UTM UNIVERSITI TEKNOLOGI MALAYSIA

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 3

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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

I) 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 a 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.

ii) 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.

iii) 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 Solutions

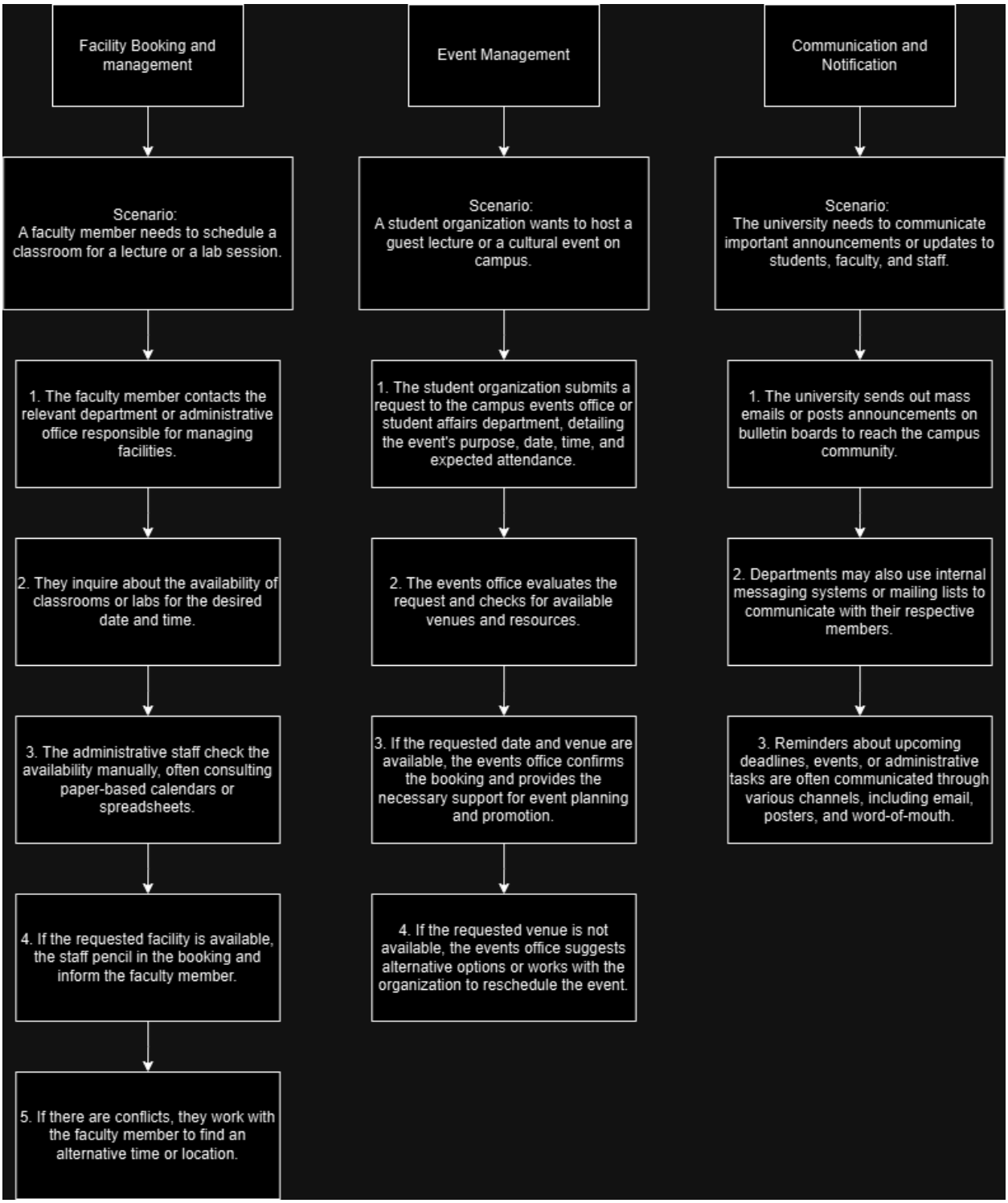
Sunbucks is a system that allows users to have convenience and accessibility on searching, viewing availability, and booking campus facilities such as classrooms, auditoriums, labs, and sports fields for managing an event. The system also allows the facility managers to define booking policies, manage reservations, and track resource utilization.

