UNIVERSITI TEKNOLOGI MARA (UITM) SELANGOR

PUNCAK PERDANA CAMPUS

FACULTY OF INFORMATION SCIENCE

Bachelor of Information Science (Hons) Information Systems Management

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Advanced Web Design Development and Content Management

(IMS566)

Group Project

The Development of MyMerit System

Prepared by:

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Group :

CDIM2624A

Prepared for:

Dr. Muhammad Asyraf bin Wahi Anuar

2nd February 2026

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Acknowledgement

In the name of Allah S.W.T., we are deeply grateful to the Almighty for granting us the strength, guidance and opportunity to successfully complete this group project on time. Throughout the process of completing this project, we encountered various challenges, but with perseverance, teamwork and mutual support, we were able to overcome them successfully. We are truly thankful for this achievement.

We would like to express our sincere appreciation and heartfelt gratitude to our lecturer for IMS566 course, Dr. Muhammad Asyraf bin Wahi Anuar, for his guidance, constructive feedback and continuous support throughout the completion of this project. His valuable insights and encouragement played a significant role in helping us improve and finalize this project.

Last but not least, we would like to express our sincere thanks to our families and friends for their continuous moral support and encouragement throughout this journey. We also extend our appreciation to everyone who was involved, directly or indirectly, in the successful completion of this assignment. All contributions are deeply appreciated and sincerely cherished.

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Lift of Figures and Tables

1.0 Introduction

A web-based tool called the MyMerit System was created to simplify and centralize the administration of student merit records and event programming. This system functions as a single digital hub that unifies all event data, from internal faculty programs to external campus-wide activities, rather than merely serving as a simple tracking tool. The main objective is to replace manual procedures with a useful online application that makes database interface and real-time data management easier.

The Academic Dashboard, which offers a thorough summary of all faculty and campus activity, is a crucial component of the system. This gives the system a more comprehensive understanding of student engagement and academic activity than just point-tracking. The solution enables secure authentication and complete CRUD (Create, Read, Update, Delete) operations by digitizing actual merit forms, guaranteeing that all records are precise, searchable and managed.

The MyMerit System was created with a back-end foundation and a CSS framework for responsive design to guarantee a polished and user-friendly experience on various devices. Through clear code management and thorough documentation, this project exemplifies technical implementation and teamwork. In the end, the system functions as a data-driven way to improve the effectiveness and openness of student merit and event administration in the classroom.

1.1 Objective

The following are the main goals of this system development:

1. To incorporate content management and web design expertise into a useful database-interacting tool.
2. To digitize a manual and time-consuming merit form and convert it into an online format with CRUD functions and safe authentication.
3. To offer a comprehensive e-merit dashboard that provides a snapshot of all faculty and university activities beyond simple point tracking.
4. To streamline the process of merit submission and approval through a structured web-based workflow.
5. To provide features for PDF export, search and filtering in order to improve data management and reporting efficiency.

1.2 Problem Statement

Currently, Universiti Teknologi MARA (UiTM) uses a mobile-based QR tracking system that is limited by major administrative inefficiencies and technological limitations. This approach aims to address several significant issues in the current management of student's e-merit and campus activities, while recognizing the core challenges and resulting opportunities for the MyMerit System as outlined below:

1. Technical Constraints (The 30-Second Bottleneck)

Students must scan and authenticate within 30 seconds under the current dynamic QR system. Students frequently fail logging in before the code expires due to network latency and inconsistent app performance, which results in crowded entry points and major delays during events.

2. Fragmented ‘Dual-Method’ Workflow

Student organizations, like *Jawatankuasa Perwakilan Kolej* (JPK), are compelled to use manual backups due to the unreliability of the digital system. High levels of data redundancy and fragmentation between faculty and main campus records result from this "dual-method" setting, where data is captured in physical forms or offline Excel/Word files.

