FTMK WORKSHOP 2 MANAGEMENT SYSTEM

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This report is submitted in partial fulfilment of the requirements for the

Bachelor of Computer Science (Database Management) with Honours

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2024

DECLARATION

I hereby declare that this project report entitled

FTMK WORKSHOP 2 MANAGEMENT SYSTEM

is written by me and is my own effort and that no part has been plagiarized

without citations.

STUDENT : AUNI AFIQAH BINTI ABU TALIB Date : 5/9/2024

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I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of

Bachelor of Computer Science (Database Management) with Honours.

SUPERVISOR : DR. NUR ATIKAH BINTI ARBAIN Date : 5/9/2024

DEDICATION

To my amazing parents, whose unwavering love, support, and encouragement have driven my academic endeavours. Your constant belief in my talents has driven me to strive for excellence and conquer challenges.

To my wonderful lecturers, who have provided invaluable information and insight while helping me along this academic journey. Your dedication to education and coaching has helped me grow personally and professionally.

To my friends and colleagues, who have provided drive, companionship, and support. Your involvement and shared experiences have enhanced my education and made this trip memorable.

To the whole academic community and institutions for providing resources and an environment favourable to learning and creativity. Your assistance has been critical in the successful completion of this project.

This work is dedicated to all of you, whose contributions have enabled this success. Thank you for being my sources of strength and inspiration.

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My greatest gratitude goes to my lecturers, especially Dr. Nur Atikah Binti Arbain, for their insightful counsel, constructive feedback, and for providing me with the information and abilities required to carry out this project. Your guidance has been tremendously appreciated.

I appreciate the cooperation and feedback from the assessors and students in Workshop 2, whose contributions were critical in understanding the needs and enhancing the system.

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Thank you for your donations and support and without them, this project would not be possible.

ABSTRACTS

The FTMK Workshop 2 Management System intends to overcome the inefficiencies and inconsistencies inherent in Workshop 2's manual evaluation procedure, in which students work in groups to design projects related to their major. Currently, evaluators manually calculate marks, which slows down evaluations and increases the possibility of errors. This project presents an automated, web-based platform that aims to streamline the evaluation process by allowing supervisor and evaluator to enter marks fast and accurately. The research technique included phases of system analysis, design, and implementation, with technologies including HTML, CSS, JavaScript, PHP, and MySQL. The proposed system is thoroughly tested to assure dependability and usability. The findings show that the automated method significantly saves evaluation time and increases result accuracy, contributing to the field of educational technology by highlighting the advantages of automation in academic evaluations. The proposed system is not only improving the efficiency and fairness of the evaluation process, but it also enhances Workshop 2's reputation and responsibility, establishing a new benchmark for competitive academic events. The initiative acknowledges the academic community's support and resources, which were critical to its accomplishment, and it acts as a stepping stone for future developments in educational evaluation.

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ABSTRAK

Sistem Pengurusan Bengkel 2 FTMK bertujuan untuk mengatasi masalah tidak cekap dan tidak konsisten dalam prosedur penilaian manual bengkel 2, di mana pelajar bekerja dalam kumpulan untuk merancang projek berkaitan dengan jurusan mereka. Pada masa ini, penilai mengira markah secara manual, yang melambatkan penilaian dan meningkatkan kemungkinan kesilapan. Projek ini memperkenalkan platform berasaskan web yang automatik yang bertujuan untuk merampingkan proses penilaian dengan membolehkan penilai memasukkan markah dengan cepat dan tepat. Teknik penyelidikan merangkumi fasa analisis sistem, reka bentuk, dan pelaksanaan, dengan menggunakan teknologi termasuk HTML, CSS, JavaScript, PHP, dan MySQL. Sistem yang dibangunkan telah diuji dengan teliti untuk memastikan kebolehpercayaan dan kebolehgunaan. Penemuan menunjukkan bahawa kaedah automatik ini dapat menjimatkan masa penilaian dengan ketara dan meningkatkan ketepatan hasil, menyumbang kepada bidang teknologi pendidikan dengan menekankan kelebihan automasi dalam penilaian akademik. Sistem ini bukan sahaja meningkatkan kecekapan dan keadilan proses penilaian, tetapi juga meningkatkan reputasi dan tanggungjawab bengkel 2, menetapkan penanda aras baru untuk acara akademik yang kompetitif. Inisiatif ini mengakui sokongan dan sumber dari komuniti akademik, yang kritikal terhadap kejayaannya, dan bertindak sebagai langkah awal untuk perkembangan masa depan dalam penilaian pendidikan.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Workshop 2 is a program where the students will work in groups, and they are required to develop a project based on their major in FTMK. The evaluators will calculate the marks manually, resulting in a slower speed. In recognition of the inherent complexity and time constraints burdening manual evaluation methods, the FTMK Workshop 2 Management System initiative is innovation. The system aims to introduce an automated evaluation process, where the evaluators are using a web-based platform to enter the marks for all groups. This web-based platform not only speeds up the evaluation process but also brings accuracy in the identification of the winner, thereby enhancing the reputation and responsibility of the Workshop 2. This initiative transforms Workshop 2 and intends to go beyond the conventional ways of evaluation, thus bringing a new era that is characterized by efficiency, fairness, and excellence in competitive events.

1.2 Problem statement

a) The manual evaluation methods cause significant time constraints and complexities, which in turn lead to delays in the assessment process and the possibility to find the winners.
b) The lack of a fair and transparent evaluation system further fuels feelings of preference and unfairness among all groups.
c) The manual entry of evaluation scores into a system is susceptible to human error, such as incorrect calculation due to manual input formula

1.3 Objectives

a) To design and optimize the web-based platform to facilitate easy and intuitive input of evaluation scores by evaluators.
b) To design and implement an evaluation system with clear criteria and guidelines, ensuring fairness and transparency for all contestants.
c) To develop and integrate an automated data entry system within the Workshop 2 to eliminate manual entry errors.

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1.4 Scope

a) Automated Performance Evaluation Module:

- This module will allow for automated evaluation of participating student's performances.
- It involves developing algorithms to evaluate various aspects of the systems created by student groups and provide objective feedback.

b) Criteria and Guidelines Design Module:

- This module will focus on developing and executing clear evaluation criteria and procedures.
- It will provide the criteria for evaluating system functionality, design principles, innovation, and overall performance.
- The module's goal is to provide fairness and transparency in the evaluation process by establishing defined assessment criteria.

c) Reporting Module:

- This module will handle the reporting and analytic part, which serve as the basis of the evaluation process.
- It creates detailed summaries of personal and group ratings, findings, weakness, strength and what should be done to improve.

1.5 Project Significant

The FTMK Workshop 2 Management System significantly enhances the evaluation process by introducing automation, reducing time constraints and complexities associated with manual evaluation methods. It aims to establish clear criteria and guidelines for fair and transparent assessment, promoting efficiency and accuracy in determining winners. By integrating automated performance evaluation and reporting modules, the system revolutionizes Workshop 2, fostering a culture of innovation, diversity, and excellence in competitive events.

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1.6 Expected Result

FTMK Workshop 2 Management System is a web-based management system. The expected outcomes for this system would be:

Automated Performance Evaluation: This system will allow for the automated evaluation of participating students' performance.

Criteria and Guidelines Establishment: This system will define clear criteria for assessing system functionality, innovation, and overall performance, enhancing the integrity of the evaluation process.

1.7 Summary

In conclusion, the FTMK Workshop 2 Management System is designed to replace the manual evaluation methods currently used in Workshop 2 with an automated, web-based platform. This system aims to streamline the evaluation process, enhance accuracy, and ensure fairness and transparency through clear criteria and guidelines. By incorporating modules for automated performance evaluation, criteria and guidelines design, and detailed reporting, the system addresses significant issues such as time constraints, human error, and perceived unfairness, fostering a more efficient, innovative, and fair competitive environment.

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CHAPTER 2: PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

The FTMK Workshop 2 Management System is developed by using a disciplined approach and thorough planning to assure effective delivery. This section describes the methodological framework, project phases, and planning techniques used to meet the project's objectives efficiently and successfully.

2.2 Project Methodology

The Database Life Cycle (DBLC) describes the steps required in planning, maintaining, and eventually decommissioning a database for the proposed system. It consists of many important phases, each comprising specialized duties to establish a strong and efficient database. Here is a thorough description of the DBLC phases and the responsibilities connected with each phase, as well as a strategy for carrying them out:

a) Database Initial Study

The FTMK Workshop 2 Management System also known as the Workshop Competition System, undergoes a thorough analysis during the initial study phase of the Database Life Cycle (DBLC) to determine the practicality and needs of transitioning from a manual to an automated evaluation process. This necessitates a thorough analysis of the current manual procedures based on direct observations, as well as an evaluation of the existing documentation and data. The collection of data requirements involves identifying all essential data points used in the manual procedure, evaluating data quantities, and mapping the data flows. This comprehensive study entails engaging with workshop organisers, evaluators, and participants to guarantee that all essential elements are covered. The suggested system will be built using references from previous automated systems, existing organisational guidelines, and applicable industry standards. The comprehensive documentation of these findings serves as the basis for developing an improved and accurate methodology that caters to the specific requirements of Workshop 2, thereby improving both the accuracy and efficiency of the evaluation process.

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b) Design

During the design phase of the DBLC for the FTMK Workshop 2 Management System, the emphasis switches to creating a detailed blueprint of the database architecture and interface. This phase entails drawing entity-relationship diagrams to depict the data structures and relationships between various entities, such as students, projects, evaluators, and scores. It also includes creating the web-based platform's interface to guarantee that both students and assessors can utilise it easily and effectively. By translating the criteria acquired during the first study into technical specifications, the design phase attempts to construct a system that not only automates the review process but also ensures ease of use, accuracy, and scalability. This meticulous planning is required to create a dependable and efficient system capable of handling the complexities of Workshop 2 evaluations while supporting the overall goal of improving the event's fairness and excellence.

c) Implementation

During the implementation phase of the FTMK Workshop 2 Management System we transform abstract designs into a fully operational database and web-based platform. This entails creating database structures using MySQL, configuring servers using Apache, and building the application using PHP and Laravel frameworks. The main responsibilities involve establishing a connection between the MySQL database and the user interface built on Laravel, guarantee data security using SSL certificates and strong authentication methods and creating user-friendly tools that enable evaluators to input grades efficiently and accurately. To eliminate manual errors, we incorporate features such as automated score calculations and real-time data validation. The method commences with establishing the server environment, then proceeds to constructing the database schema and integrating it with the front end. Finally, comprehensive testing is conducted to guarantee the dependability and effectiveness of the system. The objective of this implementation is to create a robust and effective framework that fulfils the requirements of stakeholders while greatly improving the precision and impartiality of the evaluation process.

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d) Testing

During the testing phase of the DBLC for the FTMK Workshop 2 Management System, the emphasis is on ensuring that the system performs properly and meets all required requirements. This step comprises thoroughly testing both the database and the web-based platform to identify and resolve any issues or flaws. To ensure that the system works as expected under different conditions, multiple forms of testing are undertaken, including unit testing, integration testing, and user acceptance testing. The goal is to ensure that the automated evaluation process is accurate, dependable, and user-friendly, resulting in a smooth experience for both evaluators and students.

e) Operation and Maintenance

The operation and maintenance phase of the DBLC for the FTMK Workshop 2 Management System includes the system's continuing management and support after deployment. This phase consists of monitoring system performance, providing technical support to users, and making necessary updates and enhancements depending on user feedback and changing requirements. Regular database backups, security updates, and performance optimisation are among the regular maintenance operations performed to ensure the system's efficiency and security. The goal is to give ongoing support to evaluators and students while ensuring that the system consistently produces accurate and timely evaluation findings. By correctly maintaining the system, this phase serves to sustain the benefits of the automated review process, ensuring that Workshop 2 continues to run smoothly and efficiently, promoting an environment of justice and excellence in competitive events.

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2.3 Project Schedule and Milestones

Task	Month						
	1	2	3	4	5	6	7
Planning and Analysis							
Database Design							
Implementation							
Testing and Evaluation							
Operation							
Maintenance							

Figure 2.1: The DBLC Phase

2.4 Summary

Chapter 2 describes the systematic methodology and meticulous planning employed in the creation of the FTMK Workshop 2 Management System. It describes the project approach, with a special emphasis on the Database Life Cycle (DBLC) phases of initial investigation, design, implementation, testing, and operation and maintenance. Each phase involves activities and goals for building a strong, efficient, and scalable database system. This systematic process and meticulous preparation seek to efficiently achieve the project's objectives, resulting in a high-quality and user-friendly management system.

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CHAPTER 3: ANALYSIS

3.1 Introduction

The analysis phase is an important part of the FTMK Workshop 2 Management System project, as it focuses on understanding and developing the exact requirements and specifications needed to create an efficient and effective system. This phase entails a detailed evaluation of the existing processes and problems, identification of stakeholder needs, and the creation of a complete requirements document. The purpose is to lay a strong basis on which to build and implement the system, ensuring that it satisfies all user expectations and operational requirements.

3.2 Problem Analysis

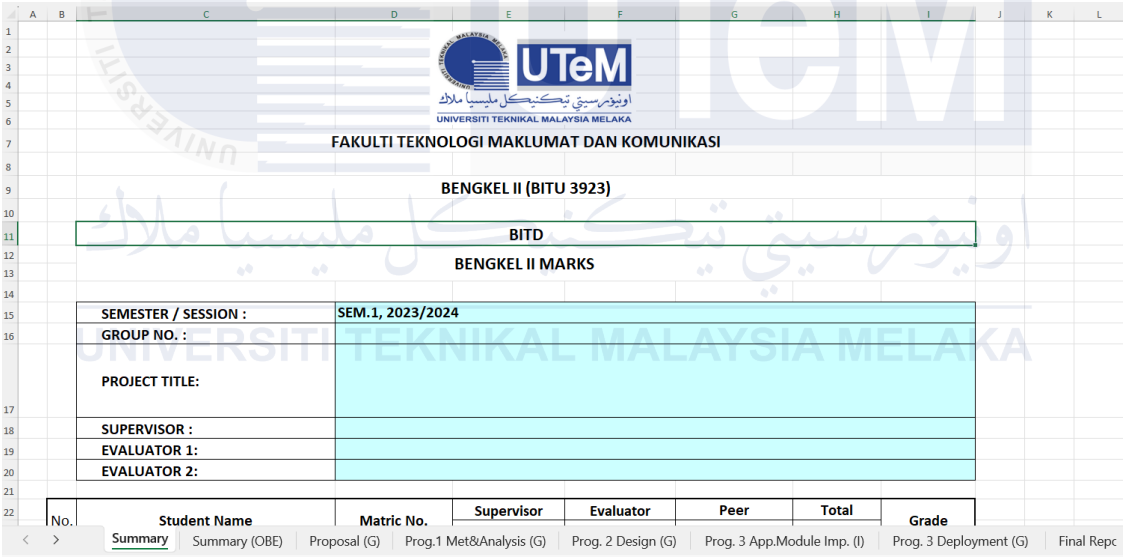

Figure 3.1: Current File-Based

The current evaluation procedure in the FTMK Workshop 2 Management System is inefficient and time-consuming, as evaluators are obligated to manually calculate marks. This manual process not only impedes the overall pace of assessments but also elevates the likelihood of human error, which could result in inaccurate results. Furthermore, supervisors encounter substantial obstacles when examining student reports and assigning marks on an individual basis. It is challenging to ensure that all evaluations are consistent and fair due to the absence of automation in these duties. Additionally, the management and retrieval of assessment data are further complicated by the absence of a centralised system for monitoring and recording scores, which may result in delayed processing and potential discrepancies in the final grading

process. This inefficiency impedes the workshop's overall effectiveness and places a superfluous burden on both evaluators and supervisors.