Primarily, in order to tackle the problem in terms of facility booking and management, a proposed solution would be to implement a centralized online booking system that allows users to check availability, book facilities, and receive instant confirmations. A user-friendly interface that is accessible via web browser will be provided. This ensures the ease of sue for all stakeholders including students, faculty, staff and admistrators. A secure login system with role-based access control will be included in the system to ensure that users only have access to functionalities appropriate to their roles. Different user roles would be defined, such as students, faculty, staff, and facility managers, each with varying levels of access permissions.

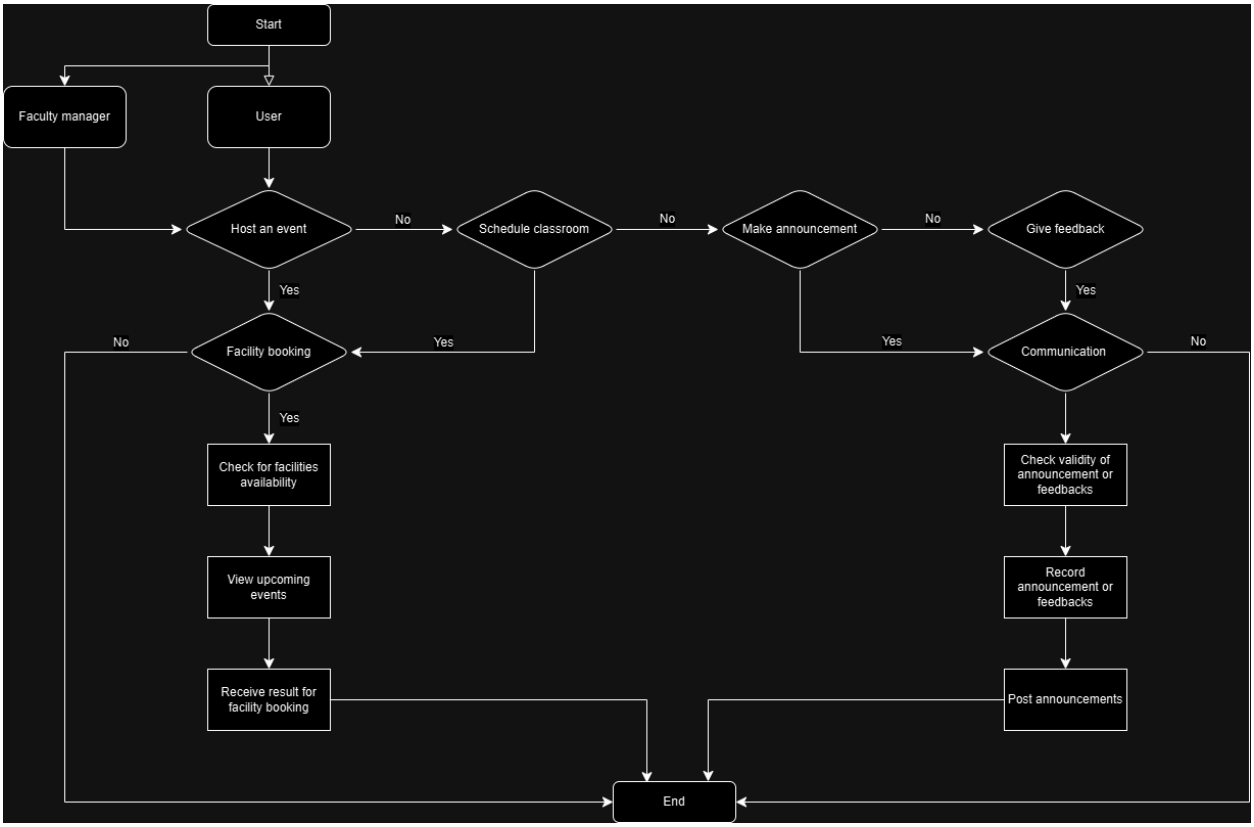
In terms of event management issues, a proposed solution would involve using event management software that integrates all aspects of event planning such as scheduling, budgeting, guest management, and logistics. This software facilitates smooth communication among team members, vendors, and attendees,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

In terms of communication and notification issues, 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. There will also be a feature which will allow users to provide feedback and reviews. After using a facility, users would have the option to provide feedback and ratings based on their experience by writing comments or sharing pictures of facilities used. The users review will be visible by the other users. This helps in continuously improving the quality of services and addressing any issues promptly.