3. Administrative Strain and Human Error

After an event, gathering student ID numbers by hand and re-entering them into the existing e-Merit system requires a lot of work. This inefficient data life-cycle is especially sensitive to human mistake during data entry, which affects the integrity of student merit records.

4. Lack of Real-Time Analytics and Transparency

Without a single dashboard, administrators cannot track student participation patterns in real-time. Additionally, students struggle to have a single, consistent perspective of their total scores, which results in a lack of transparency in the allocation of merit.

5. Reporting Bottlenecks and Security Gaps

The lack of an automated "Export to PDF" tool makes creating formal merit reports by hand a slow process. Additionally, the existing fragmented approaches pose a danger to data security and fail to properly conform to the latest data protection requirements (PDPA).

1.3 Project Scope

The following functional and technological limitations define the MyMerit System project's scope:

1. User Roles & Security:

- User Categorization: The system defines two major roles: Admin (Faculty and University levels) and Students.
- Secure Authentication: Implementation of a robust Login/Logout module to guarantee that only authorized users may access or edit critical merit data.

2. Centralized Management of Events:

- Unified Repository: By maintaining a centralized database of activities taking place on the main campus as well as inside the faculty, the system acts as the 'single source of truth'.
- Activity Tracking: Gathering scattered data into a unified digital record to minimize the requirement for manual Excel-based backups.

3. Dashboard Visualisations:

- Using Bootstrap to create a flexible dashboard that offers more than just a list of points but a visual breakdown of merit distribution and campus involvement patterns.

4. Fundamental CRUD Functions:

- Data Lifecycle Management: Full capability for administrators to create new event entries, read student participation lists, update merit points, and delete inactive records.
- Merit Processing: Simplifying the process of moving from event attendance to formal merit reflection is known as merit processing.

5. Data Management & Portability

- Advanced Navigation: Implementation of Search and Filter capabilities to allow users to browse massive records easily.
- Formal Documentation: To fulfill formal administrative needs, a dedicated "Export to PDF" function for important records (such as event's e-certification or student merit awards).

6. Platform Compatibility & Technical Stack:

- Frameworks: To guarantee an organized MVC architecture and responsive design, the CakePHP (back-end) and Bootstrap (front-end) frameworks were used.
- Browser Optimization: The Google Chrome browser is used to evaluate and optimize the system for full operation.