3.3 The proposed improvements/solutions

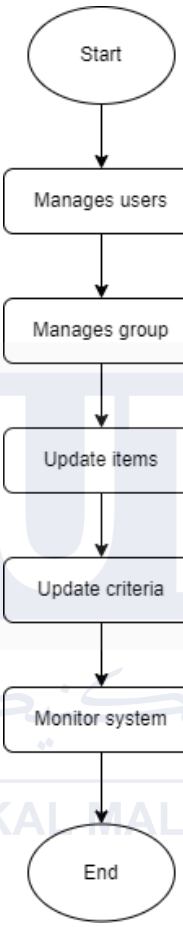

Figure 3.2: Overview of flowchart for admin

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Figure 3.3: Overview of flowchart for supervisor

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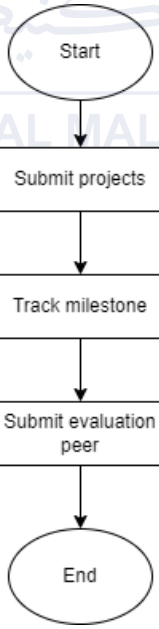

Figure 3.4: Overview of flowchart for participant

3.4 Requirement analysis of the to-be system

3.4.1 Functional Requirement (Data Flow Diagram)

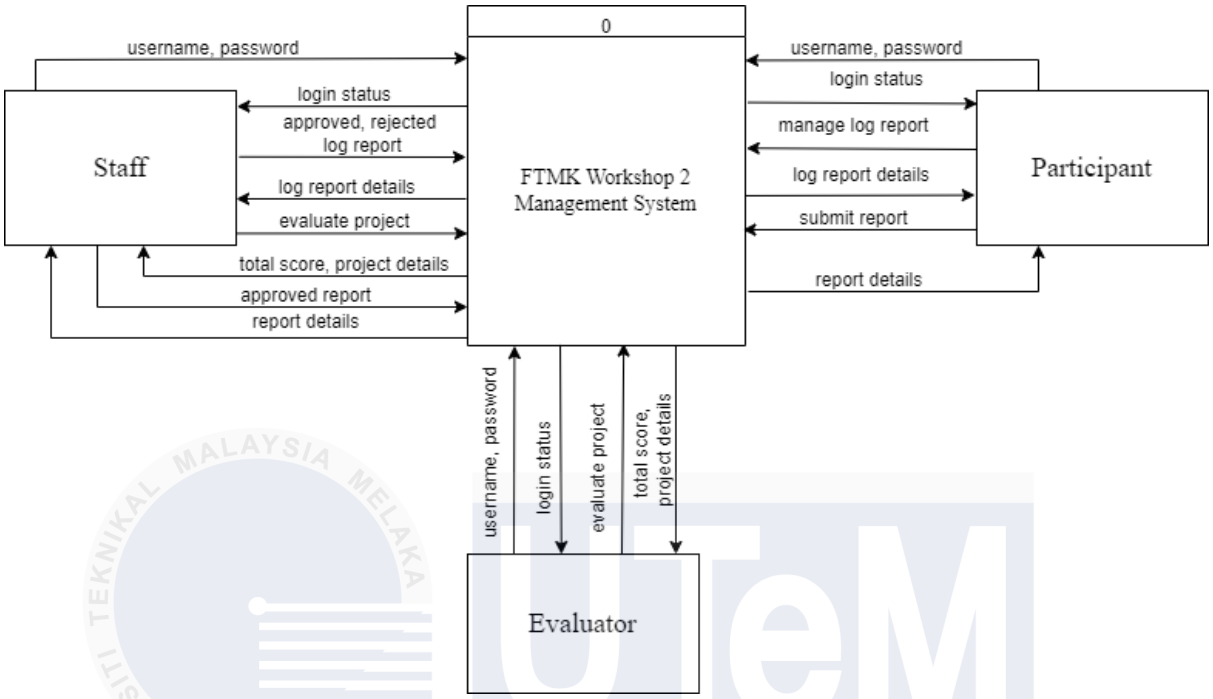

Figure 3.5: Context Diagram

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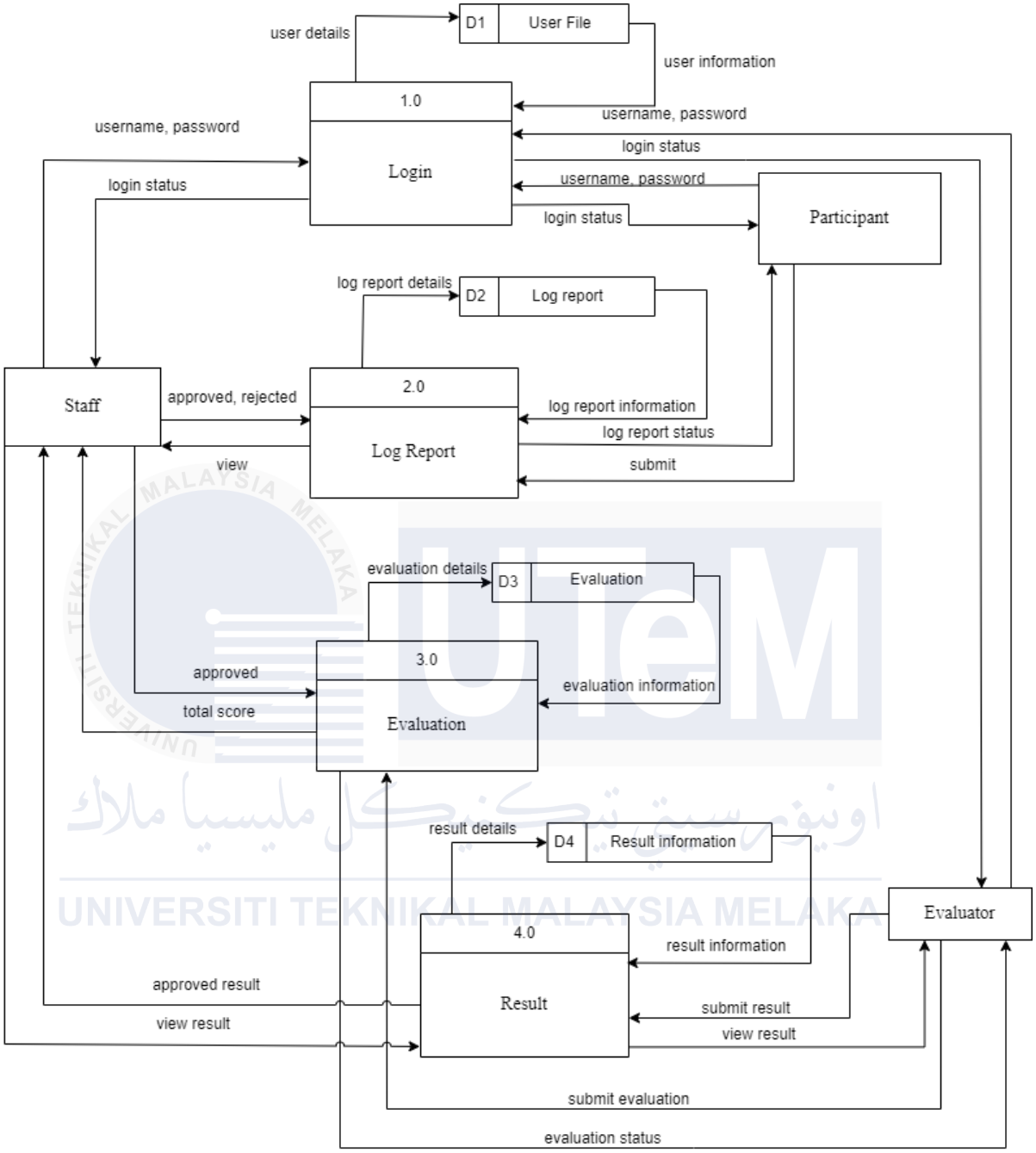

Figure 3.6: Data Flow Diagram (DFD) Level 1

3.4.2 Non-functional Requirement

1) Quality Standards:

Accuracy: Guarantee that all evaluation scores are accurately calculated and free of errors.

Reliability: Minimize disruptions by maintaining 99.9% system availability.

Usability: Create an interface that is intuitive for students and evaluators while requiring minimal training.

Maintainability: Use a modular design and explicit documentation to set up the system for easy updates and debugging.

2) **Security requirements:**

Make sure that all data is encrypted before storing or transmitting it to guarantee the security of critical information.

Security: Use role-based access control and multi-factor authentication to authenticate and authorise users.

Data integrity is the guarantee that data remains accurate and unaltered. It is possible to do this with validation methods and audit trails.

3) **Operational Requirements:**

Backup and Recovery: Implement a recovery plan and conduct routine backups to prevent data loss and guarantee data restoration in the event of a system failure.

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3.4.3 Others Requirement

a) Software Requirement

Table 3.1: Description of Software Requirement

Software	Description
Microsoft Visual Code	Using the latest version of Microsoft Visual Studio 2019. Used for developing, debug, and deploy programming on a variety of platforms.
XAMPP	Currently using XAMPP Control Panel v3.3.0. Used to set up a local web server setup with Apache, MySQL, and PHP.

b) Hardware Requirement

Table 3.2: Description of Hardware Requirement

Hardware	Specification	Reason of choosing
Laptop Dell	- Windows 10 Pro (64 bit) - Intel® Core™ i5-10210U - 14" HD (1366 x 768) - 256GB SSD - 8GB	Speedy Connectivity

3.5 Summary

Chapter 3 describes the functional and non-functional requirements for the FTMK Workshop 2 Management System, including key features such as user authentication, project submission, evaluation management, and reporting, as well as ensuring high accuracy, reliability, performance, and security. The following processes include designing the system architecture and database, developing user interfaces, and beginning implementation by coding the system components based on the detailed designs.

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CHAPTER 4: DESIGN

4.1 Introduction

In this chapter, look at the design process of the FTMK Workshop 2 Management System. Design is a critical step in which the conception from earlier chapters begins to take shape as physical designs and blueprints. We will go over the system architecture, database design, user interface design, and other technical factors required for the creation of a reliable and user-friendly system. This chapter provides a framework for converting requirements into physical system components while assuring alignment with project objectives and user demands.

4.2 Database Design

4.2.1 Conceptual Design

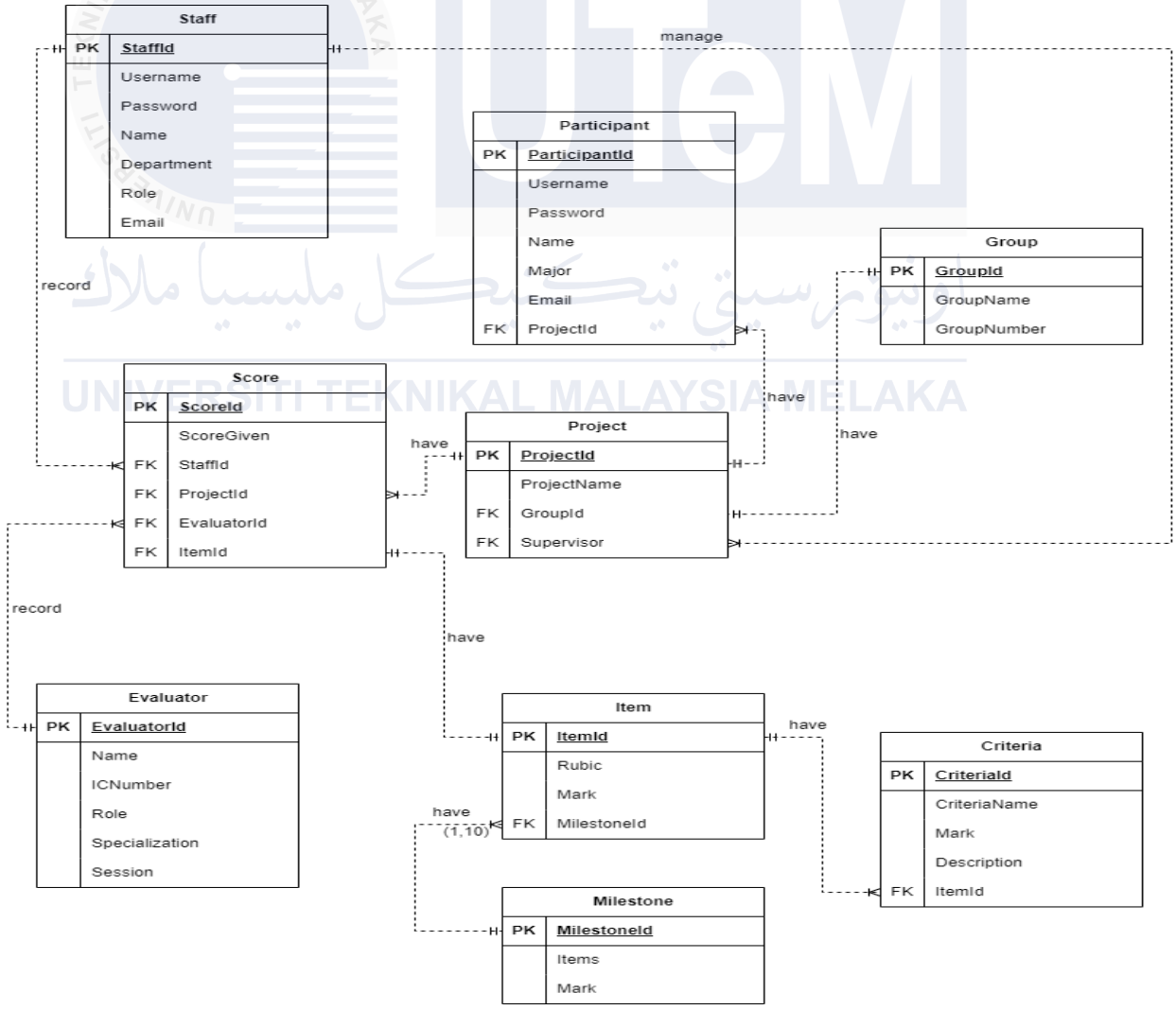

Figure 4.1: Entity Relationship Diagram

4.2.1.1 Business Rules

a) A project can have multiple participants.

b) A group can have multiple projects.

c) A staff member can manage multiple participants.

d) Scores are recorded by staff and associated with a specific participant's project and evaluation item.

e) Items are evaluated based on criteria and are scored by evaluators.

4.2.2 Logical Design

4.2.2.1 Normalization

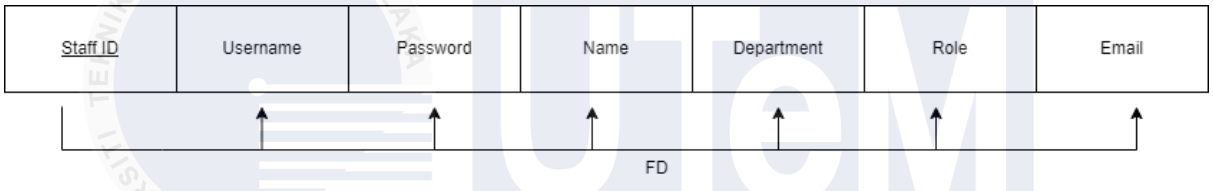

Figure 4.2: The normalization of staff

Based on figure 4.2, the normalization of the staff entity ensures that all staff-related attributes (such as Username, Password, Name, Department, Role, and Email) are functionally dependent on the primary key, Staff ID, thereby eliminating redundancy and organizing the data efficiently.

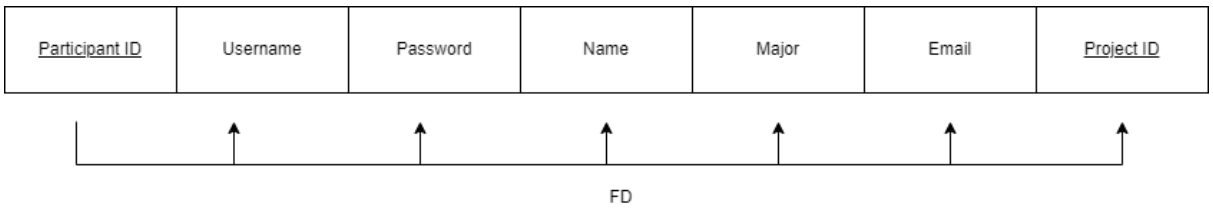

Figure 4.3: The normalization of participant

Based on figure 4.3, the participant entity normalization shows that attributes like Username, Password, Name, Major, and Email are all dependent on the Participant ID, with the inclusion of Project ID establishing a relationship between participants and their respective projects.

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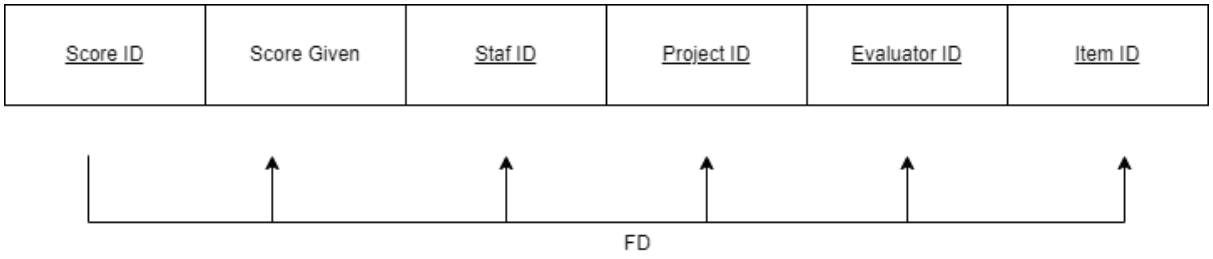

Figure 4.4: The normalization of score

Based on figure 4.4, the normalization of the score entity ensures that each score record, identified by Score ID, is linked to specific attributes like Score Given, Staff ID, Project ID, Evaluator ID, and Item ID, ensuring a structured and consistent representation of scoring data.

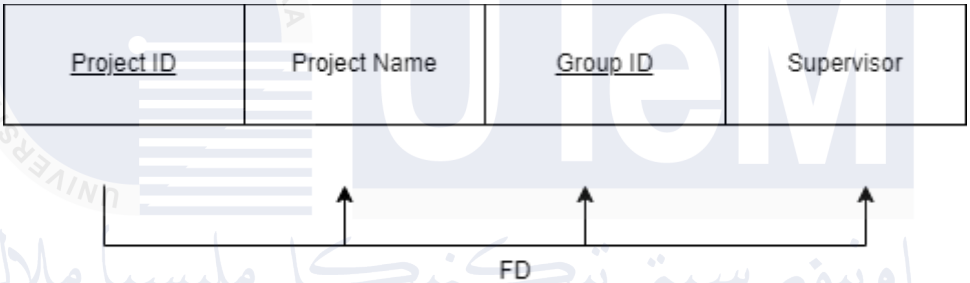

Figure 4.5: The normalization of project

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Based on figure 4.5, the project entity normalization shows that attributes like Project Name, Group ID and Supervisor are all dependent on the Project ID, with the inclusion of Group ID and Supervisor establishing a relationship between participants and their respective projects.

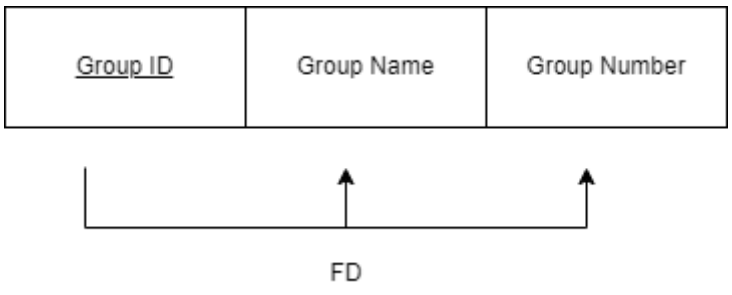

Figure 4.6: The normalization of group

Based on figure 4.6, the normalization of the group entity ensures that all group-related attributes (such as Group Name and Group Number) are functionally dependent on the primary key, Group ID, thereby eliminating redundancy and organizing the data efficiently.

