RESEARCH ETHICS MANAGEMENT SYSTEM

A Final Project Presented to the
Faculty of the College of Computer Studies
St. Michael's College
Iligan City

In Partial Fulfillment
Of the Requirement of the Subjects
System Integration and Architecture II
Software Engineering II

By:

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Chapter 1

THE PROBLEM AND ITS SETTINGS

1.1 Introduction

Research is an important part of academic life, helping us find new solutions and improve the way we understand the world. But with research comes the responsibility to ensure that it is done ethically respecting the people that are involved and following strict guidelines. At Saint Michael's College, Iligan City, this responsibility is taken seriously, leading to the creation of a Research Ethics Management System.

At Saint Michael's College, Iligan City, the existing process for managing research ethics is time-consuming and prone to delays, often relying on paper-based methods that can lead to difficulty in maintaining organized records . Researchers face challenges in tracking their applications, while ethics committees struggle to manage and review proposals promptly. This can lead to delays in project approvals, affecting research timelines and academic output. There is a critical need for a solution that streamlines these processes while ensuring strict adherence to ethical standards.

This system is designed to make it easier for both researchers and the ethics committee to handle the necessary steps, like reviewing and approving research proposals. Instead of dealing with paperwork, the process is streamlined online, allowing researchers to submit their projects, check their status, and ensure they meet

all ethical standards. It's not just a time-saver for researchers but also a big help for the ethics committee in maintaining a clear, organized system.

In academic research, following the ethical standards is important for ensuring the credibility and reliability of the results. As Resnik (2015) points out, ethical norms in research are not just about following legal regulations but about promoting values such as "trust, accountability, mutual respect, and fairness," which are essential for effective collaboration and maintaining public trust in the research process. According to the study on Ethics Management, the research organizations ethical reviews of management research procedures are frequently completely standardized and oriented toward respondent protection. This raises the question of how management publication processes might best take into account the interests of the research subject, both as understood broadly and in the context of particular research participants (Muel Kaptein, 2015).

This study proposes a Research Ethics Management System designed to streamline and enhance the efficiency of managing research ethics at Saint Michael's College, addressing current inefficiencies and reinforcing the institution's commitment to ethical research practices.

1.2 Statement of the Problem

The researcher has identified two following problems;

- Students are unaware of the available schedules of Ethics reviewers causing delays in submitting documents
- Manual writing of Transition Codes or Receipt Numbers leads to repeated data and conflicts.
- Manual reports for Ethics review is time-consuming and prone to errors, making it difficult to track the overall progress.

1.3 Objective of the Study

The objective of this study is to develop a management system for the Research Ethics Office. Specifically, this study aims to;

- Design a system that allows students to view available schedules of Ethics reviewers to reduce delays in document submission.
- Develop an automated system for generating Transition Codes or Receipt Numbers to avoid repeated data and prevent conflicts
- Evaluate the effectiveness of the system in automating report generation for Ethics reviews to improve tracking of overall progress and minimize error

1.4 Scope and Limitation of the Study

The study aims to develop a web based system with the title of Research Ethics Management System using python programming language with Django frameworks. This system aims to help the Research Ethics admin to manage the records properly without recording the same transaction code. The student can create an account to the system, after the student receives the confirmation of account registration they can submit the manuscript of their research. One student per research group can submit the manuscript to the system and the student that will submit the manuscripts can also include the list of other group members. The student can create appointments to the system and they are also able to view ethics schedules. The student is also able to receive comment notification, appointment notification and the released date. Admin can view the student list, member list, file, appointment list and reviewer list. The admin also has an ability to manage the reviewer and comments on the manuscripts, also the admin only can respond to the appointment request. Reviewers can login to the system and create an available schedule to the system. The reviewer is also able to criticize the manuscripts. Each reviewer has been assigned to one specific college department.

The system will be only made for St Michael's College Iligan City which means only the registered student and teacher to the school can only use the system. This system is intended only for those who have a capstone/thesis subject. This system is only web based and does not support mobile applications, additionally this system can be accessed by the use of the internet. This system only supports the SMC email.

1.5 Significance of the Study

The following entities that will benefit from this study are the ..

Students. The Research Ethics Management System allows students to easily submit their manuscripts, simplifying the process of seeking ethical approval. This system also provides students with real-time updates on the status of their submissions, ensuring transparency and reducing delays in the review process.

Reviewers. Reviewers benefit from the system by having all research manuscripts and supporting documents in one place, making it easier to assess submissions efficiently.

Administrators. The Research Ethics Management System helps the administrator to manage reports more efficiently and manage data accurately .

1.6 Definition of Terms

To ensure the study's clarity, the following terms are utilized and their meanings are specified.

Paper-based - Refers to a system or process that uses physical paper for recording, storing, and managing information instead of digital or electronic means.

streamlines - Refers to simplifying or making a process more efficient by reducing complexity, improving workflow, and eliminating unnecessary steps.

Research Ethics - Refers to the principles and guidelines that govern how research is conducted, ensuring the protection of participants, honesty in reporting, and integrity in the research process. It aims to prevent harm and promote fairness and respect.

Management System - Refers to a set of processes used to organize, control, and oversee the operations of an organization or project. It helps ensure efficiency, consistency, and the achievement of goals.

Chapter 3

RESEARCH METHOD

This chapter describes and explains the methodology deployed in this study, specifically the diagrams that will be utilized to develop the system.

