

Microsoft®

SQL Server™

Integration



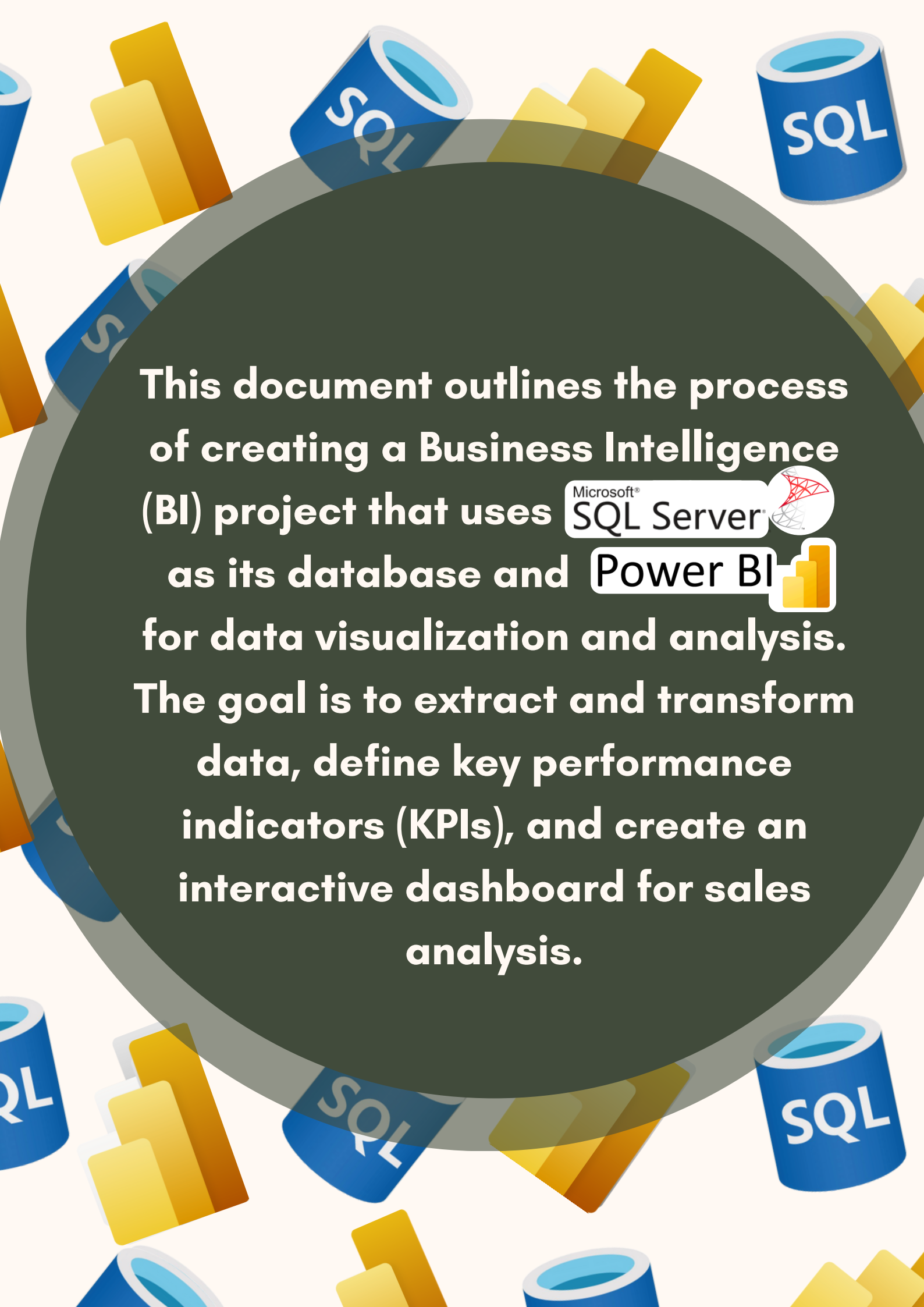
With



Power BI

Power BI

Dashboard Construction

Part II



This document outlines the process of creating a Business Intelligence (BI) project that uses  as its database and  for data visualization and analysis. The goal is to extract and transform data, define key performance indicators (KPIs), and create an interactive dashboard for sales analysis.

Recapitulation

Context and Overview

The project aims to analyze sales data from the AdventureWorks 2022 database, a sample database widely used for learning purposes. The focus will be on Internet sales analysis, covering important metrics such as revenue, profit, and quantity of products sold, as well as segmentations by product category, customers, gender, and country.