1.4 Repository Link

2.0 Entity-Relationship Diagram (ERD)

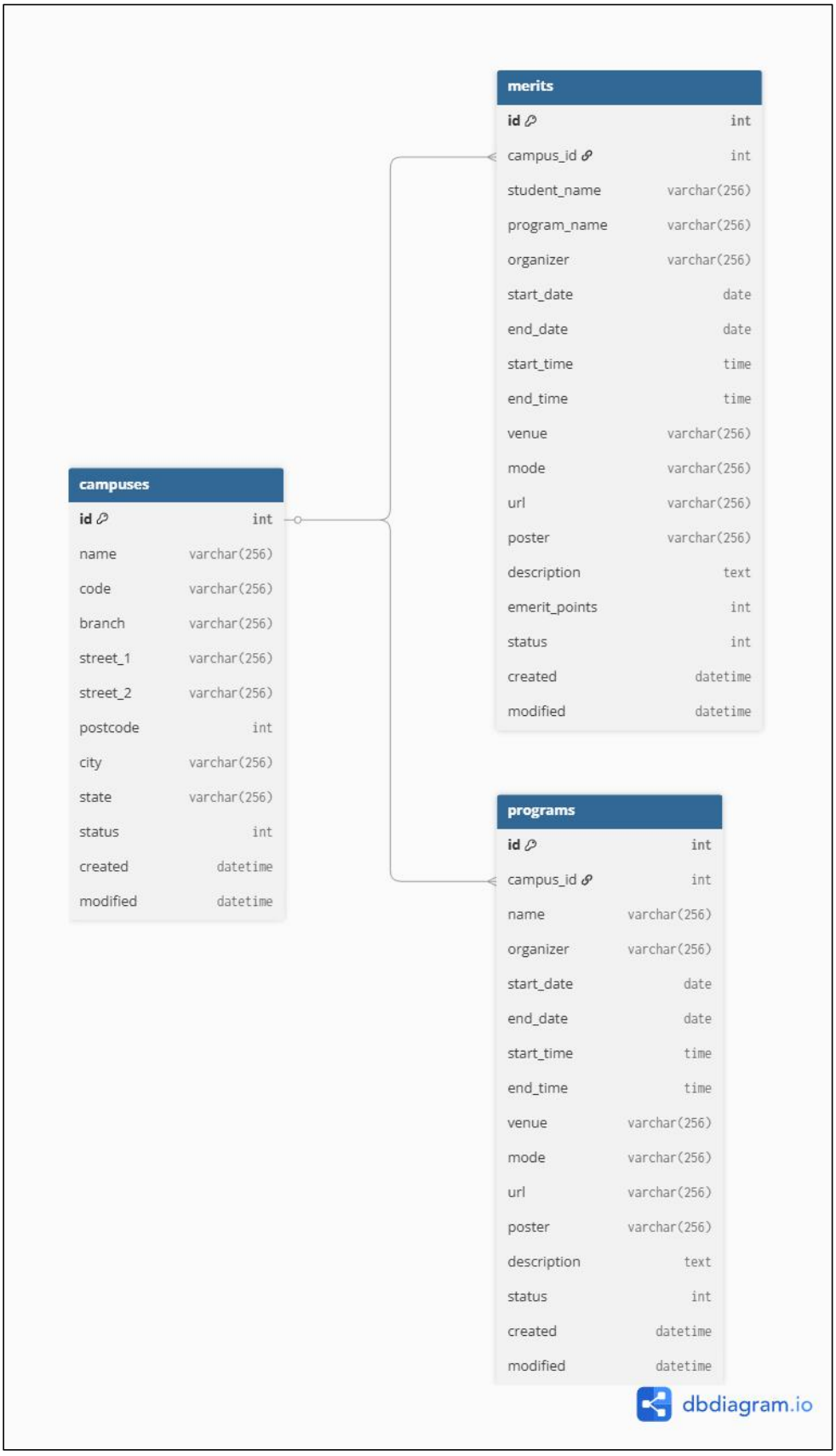

Figure 1 Entity-Relationship Diagram (ERD)

1. The Core Entity: Campuses

- Central Hub: The "parent" entity is the campuses table. Both merits and programs are associated to a certain campus using the campus_id foreign key.
- Data Captured: It keeps institutional information (campus name, code, and branch) and geographic information (street_1, street_2, postcode, city, and state).
- Primary Key: The id field uniquely identifies each campus and acts as the anchor for relationships with merits and programs.

2. The Transactional Entity: Merits

- Student Achievement Tracking: This table keeps track of each student's accomplishments as well as the e-merit points (emerit_points) they receive for taking part in activities or events.
- Foreign Key link: It has a campus_id that establishes a Many-to-One relationship with the campuses table (multiple merit records are associated with a single campus).
- Event Metadata: It records event-specific details (start_date, end_date, start_time, end_time, location, mode, organizer, poster, description) to keep a permanent historical record of the exact event conditions at the time the student received the merit.
- Purpose: Used by staff to fill in the e-merit points for each student’s participation.

3. The Event Entity: Programs

- Activity Management: This table serves as a list of forthcoming activities and events that the organization is planning on various campuses.

- Foreign Key Relationship: Events are linked to their particular campus location using campus_id (many-to-one relationship with campuses).

- Logistics: It uses parameters like venue (physical location), mode (online/offline/hybrid), url (for application submission) and timing details (start_date, end_date, start_time, end_time) to document the ‘where’, ‘when’ and ‘how’ of events.
- Purpose : Staff members use it to share and inform students about the upcoming events on campus.

