facility availability, event details, and user information should be optimized to provide quick responses even with large datasets.	I) Access Control: The system should enforce role-based access control to ensure that users only have access to functionalities and data relevant to their roles II) Audit Trails: The system should maintain audit trails for all user actions, including bookings, event creations, and communication, to track changes and ensure accountability. III) Data Integrity: The system should implement mechanisms such as data validation and error checking to maintain data integrity and prevent unauthorized modification or corruption of data. IV) Backup and Recovery: The system should regularly back up data to prevent data loss in case of system failures. V) Logging and Monitoring: The system should log all system activities and events for monitoring and troubleshooting purposes. It should also include real-time monitoring capabilities to detect and respond to performance issues or security threats promptly.

5.4 Logical DFD AS-IS system

Context diagram

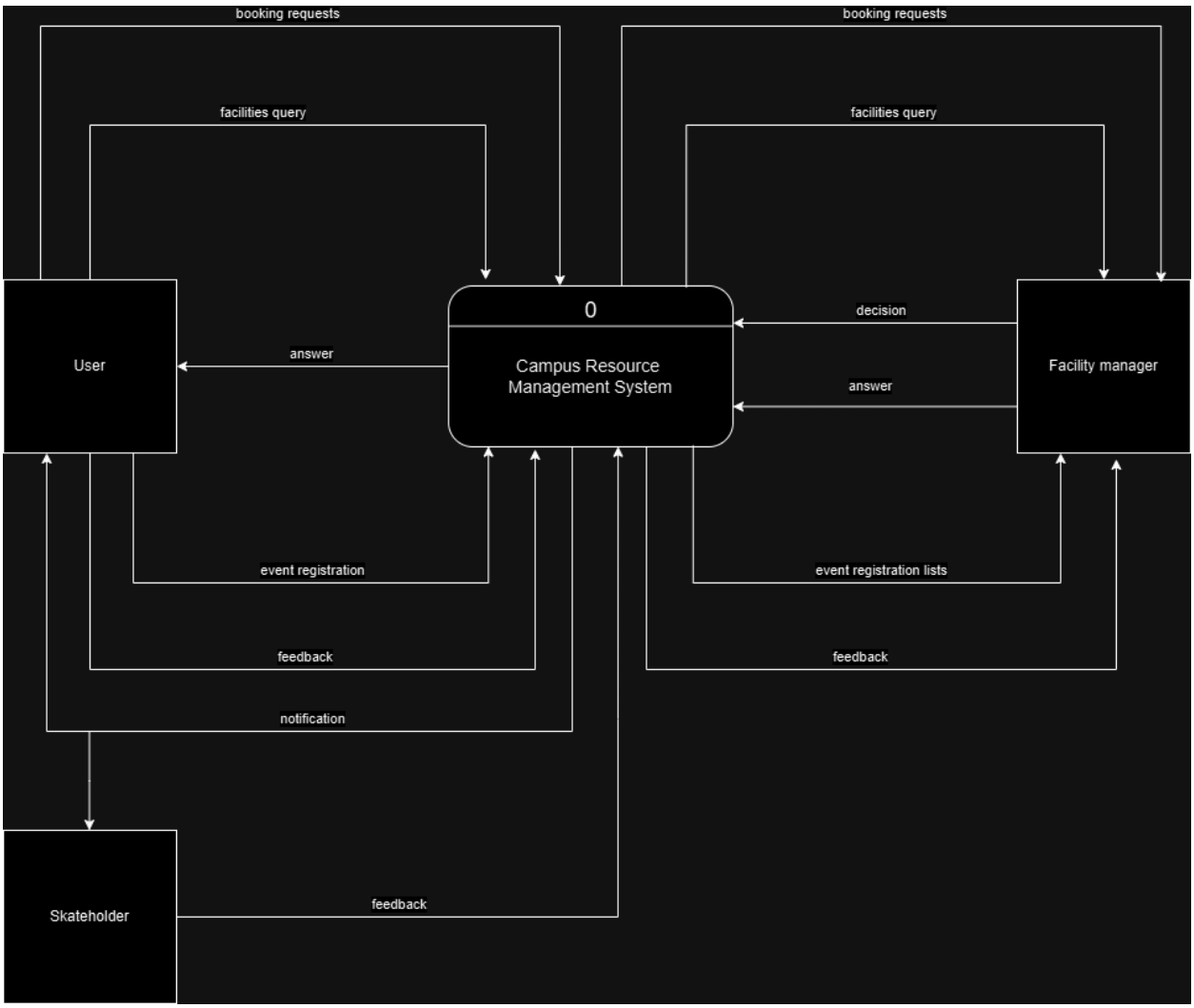
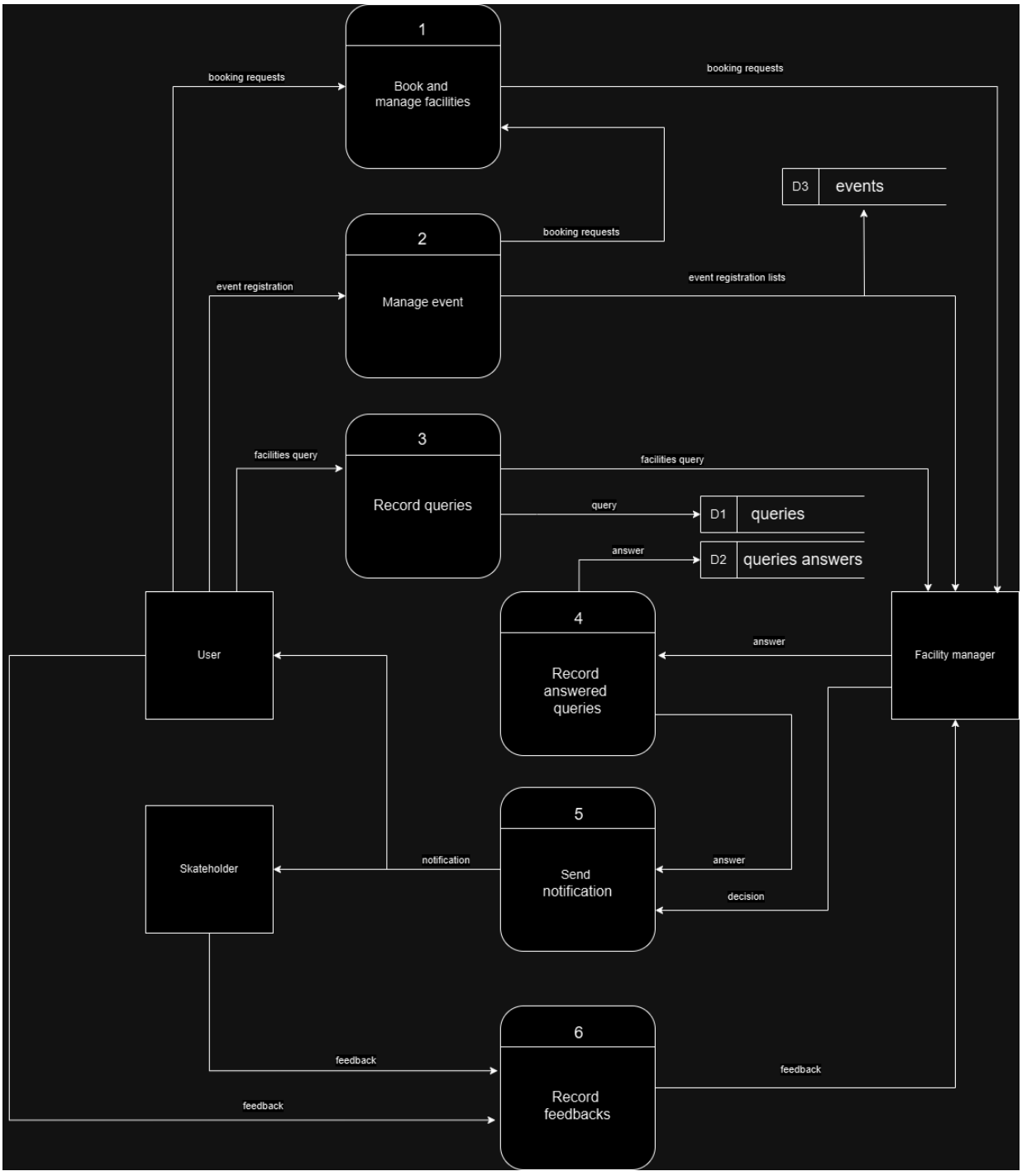
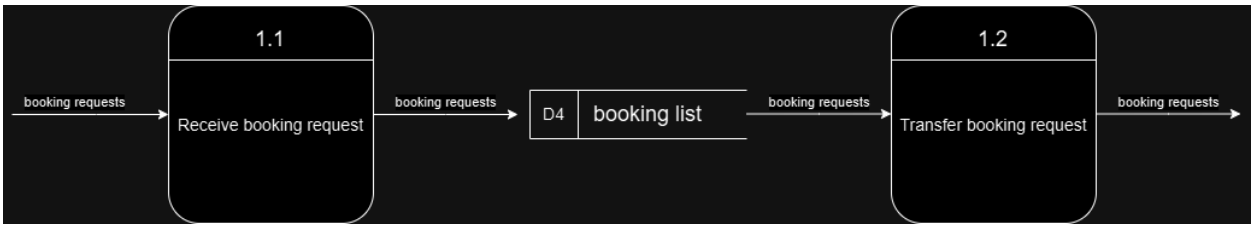


