Problem Statement:

A small company Axon, which is a retailer selling classic cars, is facing issues in managing and analyzing their sales data. The sales team is struggling to make sense of the data and they do not have a centralized system to manage and analyze the data. The management is unable to get accurate and up-to-date sales reports, which is affecting the decision-making process.

To address this issue, the company has decided to implement a Business Intelligence (BI) tool that can help them manage and analyze their sales data effectively. They have shortlisted Microsoft PowerBI and SQL as the BI tools for this project.

The goal of the capstone project is to design and implement a BI solution using PowerBI and SQL that can help the company manage and analyze their sales data effectively. The solution should be able to:

Import and integrate the data from MySQL database into PowerBI
Watch this video to know how to connect MYSQL database to PowerBI

Clean and transform the data to make it ready for analysis.

Build interactive dashboards and reports using PowerBI that can help the sales team and management make sense of the data.

Use SQL to perform advanced analytics on the data and extract insights that can help the company improve its sales (if needed).

Enable the management to access the dashboards and reports in real-time and make data-driven decisions.

The solution should be user-friendly and easy to use for the sales team and management. The project will be successful if it helps the company effectively manage and analyze their sales data and improve their decision-making process.

To solve the above capstone project, the given steps can be followed:

Use the data source provided: Use the MySQL database provided as a data source.

Extract and clean the data: The next step is to extract the data from the identified sources and clean it to make it ready for analysis. This may involve tasks such as removing duplicates, handling missing values, and ensuring data consistency.

Load the data into a PowerBI: The cleaned data can then be loaded into a centralized database.

Design the dashboards and reports: Using PowerBI, data can be visualized in the form of interactive dashboards and reports. These dashboards and reports can be designed to provide useful insights and information to the management.

Perform advanced analytics: Using SQL, advanced analytics can be performed on

the sales data to extract insights and inform decision-making. This may involve tasks such as creating pivot tables, running queries, and creating views.

Deploy the solution: The final step is to deploy the BI solution, including the dashboards, reports, and advanced analytics, to the sales team and management. The solution should be user-friendly and easy to use to ensure adoption and success.

Database Description:

Here is a short description of the data tables included that contains typical business data such as customers, products, sales orders, sales order line items, etc.

MySQL Sample Database Schema

The MySQL sample database schema consists of the following 8 tables:

Customers: stores customer's data.

Products: stores a list of scale model cars.

ProductLines: stores a list of product line categories.

Orders: stores sales orders placed by customers.

OrderDetails: stores sales order line items for each sales order.

Payments: stores payments made by customers based on their accounts.

Employees: stores all employee information as well as the organization structure such as who reports to whom.

Offices: stores sales office data

Hints:

Start by creating a new database as classicmodels in MySQL using below link:https://drive.google.com/file/d/1OB_iGw6vVS5KS7QwiwVChbeTfR4WvUy3/view?usp=share_link and load it in Power BI desktop using appropriate features and do the necessary data transformations. Briefly capture the features used for loading the data and for data transformation and mention all the steps clearly.

Clean and transform the data to make it ready for analysis. This may involve tasks such as removing duplicates, handling missing values, and ensuring data consistency.

Use PowerBI to design interactive dashboards and reports that can help the

management make sense of the data. This should involve creating charts, graphs, and tables to visualize the data and using DAX functions to analyze the data.

Test and debug the BI solution to ensure that it is working as expected and address any issues that may arise.

Deploy the BI solution to the management and document the entire process to ensure adoption and success.

By following these hints, you should be able to successfully solve the capstone project and implement a BI solution using PowerBI and SQL that can help the company manage and analyze their sales data effectively.

Tools required for the capstone project:

These tools and technologies can be used to extract, clean, and analyze sales data and build interactive dashboards and reports. They are widely used in the field of Business Intelligence (BI) and can be leveraged to solve a variety of data-related problems.

Microsoft PowerBI: https://powerbi.microsoft.com/en-us/

SQL: https://www.mysql.com/

In addition to these tools, there are many open-source projects that can be used to solve BI-related problems, such as data visualization libraries (e.g., D3.js), data manipulation libraries (e.g., Pandas), and machine learning libraries (e.g., sci-kit-learn). You may want to explore these projects to see if they can be used to enhance your capstone project.

References:

Sales Dashboard: This project involves creating a dashboard to visualize sales data using PowerBI. It includes charts, graphs, and tables that provide insights into sales performance over time, customer demographics, and product popularity. https://www.netsolutions.com/casestudy-ecom-dashboard

SQL Sales Analysis: This project involves using SQL to perform advanced analytics on sales data and extract insights that can inform decision-making. It includes tasks such as creating pivot tables, running queries, and creating views.
https://medium.com/swlh/data-anlysis-project-for-retail-sales-performance-report-using-sql-6ef1d4443712

These projects can provide useful ideas and inspiration for the above capstone project, as they involve similar tasks such as extracting and analyzing sales data, building interactive dashboards and reports, and performing advanced analytics. You may want to explore these projects and see how they can be adapted to your specific needs and requirements.

Deliverables:

Documented report in Word or PDF format

SQL files

Power BI report