# FINAL PROJECT REPORT

Submitted by

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Submitted to

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Projects:

**1. Hospital Management System**

**2. Online Retail Management**

## 1. Introduction

This report presents two SQL-based database projects: Hospital Management System and Online Retail Management. Both projects were developed to demonstrate the design and implementation of relational databases using MySQL Workbench. They showcase practical applications of core database concepts such as normalization, foreign keys, joins, views, triggers, and stored procedures to build efficient real-world database systems.

## 2. Abstract

The Hospital Management System project focuses on automating hospital operations such as patient registration, doctor assignments, treatment tracking, and billing. The Online Retail Management project manages an e-commerce platform's key processes including customer data, product catalogs, orders, and payments. Both projects follow Third Normal Form (3NF) database principles, ensuring data consistency, accuracy, and easy retrieval.

## 3. Tools Used

- MySQL Workbench – Database schema design and SQL query execution. - dbdiagram.io – Entity Relationship (ER) Diagram creation. - SQL (DDL & DML) – For table creation, data manipulation, and triggers. - GitHub – Version control and portfolio hosting. - PDF/Docx – Documentation and report preparation.

## 4. Steps Involved in Building the Projects

A. Hospital Management System 1. Database Design: Designed entities such as Doctors, Patients, Appointments, Treatments, and Bills with logical relationships. 2. Normalization: Structured the database to 3NF to reduce redundancy and maintain consistency. 3. Implementation: Created SQL tables, inserted sample data, and used triggers to automate billing and stored procedures to mark bills as paid. 4. Testing: Verified outputs and relationships through MySQL Workbench queries and views.

B. Online Retail Management 1. Database Design: Defined entities including Customers, Categories, Products, Orders, Order_Items, and Payments, establishing one-to-many relationships. 2. Normalization: Ensured schema met 3NF for efficiency and clarity. 3. Implementation: Created SQL tables, inserted sample data, and developed SQL queries for customer orders, payment reports, and sales analysis. 4. Testing: Verified query outputs and data accuracy for various reports.

## 5. Conclusion

Both projects demonstrate strong understanding of database design, normalization, and SQL programming. The Hospital Management System showcases automation using triggers and stored procedures, while the Online Retail Management project emphasizes organized data flow and reporting efficiency. Together, they provide a comprehensive understanding of real-world SQL database applications suitable for academic and professional portfolios.