

# Project Report: Sales and Inventory Analysis System

## 1. Introduction

This project aims to analyse sales data, track inventory levels, and evaluate employee performance through structured SQL queries. Using insights derived from the dataset, businesses can optimize their operations, identify trends, and improve overall efficiency.

## 2. Database Schema & Entities

The system uses the following key tables:

- **Products** (ProductID, ProductName, Price)
- **Sales** (SaleID, SaleDate, ProductID, QuantitySold)
- **Inventory** (ProductID, QuantityInStock, ReorderLevel)
- **Employees** (EmployeeID, EmployeeName)

## 3. Query Analysis & Insights

### 3.1 Daily Sales Summary:

```
SELECT SaleDate, SUM(QuantitySold * P.Price) AS TotalSales
FROM Sales S
JOIN Products P ON S.ProductID = P.ProductID
GROUP BY SaleDate
ORDER BY SaleDate;
```

### 3.2 Products Below Reorder Level:

```
SELECT P.ProductName, I.QuantityInStock, I.ReorderLevel
FROM Inventory I
JOIN Products P ON I.ProductID = P.ProductID
WHERE I.QuantityInStock < I.ReorderLevel;
```

### 3.3 Top-Selling Products

```
SELECT P.ProductName, SUM(S.QuantitySold) AS TotalSold
FROM Sales S
JOIN Products P ON S.ProductID = P.ProductID
```

GROUP BY P.ProductName

ORDER BY TotalSold DESC;

### 3.4 Employee Sales Performance

SELECT E.EmployeeName, COUNT(S.SaleID) AS SalesHandled,  
SUM(S.QuantitySold \* P.Price) AS TotalRevenue FROM Sales S

JOIN Employees E ON S.EmployeeID = E.EmployeeID

JOIN Products P ON S.ProductID = P.ProductID

GROUP BY E.EmployeeName;

## 4. Key Findings

- **Sales Trends:** Peak revenue periods based on sales data.
- **Inventory Optimization:** Items below reorder levels require timely replenishment.
- **Employee Performance:** Helps assess efficiency and incentive distribution.

## 5. Conclusion & Future Enhancements

This system enables businesses to monitor sales and inventory efficiently. Potential improvements include:

- **Predictive analytics** for future sales trends.
- **Automated restocking alerts** based on inventory levels.