[AdventureWorks2022.bak](#) 



8.

Power BI Dashboard Construction

With the databases ready in SQL Server, the next step is to connect to Power BI and build the interactive dashboard. The strategy of using a SQL VIEW (named RESULTS_ADW) simplifies the process, as Power BI only needs to connect to a single, pre-processed data source that's ready for analysis

9.

Data Connection and Modeling

CONNECTIONS

In Power BI Desktop, use the "Get Data" option and select "SQL Server." Enter the server name and the database name (AdventureWorks2022).

Source Selection

In the Navigator window, find and select the RESULTS_ADW and ONLINE_SALES VIEW

Modeling

Once the view is imported, the data model in Power BI is already flat and optimized. In another case, for well time-based analysis, the only dimension table that should be created would be the Date Dimension, which allows data to be segmented by year, month, and day.



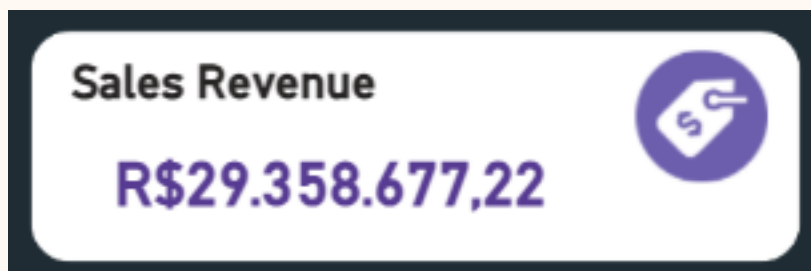
10. Dashboard Structure

The dashboard was designed with two main tabs to organize the data visualization and analysis, following the KPI definitions.

General Sales Analysis

This tab provides a high-level overview of the business's performance, focusing on key revenue, volume, and profit KPIs.

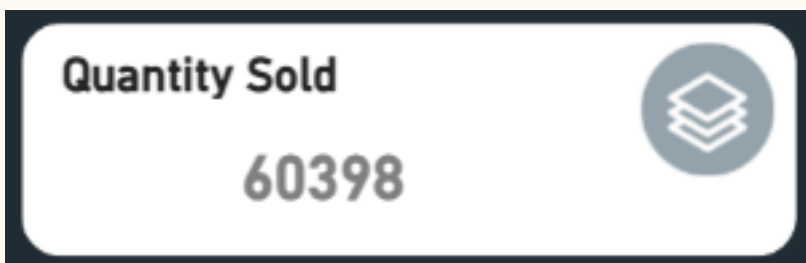
Total Revenue: Sum of all sales



Card

Display the total revenue amount

Quantity Sold: Total number of items sold



Card

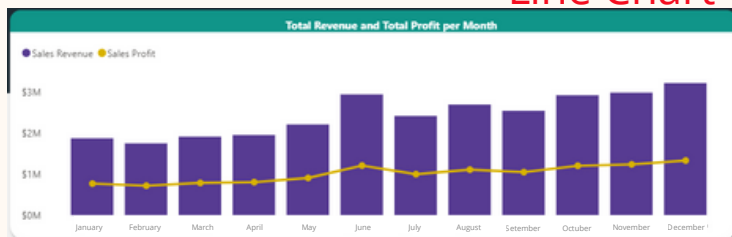
Display the total number of items sold

10. Dashboard Structure

General Sales Analysis

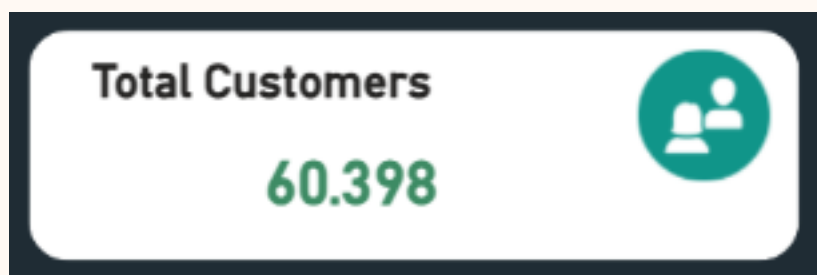
Total Revenue and Total Profit by Month: Analysis of sales and profit evolution over time

