# 

Graduation Project

Questionnaire Management System

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# ABSTRACT

*This documentation provides a comprehensive view of the* ***Questionnaire Management System (QMS)****, outlining the purpose, scope, and core components. The* ***QMS*** *is designed to streamline the creation, management, and analysis of questionnaires, offering a user-friendly platform for organizations to gather and analyze feedback efficiently. This system incorporates various modules, including* ***questionnaire creation****,* ***user management****,* ***response handling****,* ***analytics****, and* ***reporting****.*

# ACKNOWLEDGEMENTS

We would like to express our heartfelt gratitude to all those who have supported and guided us throughout the course of this project.

First and foremost, we extend our sincere appreciation to our supervisor, **Dr. Khaled Foad**, for his unwavering support, insightful guidance, and constructive feedback. His expertise and encouragement were vital to the successful completion of our project.

We would also like to acknowledge the contributions of our teaching assistants and professors, whose invaluable knowledge and assistance helped us refine our ideas and overcome challenges during the various stages of this project.

A special thanks goes to our team members, whose dedication, hard work, and collaboration were the driving forces behind the progress and success of this endeavor. Each member’s unique skills and commitment played an integral role in achieving our goals.

Lastly, we are deeply grateful to our families and friends for their constant encouragement and understanding, which motivated us to give our best effort throughout this journey.

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# SYMBOLS & ABBREVIATIONS

**QMS:** Questionnaire Management System

**NMU:** New Mansoura University

**ERD:** Entity Relationship Diagram

# 1. INTRODUCTION

The **NMU Questionnaire Management System (QMS)** is a comprehensive web-based application designed to streamline the creation, management, and analysis of questionnaires at New Mansoura University. Developed between October 8, 2024, and November 23, 2024, the system aims to facilitate efficient feedback collection and decision-making processes within the academic and administrative departments of the university. It incorporates user-friendly interface and advanced analytics, ensuring accessibility and security for all stakeholders.

## 1.1. Problem Statement

Effective data collection and analysis are critical for informed decision-making within educational institutions. Existing methods at New Mansoura University were inefficient, lacked standardization, and did not offer real-time analytics. This resulted in limited engagement, delays in feedback processing, and insufficient insights for academic and administrative improvements.

## 1.2. Project Purpose

The primary purpose of the **QMS** is to address the challenges associated with traditional feedback collection methods. By leveraging technology, the system ensures secure, scalable, and efficient management of questionnaires, enabling administrators and educators to gather valuable insights with minimal effort.

## 1.3. Project Scope

The scope of the project encompasses:

* Development of a dynamic questionnaire builder with features like conditional logic.
* Implementation of secure user authentication and role-based permissions.
* Integration of analytics and reporting tools for in-depth data analysis.
* Real-time response management and feedback handling.
* Support for future enhancements such as multi-language support and advanced analytics.

## 1.4. Objectives and Success Criteria of the Project

### Objectives:

1. **Streamlined Questionnaire Management:** Provide tools for creating, distributing, and analyzing questionnaires.
2. **Enhanced Security:** Ensure data privacy and secure access using role-based permissions and encryption.
3. **User Engagement:** Offer an intuitive interface to encourage participation from students and staff.
4. **Data-Driven Insights:** Generate actionable insights through advanced analytics and reporting features.

### **Success Criteria:**

* Successful deployment and user acceptance testing of the system.
* Positive feedback from users on the system's usability and effectiveness.
* Achievement of performance benchmarks such as response time and accuracy of analytics.

## 1.5. Report Outline

The report is organized as follows:

* **Abstract:** A concise summary of the project's objectives, methodology, and outcomes.
* **Acknowledgements:** Acknowledgment of contributors and supporters of the project.
* **List of Tables:** Contains all tables within the document.
* **List of Figures:** Contains all figures within the document.
* **Symbols & Abbreviations:** Contains symbols/abbreviations used throughout the document.
* **Table of Contents:** A detailed breakdown of the report's structure and sections.
* **Section 1:** *Introduction*—Introduces the project, problem statement, purpose, scope, objectives, and outline of the report.
* **Section 2:** *Related Work*—Discusses existing systems, their limitations, and compares them to the proposed solution.
* **Section 3:** *Methodology*—Details the project’s requirement analysis, design, implementation, and testing, along with the dataset, tools, and proposed approach.
* **Section 4:** *Experimental Results*—Presents the results obtained during the project.
* **Section 5:** *Discussion*—Analyzes the results, discusses findings, and highlights insights gained.
* **Section 6:** *Conclusions*—Summarizes the project, its outcomes, and potential future work.
* **References:** Lists all the sources and references cited in the report.
* **Appendix:** Includes additional materials, such as raw data, extended figures, or code snippets.