4. Shared Structural Attributes

- Status Management: Every table has an integer status column that enables soft deletes, visibility toggling and the management of active and inactive entries without erasing data permanently.
- Audit Trails: To ensure data traceability, each table tracks when entries were originally entered and last changed using generated and modified date-time stamps.
- Media Handling: The merits and programs tables feature a poster field (varchar), which holds the file path or URL to promotional photos or event posters.

3.0 System Requirements

Here are the System Requirements for your MyMerit system report:

1. Server Requirements

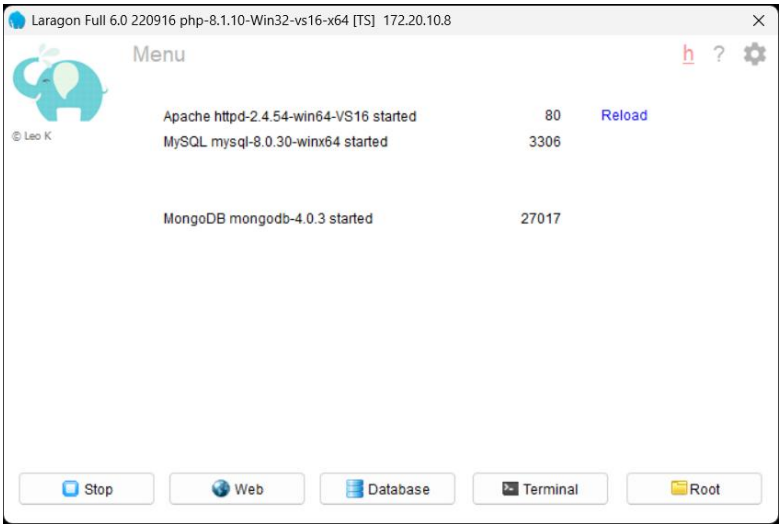

Figure 2 Laragon

A. Web Server

- Apache 2.4.54 (httpd-2.4.54-win64-VS16)
- mod_rewrite enabled (for CakePHP URL rewriting)

B. PHP

- PHP 8.1.10 (Win32-vs16-x64)

C. Database

- MySQL 8.0.30 (winx64)
- PHPMyAdmin

D. PHP Extensions

The following extensions have been enabled in php.ini:

- intl : Internationalization functions
- pdo & pdo_mysql : Database connectivity
- json : JSON data handling
- xml : XML parsing
- fileinfo : File type detection

2. Framework & Dependencies

A. Backend Framework

- CakePHP 5.3 Chiffon

B. Frontend Framework

- Bootstrap 5.3.x

C. Dependency Management

- Composer version 2.8.12

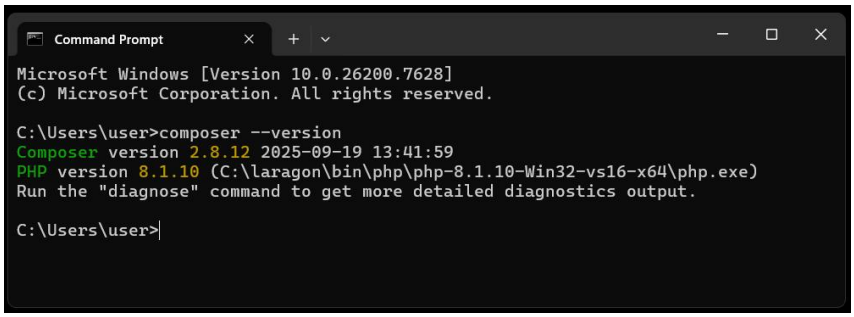

Figure 3 Command Prompt

3. Development Environment

A. Local Development Stack

- Laragon Full 6.0 (Build 220916)

B. Command Line Tools

- Windows Command Prompt (CMD)