Line Chart



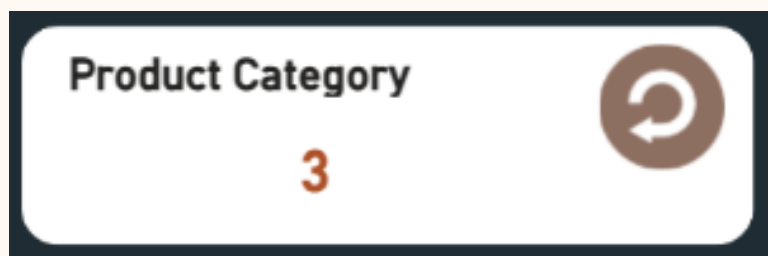
Shows the evolution of both revenue and profit over time, identifying trends and seasonal peaks

Number of Customers: Count of unique customers



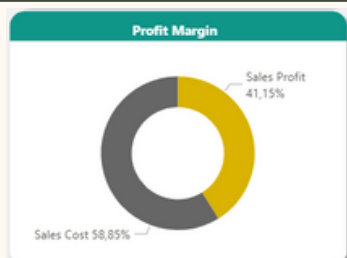
Counts the total number of unique customers

Total Product Categories: Count of product categories



Counts the total number of unique product categories

Profit Margin: Profit percentage relative to revenue

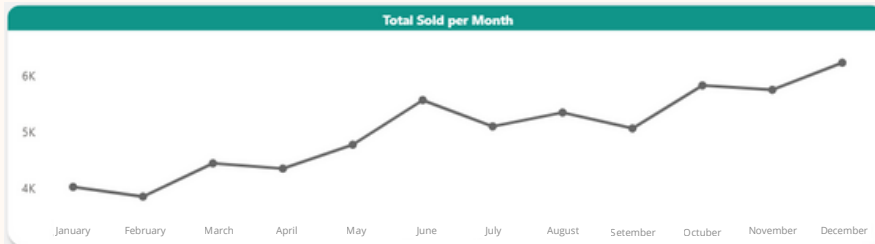


Displays the total profit percentage relative to revenue

10. Dashboard Structure

General Sales Analysis

Quantity Sold by Month: Analysis of monthly sales volume



Visualizes the monthly sales volume to help compare with revenue

Bar Chart

Profit by Country:

Comparison of profitability across different countries



Displays the geographical distribution of profit, highlighting the most profitable countries

Choropleth MAP



10. Dashboard Structure General Sales Analysis



11.

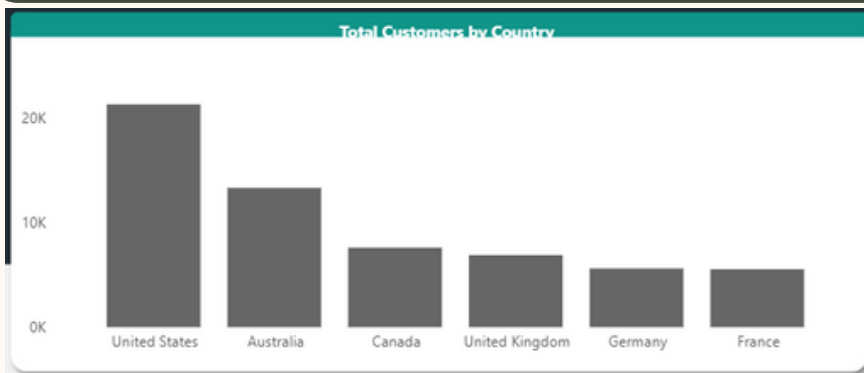
Dashboard Structure

The dashboard was designed with two main tabs to organize the data visualization and analysis, following the KPI definitions.

Customers Dashboard

This tab provides a deeper analysis by segmenting sales and customer profiles based on specific attributes.

Sales by Country: Distribution of sales by geographic territory



Choropleth Map

Display the distribution of sales by geographic territory.

Customers by Country:

Distribution of the customer base by geographic territory



Choropleth Map

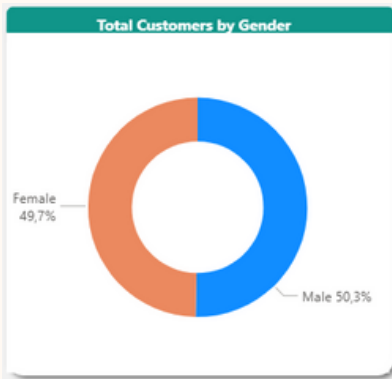
Show the distribution of the customer base by geographic territory