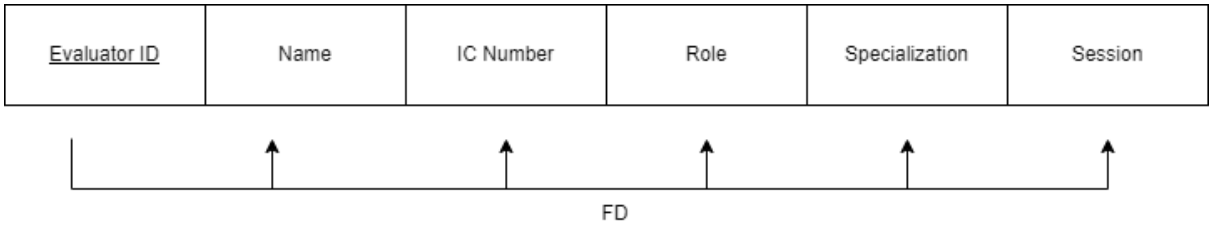

Figure 4.7: The normalization of evaluator

Based on figure 4.7, the normalization of the evaluator entity ensures that all evaluator-related attributes (such as Name, IC Number, Role, Specialization and Session) are functionally dependent on the primary key, Evaluator ID, thereby eliminating redundancy and organizing the data efficiently.

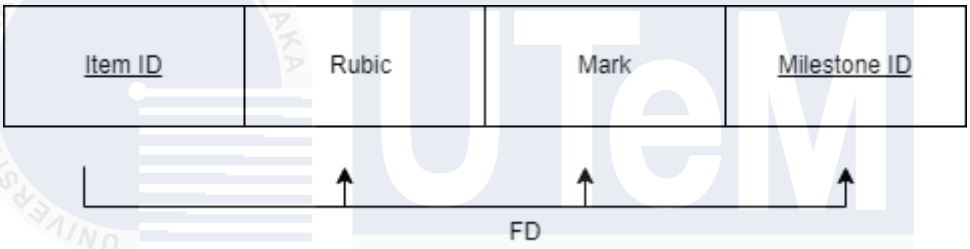

Figure 4.8: The normalization of item

Based on figure 4.8, the item entity normalization shows that attributes like Rubic, Mark and Milestone ID are all dependent on the Item ID, with the inclusion of Milestone ID establishing a relationship between participants and their respective projects.

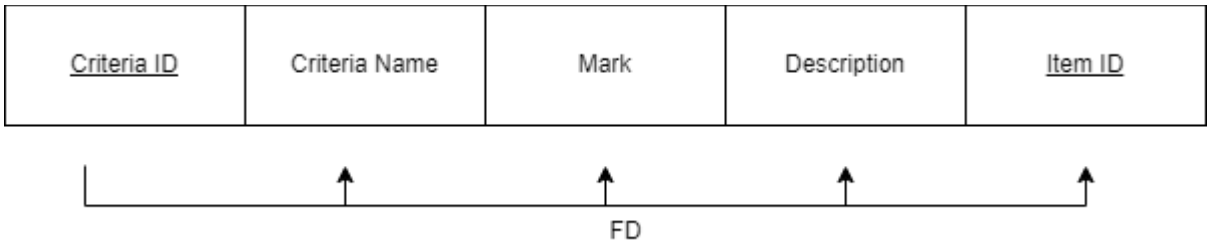

Figure 4.9: The normalization of criteria

Based on figure 4.9, the criteria entity normalization shows that attributes like Criteria Name, Mark, Description and Item ID are all dependent on the Criteria ID, with the inclusion of Criteria ID establishing a relationship between participants and their respective projects.

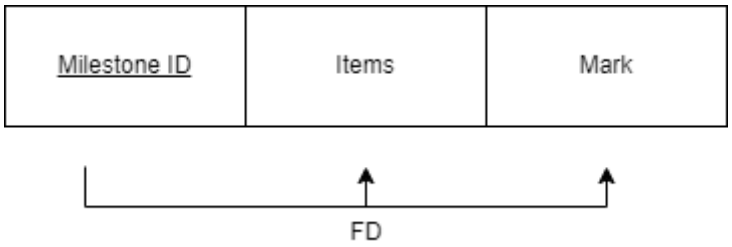

Figure 4.10: The normalization of milestone

Based on figure 4.10, the normalization of the milestone entity ensures that all milestone-related attributes (such as Items and Mark) are functionally dependent on the primary key, Milestone ID, thereby eliminating redundancy and organizing the data efficiently.

4.2.2.2 Data Dictionary for Entity Relationship Diagram

Table 4.1: The staff data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
StaffID	Staff ID	Bigint(20)	Yes	PK	
Username	Username of staff	Varchar(255)	Yes		
Password	Password	Varchar(255)	Yes		
Name	Name of staff	Varchar(255)	Yes		
Department	Name of department	Varchar(255)	Yes		
Role	Role of user	Bignit(20)	Yes		
Email	Email of staff	Varchar(255)	Yes		

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Table 4.2: The participant data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
ParticipantID	Participant ID	Bigint(20)	Yes	PK	
Username	Username of participant	Varchar(255)	Yes		
Password	Password	Varchar(255)	Yes		
Name	Name of participant	Varchar(255)	Yes		
Major	Major of course	Varchar(255)	Yes		
Email	Email of participant	Varchar(255)	Yes		
ProjectID	Project ID	Bigint(20)	Yes	FK	Project (ProjectID)

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Table 4.3: The group data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
GroupID	Group ID	Bigint(20)	Yes	PK	
Group Name	Name of group	Varchar(255)	Yes		
Group Number	Number of group	Int(10)	Yes		

Table 4.4: The project data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
ProjectID	Project ID	Bigint(20)	Yes	PK	
Project Name	Name of project	Varchar(255)	Yes		
GroupID	Group ID	Bigint(20)	Yes	FK	Group (GroupID)
Supervisor	Staff ID	Bigint(20)	Yes	FK	Staff (StaffID)

Table 4.5: The score data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
ScoreID	Score ID	Bigint(20)	Yes	PK	
Score Given	Score that has given	Double	Yes		
StaffID	Staff ID	Bigint(20)	Yes	FK	Staff (StaffID)
ProjectID	Project ID	Bigint(20)	Yes	FK	Project (Project ID)
EvaluatorID	Evaluator ID	Bigint(20)	Yes	FK	Evaluator (EvaluatorID)
ItemID	Item ID	Bigint(20)	Yes	FK	Item (ItemID)

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Table 4.6: The evaluator data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
EvaluatorID	Evaluator ID	Bigint(20)	Yes	PK	
Name	Name of evaluator	Varchar(255)	Yes		
IC Number	IC Number	Int(12)	Yes		
Role	Role of evaluator	Varchar(255)	Yes		
Specialization	Specialization of evaluator	Varchar(255)	Yes		
Session	Session	Varchar(255)	Yes		

Table 4.7: The item data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
ItemID	Item ID	Bigint(20)	Yes	PK	
Rubic	Rubic of item	Varchar(255)	Yes		
Mark	Mark of item	Double	Yes		
MilestoneID	Milestone ID	Bigint(20)	Yes	FK	Milestone (MilestoneID)

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Table 4.8: The criteria data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
CriteriaID	Criteria ID	Bigint(20)	Yes	PK	
Criteria Name	Name of criteria	Varchar(255)	Yes		
Mark	Mark of item	Double	Yes		
Description	Description of criteria	Varchar(255)	Yes		
ItemID	Item ID	Bigint(20)	Yes	FK	Item (ItemID)

Table 4.9: The milestone data dictionary

Attribute Name	Content	Type	Required	PK or FK	FK (Referenced table)
MilestoneID	Milestone ID	Bigint(20)	Yes	PK	
Items	Items of milestone	Varchar(255)	Yes		
Mark	Mark of item	Double	Yes		

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4.2.3 Physical Design

i) DDL (Create Table)

```
CREATE TABLE `assessments` (
  `id` bigint UNSIGNED NOT NULL,
  `group_id` bigint UNSIGNED NOT NULL,
  `assessment_name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `assessment_description` text COLLATE utf8mb4_unicode_ci,
  `assessment_date` timestamp NULL DEFAULT NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL,
PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

```
CREATE TABLE documentations (
  id bigint UNSIGNED NOT NULL,
  project_id bigint UNSIGNED NOT NULL,
  documentation_name varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  documentation_description text COLLATE utf8mb4_unicode_ci,
  created_at timestamp NULL DEFAULT NULL,
  updated_at timestamp NULL DEFAULT NULL,
PRIMARY KEY (id)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

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```
CREATE TABLE evaluations (
  id bigint UNSIGNED NOT NULL,
  evaluation_name varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  evaluation_description text COLLATE utf8mb4_unicode_ci,
  evaluation_date timestamp NULL DEFAULT NULL,
  created_at timestamp NULL DEFAULT NULL,
  updated_at timestamp NULL DEFAULT NULL,
 PRIMARY KEY (id)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

```
CREATE TABLE `groups` (
  `id` bigint UNSIGNED NOT NULL,
  `group_name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `group_description` text COLLATE utf8mb4_unicode_ci,
  `supervisor_id` bigint UNSIGNED NOT NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL,
 PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

```
CREATE TABLE `projects` (
  `id` bigint UNSIGNED NOT NULL,
  `group_id` bigint UNSIGNED NOT NULL,
  `project_name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `project_description` text COLLATE utf8mb4_unicode_ci,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL,
PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

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```
CREATE TABLE `score_criterias` (
  `id` bigint UNSIGNED NOT NULL,
  `evaluation_id` bigint UNSIGNED NOT NULL,
  `criteria_name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `criteria_description` text COLLATE utf8mb4_unicode_ci,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL,
PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_unicode_ci;
```

```
Constraints for table `assessments`

ALTER TABLE `assessments`
  ADD CONSTRAINT `assessments_group_id_foreign` FOREIGN KEY (`group_id`)
REFERENCES `groups` (`id`) ON DELETE CASCADE;

Constraints for table `documentations`

ALTER TABLE `documentations`
  ADD CONSTRAINT `documentations_project_id_foreign` FOREIGN KEY
(`project_id`) REFERENCES `projects` (`id`) ON DELETE CASCADE;

Constraints for table `evaluations`

ALTER TABLE `evaluations`
   ADD CONSTRAINT `evaluations_id_foreign` FOREIGN KEY (`evaluation_id`)
REFERENCES `evaluations` (`id`) ON DELETE CASCADE;
```

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```
Constraints for table `groups`

ALTER TABLE `groups`
    ADD CONSTRAINT `groups_supervisor_id_foreign` FOREIGN KEY
(`supervisor_id`)
REFERENCES `users` (`id`) ON DELETE CASCADE;

Constraints for table `projects`

ALTER TABLE `projects`
    ADD CONSTRAINT `projects_group_id_foreign` FOREIGN KEY (`group_id`)
 REFERENCES `groups` (`id`) ON DELETE CASCADE;


Constraints for table `score_criterias`

 ALTER TABLE `score_criterias`
   ADD CONSTRAINT `score_criterias_evaluation_id_foreign` FOREIGN KEY
(`evaluation_id`) REFERENCES `evaluations` (`id`) ON DELETE CASCADE;
```

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ii) DML

a) Insert Statement

```
INSERT INTO `assessments` (`id`, `group_id`, `assessment_name`,
`assessment_description`, `assessment_date`, `created_at`, `updated_at`) VALUES
 (1, 1, 'Assessment 1', 'Description for assessment 1', '2024-06-23 10:58:20', '2024-06-23
10:58:20', NULL),
(2, 2, 'Assessment 2', 'Description for assessment 2', '2024-06-23 10:58:20', '2024-06-23
10:58:20', NULL);
```

```
INSERT INTO `documentations` (`id`, `project_id`, `documentation_name`, `documentation_description`, `created_at`, `updated_at`) VALUES
(1, 1, 'Documentation 1', 'Description for documentation 1', '2024-06-23 10:58:20', NULL),
(2, 2, 'Documentation 2', 'Description for documentation 2', '2024-06-23 10:58:20', NULL);
```

```
INSERT INTO `evaluations` (`id`, `evaluation_name`, `evaluation_description`, `evaluation_date`, `created_at`, `updated_at`) VALUES
(1, 'Evaluation 1', 'Description for evaluation 1', '2024-06-23 10:58:20', '2024-06-23 10:58:20', NULL),
(2, 'Evaluation 2', 'Description for evaluation 2', '2024-06-23 10:58:20', '2024-06-23 10:58:20', NULL);
```

```
INSERT INTO `groups` (`id`, `group_name`, `group_description`, `supervisor_id`, `created_at`, `updated_at`) VALUES
(1, 'Group 1', 'Description for group 1', 1, '2024-06-23 10:58:20', NULL),
(2, 'Group 2', 'Description for group 2', 2, '2024-06-23 10:58:20', NULL);
```

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```
INSERT INTO `projects` (`id`, `group_id`, `project_name`, `project_description`, `created_at`, `updated_at`) VALUES
(1, 1, 'Project 1', 'Description for project 1', '2024-06-23 10:58:20', NULL),
(2, 2, 'Project 2', 'Description for project 2', '2024-06-23 10:58:20', NULL);
```

```
INSERT INTO `score_criterias` (`id`, `evaluation_id`, `criteria_name`, `criteria_description`, `created_at`, `updated_at`) VALUES
(1, 1, 'Criteria 1', 'Description for criteria 1', '2024-06-23 10:58:20', NULL),
(2, 2, 'Criteria 2', 'Description for criteria 2', '2024-06-23 10:58:20', NULL);
```

b) Update Statement

```
UPDATE `users` SET `name` = 'Updated User' WHERE `id` = 2;
```

c) Delete Statement

```
DELETE FROM `users` WHERE `id` = 1;
```

d) Trigger

```
CREATE TRIGGER before_user_update
BEFORE UPDATE ON users
FOR EACH ROW
BEGIN
    SET NEW.updated_at = NOW();
END
```

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e) Join Table

```
CREATE PROCEDURE sp_get_groups_by_user(IN user_id INT)
BEGIN
  SELECT groups.* FROM groups
  JOIN group_user ON groups.id = group_user.group_id
  WHERE group_user.user_id = user_id;
END
```

f) Procedure

```
CREATE PROCEDURE sp_get_users_by_role(IN role_id INT)
BEGIN
  SELECT * FROM users WHERE role_id = role_id;
END
```