C. Code Editor/IDE

- Visual Studio Code

D. Repository Hosting

- GitHub

4. Browser Compatibility

Supported Browsers (Bootstrap 5 compatibility)

- Google Chrome
- Microsoft Edge

5. File Types Used in MyMerit System

File Type	Purpose	Location
.php	Controllers, Models, Templates, Configuration	src/,templates/,config/
.sql	Database schema, backups, migrations	Database exports
.css	Bootstrap 5.3.x and custom stylesheets	webroot/css/
.js	Bootstrap 5.3.x JavaScript bundle	webroot/js/
.json	Composer dependencies (composer.json)	Root directory
.htaccess	Apache URL rewriting rules	webroot/, root directory

Table 1 File Types Used in MyMerit System

6. Bootstrap 5.3.x Integration

- Content Delivery Network (CDN)

7. Additional Tools & Libraries

- Bootstrap Icons
- Tailwindcss

4.0 User Interface Overview

4.1 Layout Structure

The MyMerit System utilizes a Centralized Master Layout (defined in templates/layout/default.php) to ensure visual consistency across all modules. The layout is divided into three primary sections:

- Navigation Header: A sticky top bar containing the system logo and day and nigh switch button.
- Content Area: A dynamic container that renders specific views such as the merit submission form or the comprehensive dashboard.
- Action Footer: Contains system metadata, quick links, and versioning information.

4.2 Navigation Design

- Breadcrumb Navigation: Allows users (especially Admins) to track their current location within the multi-level faculty and campus event categories.
- Sidebar Menu (Admin): Provides quick access to CRUD operations, including User Management, Event Creation, and PDF Report Generation.
- Call-to-Action (CTA) Buttons: Prominent Bootstrap-styled buttons for "Scan QR" and "Export to PDF" to minimize user clicks and improve the data life cycle.

4.3 Responsive Elements

- Grid System: Uses a 12-column grid to ensure that the Comprehensive Merit Dashboard remains readable on both desktop monitors and mobile devices (Chrome optimized).
- Interactive Components: Features such as dropdown menus and modal pop-ups are used for merit verification to keep the UI clean and uncluttered

5.0 Features & Functionalities

The primary features and functionalities of the MyMerit System are explained in this section. Every element is intended to facilitate effective maintenance of student merit records, involvement in events and administrative decision-making. The features are created in accordance with the project goals and system specifications, guaranteeing precision, openness, and user-friendliness for administrators and students alike.

5.1 Event and Attendance Recording

The Event and Attendance Recording feature allows admin to plan, oversee and document events held on campus and among the faculty thanks to the recording capability. Every event is entered into the system along with its name, date, location, mode (online or physical), campus and supporting materials like event posters. This guarantees that a centralized, hierarchical database has all event-related data.

Each event is immediately connected to the attendance record, which enables administrators to effectively confirm student involvement. The information is kept and added to the student's merit record if attendance is verified. By replacing the manual attendance forms, this feature reduces errors brought on by missing or duplicate data. The capability is demonstrated with screenshots of the event creation form and attendance data.

5.2 Merit Point Calculation

Merit points are automatically awarded depending on student involvement in activities that have been documented thanks to the Merit Point Calculation function. Merit values are allocated based on the system-stored event details. The system automatically changes the student's merit points upon approval of attendance, eliminating the need for human computation.

Students' merit is distributed consistently and fairly thanks to this computerized approach. Additionally, it enables real-time updates to merit records, resulting in accurate and current data. The technology increases administrative efficiency and lowers human error by doing away with manual computations.

5.3 Student Dashboard and Monitoring

A consolidated interface for viewing and managing merit-related data is offered by the Student Dashboard and Monitoring functionality. Students can check their participation history, keep track of their overall merit points and access comprehensive records of activities they have attended through the dashboard. This encourages kids to actively participate in extracurricular activities and fosters transparency.