3.1 Analysis Modeling

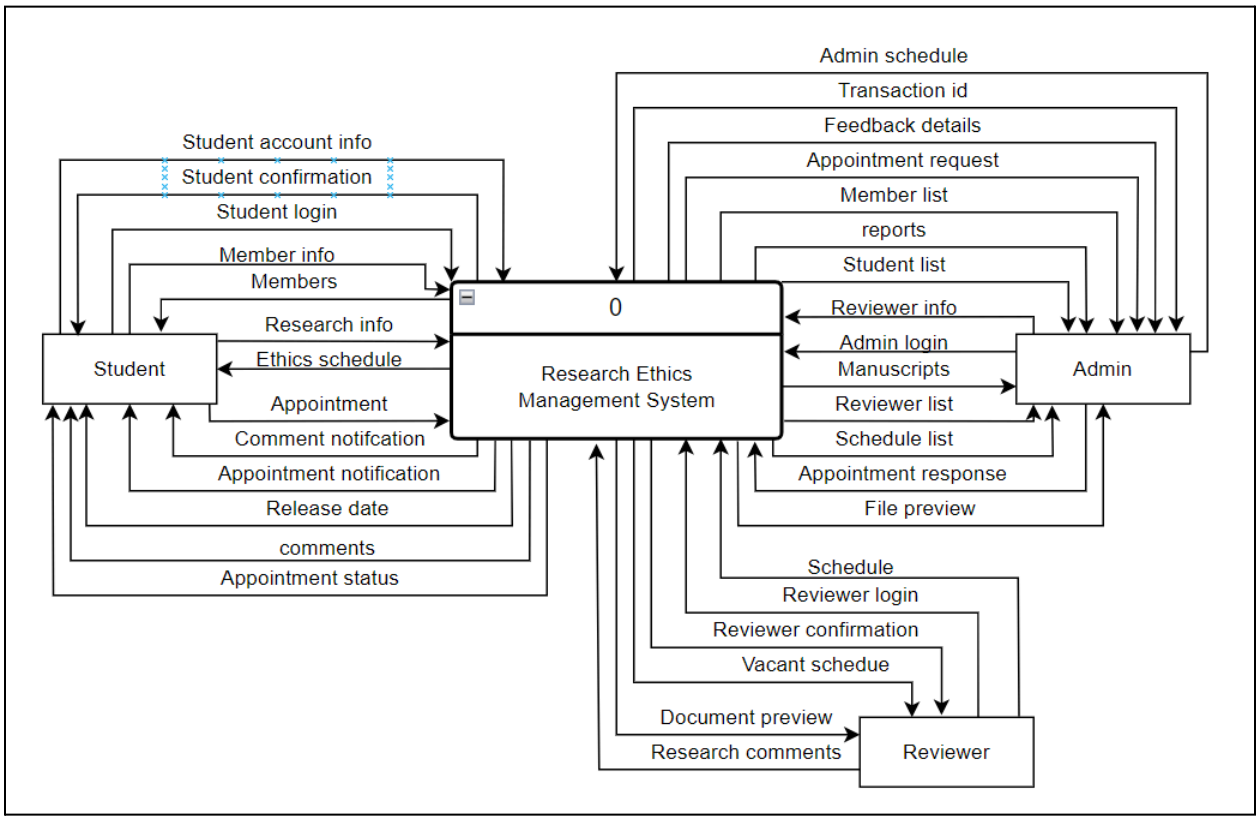


Figure 3.1 Context Diagram

A context diagram enables users to understand how a system works. This diagram shows the general flow of the web based system. The system has three entities:

Students, Reviewers and Admin. Students engage with the system to manage various research-related tasks, such as accessing account details, scheduling appointments, receiving notifications, and monitoring the status of their research ethics submissions. Admin maintains schedule management, processing appointment requests, handling feedback, and receiving reports. Additionally, Admin manages user data, including both students and reviewers, ensuring the integrity and flow of information within the system. Reviewers, tasked with providing critical evaluations of research submissions, interact with the system to confirm their participation, manage their schedules, review documents, and provide feedback. This diagram underscores the flow of information among these entities to facilitate communication and management of the research ethics process.

3.2 System Design

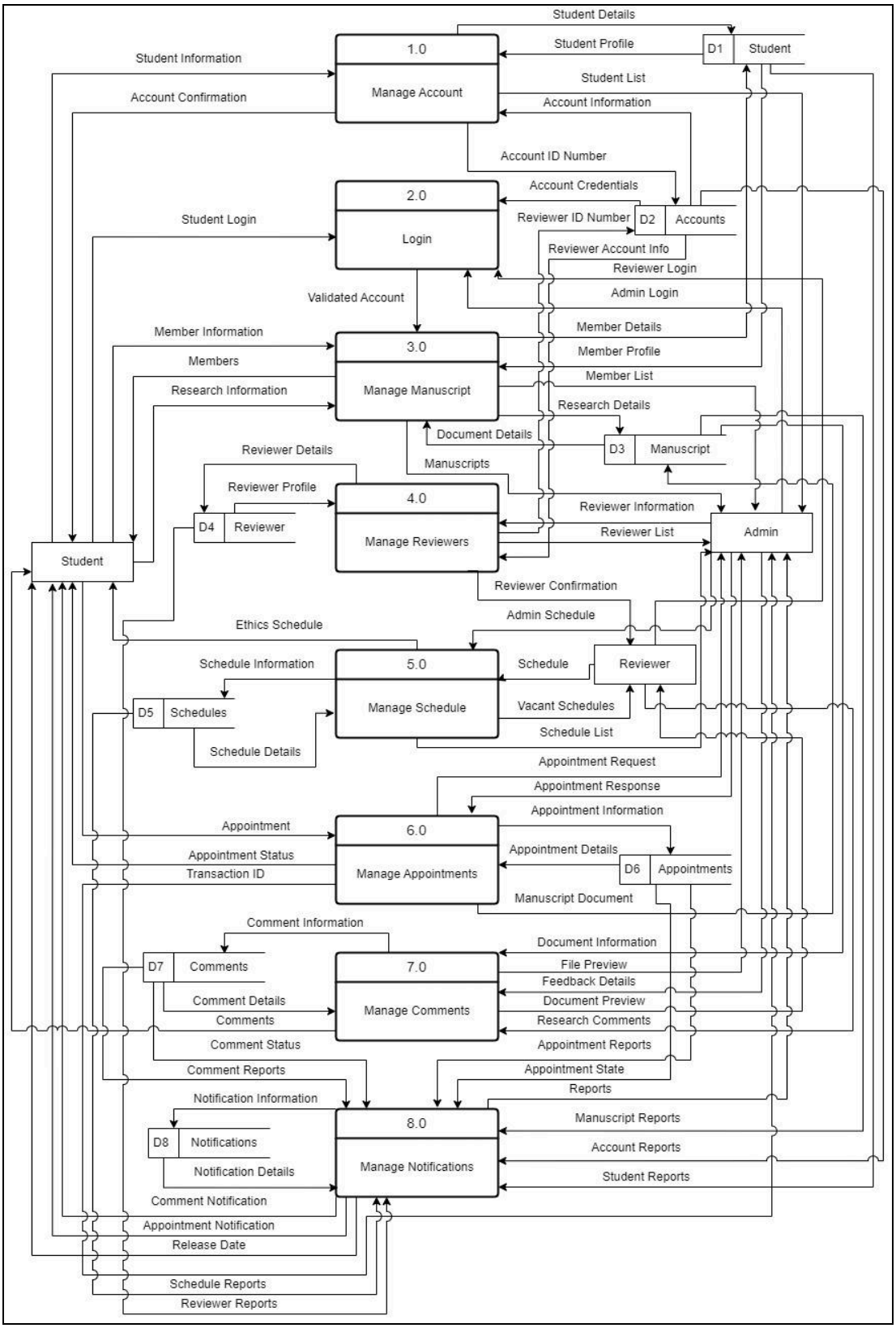


Figure 3.2 Data Flow Diagram

There are eight processes involved in the system including three entities and eight data stores:

Process 1 implies the management of accounts. This process refers to the registration of student accounts where the students can create accounts and store it to the accounts database.