4.0 Current Business Process



5.0 Logical DFD (AS-IS)



6.0 System Analysis and Specification

6.1 Logical DFD TO-BE system

Context Diagram

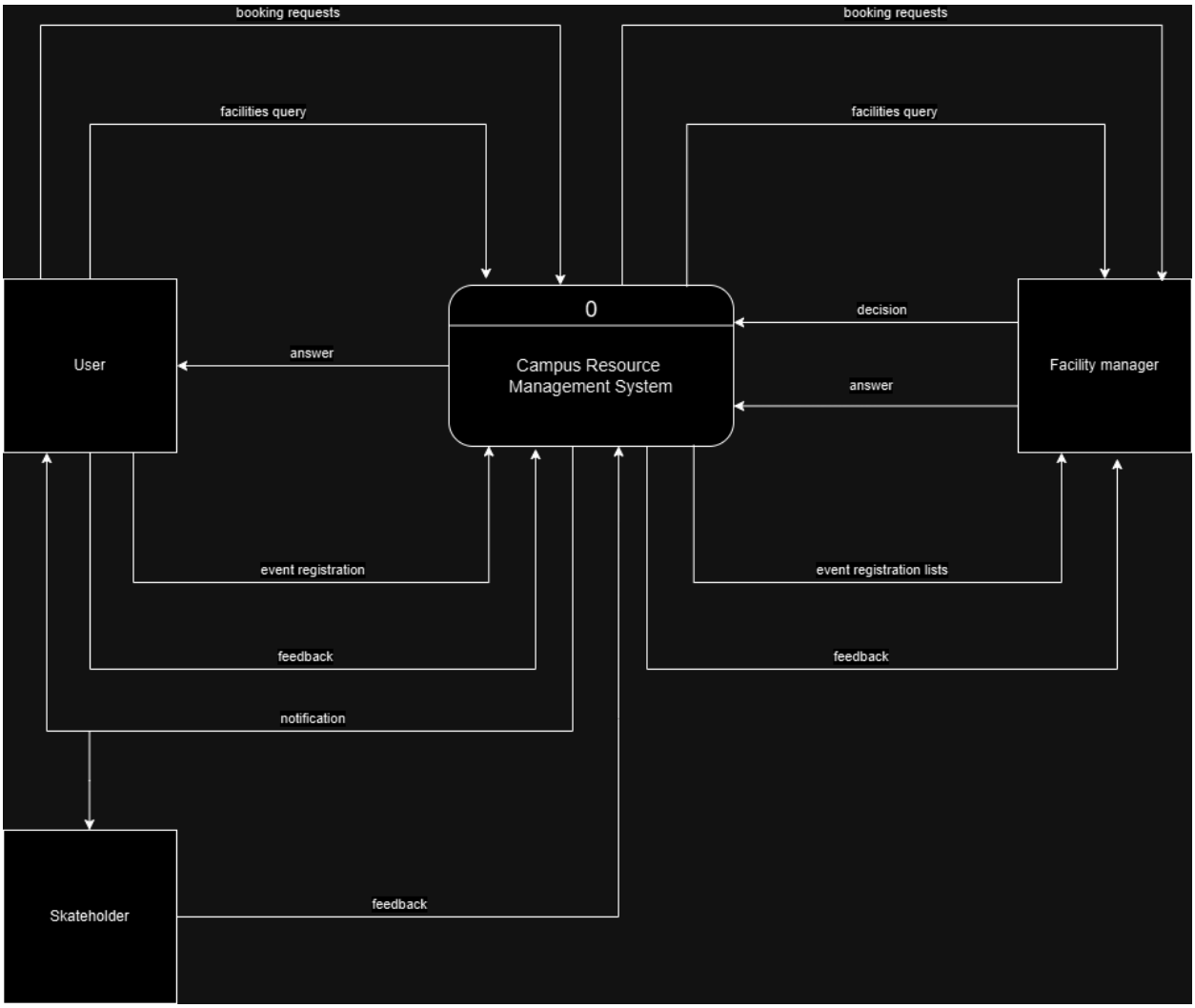
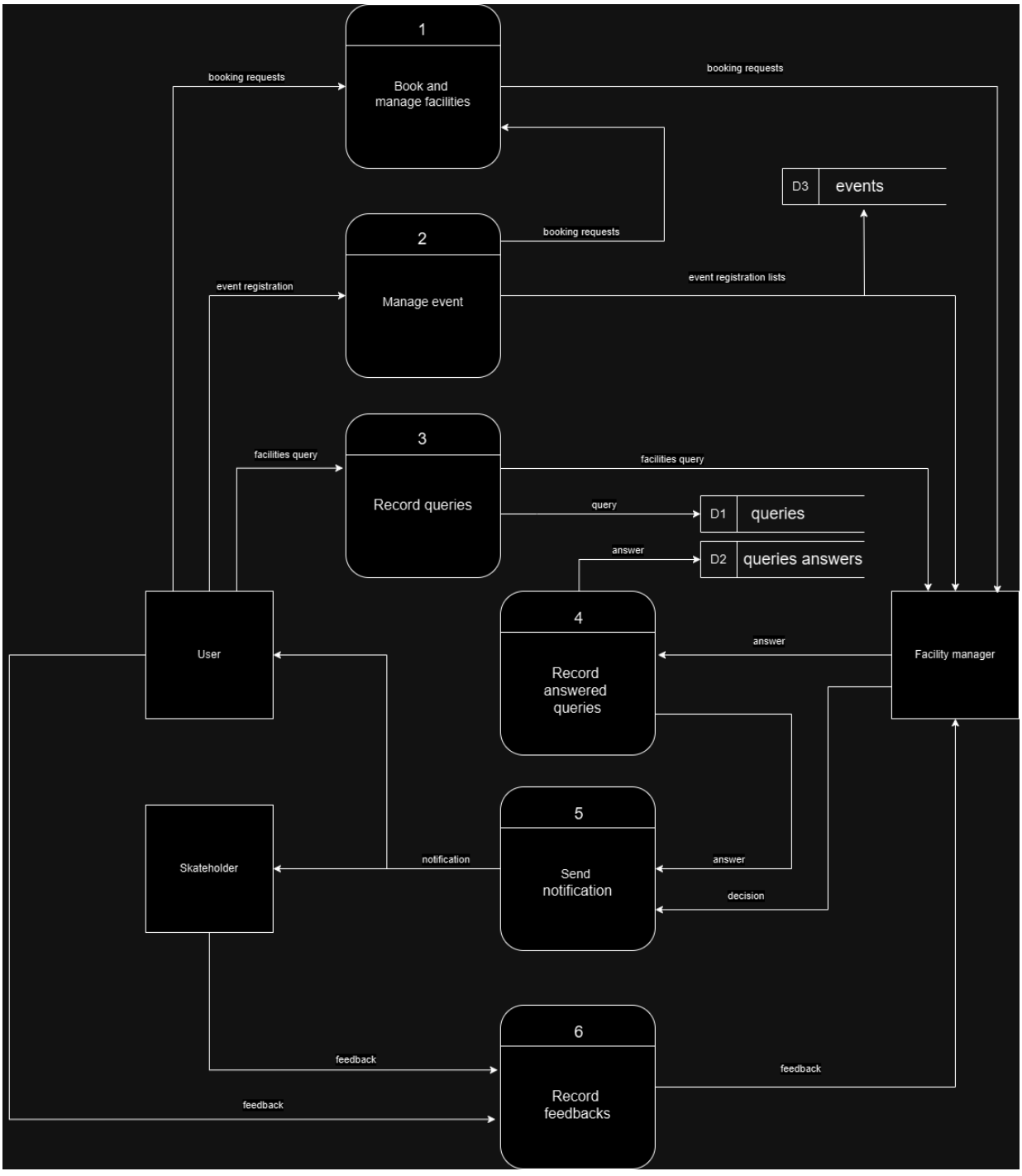
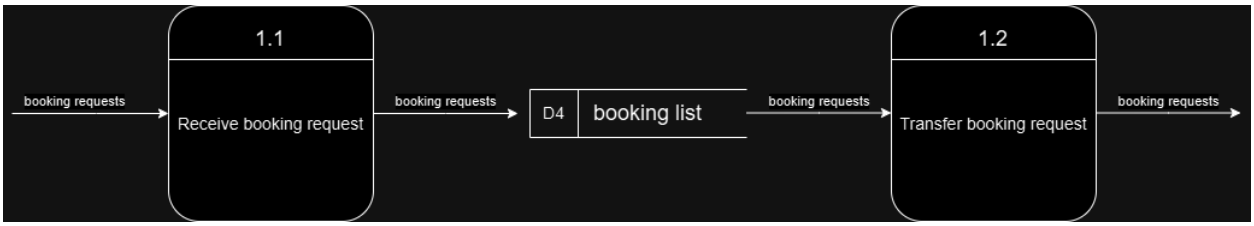


