



Database Project Report

- Batch: KUDSE24.3F
- Index's: KUDSE24.3F – 011, KUDSE24.3F – 019
- Date: July 2025
- Module Name: DBMS
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Section 1: Introduction

1.1 Background

Kurunegala Plantation Company (KPL) is a fully owned plantation management company of the Government of Sri Lanka established in 1992. The company manages plantation land in Kurunegala, Gampaha and Anuradhapura districts and cultivates, processes and sells coconut, rubber and other plantation products. Kurunegala Plantation Company produces over 15 million coconuts per year. Coconut production alone accounts for 74% of the company's total revenue.

However, the current data management systems are prone to errors, omissions and delays, which have reduced efficiency. These problems are caused by the lack of an integrated database system for the areas of plantation, suppliers, purchasing, orders, payments, warehouse management and quality inspection.

1.2 Project Objective

The objective of this project is to create a complete database system for Kurunegala Plantation Company. This provides efficient management by integrating data for all areas such as plantations, suppliers, purchases, coconut stocks, orders, payments, warehouses, routes, quality inspections, etc.

This system helps improve data accuracy, prepare accountable reports, increase performance and facilitate decision-making.

1.3 Objectives

- To accurately represent business units such as plantations, suppliers, purchases, orders, payments, warehouses, routes and quality inspections.
- To maintain data integrity and relationships.

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- To fully track and manage coconut stocks.
- To manage orders, payments and routes.
- To manage quality inspections and warehouses.
- To provide a responsible system for recording data changes.
- To facilitate reporting and analysis.

1.4 Scope

- To create database tables for business units such as plantations, suppliers, purchases, coconut stocks, orders, payments, warehouses, routes, quality inspections, etc.
- Recommending relationships and constraints according to business rules.
- Designing appropriate SQL commands and security mechanisms for input data.
- Not considering user interfaces or integration with external systems.

1.5 Importance

This database system will enable Kurunegala Estates to manage its estate management and trading activities efficiently, and will help to increase data accuracy and reporting. This will enable it to develop economically and increase its competitiveness in the market by utilizing resources well.

Section 2: Analysis

2.1 Introduction

This part presents a detailed analysis of the business requirements and data relationships required to create a database for Kurunegala Plantations Limited (KPL). The main units involved in KPL's coconut trade, the relationships between them and their cardinality are analyzed here.

2.2 Business Requirements

KPL requires complete representation, management and reporting of data for activities such as plantations, suppliers, purchases, orders, payments, storage, routes, quality inspections, etc.

Key Requirements:

- Recording of production of multiple coconut stocks from a single plantation.
- Details and multiple coordination for suppliers and purchases.
- Management of orders and their details (OrderDetail).
- Management of multiple routes and routes for order distribution.
- Maintenance of payment records.
- Warehouse management and tracking of stocks by warehouse location.

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- Maintain quality inspection records.
- Provide a system for keeping track of data changes and accountability.

2.3 Industry Backlog and Data Insights

The coconut industry in Sri Lanka makes a significant contribution to the economy, and accurate data and efficient management are critical responsibilities of the industry. Forecasting of export volumes and prices has been done using Time Series Analysis and ARIMA, etc., and such a data system will facilitate decision-making and reporting in the industry.

2.3 Summary

This analysis shows that it is essential to create a database system that meets the business needs of KPL, accurately representing the relationships and qualities between units. This analysis provides a baseline for the previous sections and enables the system to be designed considering the state of the industry and future needs.

Section 3: Modeling

3.1 Introduction

This section describes the modeling phase of the database system being designed for Kurunegala Plantation Company (KPL). It will consider the Conceptual Design, Logical Design, and Physical Design.

3.2 ER Diagram

The conceptual model is the creation of the main units (Entities) of the business and the relationships between them. This is a high-level representation of the data structure and does not provide much detail about the physical implementation.