SQL

11. Dashboard Structure

Customers Dashboard

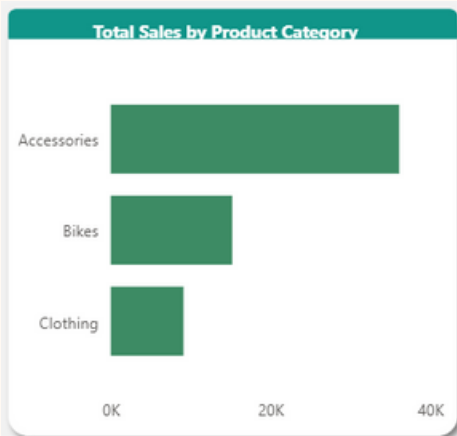
Sales by Gender: Analysis of sales segmented by customer gender



Stacked
Column
Chart or
Donut Chart

Analyze the
revenue generated
by gender
(Male/Female)

Sales by Category: Analysis of revenue generated by each product category



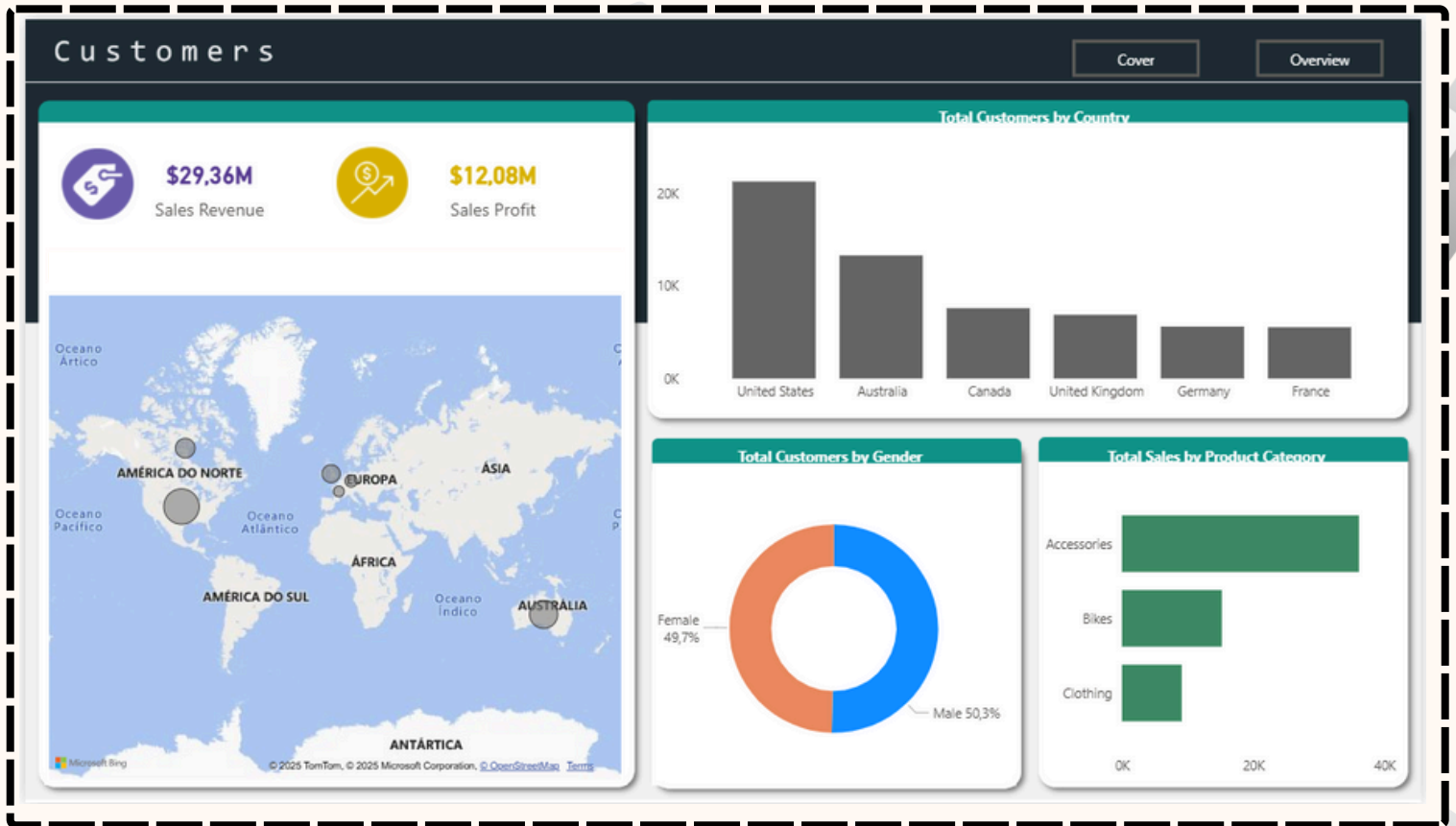
Bar or
Funnel Chart

Rank product categories
based on total revenue
to identify the most
profitable ones



11. Dashboard Structure

Customers Dashboard



12.