Process 2 implies the login process to our system where students will login their registered accounts.

Process 3 this process is about managing manuscripts. This process involves the adding of group members of the registered student and also submitting the manuscripts.

Process 4 this process is about managing reviewers, in this process the admin can add and view the list of reviewers to the system .

Process 5 This process implies about the manage reviewer process. In this process the admin and reviewer can add to the system of their vacant schedule and the student can view the schedule list.

Process 6 This process is about managing appointments where students can create appointments and the admin can be able to receive the appointment request and has an ability to respond to the appointment request from the student.

Process 7 is about managing comments where the admin and reviewer can view the manuscripts being submitted by the student and they can comment on the manuscripts.

Process 8 implies the management of the notification. This process is all about the generating notification, viewing notification and generating reports to the system.

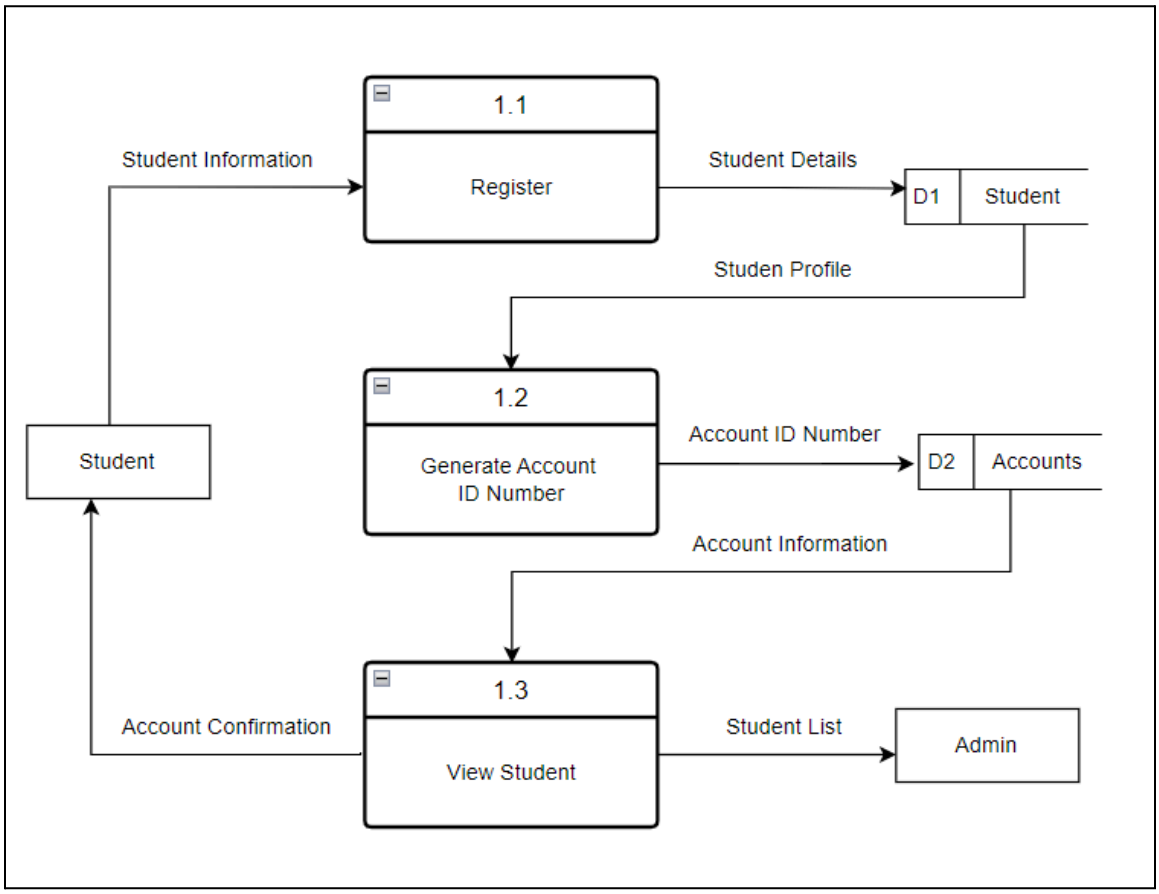


Figure 3.2.1

The diagram shows the decomposition of process 1. Manage registration which describes the registration process where students can register to the system and after the registration the system will generate an account id number from the student and store it to the Accounts database. In this process also the admin can view the student list.