This feature helps administrators keep track of student participation across several programs and campuses. Administrators can monitor participation trends and efficiently handle records with the dashboard. To illustrate the design and functionality of this feature, screenshots of the dashboard interface are provided.

5.4 Support for Student Evaluation and Hostel Eligibility

The MyMerit System can be utilized as a reference for institutional evaluation and decision-making thanks to the Support for Student Evaluation and Hostel Eligibility function. The system's merit records can be used to support assessments of co-curricular performance, leadership involvement and student involvement.

The approach also helps identify students who are eligible for a hostel based on their merit. The selection process is made more transparent and impartial by utilizing consolidated, validated merit data. Instead of using manual documentation, this feature guarantees that judgments are based on reliable records. To illustrate how merit data aids in evaluation procedures, pertinent screenshots are provided.

6.0 Workflow of Form

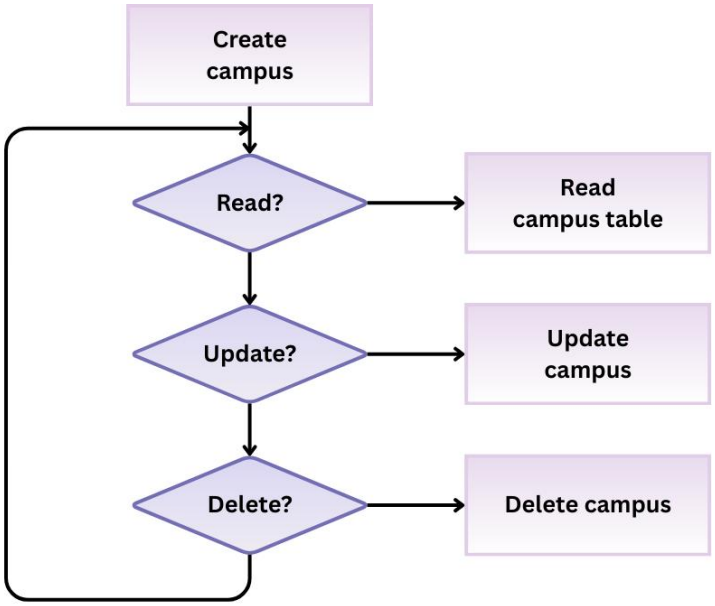

Figure 4 Campus Form Workflow

As shown in figure 4, the workflow begins when the Administrator creates a new campus by entering the required information into the system. Once the campus data is successfully created, the Administrator is given several management options. The Administrator may choose to read the campus information, where the system retrieves and displays data from the campus table. If changes are required, the Administrator can update the existing campus details and the modified information is saved in the system database.

If a campus record is no longer needed, the Administrator has the authority to delete the campus data from the system. After completing any of these actions (read, update or delete), the workflow returns to the initial state, allowing the Administrator to continue managing campus records. This workflow ensures that campus data is maintained accurately and securely, with all management actions controlled by the System Manager (Administrator).