```
CREATE PROCEDURE sp_get_groups_by_user(IN user_id INT)
BEGIN
    SELECT groups.* FROM groups
    JOIN group_user ON groups.id = group_user.group_id
    WHERE group_user.user_id = user_id;
END
```

4.3 Graphic User Interface Design

4.3.1 Register Interface Design

Figure 4.11: Page of register

4.3.2 Log in Interface Design

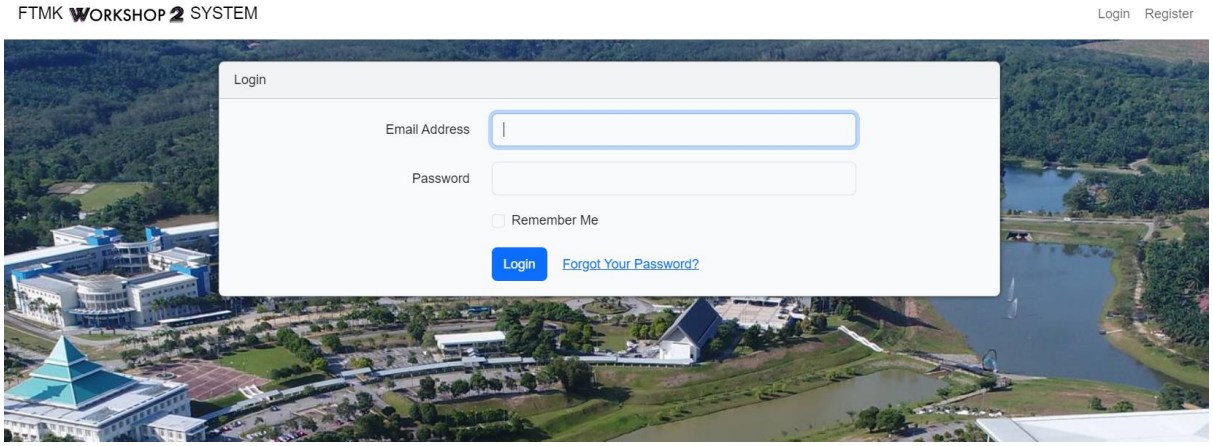

Figure 4.12: Page of login

4.3.3 Admin Interface Design

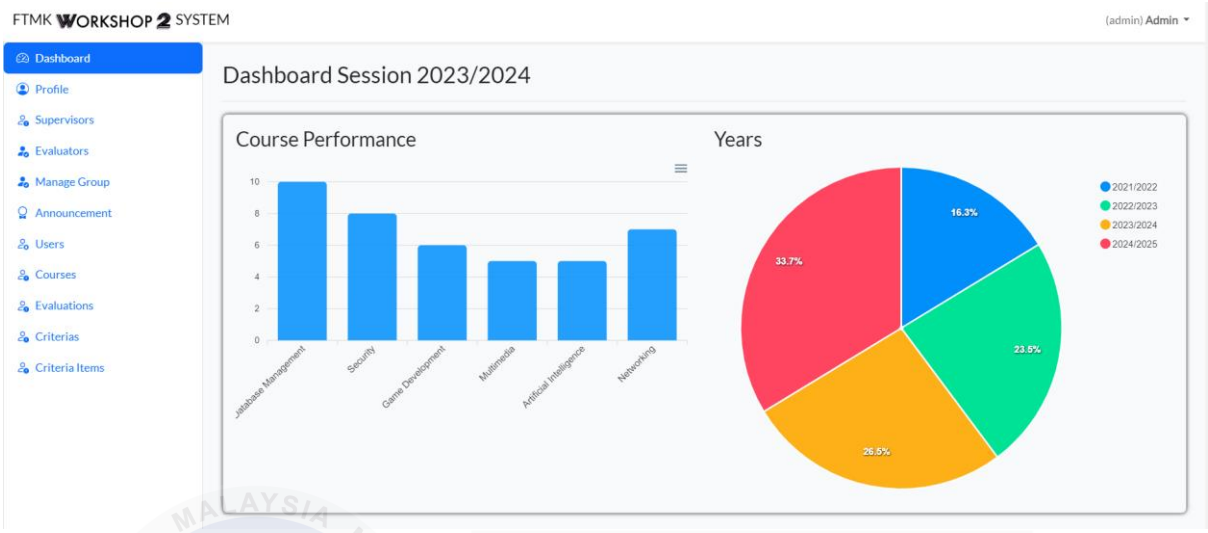

Figure 4.13: Main page of admin

Figure 4.14: Profile of admin

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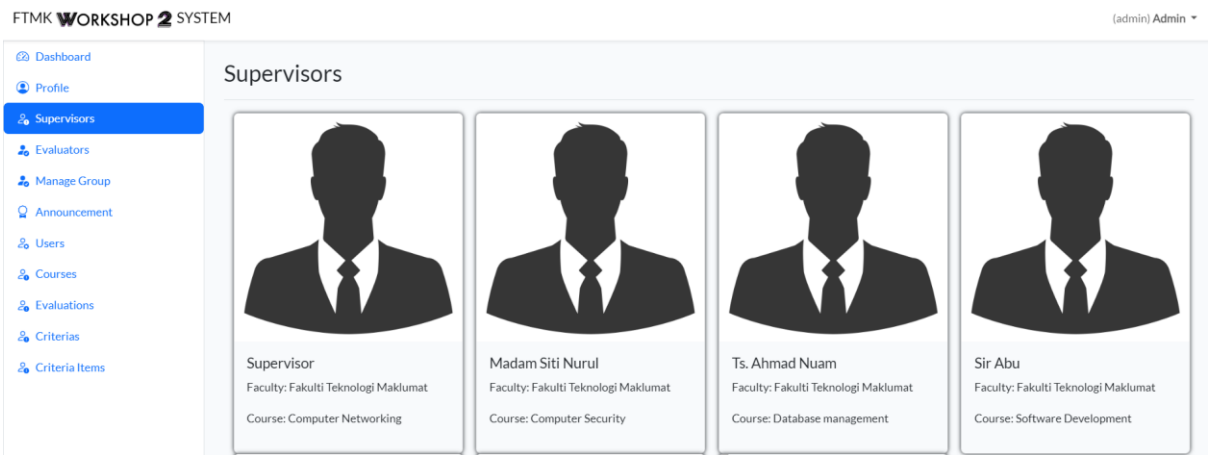

Figure 4.15: Supervisor list at admin page

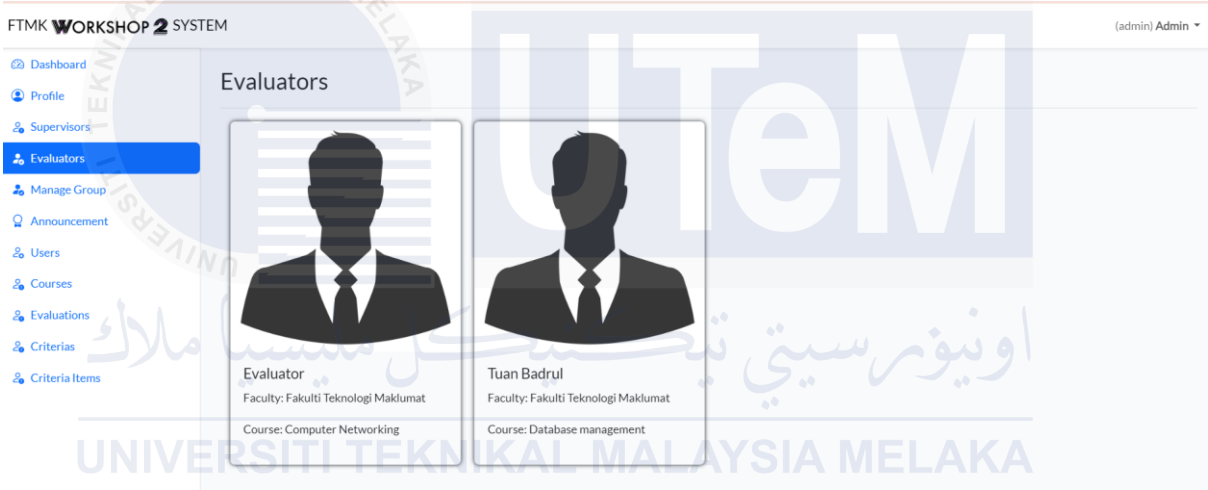

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Figure 4.16: Evaluators list at admin page

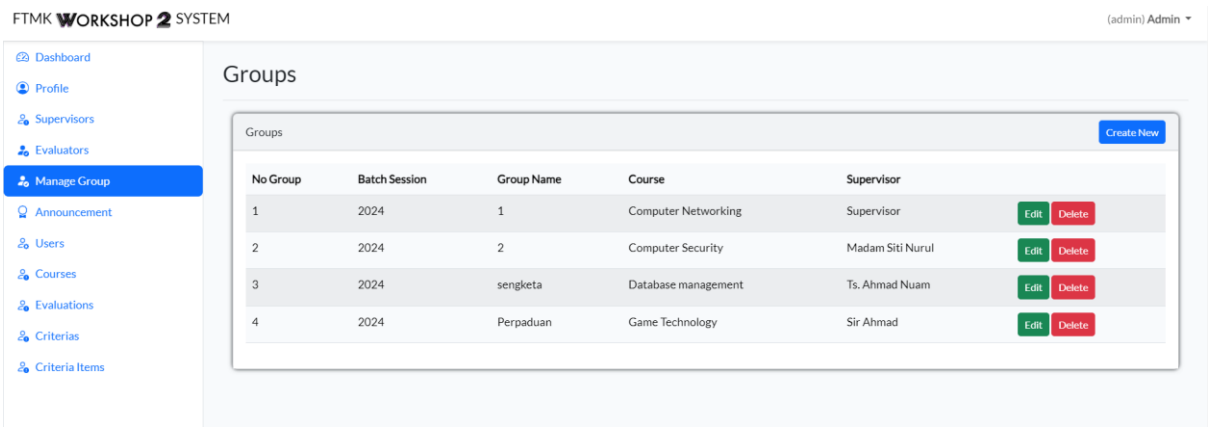

Figure 4.17: Manage group at admin page

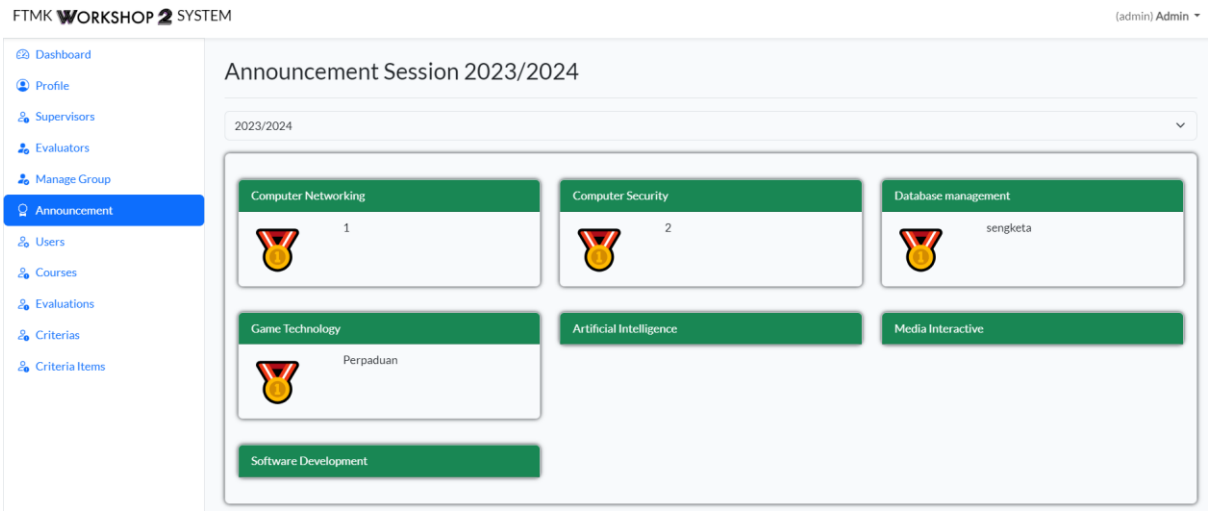

Figure 4.18: Announcement list at admin page

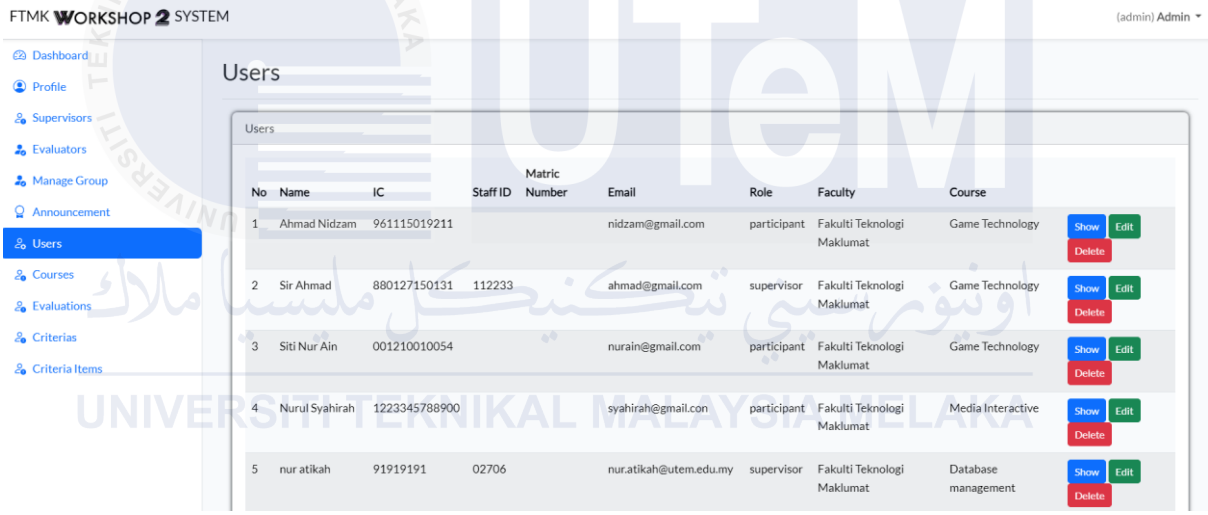

Figure 4.19: Users list at admin page

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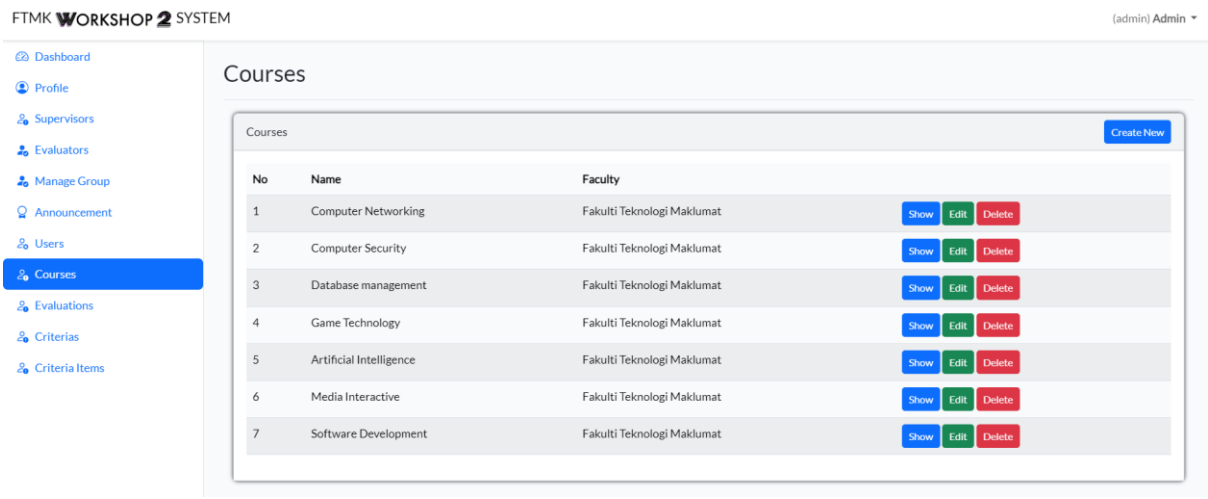

Figure 4.20: Lists of courses at admin page

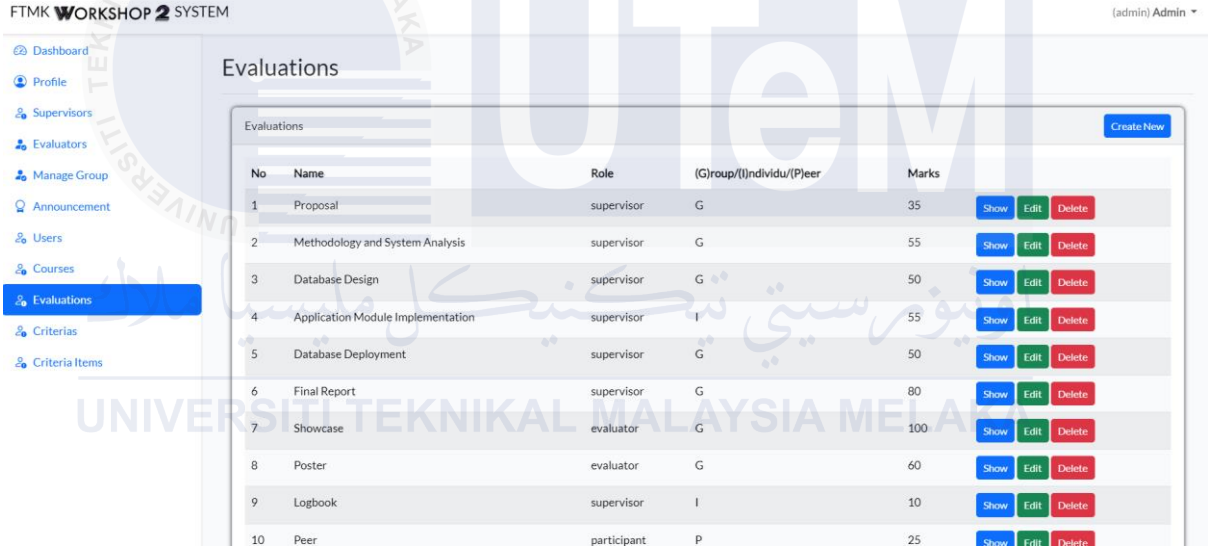

Figure 4.21: Evaluation items at admin page

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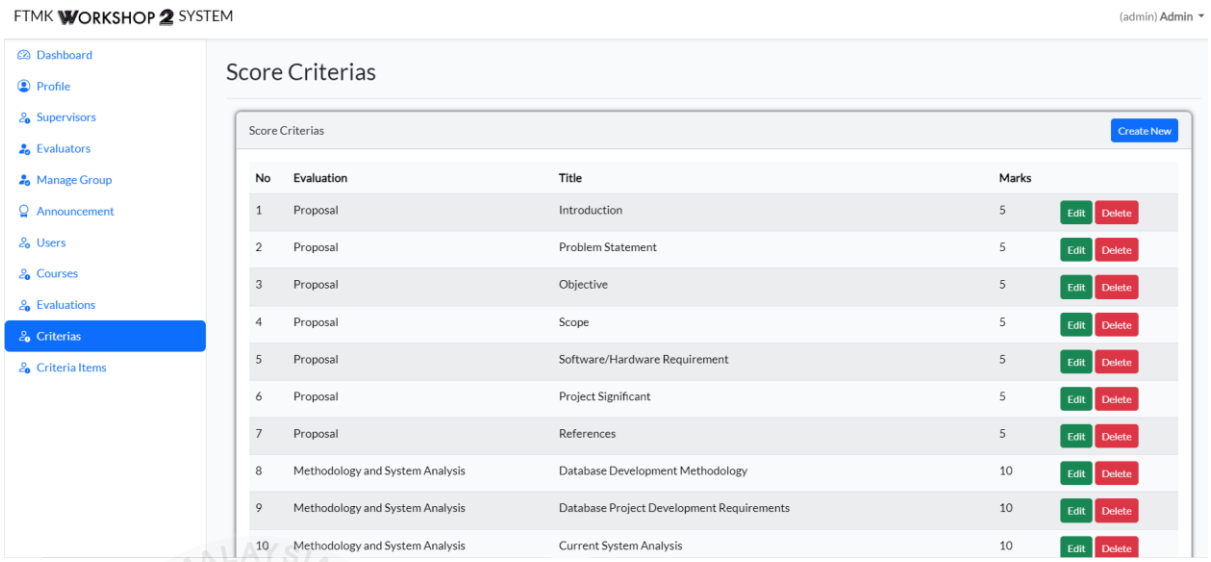

Figure 4.22: Score of criteria at admin page

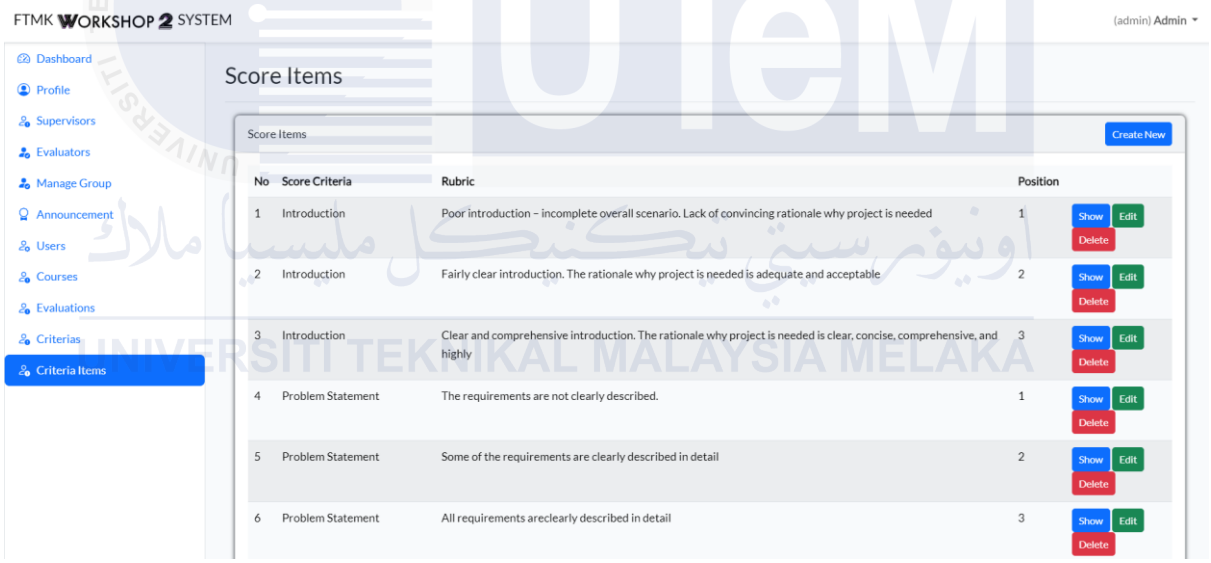

Figure 4.23: Items of score at admin page

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4.3.4 Supervisor Interface Design

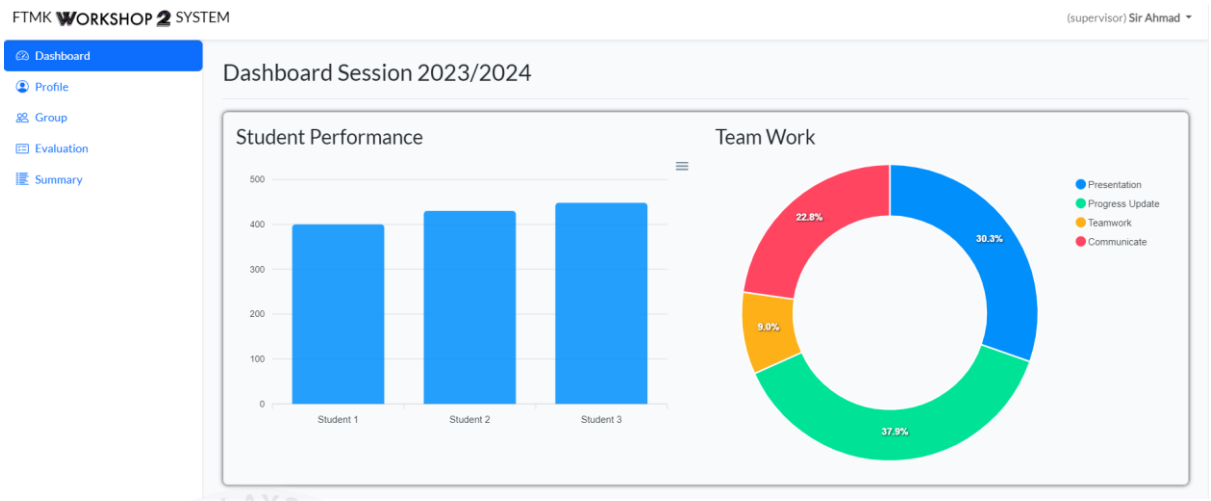

Figure 4.24: Main page of supervisor

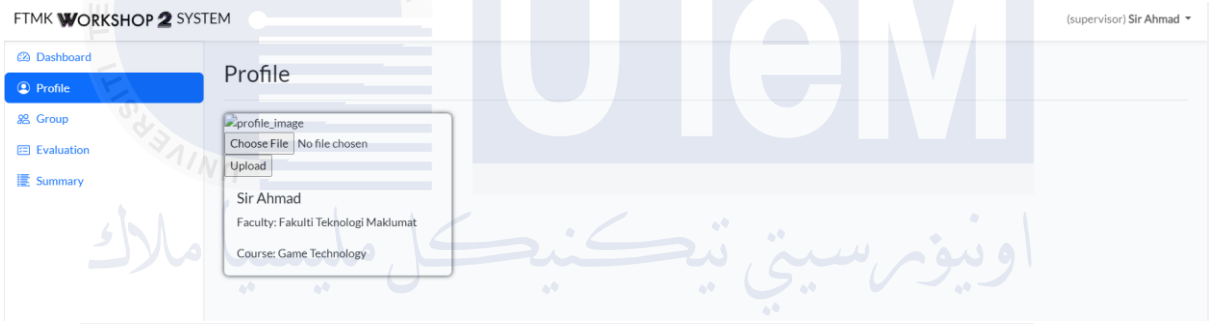

Figure 4.25: Profile of supervisor

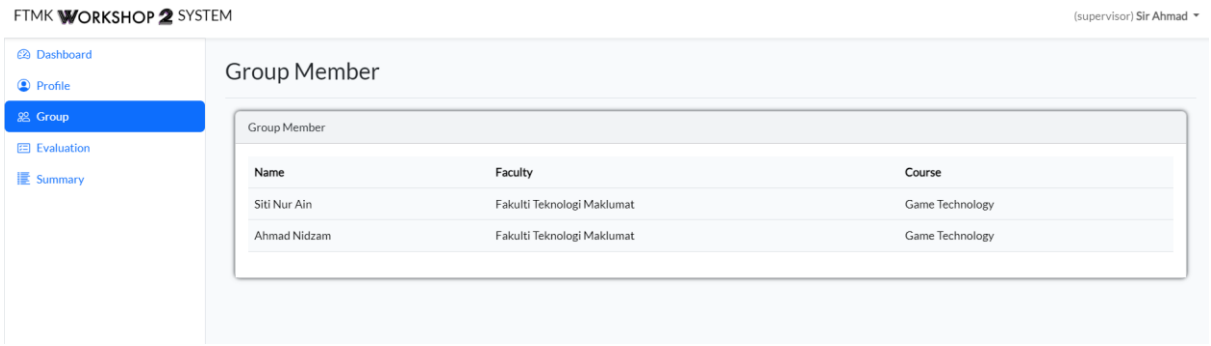

Figure 4.26: Group of members at supervisor page