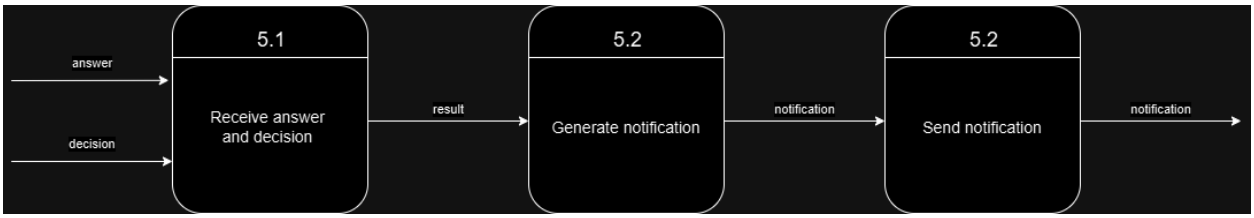
Diagram 0


1
Book and manage facilities
booking requests
booking requests
D3
events
2
Manage event
booking requests
event registration
event registration lists
3
Record queries
facilities query
facilities query
query
D1
queries
answer
D2
queries answers
User
4
Record answered queries
answer
Facility manager
5
Send notification
Skateholder
notification
answer
decision
6
Record feedbacks
feedback
feedback
feedback

Child diagram for process 1



Child diagram for process 5



Child diagram for process 6

6.0 Summary of Requirement Analysis process

Requirement Analysis is a crucial phase in the software development lifecycle, beginning with understanding stakeholder needs through interviews, surveys, and workshops. Eliciting requirements involves capturing both functional and non-functional aspects, prioritizing them based on impact. These requirements are then analyzed for clarity, consistency, and feasibility, refined, and documented using structured formats. Validation ensures alignment with project objectives, with stakeholders reviewing and providing feedback before requirements are finalized. Throughout the project, requirements are managed, tracked, and updated as needed, ensuring they remain accurate and aligned. Requirement Analysis is an iterative process, facilitating continuous improvement and ensuring the delivered system meets stakeholders' needs and project goals.