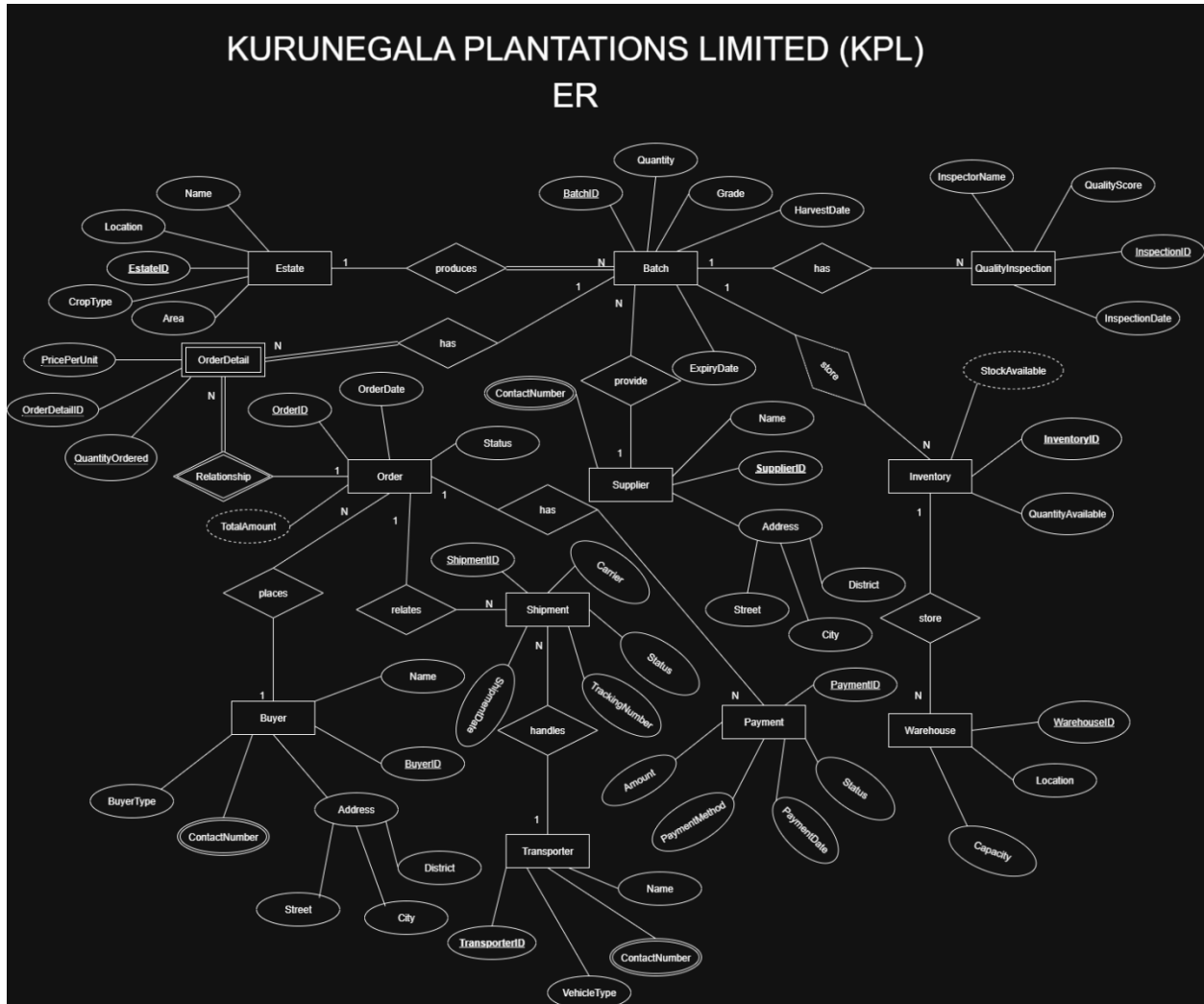


Figure 1ER FOR KPL

3.3 Relational Schema

The units and relationships in the conceptual model are converted into the logical model under the form of tables and relations. Primary Keys, Foreign Keys, and Constraints are recommended.