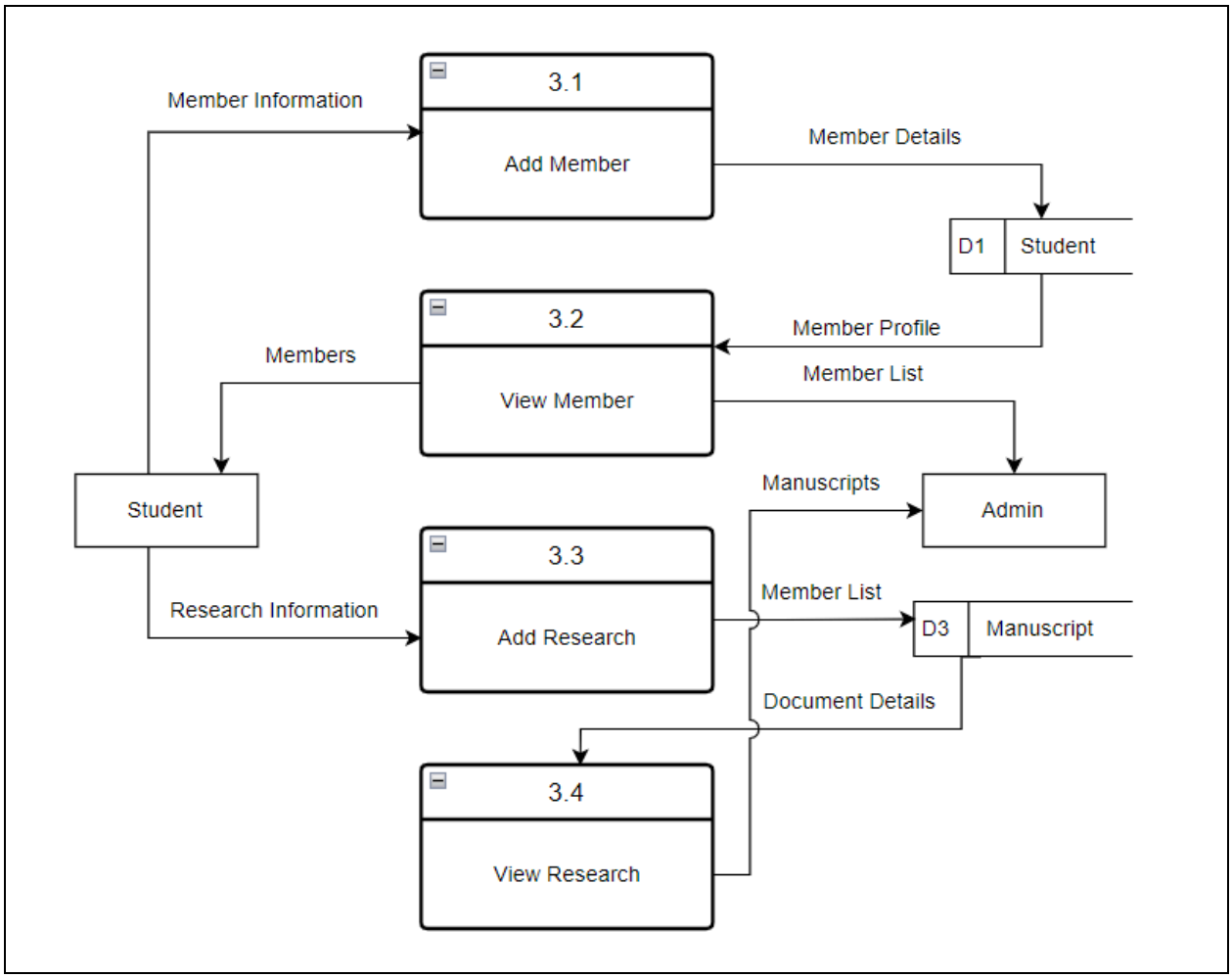


Figure 3.2.2

This diagram shows the decomposition of process 3. Manage manuscripts which implies about the research information from the student and also about the adding the member information to the system.

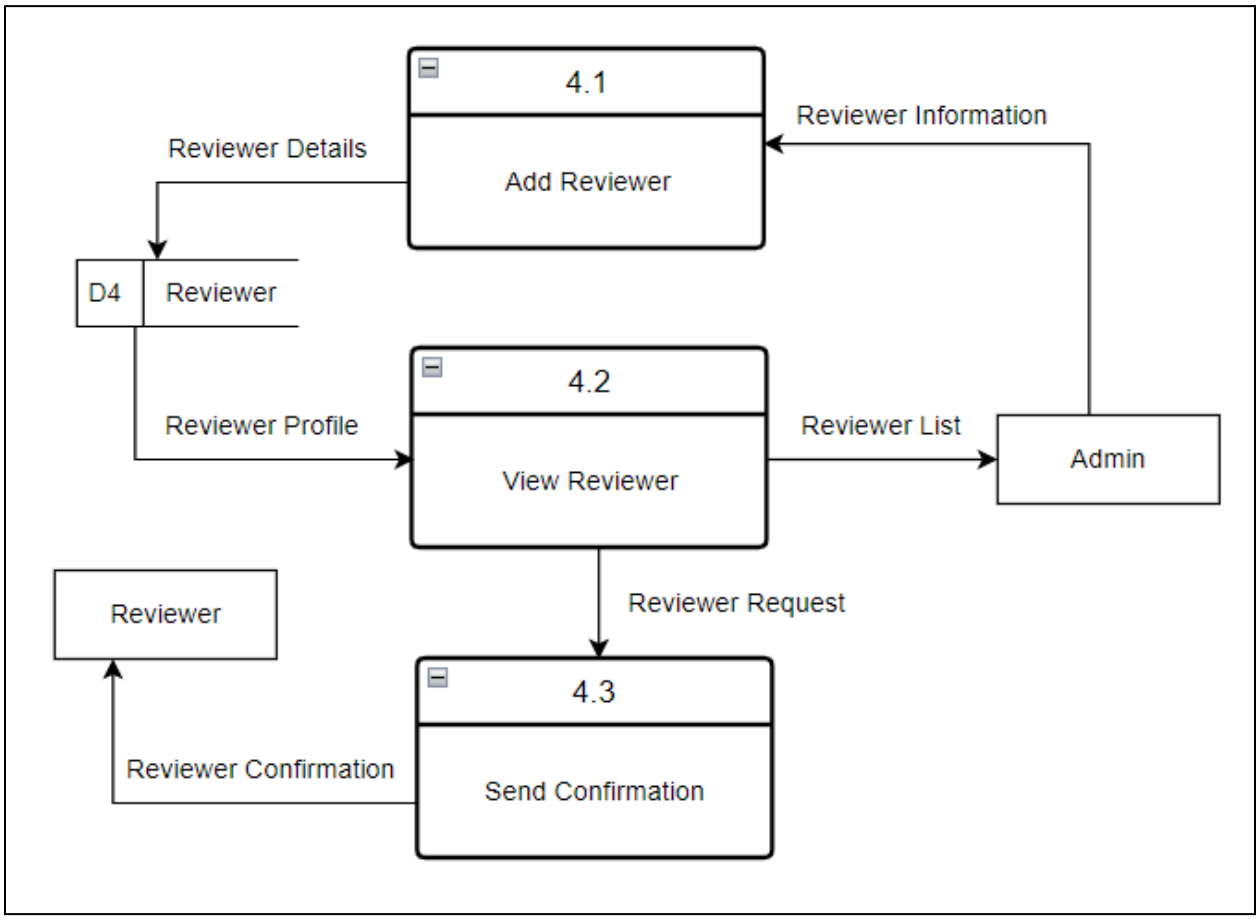


Figure 3.2.3

This diagram shows the decomposition of process 4 Manage Reviewer. This process is about the admin side where the admin can add a reviewer to the system and also to view the reviewer list to the system.