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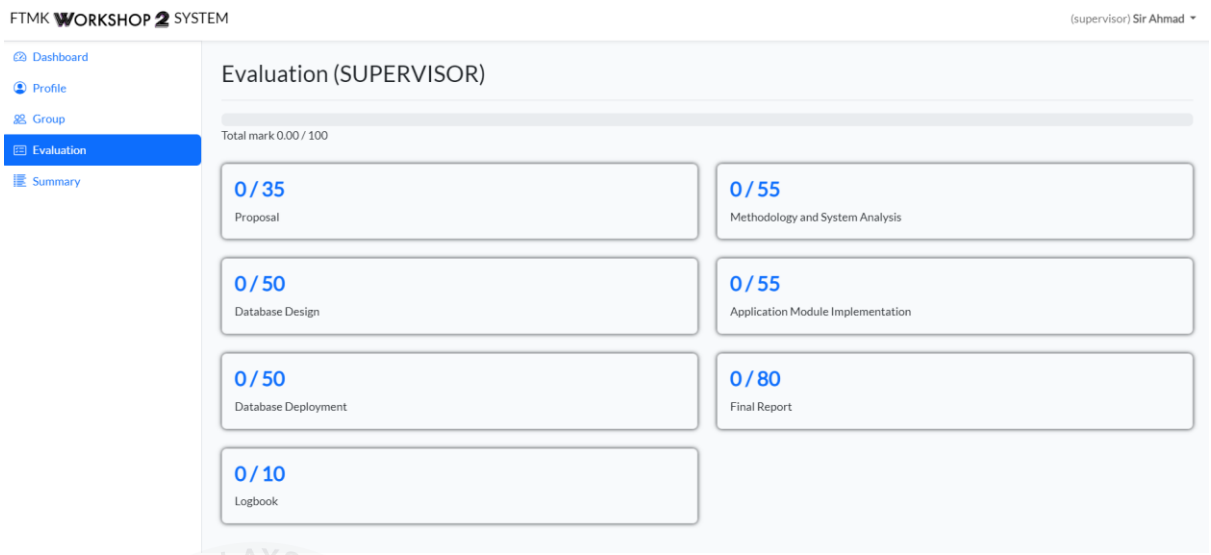

Figure 4.27: Evaluation home page at supervisor page

Figure 4.28: Summary of participants at supervisor page

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4.3.5 Evaluator Interface Design

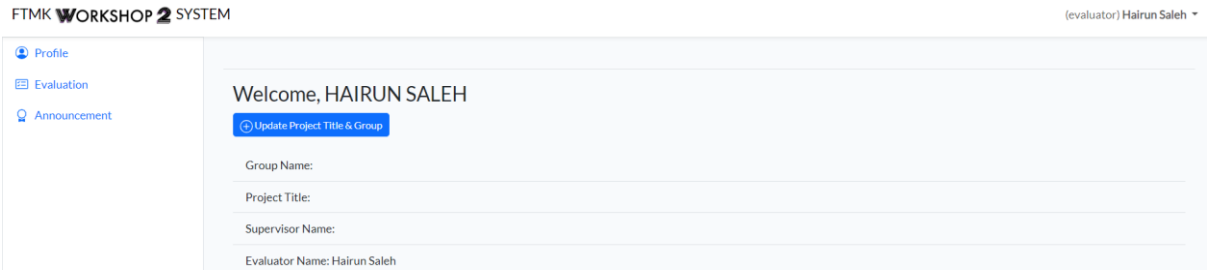

Figure 4.29: Main page of evaluator page

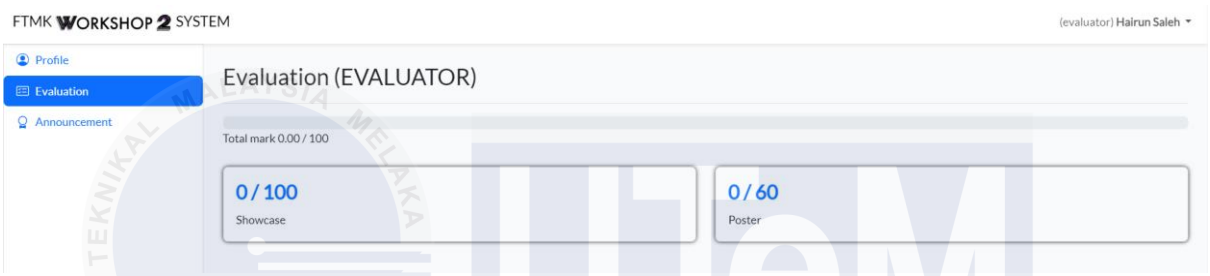

Figure 4.30: Evaluation home page at evaluator

Figure 4.31: Evaluation items at evaluator page

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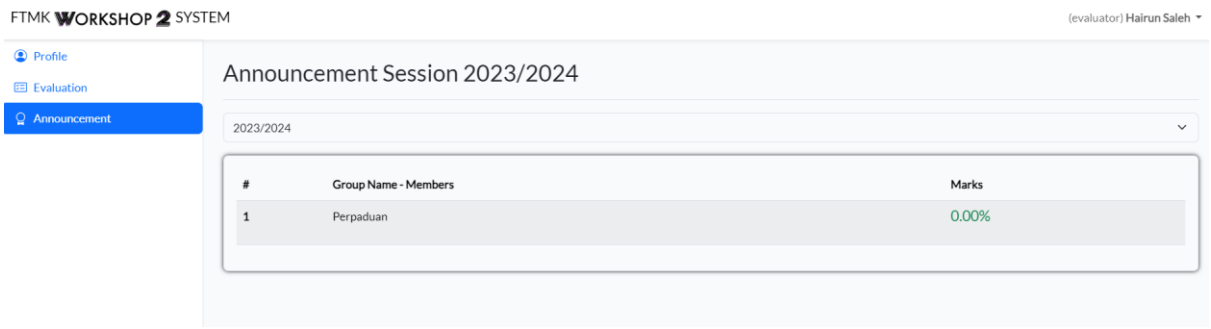

Figure 4.32: Announcement list at evaluator page

4.3.6 Participant Interface Design

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Figure 4.33: Main page of participant page

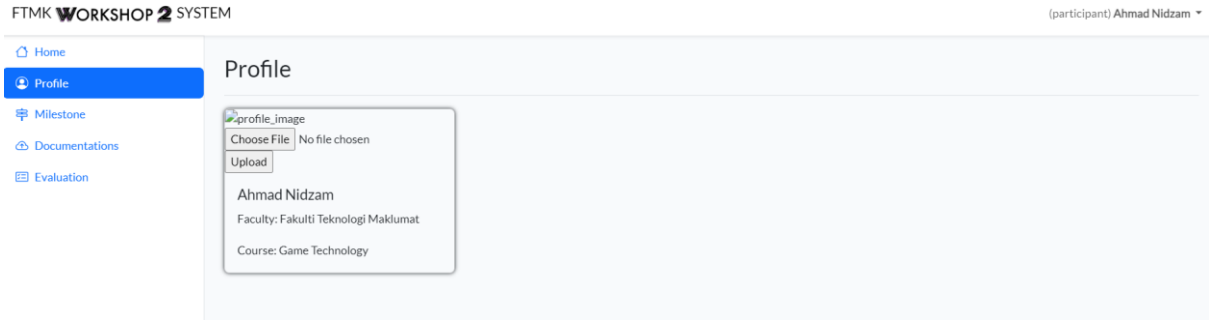

Figure 4.34: Profile of participant

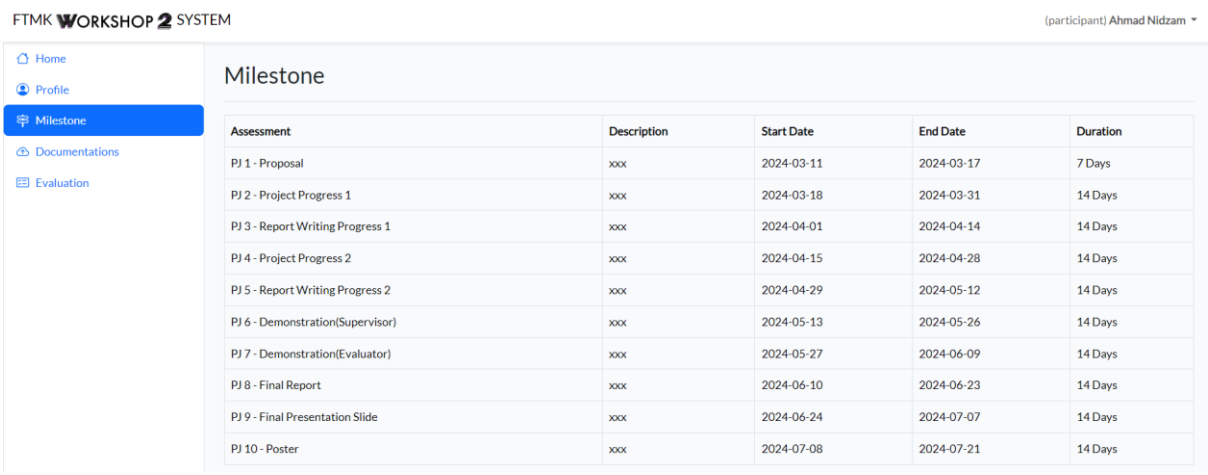

Figure 4.35: Milestone items at participant page

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Figure 4.36: Documentation and submission task at participant page

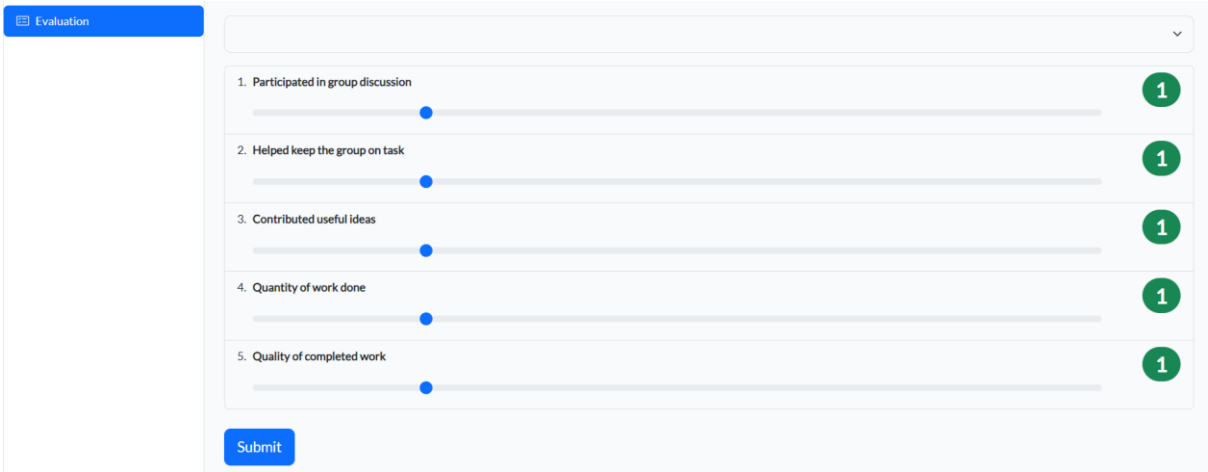

Figure 4.37: Evaluation of peer at participant page

4.4 Summary

In conclusion, an organised database is the backbone of a functioning FTMK Workshop 2 Management System. The database design contributes considerably to the application's success and longevity by dealing with the specific demands of individual workshop supervisors, implementing scalability and security measures, and facilitating effective data management.

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CHAPTER 5: IMPLEMENTATION

5.1 Introduction