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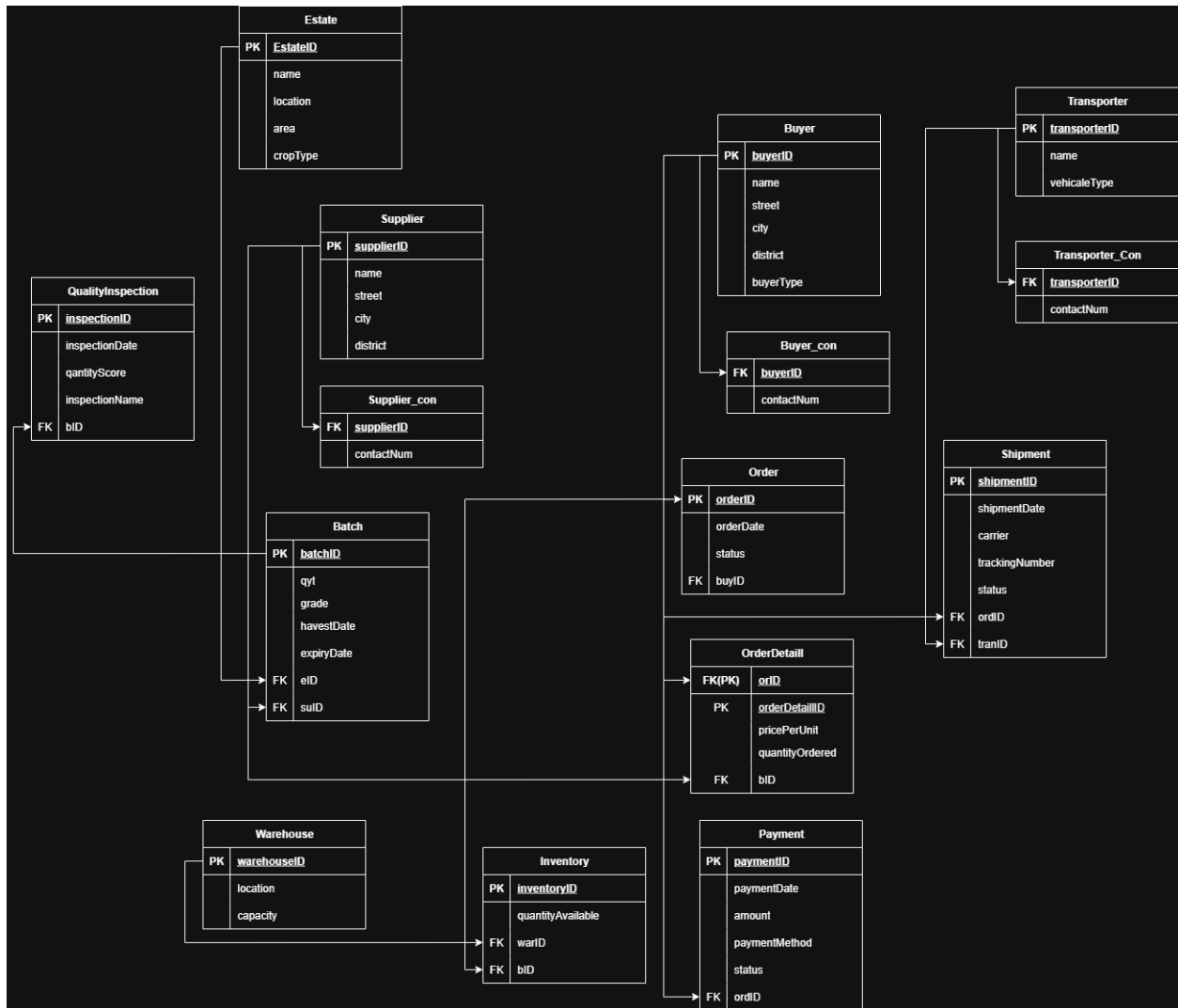


Figure 2 SCHEMA FOR KPL

3.4 Physical Design

The physical design is the creation of the database using SQL language. Here, table creation, data insertion (DML), constraints, and activities (Triggers, Stored Procedures) are created.

Activities (Triggers, Stored Procedures)

- Creating an Audit Trigger to keep track of data changes in the Batch table.

- Creating a Stored Procedure that adds coconut quantities to an Estate.

3.5 Summary

This section describes the conceptual, logical, and physical modeling stages of the database system for KPL. This modeling ensures data accuracy and adherence to business rules. Future improvements can be made based on this model.

Section 4: Conclusion

In this project, we designed and implemented a complete database system for managing the coconut trade for Kurunegala Plantation Company. This system integrates data for all business units such as plantations, suppliers, purchases, orders, payments, warehouses, routes, and quality inspections, providing efficient management.

Key benefits of this project:

- Improved data accuracy and completeness.
- Easy search and management of information related to plantations and coconut stocks.
- Efficient management of orders, payments, and routes.
- Monitoring of quality inspections and warehouse information.
- Establishing a responsible system for recording data changes.
- Providing facilities for reporting and analysis.

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This project enabled us to gain basic and practical knowledge of database design, design, and implement the system according to business needs.

In the future, this system can be enhanced by adding user interfaces, integration with external systems, and data analysis tools.

Ultimately, we believe that this project will be useful in our professional lives, developing our database design skills.

***** THANK YOU *****