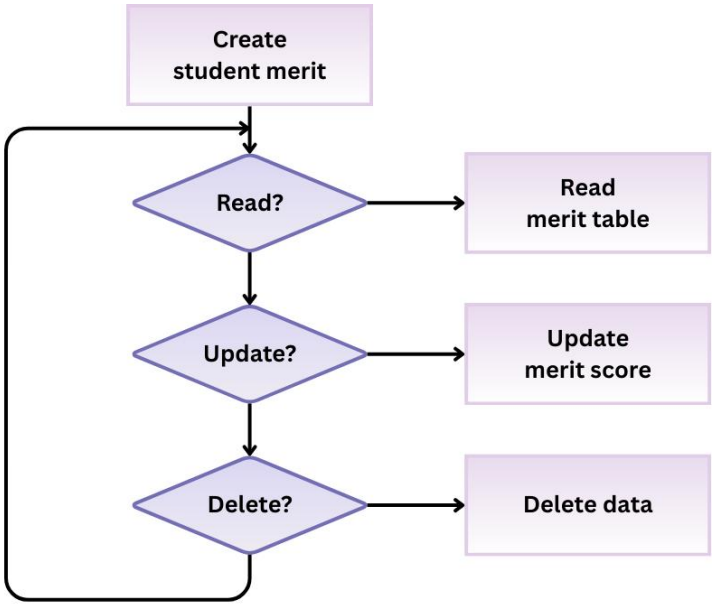

Figure 5 Merit Form Workflow

The Merit form process starts with the creation of a student merit record in the system. The Administrator may then view existing records by reading data from the merit table. When necessary, the merit score can be updated to reflect changes or corrections. The Administrator also has the option to delete merit data that is no longer required.

After each action is completed, the workflow returns to the main process, allowing continuous management of student merit records. With the implementation of CRUD operations in this workflow, it efficiently and accurately handling student merit information under the control of the Administrator.

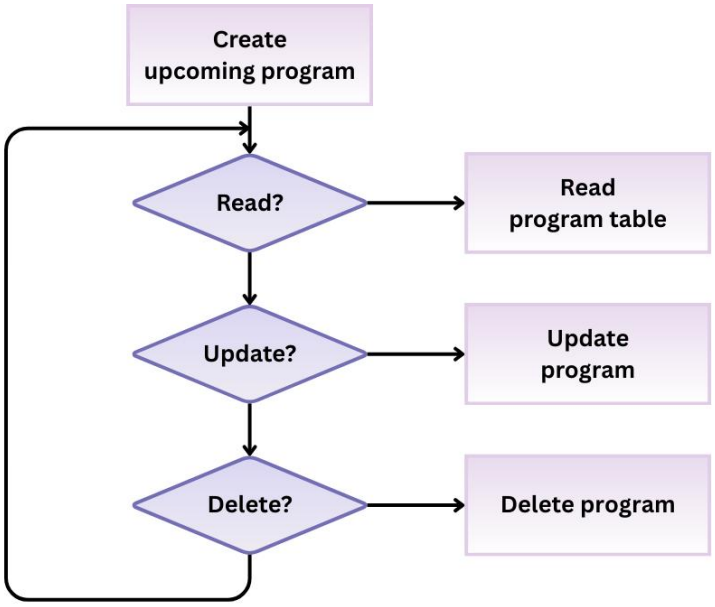

Figure 6 Upcoming program Form Workflow

Based on Figure 6, the workflow begins with the Administrator creating a new upcoming program to the system. Existing program information can then be viewed through the program table. If any changes are required, the Administrator may update the program details and programs that are no longer relevant can be deleted from the system.

The process returns to the main workflow after each action, allowing the Administrator to continuously manage upcoming program records in an organized and controlled manner.

7.0 Team Roles & Contributions

Team Members	Roles	Contributions
Norbayah Binti Amir Saba	Team Leader & Project Manager	● Project Oversight: Leads the overall project development and ensures the team meets the Week 14 submission deadline. ● Task Delegation: Assigned responsibilities to ensure all technical requirements, such as CRUD and authentication, are met. ● Presentation Lead: Will head the system demonstration in Week 13, coordinating contributions from all members. ● Quality Control: Reviewed the final GitHub repository to ensure the source code is clean and properly commented.
Amirul Hasyim Bin Muhammad Asri	Research & Benchmarking	● System Comparison: Studied existing merit systems and related literature to provide references for the MyMerit proposal. ● Literature Review: Gathered data on digitalization trends to support the project's objective of converting real-world forms into web applications. ● Standardization: Ensured the project follows industry benchmarks for responsive navigation and UI. ● Requirement Validation: Verified that the proposed features align with common academic merit management standards.