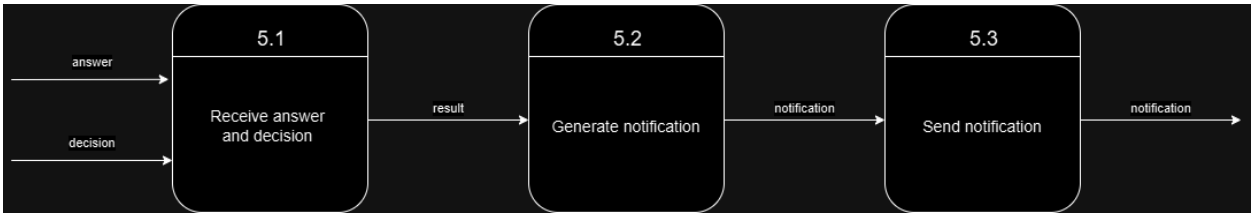
Diagram 0


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
Skateholder
5
Send notification
notification
answer
decision
6
Record feedbacks
feedback
feedback
feedback

Child diagram for process 1



Child diagram for process 5



Child diagram for process 6

6.2 Process Specification (based on Logical DFD TO-BE)

1.0 Book and manage facilities

Description: Streamline the process of searching, booking, and managing campus facilities.
Inputs: booking requests
Outputs: booking requests

Sub-process:

I) Receive booking request (1.1)
   Data Stores: booking lists (D4).
   Inputs: booking requests
   Outputs: booking requests
   Description: Receive booking request sent by the users.

II) Book Facility (1.2)
   Inputs: booking requests
   Outputs: booking requests
   Description: Enables booking requests sent to the related authority.

2.0 Manage event

Description: Facilitate the creation, scheduling, and management of campus events.
Inputs: event registration.
Outputs: event registration lists, booking requests

3.0 Record queries

Description: Enable the queries questioned by the users to be recorded and answered as soon as possible.
Inputs: facilities query
Outputs: facilities query, query

4.0 Record answered queries

Description: Record the answer given by the related authority based on the recorded queries questioned by the users.
Inputs: answer
Outputs: answer

5.0: Send Notification

Description: Enhance communication among stakeholders through automated notifications and messaging.

Inputs: answer, decision

Outputs: Notification

Sub-processes:

I) Receive Notifications (5.1)
   Inputs: answer, decision
   Outputs: result
   Description: Handles incoming and outgoing communications between users and system administrators.

II) Generate notification (5.2)
   Inputs: result
   Outputs: notification
   Description: Automatically generates notification to users based on various triggers

III) Send notification (5.3)
   Inputs: notification
   Outputs: notification
   Description: Automatically sends notifications to users based on various triggers

6.0 Record feedbacks

Description: Record the feedbacks given by the users for better improvement in the future.

Inputs: feedback

Outputs: feedback

Sub-process:

I. Collect feedback (6.1)
   Data Stores: feedbacks (D6).
   Inputs: feedback
   Outputs: feedback
   Description: Collect feedback given by the users.

II. Deliver feedback (6.2)
   Inputs: feedback
   Outputs: feedback
   Description: Deliver the feedback given to the related authority to have a solution.

7.0 Physical System Design

7.1 Physical DFD TO-BE system (, Partitioning, CRUD Matrix, Event Response Table, , System Architecture)

The Campus Resource Management System (CRMS) can be divided into several subsystems based on functionality:

i) User Management Subsystem
Components: Authentication, Authorization, User Profiles, Role Management
Responsibilities: Handles user registration, login, role-based access control, and user profile management.

ii) Facility Booking and Management Subsystem
Components: Facility Catalog, Booking Engine, Availability Tracker, Booking Policies, Facility Feedback
Responsibilities: Manages facility catalog, booking process, availability tracking, policy enforcement, and feedback collection.

iii) Event Management Subsystem
Components: Event Scheduler, Venue Reservation, Attendee Registration, Promotion Tools, Event Analytics
Responsibilities: Facilitates event planning, scheduling, venue booking, attendee registration, event promotion, and post-event analysis.

iv) Communication and Notification Subsystem
Components: Notification Engine, Messaging System, Reminder Service, Feedback Collection
Responsibilities: Sends automated notifications, reminders, and updates through various channels; collects user feedback.

v) Administration Subsystem
Components: Dashboard, Analytics, Reports, Policy Management
Responsibilities: Provides administrative tools for managing the system, viewing analytics, generating reports, and defining policies.