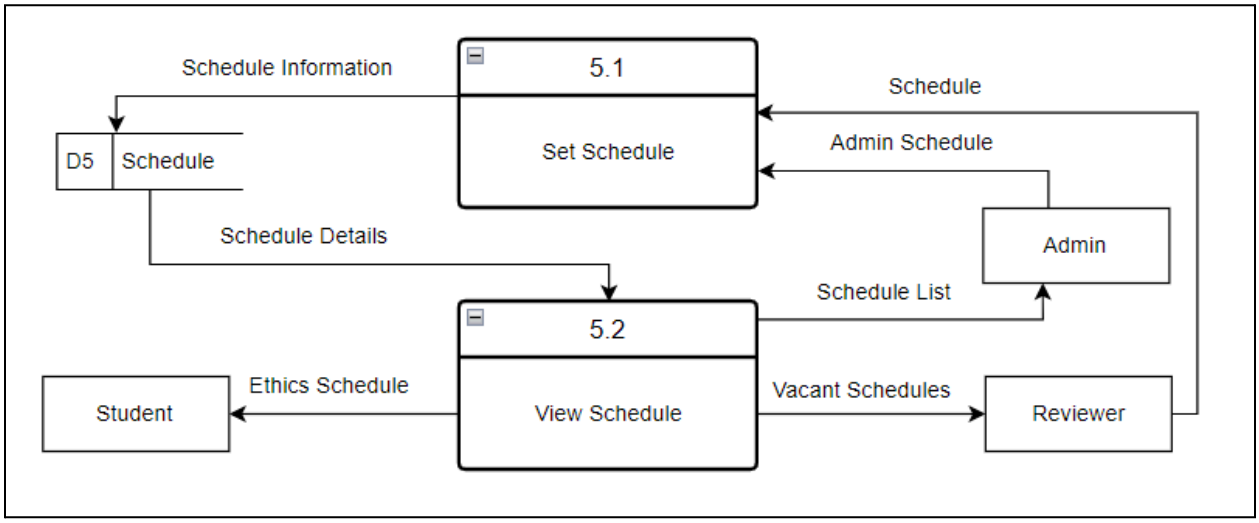


Figure 3.2.4

This diagram shows the decomposition of process 5 Manage schedule. This diagrams describe about the process of adding the vacant schedule of the reviewer and admin to the system and the student be able to view the available schedule list.

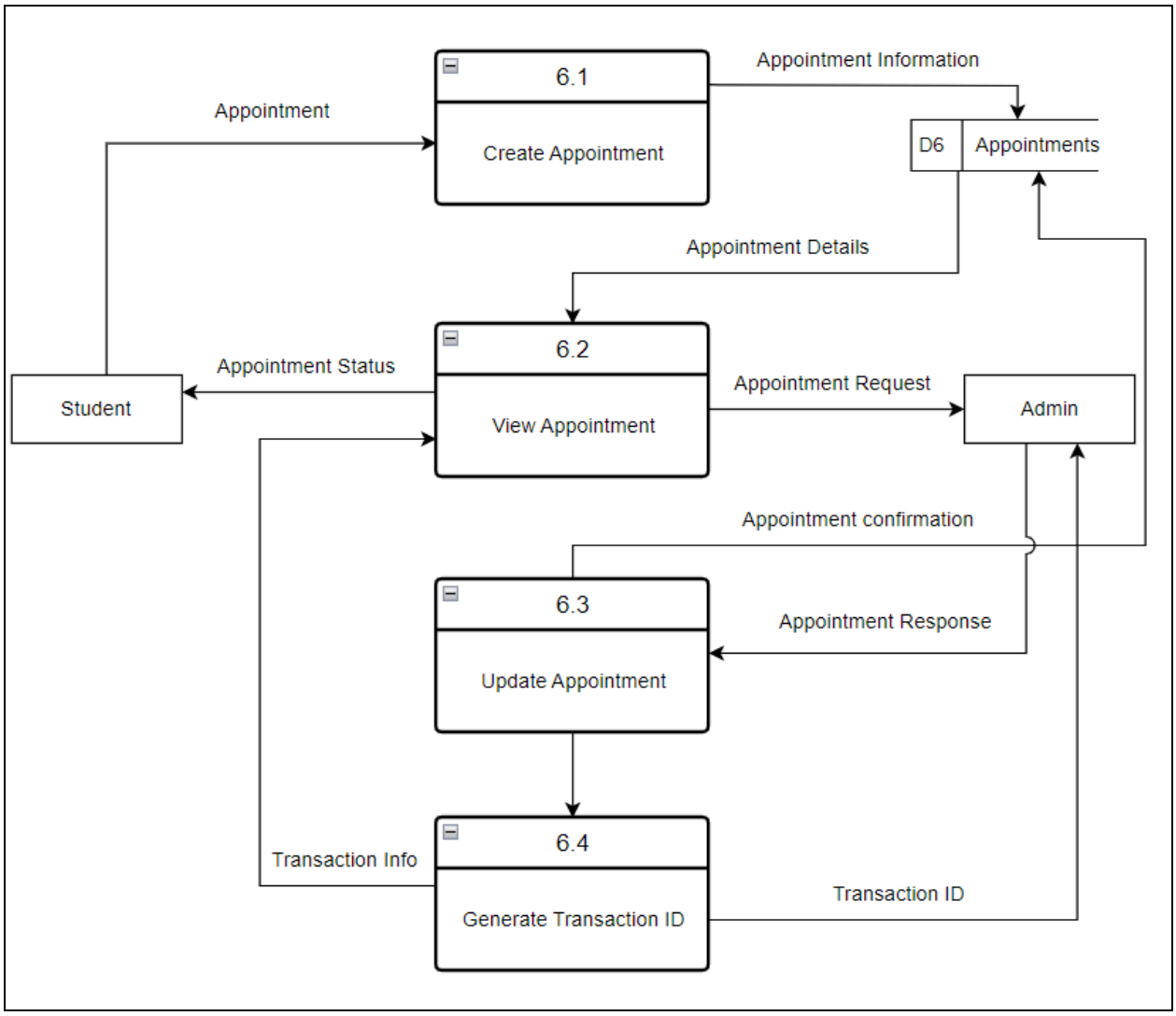


Figure 3.2.5

This diagram shows the decomposition of process 6 Manage Appointment. This process is about the managing of appointments where the student can create an appointment and store it in the appointment database. The admin can view all the appointment list from the student and the admin can create a response also to the appointment request from the student.