Dashboard Structure

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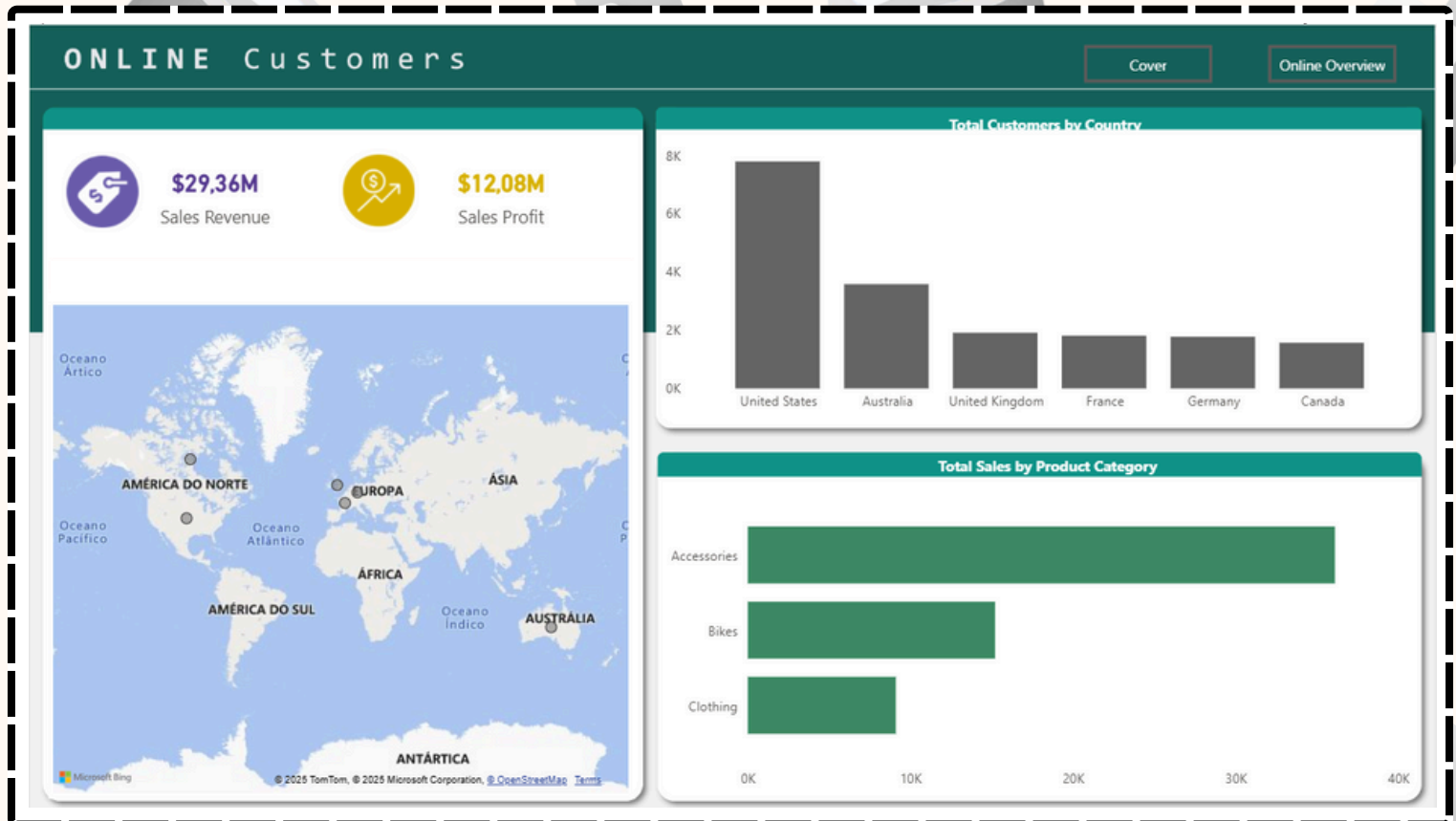
ONLINE_SALES

This tab provides a deeper analysis by segmenting Online sales based on specific attributes from.



12. Dashboard Structure

ONLINE_SALES



13.

Functionality and Interaction

The dashboard is fully interactive. Each visualization responds to slicers and filters, allowing users to explore the data in different ways. For example, clicking on a country on the map will update the bar and line charts to show the performance for that specific territory.