THE PROJECT REPORT

ON

INVENTORY AND WAREHOUSE MANAGEMENT SYSTEM

Introduction

The Inventory and Warehouse Management System is a comprehensive database solution designed to manage the stock, sales, and purchasing processes for a dealership specializing in Vehicles and associated Spare Parts. This solution provides a robust relational schema, mock data for realistic testing, and a set of key analytical queries to monitor business performance, manage inventory levels, and track sales efficiency.

Abstract

This SQL project implements a **Inventory Management System** designed to track and manage the sales and stock of **product** (Vehicles) and **spare parts**. The system is built on a relational database model using SQL, establishing a comprehensive schema with 12 interconnected tables to handle users, roles, products, sales, purchases, suppliers, customers, and financial transactions. The project demonstrates the use of normalization joins aggregate functions and stroe produces in sql.

Tools Used

- MySQL workbench for Database Management
- Dbdiagram.io for ER

Steps Involved in Building the Project.

1. Database Schema Design
    a. Identified key entities : Vehicle(Products), Spare_parts, Suppliers, stock_transactions, Sales etc.
    b. Designed the schema using dbdiagram.io to visualize relationship.
    c. Applied normalization up to 3NF to avoid redundancy.

2. Table Creation
    a. PRIMARY KEY for unique identification.
    b. FOREIGN KEY for relationship between table

3. Data Population
    a. Insert 30+ rows of dummy inventory data for 12 user
    b. Used Multiple payment methods .

4. Analytical SQL queries

1.Sales Performance Analysis

Monthly Sales Report : Identifies the best-selling months for vehicles by total sales revenue.

Top Selling Vehicles Report : Ranks vehicle models based on the total quantity sold and number of sales transactions.

Spare Parts Sales Analysis : Ranks spare parts by quantity sold and total revenue generated.

2. Inventory Management

Low Stock Alert : Identifies spare parts where the current inventory level is dangerously close to or below the defined Reorder_level, including supplier contact information to facilitate timely purchasing.

Vehicle Stock Overview : Provides an up-to-date count of available stock for each vehicle model (calculated by subtracting total sales quantity from initial stock).

3. Operational Efficiency

Sales Trends Over Time : Allows management to track daily sales trends for vehicles, providing insights into peak demand periods.

Stock Update Trigger : Demonstrates the use of a TRIGGER (Vehicle_stock_After_Sale) to automatically update the Vehicles stock quantity after a sale, ensuring real-time inventory accuracy.

-***Invoice Tracking*** : Queries to generate detailed sales and purchase invoices, including payment status.

E-R Diagram

Inventory and Warehouse Management System