CRUD matrix

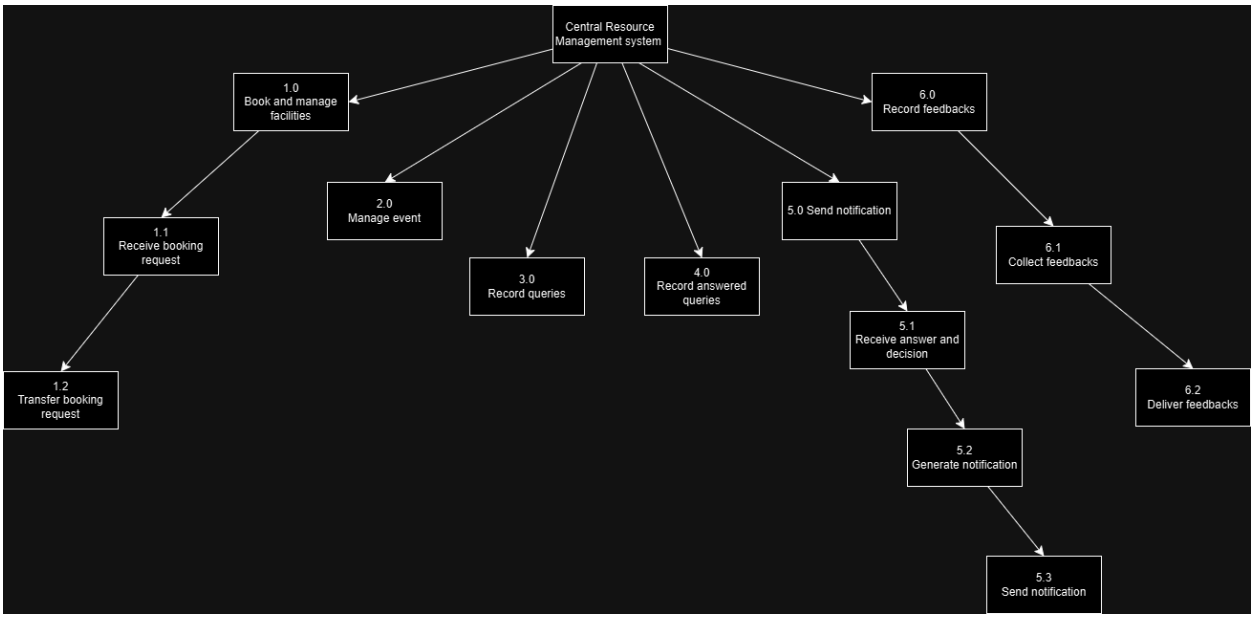
Subsystem	Create	Read	Update	Delete
User Management	Register new users	View user profiles	Update user information	Remove users
Facility Booking and Management	Add new facilities	View facility details	Update facility details	Remove facilities
	Create bookings	Check availability	Modify bookings	Cancel bookings
	Submit feedback	View feedback	Update feedback	Delete feedback
Event Management	Create events	View event details	Update event details	Cancel events
	Register attendees	View attendees	Update registration	Remove registration
Communication and Notification	Send notifications	View notifications	Update notifications	Delete notifications
	Submit feedback	View feedback	Update feedback	Delete feedback
Administration	Create policies	View analytics/reports	Update policies	Remove policies/reports