During the installation phase, the system is installed and configured before advancing to the subsequent stage, the testing phase. When a system is finished being created, it moves into the implementation stage. This is where it is tested, and any bugs are fixed. This phase is crucial for transitioning the project from the development stage to the production stage. The chapter is divided into four sections: setting up the software development environment, implementing the database, managing software configuration, and discussing the implementation status. The software development environment setup will explore two subtopics of the system, which will be thoroughly researched.

5.2 Software Development Environment Setup

This section, as previously mentioned in Chapter 4, offers comprehensive information on the hardware, software, and database requirements that are essential for the system's development. To guarantee optimal performance, a Dell laptop with an Intel® Core™ i5 processor and Windows 10 Pro (64-bit) will be employed. The server management tool and integrated development environment will be XAMPP and Microsoft Visual Studio, respectively. Furthermore, the project's data requirements will be efficiently managed by PHPMyAdmin (MySQL), ensuring a seamless and effective process to manage the database.

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Table 5.1: List of hardware, software, database requirement

Hardware Requirement	• Laptop Dell • Windows 10 Pro (64 bit) • Intel® Core™ i5-10210U • 14" HD (1366 x 768) • 256GB SSD • 8GB
Software Requirement	• Microsoft Visual Studio • XAMPP
Database Requirement	• PHPMyAdmin(MySQL)

5.3 Database Implementation

This section explains how to activate the XAMPP service.

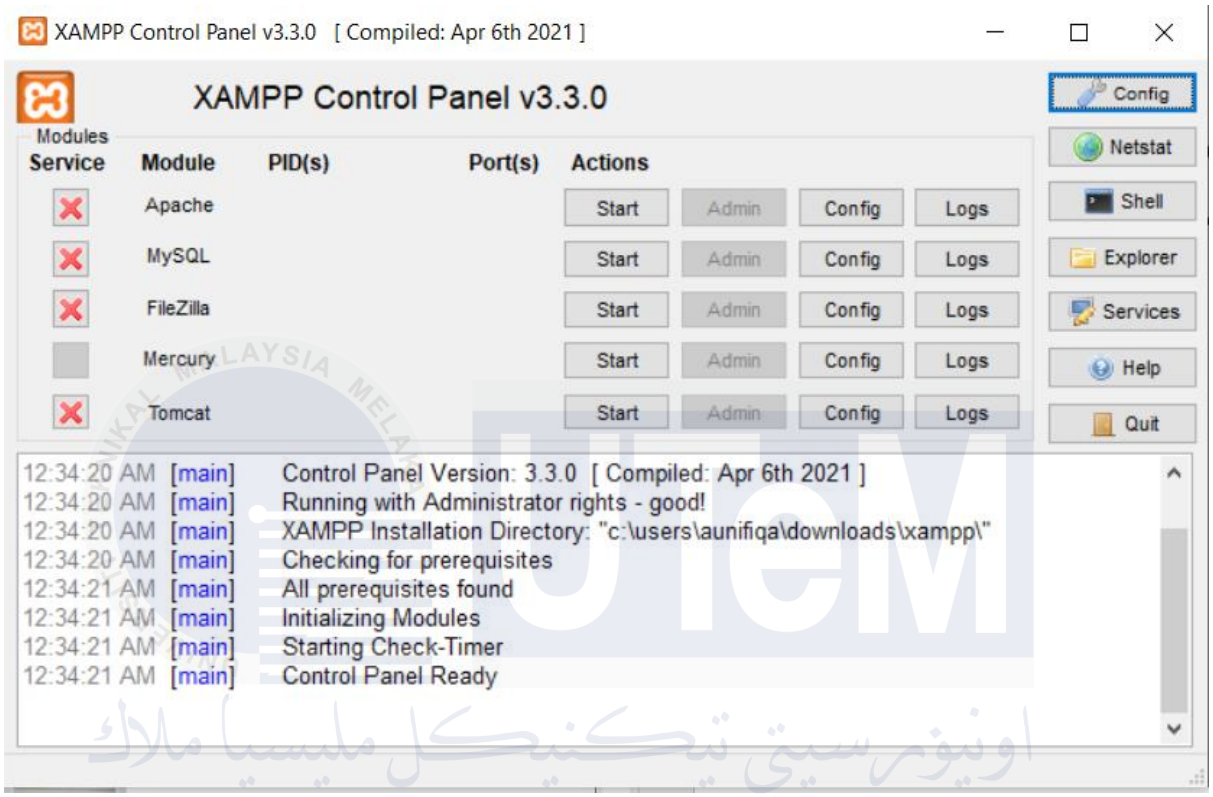

Figure 5.1: Starting the XAMPP Services in Local Computer

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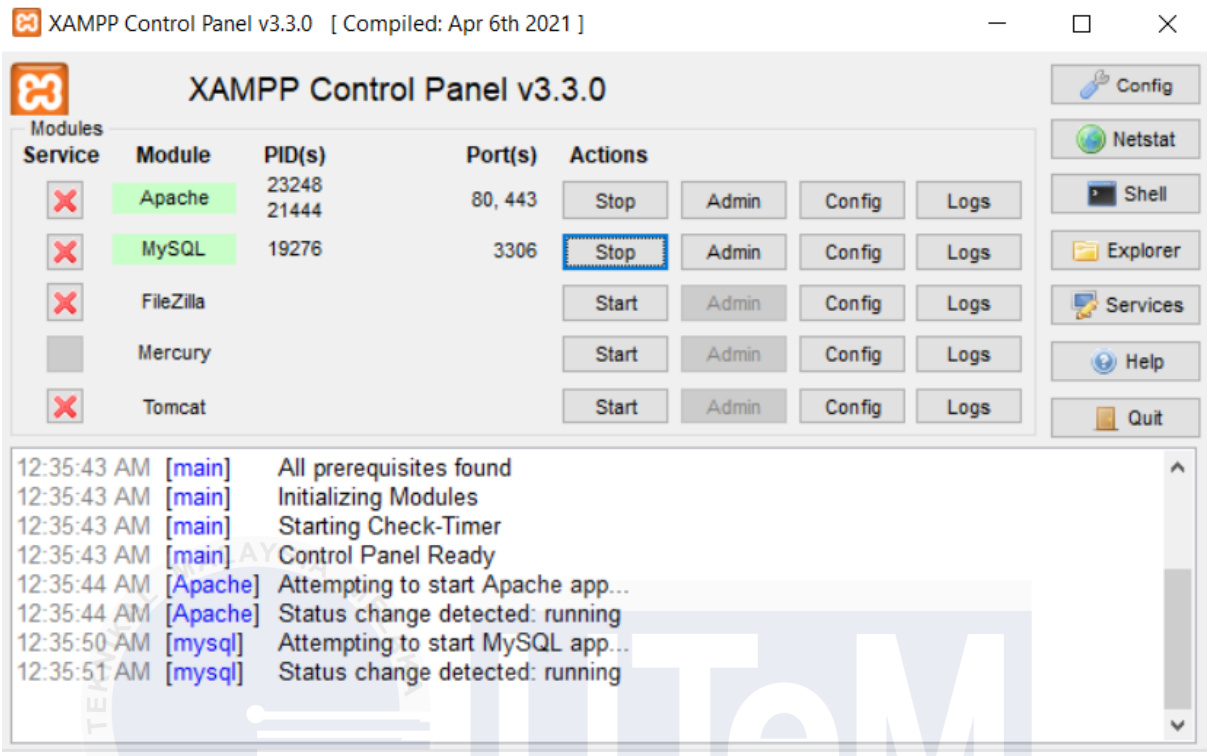

Figure 5.2: Click start at Apache and MySQL