# 2. RELATED WORK

## 2.1. Existing Systems

Several questionnaire management systems have been developed to address the need for efficient survey creation, distribution, and analysis in academic and organizational settings. Examples include:

* **Qualtrics**: Widely recognized for its advanced analytics and experience management, Qualtrics supports robust survey logic, branching, and real-time analytics. Its collaborative features and security measures make it ideal for universities and enterprises [1].
* **SurveyMonkey**: Known for its user-friendly interface and diverse question types, SurveyMonkey facilitates survey creation with features like image heat maps and branching logic. However, advanced functionalities often require higher-tier subscriptions [2].
* **QuestionPro**: This platform provides a cost-effective solution for academic institutions, offering advanced survey workflows, collaborative features, and detailed reporting options tailored for large-scale university research [3].
* **LimeSurvey**: Open-source software that enables customizable survey creation with multi-language support and offline data collection capabilities, making it accessible for diverse research needs [4].

## 2.2. Overall Problems of Existing Systems

While these systems are feature-rich, they exhibit certain limitations:

* **Cost**: High subscription fees for advanced features in platforms like **Qualtrics** and **SurveyMonkey** can be prohibitive for smaller institutions [1] [2].
* **Complexity**: Some systems, such as **Qualtrics**, require significant training for effective use, which can hinder adoption [1].
* **Limited Customization**: Generic survey platforms often lack domain-specific customizations, which are vital for applications like the **NMU Questionnaire Management System**.
* **Scalability Issues**: Open-source tools like **LimeSurvey** may face scalability challenges for handling large datasets or high response volumes without significant customization [4].

## 2.3. Comparison Between Existing and Proposed Method

The **NMU Questionnaire Management System (QMS)** addresses many limitations of existing platforms by offering a tailored solution for academic environments. **Table 2.1** illustrates the key differences:

| **Feature** | **Qualtrics** | **SurveyMonkey** | **QuestionPro** | **LimeSurvey** | **NMU QMS** |
| --- | --- | --- | --- | --- | --- |
| Cost-Effectiveness | Moderate | High | Low | Free/Low | **Affordable** |
| Domain-Specific Customization | Moderate | Low | Moderate | Low | **High** |
| Collaborative Features | High | Moderate | High | Moderate | **High** |
| Security & Compliance | High | Moderate | High | Moderate | **High** |
| Scalability | High | Moderate | High | Low | **High** |

**Table 2.1:** Comparison of Existing Systems and the NMU QMS.

The proposed system provides a cost-effective and customizable platform tailored to meet the specific needs of **New Mansoura University**. By integrating advanced security, real-time analytics, and a user-friendly interface, the **QMS** is well-suited for streamlining questionnaire management and feedback analysis.

# 4. SYSTEM DIAGRAMS

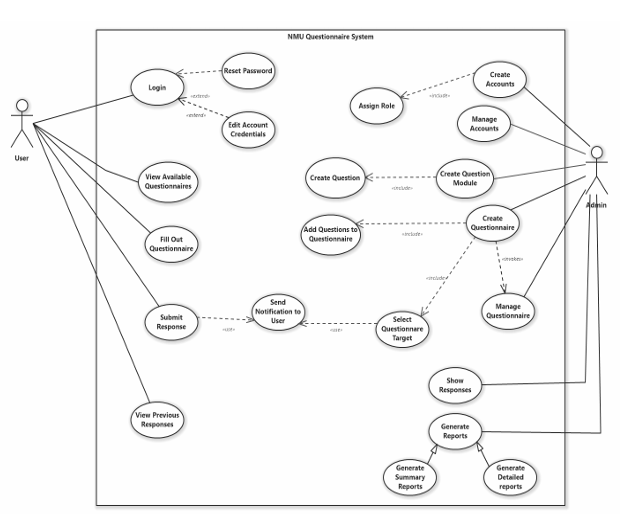
## Project Timeline Diagram

**Figure 4.1:** Project Timeline diagram for NMU QMS.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Concept Dev.** | Project Kickoff | 10/8/24 | 10/16/24 | Blue |
|  | Feasibility Study | 10/16/24 | 10/25/24 | Blue |
|  | Cost Estimates | 10/25/24 | 10/31/24 | Blue |
|  | Rough Prototypes | 10/31/24 | 11/21/24 | Blue |
| **System Design** | Design Architectures | 11/21/24 | 11/28/24 | Red |
|  | Design Sub-systems | 11/28/24 | 12/5/24 | Red |
|  | Refine Designs | 12/5/24 | 12/12/24 | Red |
| **Detail Design** | Tooling | 12/12/24 | 12/19/24 | Green |
|  | Quality Control Def. | 12/19/24 | 12/26/24 | Green |
| **Test & Refine** | Unit Testing | 12/26/24 | 1/4/25 | Brown |
|  | Development Environment | 12/28/24 | 1/7/25 | Brown |
| **Production** | Production Environment | 1/7/25 | 1/26/25 | Orange |
|  | User Guide & Documentation | 1/26/25 | 2/4/25 | Orange |
|  | Data Backup & Recovery Plan | 2/4/25 | 2/18/25 | Orange |
|  | Gain User Feedback | 2/18/25 | 2/28/25 | Orange |
|  | Provide Updates | 2/28/25 | 3/16/25 | Orange |