Event Response Table

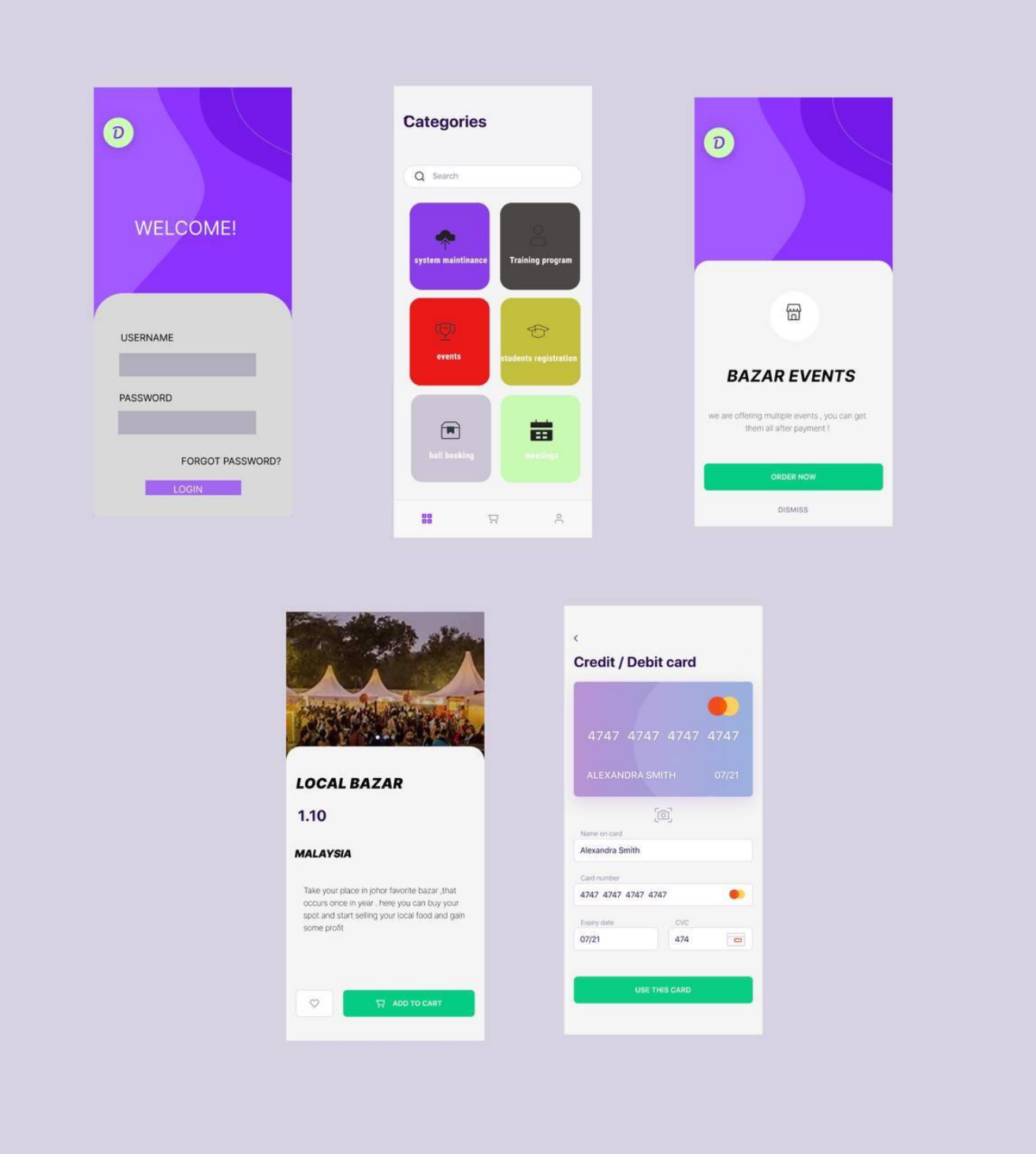
Event	Source	Trigger	Response
User Registration	User	New user registration	Create user profile, send confirmation email
Facility Booking	User	Booking request	Check availability, confirm booking, update availability
Event Creation	Admin/Faculty	New event creation	Reserve venue, notify relevant users, update event calendar
Send Notification	System	Event reminder, updates	Send notification via email/SMS/app
Submit Feedback	User	Feedback submission	Store feedback, notify administrators

Policy Update	Admin	Policy modification	Update policies, notify relevant users

Structure Chart



8.0 System Wireframe (Input Design, Output Design)



9.0 Summary of proposed system:

The Campus Resource Management System (CRMS) is designed to improve administrative and operational efficiency within university or college campuses. It integrates various

functionalities into a single platform to simplify resource allocation, scheduling, communication, and decision-making processes.