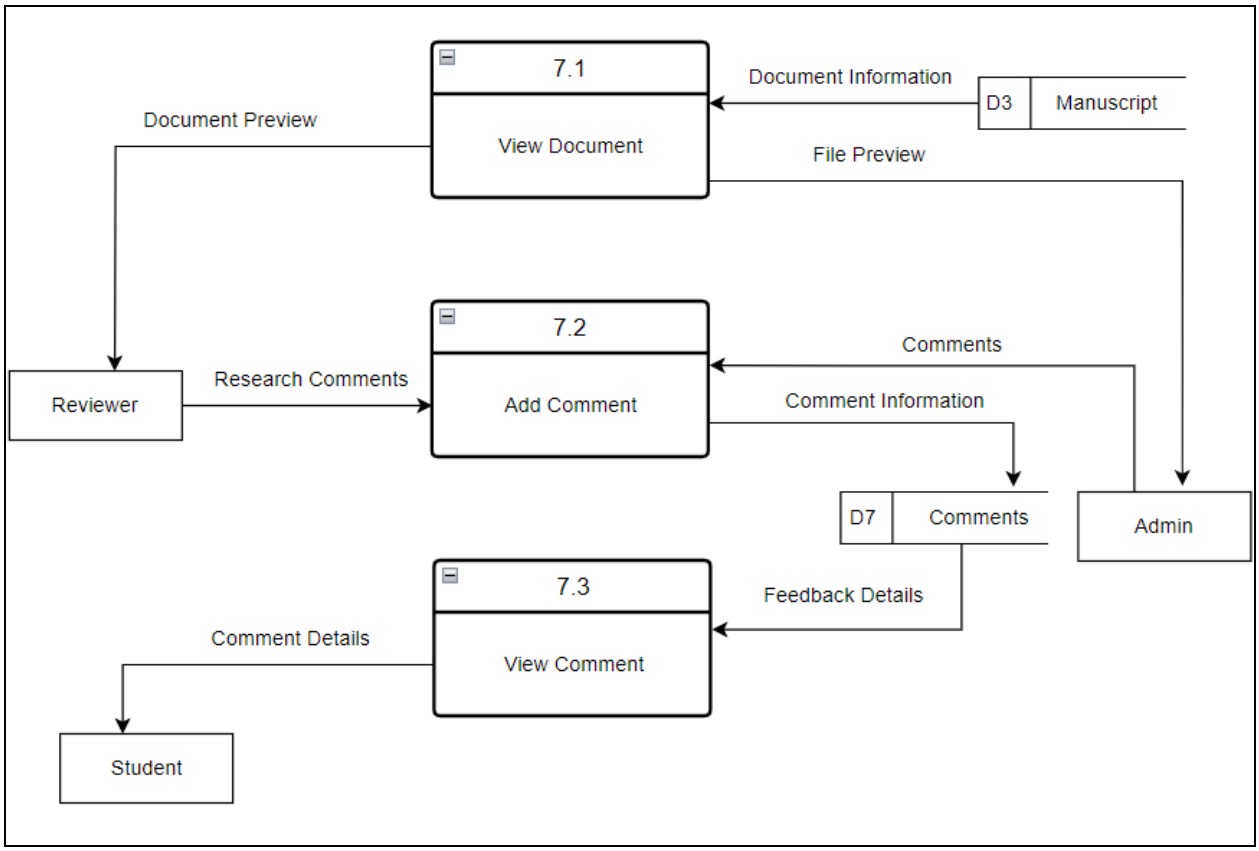


Figure 3.2.6

This diagram shows the decomposition of process 7 manage comment. This diagram describe the process about the creation of comment by the admin and reviewer to the manuscripts and the student will be able to receive the comment details.

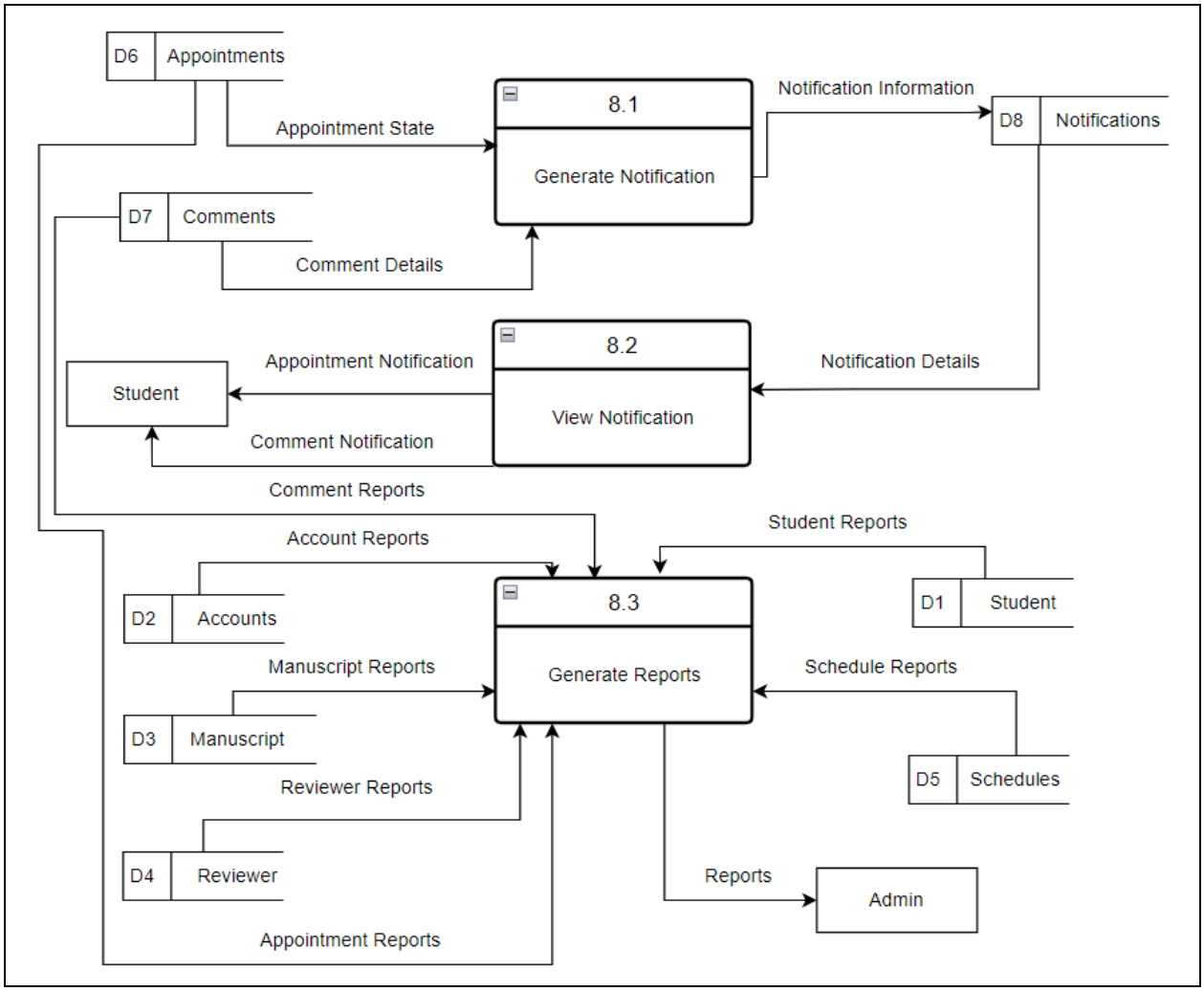


Figure 3.2.7

This diagram shows the decomposition of process 8 manage notification. This process is about the generating of notification, viewing notification and generating reports. The admin can view all the reports from the system including the account, manuscripts, reviewer and appointment reports.