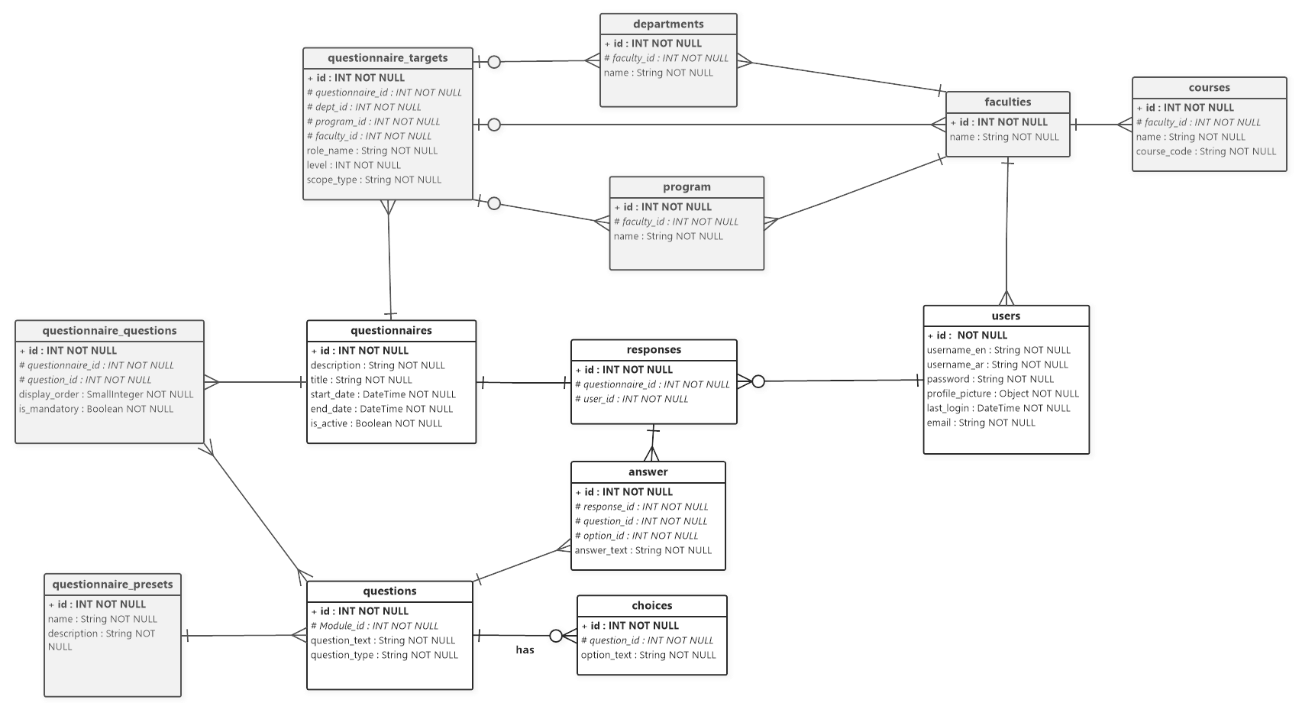
**Table 4.1:** Project Timeline table for NMU QMS.

## Use Case Diagram



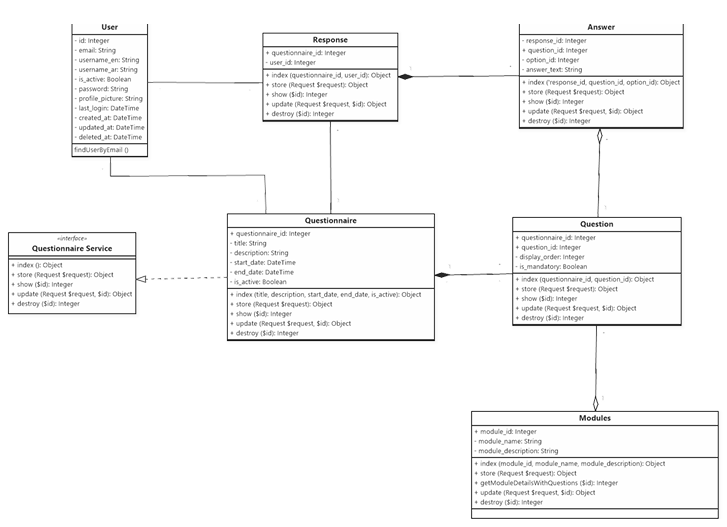
**Figure 4.2:** Use Case diagram for NMU QMS.