```
# DB_CONNECTION=sqlite
# DB_HOST=127.0.0.1
# DB_PORT=3306
# DB_DATABASE=laravel
# DB_USERNAME=root
# DB_PASSWORD=

DB_CONNECTION=mysql
DB_HOST=127.0.0.1
DB_PORT=3306
DB_DATABASE=ftmkworkshop
DB_USERNAME=root
DB_PASSWORD=
FORWARD_DB_PORT=3308
```

Figure 5.3: Sources Code for Connection to Database

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5.4 Implementation Status

Table 5.2: Implementation status

Module	Description	Duration
Login	Facilitates user authentication, enabling authorised personnel and participants to securely authenticate and gain access to the system.	1 week
Staff	Manages the management of personnel data, which includes tasks such as registering new staff members, updating their profiles, and assigning them specific roles.	2 weeks
Participant	Manages participant (student) data, encompassing registration, profile administration, and project enrolment.	3 weeks
Evaluator	Manages the assignment of evaluators to groups and projects, including their feedback and scoring.	2 weeks
Group	Facilitates the creation and management of participant groups, including group assignments to projects.	2 weeks
Score	Handles the input, calculation, and management of scores based on evaluations and criteria.	2 weeks
Project	Manages tasks related to projects, including task creation, assignment, and tracking.	4 weeks
Item	Manages individual items or deliverables that participants or groups must complete as part of their projects.	2 weeks
Milestone	Tracks key project milestones, ensuring that participants and groups are meeting important deadlines.	2 weeks
Criteria	Defines the evaluation criteria that will be used to assess participant and group projects.	1 weeks

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5.5 Summary

A critical stage in moving from the development to the testing phases is the implementation phase. The steps and arrangements required for putting the FTMK Workshop 2 Management System into practice are described in this chapter. It also includes information on how to configure the system and run it. This chapter explains how the system, which was created with a three-tier architecture, works effectively. As stated in Chapter 5, the three-tier architectural components interact with one another to produce the desired results. The test plan, test strategy, test design, and an analysis of the test findings are covered in the upcoming chapter.

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CHAPTER 6: TESTING

6.1 Introduction

Testing the system to ensure it functions correctly and that the gearbox complies with the specifications is crucial. The test approach, plan, design, and outcome of the system will all be covered in this chapter. Running the database system to identify errors is the testing procedure. The testing phase will commence with tiny components. These components will be integrated with other modules, and evaluating the system's modules is essential.

6.2 Test Plan

6.2.1 Test Organization

The test organization explains the personnel involved in the testing phases of the FTMK Workshop 2 Management System. In this part, a test group will be established and responsible for managing, executing, designing, reviewing, and completing the testing tasks. Within the FTMK Workshop 2 Management System context, the system developer serves as the primary tester. The developer is well-positioned to identify bugs and errors firsthand.

The system developer will conduct tests on all modules to ensure the system’s integrity during development. This approach aims to minimize bugs and reduce errors in the final product. Additionally, end users contribute to the testing process by verifying system functionalities. Figure 6.1 illustrates the test organization in a hierarchical structure.

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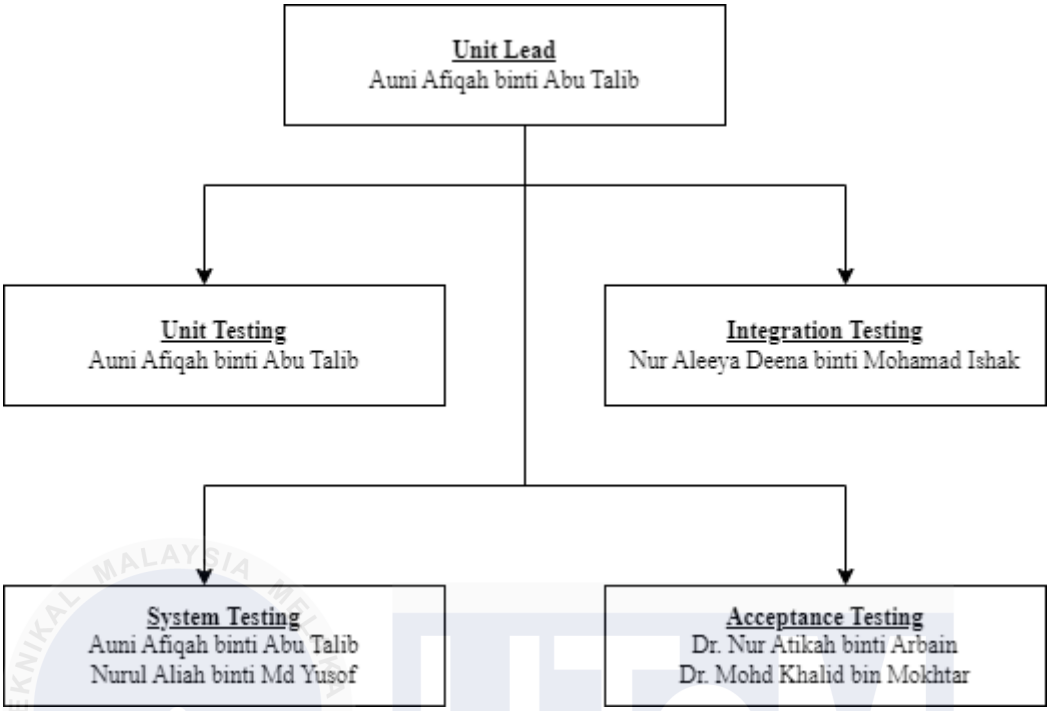

Figure 6.1: Hierarchy of Test Organization

6.2.2 Test Environment

Table 6.1 shows the details of test environment has been made.

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Table 6.1: Test Environment Specification

System Configuration	Specification (Server)
Operating System	Windows 10 Pro (64 bit)
Database	PHPMyAdmin
Random Access Memory (RAM)	8 GB
Hard Disk	256 GB
Processor	Intel® Core™ i5-10210U
Software	Apache Tomcat

6.2.3 Test Schedule

Testing for the FTMK Workshop 2 Management System is categorized into three types: unit testing, integration testing, and user acceptance testing. Each test output is documented to ensure that any necessary adjustments can be made after each testing phase. Table 6.2 provides a detailed overview of the tests conducted.

Table 6.2: Test Schedule

Modules	Type	Duration/ Cycles
Registration	Unit Test Integration Test User Acceptance Test	5 days/ 5 times
Log In System	Integration Test User Acceptance Test	3 days/ 5 times
Project Management	Integration Test User Acceptance Test	4 days/ 5 times
Score Recording	Integration Test User Acceptance Test	7 days/ 10 times
Milestone Tracking	Unit Test Integration Test User Acceptance Test	5 days/ 6 times

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6.3 Test Strategy

Various methodologies, such as bottom-up, top-down, white-box, and black-box techniques, can be used to test the FTMK Workshop 2 Management System. In this scenario, the white-box and black-box approaches have been chosen to test the FTMK Workshop 2 Management System. Table 6.3 provides a detailed description of how various approaches are applied.

Table 6.3: Description of approaches

Approaches	Explanation
White-Box	This technique will evaluate the system's fundamental logic and structure, ensuring that the algorithms used in the project management, evaluator assignment, and score recording modules work correctly.
Black-Box	This approach will focus on testing the system's functionality from external perspectives, ensuring that user interactions (e.g., participant registration, milestone tracking, and project management) produce the expected results without understanding its internal workings.

6.3.1 Classes of Tests

Functional Testing, Unit Testing, Integration Testing, and User Acceptance Testing are the four tests used to assess the FTMK Workshop 2 Management System's competencies and guarantee that it meets its needed outcomes. These exams are used for various modules, including participant registration, project management, evaluator assignment, score recording, and milestone tracking. Table 6.4 outlines the different types of tests in detail.

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Table 6.4: Description of classes of tests

Class of Test	Explanation
Functional Testing	Evaluate the system's functionality to ensure that it meets the requirements, especially in project management and milestone tracking areas.
Unit Testing	Tests separate system components, such as the evaluator assignment logic, to ensure each portion works appropriately in isolation.
Integration Testing	Ensures several modules (such as Participant Registration and Project Management) work together seamlessly.
User Acceptance Testing	The system meets user demands and performs well in real-world circumstances, emphasizing the entire user experience within the FTMK Workshop 2 Management System.

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6.4 Test Design

6.4.1 Test Description

Tables 6.5 to 6.9 provide a thorough summary of the testing methods used for each module in the FTMK Workshop 2 Management System. These tables list the precise tests that were carried out, the expected outcomes, and the relationships between each test and the different parts of the system. These tables make sure that every part of the management system is carefully looked over by carefully going over each section. This thorough evaluation method helps find and fix any problems that might come up during testing, making sure the system works well and smoothly.

6.4.1.1 Registration Module

The Registration module is essential for gaining access to the FTMK Workshop 2 Management System. Users are required to give their personal information to acquire a username. After completing the registration process successfully, individuals can access their accounts by using the username and password they just made. In the event of an unsuccessful registration, users will be required to retry the registration procedure.

Table 6.5: Description of Registration Module

Test Case ID	Description	Action	Expected Output
R01	Username = blank Password = blank Name = blank IC = blank Matric Number = blank Course = - Select - Role = - Select - Email = blank	No input provided	ERROR
R02	Username = Faris Password = blank Name = blank IC = blank Matric Number = blank Course = - Select - Role = - Select - Email = blank	Password, Name, IC, Matric Number, Course, Role and Email are left blank	ERROR
R03	Username = Faris Password = ***** Name = blank IC = blank Matric Number = blank Course = - Select - Role = - Select - Email = blank	Name, IC, Matric Number, Course, Role and Email are left blank	ERROR

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R04	Username = Faris Password = ***** Name = Faris Najmi IC = blank Matric Number = blank Course = - Select - Role = - Select - Email = blank	IC, Matric Number, Course, Role and Email are left blank	ERROR
R05	Username = Faris Password = ***** Name = Faris Najmi IC = 010218051321 Matric Number = blank Course = - Select - Role = - Select - Email = blank	Matric Number, Course, Role and Email are left blank	ERROR
R06	Username = Faris Password = ***** Name = Faris Najmi IC = 010218051321 Matric Number = B032110000 Course = - Select - Role = - Select - Email = blank	Course, Role and Email are left blank	ERROR
R07	Username = Faris Password = ***** Name = Faris Najmi IC = 010218051321 Matric Number = B032110000 Course = Database Management	Role and Email are left blank	ERROR

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	Role = - Select - Email = blank		
R08	Username = Faris Password = ***** Name = Faris Najmi IC = 010218051321 Matric Number = B032110000 Course = Database Management Role = Participant Email = blank	Email is left blank	ERROR
R09	Username = Faris Password = ***** Name = Faris Najmi IC = 010218051321 Matric Number = B032110000 Course = Database Management Role = Participant Email = farisnajmi@gmail.com	All necessary input is inserted	OK

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6.4.1.2 Login System Module

The login system module is important for users to access the system. The users are required to enter their usernames and passwords to log-in into the FTMK Workshop 2 Management System

Table 6.6: Description of Login System Module

Test Case ID	Description	Action	Expected Output
L01	Username = blank Password = blank	No input provided	ERROR
L02	Username = Faris Password = blank	Password is left blank	ERROR

L03	Username = blank Password = *****	Username is left blank	ERROR
L04	Username = Faris Password = *****	All necessary input is inserted	OK

6.4.1.3 Project Management Module

The Project Management module is crucial for the organization and monitoring of projects within the FTMK Workshop 2 Management System. Users must provide project details to develop and oversee their projects. After the successful creation of a project, users can monitor its progress and make necessary adjustments. In the event of an unsuccessful project setup, users will be required to input the project details again to make another attempt.

Table 6.7: Description of Project Management Module

Test Case ID	Description	Action	Expected Output
P01	Project Title = blank Project Description = blank Project File = blank	No input provided	ERROR
P02	Project Title = Cart Kenaling Project Description = blank Project File = blank	Project Description and Project File are missing	ERROR
P03	Project Title = Cart Kenaling Project Description = This is proposal for our system Project File = blank	Project File is missing	ERROR
P04	Project Title = Cart Kenaling Project Description = This is proposal for our system Project File = Proposal.pdf	All necessary input is inserted	OK

6.4.1.4 Description of Score Recording Module

The Score Recording module is essential for evaluating and recording student performance within the FTMK Workshop 2 Management System. To precisely document the progress of each student, users are required to enter the pertinent scores. After the scores are

submitted properly, they are stored and can be examined or amended as needed. In the event of an unsuccessful score recording process, users will be required to input the scores again to guarantee their accurate preservation.

Table 6.8: Description of Score Recording Module

Test Case ID	Description	Action	Expected Output
S01	Score = blank	No input provided	ERROR
S02	Score = Valid	All necessary input is inserted	OK

6.4.1.5 Description of Milestone Tracking Module

The FTMK Workshop 2 Management System relies heavily on the Milestone Tracking module to track project progress. Users must enter crucial milestones to adequately track the progress of each project. Once a milestone has been successfully recorded, it can be used to track progress and make necessary adjustments. If the milestone entry fails, users must re-enter the milestone information to ensure it is properly logged.

Table 6.9: Description of Milestone Tracking Module

Test Case ID	Description	Action	Expected Output
M01	Milestone Name = blank Milestone date = blank	No input provided	ERROR
M02	Milestone Name = Introduction Milestone Date = blank	Milestone Date is missing	ERROR
M03	Milestone Name = Introduction Milestone Date = 5/9/2024	All necessary input is inserted	OK

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6.4.2 Test Data

In this part, the real data will be used to ensure the system for correctness and system effectiveness. Table 6.10 show the example of test data.

Table 6.10: Description of Login Test Data

COMPONENT : LOGIN		
Test No	**Attribute**	**Data**
TEST01	**Admin**	
	Username	admin
	Password	*****
TEST02	**Staff**	
	Username	nidzam
	Password	*****
TEST03	**Participant**	
	Username	faris
	Password	*****

6.5 Test Result and Analysis

System: FTMK Workshop 2 Management System

Version: 1.0

Module: Registration Module

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Table 6.11: Test Result and Analysis for Registration Module