Arifah Nur Ramdhana Binti Nazlim	System Analyst (Requirements & Features)	● Needs Analysis: Studied current e-Merit systems to identify pain points and user needs for the MyMerit application. ● Feature Specification: Proposed essential system improvements, including search/filter functions and PDF data export. ● Requirement Mapping: Defined the software requirements, ensuring the project uses PHP 8.1 and Google Chrome for testing. ● Functional Scoping: Outlined the CRUD cycle (Create, Read, Update, Delete) based on user requirements.
Muhammad Naim Bin Sazali	Technical Designer	● System Architecture: Designed the overall structure of the MyMerit web application and database. ● Diagram Preparation: Created the Entity-Relationship Diagram (ERD) based on form metadata. ● Workflow Modelling: Prepared technical diagrams, including flowcharts illustrating the CRUD cycle and system workflow. ● Database Normalization: Ensured database tables are structured correctly for data integrity, as required by the evaluation rubric.

Siti Amnah Binti Sa'at	User Experience (UX) & Interface Designer	● Framework Implementation: Applied a CSS framework (e.g., Tailwind or Bootstrap) to ensure a professional and responsive design. ● UI Overview: Designed the layout, navigation and user interface for the system's 'Create'and 'Detail View' pages. ● UX Optimization: Focused on intuitive navigation and usability to meet the excellent criteria in the evaluation rubric. ● Frontend Testing: Conducted tests on Google Chrome to ensure consistent visual rendering and responsive behaviour.
All members	Documentation & Report Writer	● Report Compilation: Collaboratively prepared the structured documentation report and user manual. ● Technical Writing: Documented specific features and functionalities with accompanying screenshots. ● Reflection: Contributed individual insights for the conclusion and reflection section of the project.

Table 2 Team Roles & Contributions

8.0 Contact Information (Support)

For further enquiries, clarification, or technical assistance regarding the MyMerit System, please contact:

System Name	: MyMerit System
Project Team	: CDIM2624A - MyMerit System Development Team
Faculty	: Faculty of Information Science
Institution	: Universiti Teknologi MARA (UiTM), Puncak Perdana Campus
Project Manager	: Norbayah binti Amir Saba - Team Leader / Project Manager
Email	: 2025168065@student.uitm.edu.my

This system was developed as part of an academic project for the course Advanced Web Design Development and Content Management (IMS566) and is intended for educational and demonstration purposes only.

9.0 Conclusion & Reflection

In conclusion, the MyMerit System was successfully developed as a centralized web-based system to improve the management of student merit records and campus event activities. The system effectively addresses key problems such as fragmented event data, manual record handling and slow reporting processes. By digitising physical merit forms and implementing secure authentication with full CRUD operations, the system ensures that merit data is accurate, searchable and well-managed.

The inclusion of an Academic Dashboard enhances the system by providing an overall view of student participation and campus activities rather than focusing only on merit points. Features such as event and attendance recording, automatic merit point calculation, search and filtering and PDF export further strengthen data accessibility and transparency. With a responsive interface developed using a CSS framework and tested on Google Chrome, the MyMerit System successfully integrates content management, database interaction and web design into a secure and efficient administrative system for academic management.

The development of the MyMerit System provided valuable learning experiences in both technical and teamwork aspects. Throughout the project, the team gained practical exposure to system analysis, database design, ERD modelling and the implementation of CRUD operations. Understanding how entities such as campuses, programs and merits are connected helped improve knowledge of structured data management and system workflow.

Working in a team also strengthened communication, coordination and time management skills. Each member contributed according to their assigned role, which allowed the project to progress in an organised and efficient manner. Challenges such as integrating system features, ensuring data accuracy and completing tasks within the given timeline were addressed through discussion, collaboration and problem-solving.

To sum up, this project was a meaningful learning experience that enhanced both technical and soft skills. It increased understanding of how a web-based system is planned, developed and documented in a real academic project. The experience gained from developing the MyMerit System will be beneficial for future projects and professional practice in the field of information systems and web development.