## Entity Relationship Diagram (ERD)



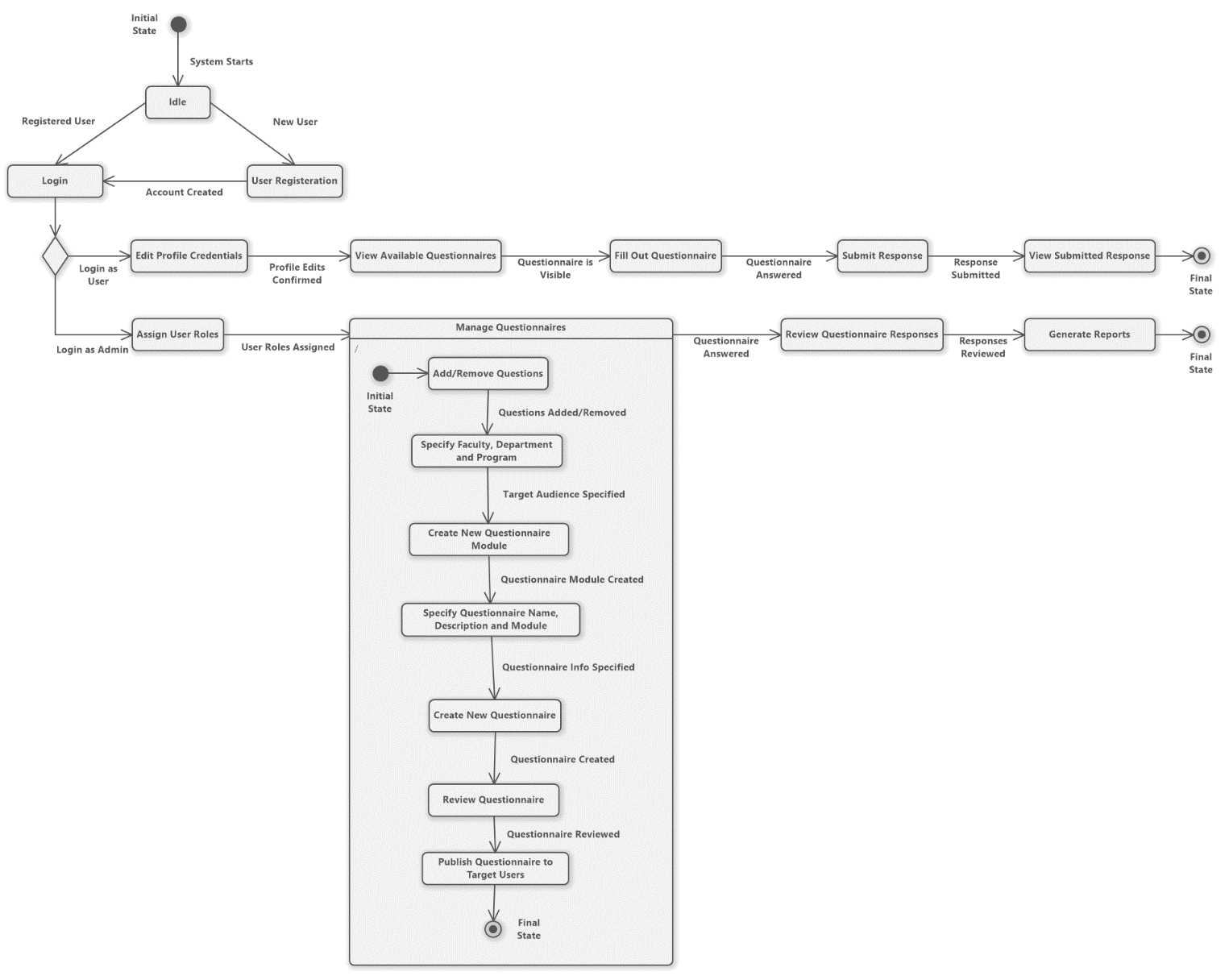
**Figure 4.3:** Entity Relationship diagram for NMU QMS.

## Class Diagram



**Figure 4.4:** Class diagram for NMU QMS.

## State Machine Diagram



**Figure 4.5:** State machine diagram for NMU QMS.