Decoding D-Mart: Data Analysis in India

1. Project Scope:

Objective:

The project aims to create an SQL-based database management system for D-Mart, enabling the analysis of sales, inventory, customer data, product information, revenue, store performance, and employee salaries. This system will help track sales trends, manage stock levels, assess revenue, and streamline payroll for effective business management.

2. Purpose of the Project:

The D-Mart project aims to create a database management system to enhance retail operations. It will provide real-time sales insights, improve customer experiences, optimize inventory, increase revenue, track performance, manage employee records, target marketing efforts, and support strategic planning for adapting to market changes and consumer trends.

About Tables

Table Name	Purpose	Key Fields	Use Case
Customers	Stores detailed customer information	- customer_id: Unique identifier for each customer - name: Full name - age: Age - gender: Gender - city: City - phone: Contact number	Segment customers by demographics for targeted marketing and analyze purchasing behavior
Products	Stores product information including price and stock	- product_id: Unique identifier for each product - name: Product name - category: Category - brand: Brand - price: Price	Analyze product performance by category and brand; track stock levels

		- stock: Stock quantity	
Stores	Contains D-Mart store location information	- store_id: Unique identifier for each store - location: Address - city: City	Evaluate store performance across cities and identify top-performing locations
Sales	Captures details of each sales transaction	- sales_id: Unique identifier for each transaction - customer_id: Links to Customers - store_id: Links to Stores - total_amount: Total paid - tax: Tax amount	Analyze sales revenue, identify top customers, and calculate total tax collected
SalesDetails	Breaks down individual products in each sales transaction	- sales_id: Links to Sales - product_id: Links to Products - quantity: Quantity sold - price: Unit price	Identify top-selling products, evaluate product trends, and track revenue at the product level
Inventory	Manages stock levels for products at each store	- inventory_id: Unique identifier for each inventory record - product_id: Links to Products - store_id: Links to Stores - stock_level: Quantity in stock	Track product availability across stores and manage restocking efficiently
Revenue	Tracks total revenue generated from sales	- revenue_id: Unique identifier for revenue record - sales_id: Links to Sales - total_revenue: Total revenue from transactions - date: Date of revenue generation	Monitor revenue trends over time, identify peak sales periods, and evaluate overall financial performance
EmployeeSalary	Stores salary details of employees	- employee_id: Unique identifier for each	Analyze salary distribution, evaluate

		employee - name: Employee name - designation: Job title - salary: Monthly salary	employee costs, and manage payroll effectively

ERR Diagram - Link

Data Analysis Questions

Customer Analysis

1. Customer Information Retrieval: What query can be written to retrieve the customers' first names, last names, and cities of all customers? - **CALL GetCustomerInformation();**
2. Product Price Inquiry: How can a query be formulated to identify all products priced above 500? - **CALL GetProductsAbovePrice();**
3. Store Count Assessment: What query can provide the total number of stores listed in the Stores table? - **CALL GetTotalStores();**
4. Unique Customer Cities: How can you list the distinct cities where customers reside? - **CALL GetUniqueCustomerCities();**
5. Customer Sales Totals: How can a query be constructed to retrieve the total number of sales made by each customer? - **CALL GetCustomerSalesTotals();**

Product Analysis

1. Retrieve All Product Details: How can you retrieve all the products from the Products table using a stored procedure? - **CALL GetAllProducts();**
2. Count of Products in Each Category: How can you find the count of products grouped by category using a stored procedure - **CALL CountProductsInEachCategory();**
3. Top-N Expensive Products: How can you retrieve the top N most expensive products using a stored procedure? - **CALL GetTopExpensiveProducts(5);**
4. List out Products Under a Specific Price: How can you list all products that are priced under a specific amount using a stored procedure?

- CALL GetProductsUnderPrice(300);

5. List out Average Price of Products: How can you find the average price of products?
   CALL GetAveragePrice();

Store Analysis

1. Total Stores by State: What is the total number of stores located in each state?
   CALL GetTotalStoresByState();
2. Cities with Highest Store Concentration: Which cities have the highest concentration of stores? - **CALL GetTopCitiesByStoreCount(3);**
3. Top Three Stores by Name Length: What are the top three stores based on name length or alphabetically? - **CALL GetTopStoresByNameLength(3);**
4. Stores Count by City: How many stores are there in each city? –
   CALL GetStoresByCity();

Sales Analysis

1. Total Sales Amount for Each Store: How can you list out the total sales amount for each store? - **CALL GetTotalSalesByStore();**
2. Customer with the Highest Total Purchases: Which customer has the highest total purchases? - **CALL GetTopCustomer();**
3. Average Sale Amount Across All Transactions: How can you list out the average sale amount across all transactions? - **CALL GetAverageSaleAmount();**
4. Number of Sales Made on Each Date: How can you list out the number of sales made on each date? - **Call GetSalesCountByDate();**
5. Total Sales Amount for Each Store with Store Names: How can you list out the total sales amount for each store along with their names?
   - call GetTotalSalesByStoreWithNames();
6. Customers and Their Total Purchases by Store: How can you list out customers and their total purchases by store? - **call GetCustomerPurchasesByStore();**

Sales Detail Analysis

1. What is the total quantity sold for each product?
   - **CAll GetTotalQuantitySoldByProduct();**

2. How can you list the total sales amount by product?

   - **Call GetTotalSalesAmountByProduct();**

3. What is the average tax amount per sale?

   - **call GetAverageTaxAmount();**

4. How can you find the total tax collected by store?

   - **call GetTotalTaxCollectedByStore();**

Inventory Analysis

1. What is the total stock quantity of all products in the inventory?

   - **CALL GetTotalStockQuantity();**

2. How many products are available in each store?

   - **CALL GetProductCountPerStore();**

3. Which product has the highest stock quantity?

   - **CALL GetHighestStockProduct();**

4. What is the product with the highest stock quantity, including its name?

   - **CALL GetHighestStockProductwitName();**

5. How can you list all products with stock quantity below a certain threshold (e.g., 300)?

   - **CALL GetLowStockProducts(300);**

Revenue Analysis

1. How can you retrieve the total revenue generated by each store?

   - **call GetTotalRevenueByStore();**

2. What is the average revenue generated per sale? - **call GetAverageRevenuePerSale();**
3. How much total tax has been collected? - **Call GetTotalTaxCollected();**
4. What is the total revenue generated categorized by tax percentage?

   - **call GetRevenueSummaryByTaxPercentage();**

5. How can you find the highest tax amount collected from a specific store?

   - **CALL GetMaxTaxByStore(7);**

6. How can you list all revenue records where the total revenue is above a certain amount?- **Call GetRevenueAboveAmount(3000);**

7. How can you retrieve the revenue, tax, store name, sale date, and total amount for all records sorted by revenue and tax in descending order? - **call GetRevenueWithJoins();**

Employee Salary

1. What is the total salary expense for the month of September 2024?
   - **CALL GetTotalSalaryExpense();**
2. Who earns the highest salary in the Sales department?
   - **CALL GetHighestSalaryInSales();**
3. Who is the highest earner in the entire department for September 2024?
   - **CALL GetHighestEarner();**
4. What is the average salary of employees in the organization?
   - **CALL GetAverageSalary();**
5. How many employees are there in each designation?
   - **CALL CountEmployeesByDesignation();**