3.3 Entity Relationship Diagram

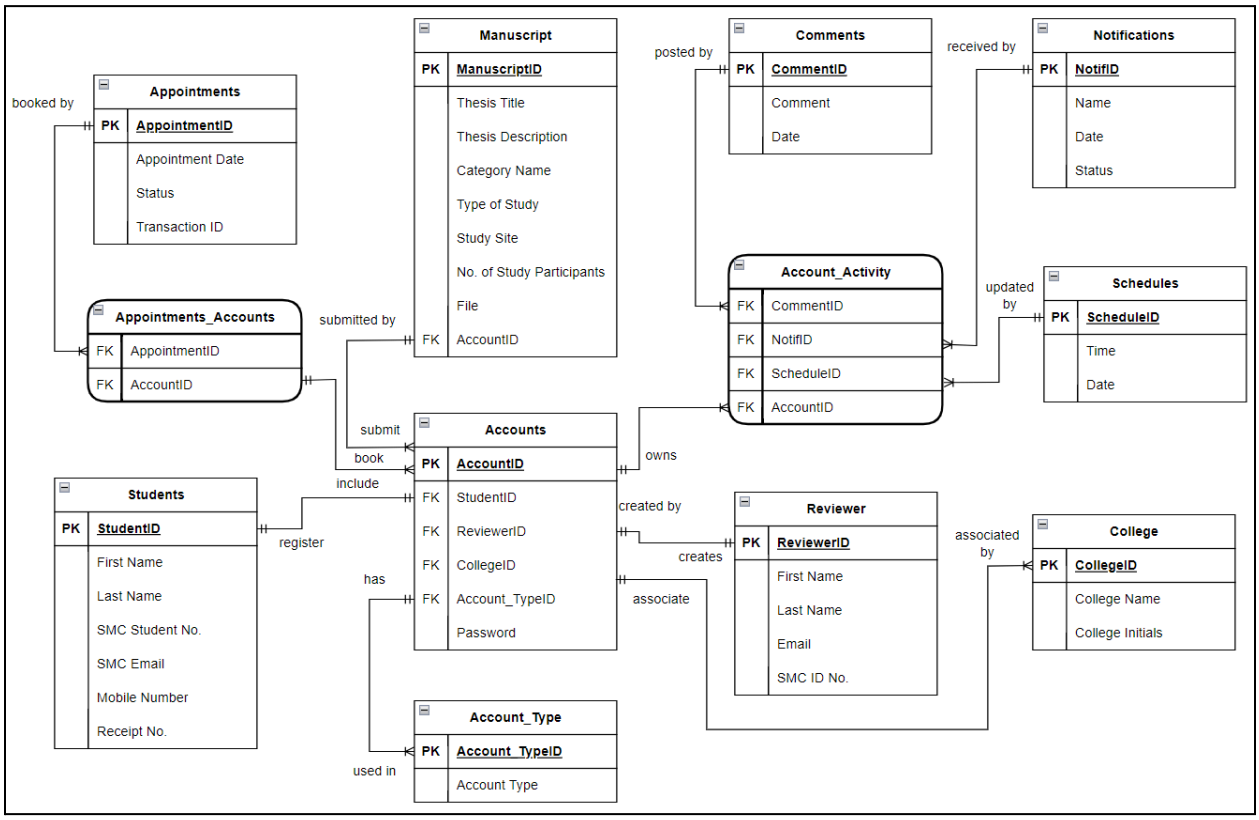


Figure 3.3.1

The Entity Relationship Diagram (ERD) presents a database schema designed for managing student appointments, manuscripts, and related activities within an academic or research environment. The key entities include Students, who have information like ID, name, contact details, and receipt number, and Accounts, which represent user accounts for students, reviewers, and other roles. Each account is linked to a StudentID, ReviewerID, and CollegeID, and includes a password. The Account_Type entity defines the type of account, such as student, reviewer, or admin. The Appointments entity

stores details about appointments, including date, status, and transaction ID, with the Appointments_Accounts junction table linking appointments to the accounts involved.

The Manuscript holds information about submitted work, including title, description, category, and associated files, while Reviewers contains details about the reviewers. College stores college names and initials, and Comments tracks comments on manuscripts. Notifications records updates related to account activities, which are further detailed in the Account_Activity entity. Schedules capture dates for activities like appointments. The relationships between these entities establish how students, accounts, appointments, manuscripts, and reviewers interact. The system promotes communication and activity management.

3.4 Hardware Specifications

The researchers will use these hardware specifications for developing the Ethics Management System

3.4.1 Development Hardware

For Development, the researchers will use 11th Gen Intel(R) Core (TM) i5-1135G7 processor which has a clock speed of 2.40GHz with an 8 GB RAM. The operating system is Windows 11 with two different devices also from both researchers

3.4.2 Deployment Hardware

For the Deployment Hardware, A droplet from DigitalOcean which is a virtual private server in Singapore will be used to deploy the system with these specifications; 2 GB RAM, 1 AMD CPU, 50 GB NVMe SSDs and an Operating System of Ubuntu 24.04.

3.4.4 Software Specifications

The researcher used these software tools and technologies to develop the system

3.4.5 Development Software

The system will be built using Python 3.12.0 and a framework called Django as the main programming language. The researchers will be using Git for version control and for organized collaboration. Google Auth will be integrated so that students can login easily in the system.

3.4.6 Deployment Software

After development, it will be deployed using a virtual private server from Digital Ocean and a valid domain name acquired from name.com. This domain is free for a year due to the Github student developer pack.

3.4 Data Dictionary

The researchers created a data dictionary to help individuals who needed to refer to data objects or items in the data model. It consists of various tables, fields, descriptions, and types of data that will be used during the system`s development.