Test Number	Action	Result	Pass Initials (OK/Fail)
	Valid input: Based on each input type Condition: User enters personal details	System will prompt with new username based on user priority	OK

System: FTMK Workshop 2 Management System

Version: 1.0

Module: Login Module

Table 6.12: Test Result and Analysis for Login Module

Test Number	Action	Result	Pass Initials (OK/Fail)
	Valid input: Condition: username and password are already in the database Input: Username: admin Password: *****	Able to access the system	OK
	Valid input: Condition: username and password are not in the database Input: Username: testing Password: testing	Display error message	OK

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6.6 User Acceptance

The FTMK Workshop 2 Management System has employed black-box testing methods throughout the User Acceptance Testing (UAT) phase to verify that the system fulfils the requirements and desires of its end-users. The main objective of User Acceptance Testing (UAT) is to verify that the system operates accurately and effectively from the user's viewpoint, without examining the core code or logic. Black-box testing is essential in this context as it primarily examines the system's operation and behaviour as perceived by the user, rather than its internal architecture. This form of testing is carried out through the utilization of a Google Form survey. The survey is administered to specific users, such as students and supervisors, who are then requested to engage with the system and offer feedback based on their personal

experience. These users are selected based on their representation of the real end-users who will frequently engage with the system. The poll gathers feedback on different facets, including user-friendliness, system performance, and general contentment. This feedback is extremely useful in detecting any potential difficulties or areas that need improvement prior to the complete deployment of the system.

The survey form results, based on feedback from 19 respondents, show that the system's interface is generally responsive. Most users gave it a score between 4 and 5 when they switched between browser tabs or areas. The high ratings indicate that consumers are generally content with the system's quickness and seamless navigation. Nevertheless, a small number of ratings of 3 and 4 suggest that there might be intermittent delays, highlighting specific areas where additional optimization could improve the user experience. Overall, the feedback indicates a high level of user satisfaction, while some small enhancements are necessary to continuously attain excellent performance.

According to the survey form results, users typically perceive the system as user-friendly, with most of them ranking their experience between 4 and 5. This suggests that essential functionalities, such as file uploading and mark editing, are easy to understand and intuitive for users. Nevertheless, a small number of users gave their experience a rating from 2 to 3, indicating that certain features, such as the user-friendliness of buttons or ease of accessing functions, may require enhancement. Although the majority of users are content with the process of completing tasks, boosting the clarity and accessibility of specific features could further enhance the overall user experience.

A significant number of users believe that specific features could be improved or enhanced to increase usability, with more than half of them responding with "Yes." These replies indicate that while certain users are content with the existing functionality, others perceive possibilities for enhancements. Potential areas for improvement could involve optimizing current features to enhance their intuitiveness or incorporating additional functionalities to better cater to user requirements. By addressing these challenges, it is possible to get a more streamlined and user-friendly experience throughout the entire system.

The error warnings are typically understandable to the majority of users, who generally rate them with a score of 4 to 5. This indicates that the error messages are usually clear and effective in communicating issues. However, a minority of consumers rated their experience with error messages as 2 or 3, indicating that there are certain instances when the messaging is unclear or

may be improved. Overall, while the error messages are generally well-received, enhancing them to ensure consistency and clarity in all instances could further improve the user experience.

According to the survey results, the system receives predominantly positive feedback on its ease of use across many domains. Users have indicated that the user interface (UI) is extremely responsive and efficient when performing operations such as uploading files and making modifications to marks. Nevertheless, a minority of users have reported sporadic delays and areas that may be enhanced. Most individuals assert that the inclusion of personalization features for adjusting text size and colour themes will significantly enhance their overall user experience. While error messages are typically seen as clear and helpful, there are suggestions for enhancing their consistency in terms of comprehensibility. Overall, consumers are satisfied with the system, although they see the potential for further improvement and modification to enhance their experience.

6.7 Summary

The FTMK Workshop 2 Management System was tested to guarantee its dependability and correctness. Through unit, integration, and user acceptance testing, the system developer and end users engaged in a well-organised approach whereby several modules were tested. Black-box and white-box methods were used to investigate internal logic as well as outside capability. Actual test data was used to verify the performance of the system; the test environment, timetable, and techniques were extensively recorded. The findings verified that the system satisfied the necessary criteria; any found flaws were fixed to improve the quality of the finished good.

CHAPTER 7: CONCLUSION

7.1 Introduction

The FTMK Workshop 2 Management System is designed to streamline the management and oversight of final-year projects, addressing the complexities involved in coordinating student projects. The system features a range of functionalities to manage various aspects of project oversight efficiently. During the development of this project, several challenges emerged, including limited experience with specific technologies, a shortage of reference materials and source code, and constraints related to time and other commitments. Nonetheless, through dedication, effort, and collaboration with peers, we successfully developed and completed the system.

7.2 Strengths and Weakness

Table 7.1: Strengths and weakness

Strengths	Weakness
Provides a straightforward and accessible platform for evaluators to input scores.	Evaluators may face a learning curve if the interface is not intuitive from the start.
Ensures all evaluations are based on consistent criteria, promoting fairness and transparency.	The system's rigid criteria might not accommodate all types of projects or evaluation styles.
Automation minimizes manual data entry errors, improving overall data accuracy.	The system's effectiveness depends on accurate setup and maintenance; errors in automation can still occur.

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7.3 Improvement of this system

- Implement modern algorithms and real-time analytics to increase the accuracy and timeliness of performance evaluations.
- Provide extensive training and support materials to assist assessors in utilising the automated evaluation system.
- To provide clarity and flexibility in the assessment process, provide room for dynamic modifications and create comprehensive guidelines.

7.4 Summary

In conclusion, chapter 7 of the report provides an overview of the creation and execution of the FTMK Workshop 2 Management System. It discusses the difficulties, including limited familiarity with specific technologies, insufficient resources, and time limitations. Despite these challenges, the system was effectively finished, providing advantages such as a user-friendly interface for evaluations, standardized and equitable evaluation standards, and automated processes that minimize data input mistakes. Nevertheless, it has several drawbacks, such as difficulty for users in understanding inflexibility in adapting to various project kinds and the possibility of automated faults if not effectively controlled. Proposed future enhancements involve integrating contemporary algorithms for instantaneous data analysis, delivering comprehensive instruction for assessors, and introducing increased adaptability and transparency in the evaluation procedure.

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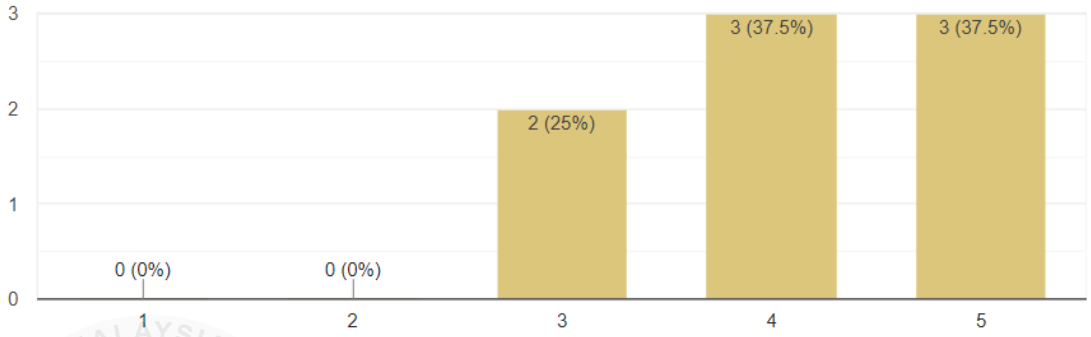
APPENDIX

How would you rate your overall experience managing tasks and overseeing participants using the system?

Copy

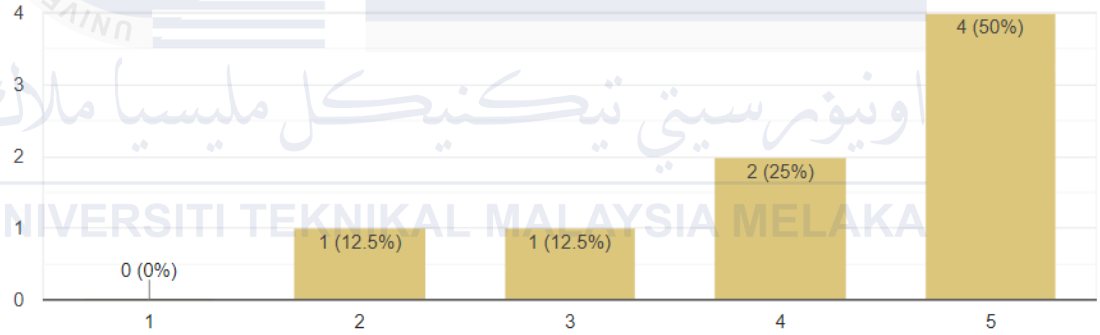
8 responses



How effectively does the system help you monitor progress and manage your responsibilities?

Copy

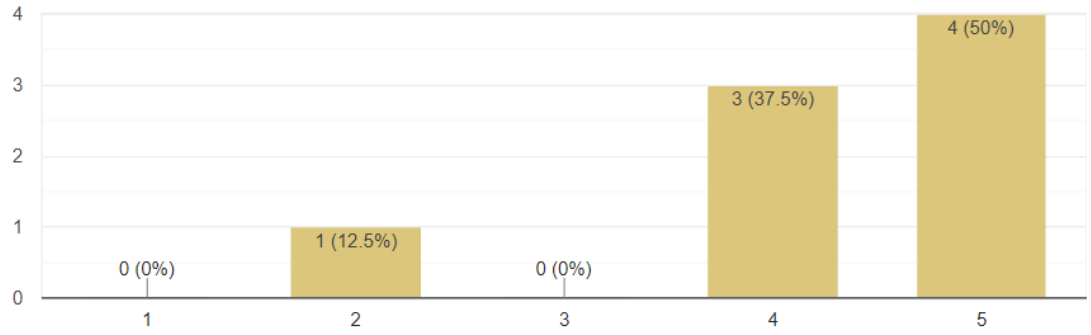
8 responses



How easy is it to navigate through the system when accessing participant data or reports?

Copy

8 responses



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How intuitive do you find the system's layout and design when managing your tasks and overseeing others?

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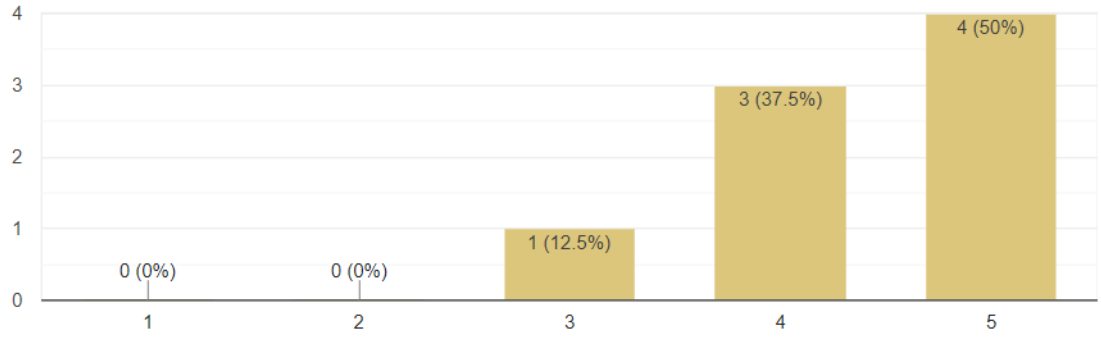
8 responses



How responsive is the system when switching between different sections or reviewing participant submissions?

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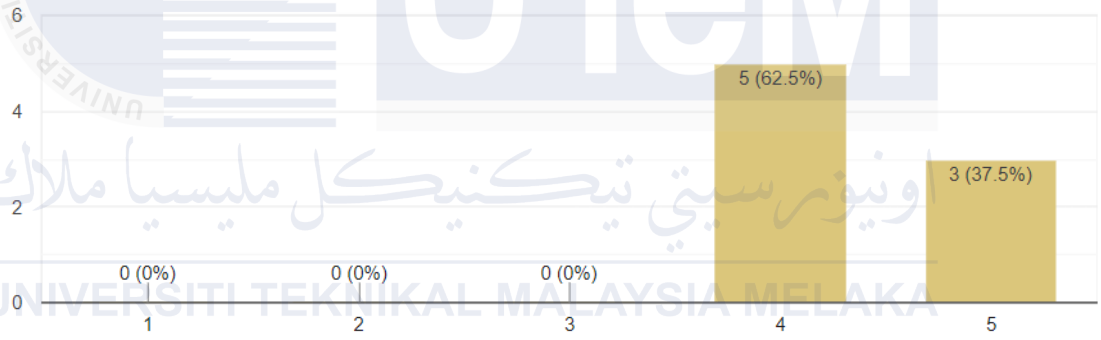
8 responses



Are you satisfied with the speed and performance of the system during tasks like evaluating submissions or updating records?

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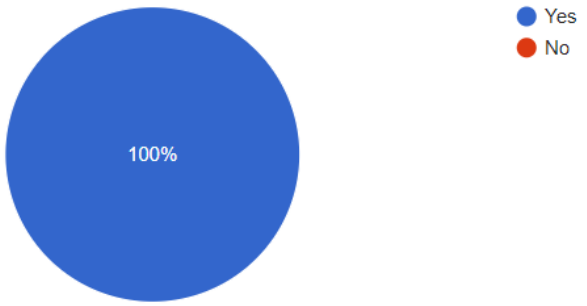
8 responses



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How would you rate your overall experience completing tasks and interacting with the system?

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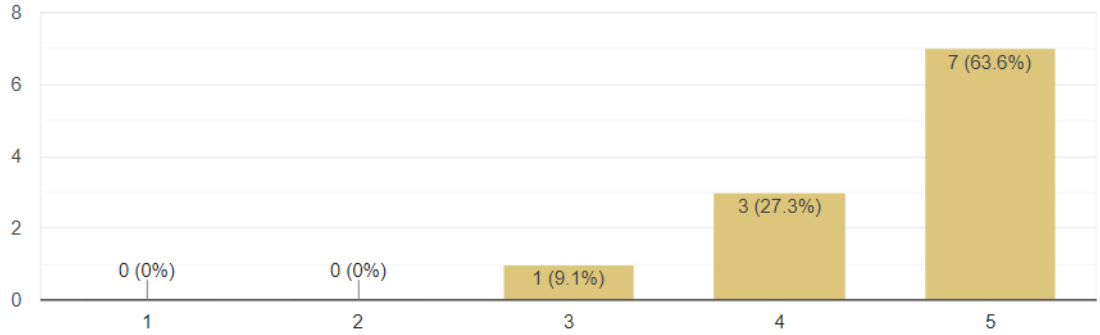
11 responses



How effectively does the system support you in managing and submitting your work?

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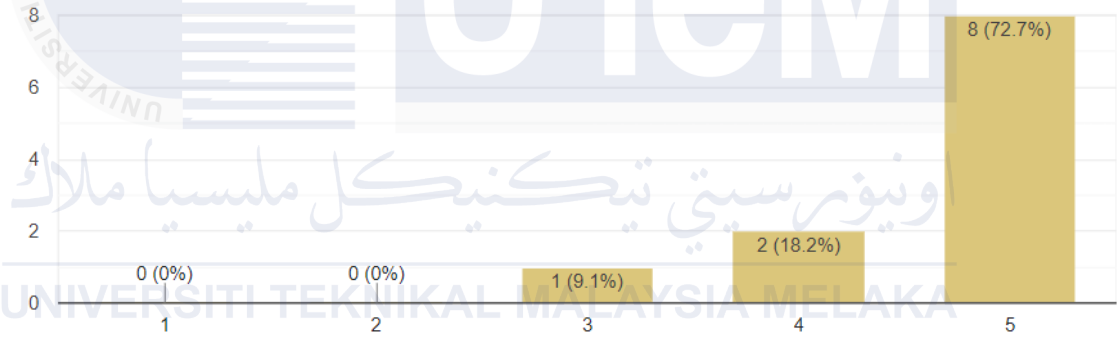
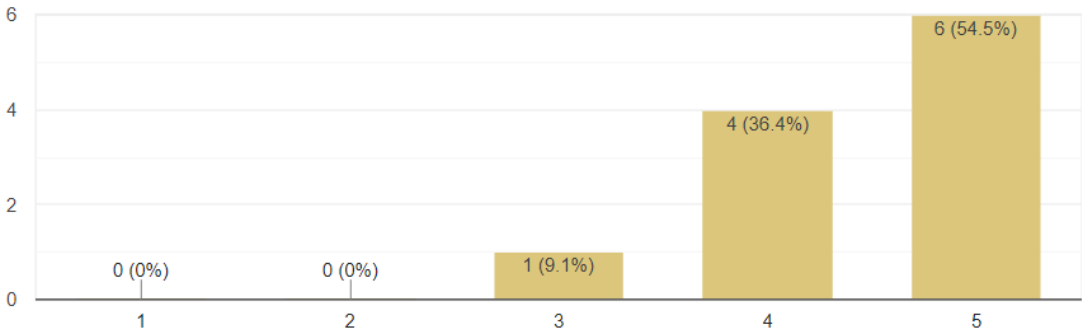
11 responses



How easy is it to navigate through the system when accessing assignments or submitting work?

Copy

11 responses



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How intuitive do you find the system's layout and design when completing your tasks?

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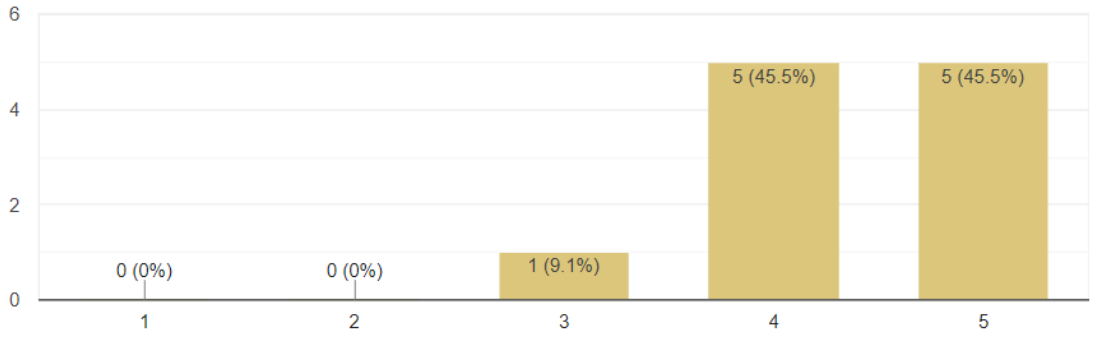
11 responses



How responsive is the system when switching between different sections or submitting assignments?

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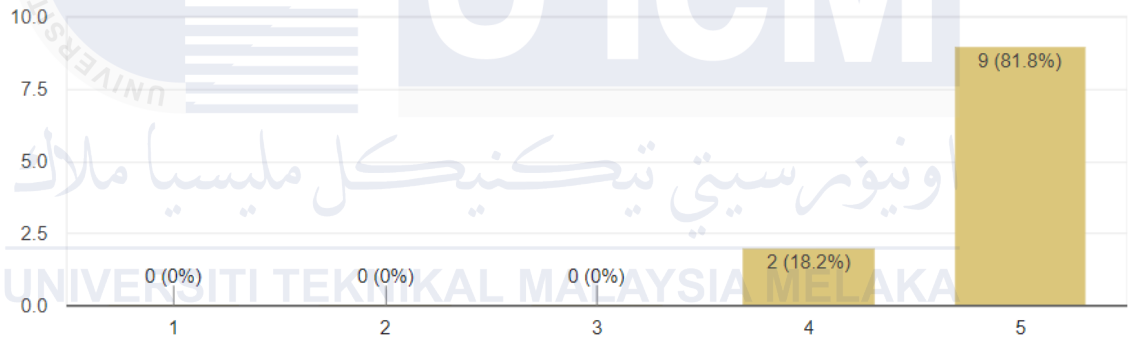
11 responses



Are you satisfied with the speed and performance of the system when uploading files or accessing feedback?

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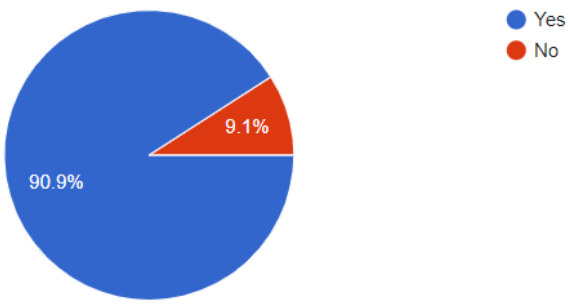
11 responses



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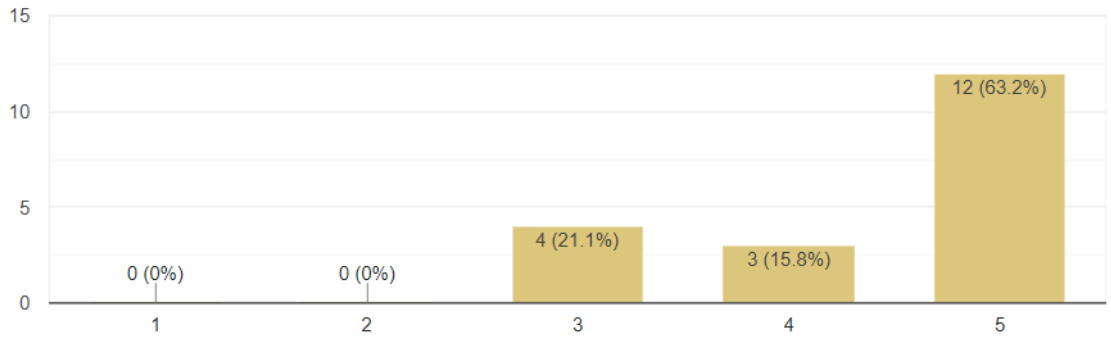
How effective are the system's features, such as reviewing, approving, or providing feedback on participant tasks?

Copy

19 responses



Have you encountered any issues while using the system to complete your work?

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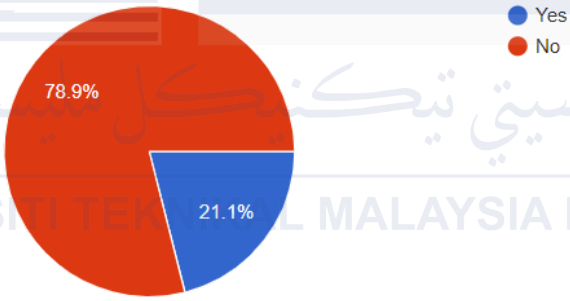
19 responses



How responsive is the system's interface, for example, when switching between different sections or tabs in the browser?

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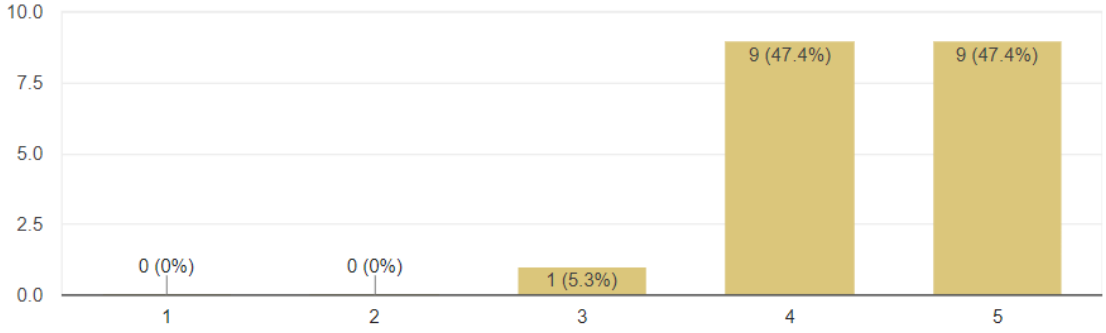
19 responses



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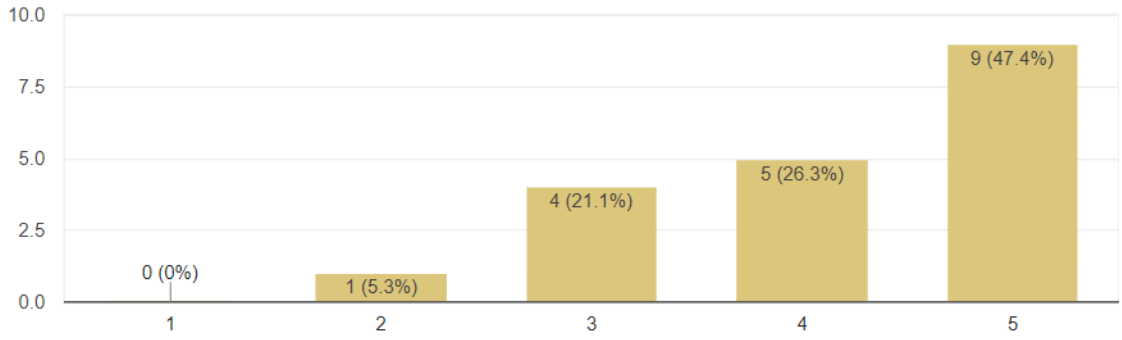
How easy is it to complete your tasks using the system? For example, consider how straightforward it is to upload a file, or edit marks.

Copy

19 responses



Are there any specific features you think could be improved or enhanced for better usability?

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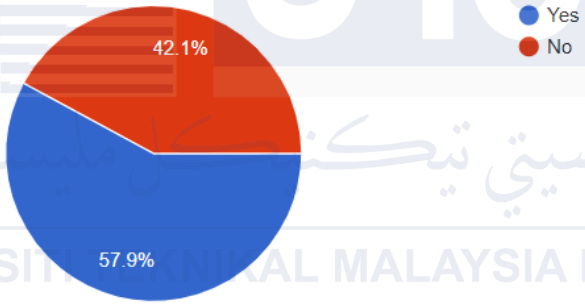
19 responses



Would the ability to customize aspects like font size or color themes significantly improve your experience?

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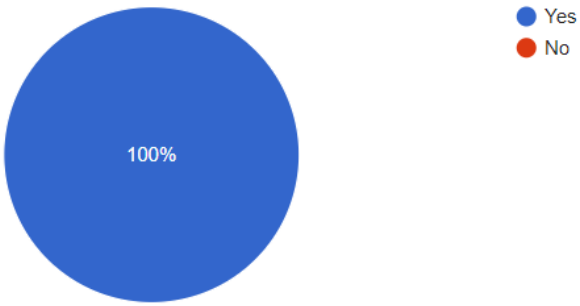
19 responses



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Have you encountered any issues that significantly disrupt your workflow?

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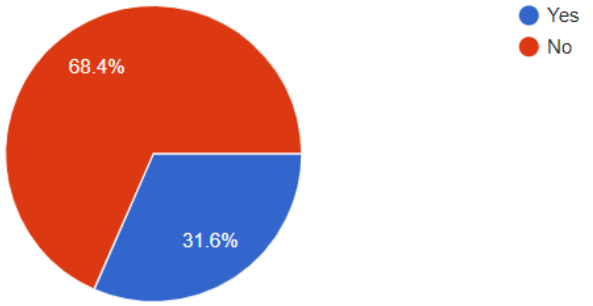
19 responses



Are the error messages easy to understand?

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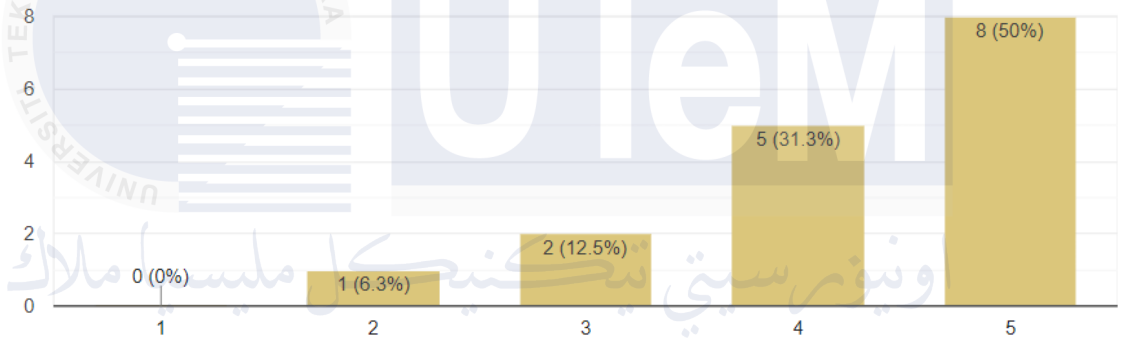
16 responses



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Rujukan Kami (Our Ref) : UTEM.600-5/1/5 Jld.3 (78)
Rujukan Tuan (Your Ref):
Tarikh (Date): 8 Ogos 2024 | 3 Safar 1446H

KEPADA SESIAPA YANG BERKENAAN

Tuan,

PERMOHONAN MENJALANKAN KAJIAN KES BAGI TUGASAN PROJEK

Dengan hormatnya saya merujuk perkara di atas.

2. Dimaklumkan bahawa penama tersebut adalah pelajar Universiti Teknikal Malaysia Melaka. Maklumat terperinci adalah seperti berikut :

Nama	:	Auni Afiqah binti Abu Talib
No. Matrik	:	
Kursus	:	Ijazah Sarjana Muda Sains Komputer (Pengurusan Pangkalan Data) dengan Kepujian
Fakulti	:	Fakulti Teknologi Maklumat & Komunikasi

3. Pelajar ini perlu menyiapkan satu tugasan projek bagi kursus BITU3983 (Projek Sarjana Muda II). Sehubungan dengan ini, saya sangat berbesar hati sekiranya pihak tuan dapat memberi peluang kepada pelajar ini untuk membuat kajian kes tersebut di organisasi tuan.

Segala kerjasama daripada pihak tuan didahului dengan ucapan terima kasih.

Sekian.

"BIJAK LAKSANA TUAH, BERANI LAKSANA JEBAT"
"MALAYSIA MADANI"
"BERKHIDMAT UNTUK NEGARA"
"KOMPETENSI TERAS KEGEMILANGAN"

Saya yang menjalankan amanah,

SHARIFAH NURUL FARIDAH BINTI SYED ABU BAKAR
Timbalan Pendaftar Kanan
Fakulti Teknologi Maklumat dan Komunikasi
Universiti Teknikal Malaysia Melaka

nas/ua