Students

Name	Type	Field Size	Description
StudentID	int	15	Unique ID number for all students
First Name	varchar	255	FirstName of Student
Last Name	varchar	255	LastName of Student
SMC Student No	varchar	55	Current SMC ID no
SMC Email	varchar	255	SMC email
Mobile Number	varchar	255	Mobile Number of Student
Receipt No.	int	25	Proof of Ethics Fee Payment

Reviewer

Name	Type	Field Size	Description
ReviewerID	int	15	Unique ID of Reviewer
First Name	varchar	255	First Name of Reviewer
Last Name	varchar	255	Last Name of Reviewer
Email	varchar	255	Email of Reviewer
SMC ID No	varchar	75	SMC ID No of Reviewer

Accounts

Name	Type	Field Size	Description
AccountID	int	15	Unique ID number for all accounts
StudentID	int	15	Student ID from the database Students (Foreign Key)
ReviewerID	int	15	Reviewer ID from the database Reviewer (Foreign Key)
Password	varchar	255	Password of the Account
CollegeID	varchar	255	Generated ID of Student and Teacher
AccountTypeID	varchar	75	Account ID from the (Foreign Key)

Manuscript

Name	Type	Field Size	Description
ManuscriptID	int	15	Unique ID number for all Manuscripts
Thesis Title	varchar	500	Title of Thesis
Thesis Description	varchar	500	Description of Thesis
Category Name	500	500	Category Name of the Thesis
Type Of Study	500	500	Study Type of the Thesis
No. Of Study Participants	int	7	No. of members per Thesis
File	file		Document of PDF file of the Thesis
AccountID	int		AccountID from the database Accounts (Foreign Key)

Appointments

Name	Type	Field Size	Description
AppointmentID	int	15	Unique ID number for all appointments
Appointment Date	date		Date of Appointment
Status	varchar	255	Status of Appointment
Transaction ID	int	15	Generated ID if the appointment has been approved

Comments

Name	Type	Field Size	Description
CommentID	int	15	Unique ID number for all comments
Comment	varchar	900	Comments of the Manuscript from Reviewers and the Administrator
Date	date		Date of Comment

Schedules

Name	Type	Field Size	Description
ScheduleID	int	15	Unique ID number for all Schedules
Time	varchar	255	Title of Notification
Date	varchar	255	Content of Notification

College

Name	Type	Field Size	Description
CollegeID	int	15	Unique ID number for all Colleges
College Name	varchar	255	College Name
College Initials	varchar	50	College Initial

Account activity

Name	Type	Field Size	Description
CommentID	int	15	Unique ID number for all comments
NotifID	int	15	Unique ID number for all notifications
ScheduleID	int	15	Unique ID number for all Schedules
AccountID	int	15	AccountID from the database Accounts (Foreign Key)

Notifications

Name	Type	Field Size	Description
NotifID	int	15	Unique ID number for all notifications
Name	varchar	255	Name of the notification
Date	date		Date of Notification

Status	varchar	255	Status of notification

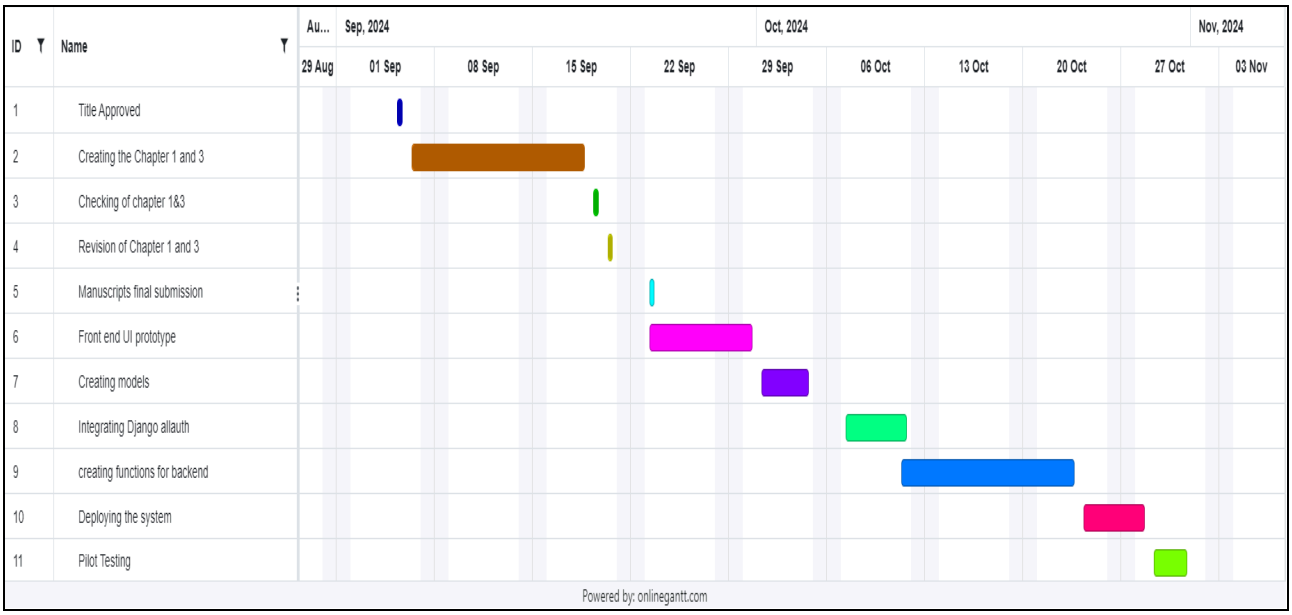
Appointment accounts

Name	Type	Field Size	Description
AppointmentID	int	15	Unique ID number for all appointments
AccountID	int	15	Unique ID number for all accounts

Account type

Name	Type	Field Size	Description
Account_TypeID	int	15	Unique ID number for all account types
AccountType	varchar	255	Name for the account type

Appendix A. Gantt Chart



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September 3, 2024

ELAINE MAY F. MANGCA, MBA
Research Ethics
St. Michael's College Research Office
Quezon Avenue, Iligan City, Philippines, 9200

Dear Ma`am Elaine,

Praise be Jesus and Mary!

We, the 4th year students of St. Michael's College, under the College of Computer Studies, in partial fulfillment of our system project in IT411 - System Integration and Architecture 2. As part of this we respectfully request your permission to conduct an interview to gather relevant information necessary for the completion of our project.

Our project employs an Agile approach, which includes iterative development and frequent feedback. We will involve your office in testing the prototype as part of this process. After the testing phase, we plan to administer a survey to assess the usability and effectiveness of the developed software..

We are committed to following high ethical standards in our research. All information collected will be kept confidential, and participants' identities will stay anonymous. Data will be stored securely and used only for this project.

Upon completion of the project, we will acknowledge your contribution in our research documentation. We greatly appreciate your consideration of this request. Should you have any concerns or need further clarification, please feel free to contact us via the provided emails and contact numbers.

Respectfully yours,

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Noted by:

LEONIE A. CAJES
Subject Adviser

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