Business Case

Business Case for Data Analysts.

Context

You will be tackling a business case that mirrors real-world challenges. You'll be using a mock database representing an imaginary client's data. For this exercise, we'll refer to this imaginary client as "Adventure Works".

AdventureWorks is a bicycle and bicycle accessories manufacturer and retailer operating in the United States. They serve a diverse customer base across the nation and abroad, offering a comprehensive range of cycling products. Their business model is focused on selling a variety of items such as road bikes, mountain bikes, bike parts, helmets, apparel, and other cycling accessories. AdvetureWorks sells its products both direct-to-consumer via its e-commerce (D2C) and to resellers (B2B). **For simplicity, the business case will only focus on online sales (D2C).**

Technical Requirements

1. SQL Server
2. A local SQL Server installed on your machine
3. SQL Server Management Studio
4. PowerBI Desktop

You can find AdventureWorks database here: https://github.com/Microsoft/sql-server-samples/releases/tag/adventureworks

Please download the **AdventureWorksDW2022.bak** and install it on your local server.

You will find more information about the AdventureWorks database here:

https://dataedo.com/samples/html/Data_warehouse/doc/AdventureWorksDW_4/home.html

To install the database on your local server, follow the instructions at the following link:

https://learn.microsoft.com/en-us/sql/relational-databases/backup-restore/quickstartbackup-restore-database?view=sql-server-ver16&tabs=ssms#restore-a-backup

Objectives

1. Download and explore the AdventureWorks DW 2022 database.
2. Build a data warehouse focused on sales information.
3. Calculate Key Performance Indicators (KPIs).
4. Create a Sales Dashboard to answer critical business questions.

1. Download and Explore the AdventureWorks DW 2022 Database

Task: Download the AdventureWorks DW 2022 database from the official repository.

Deliverable: An installed instance of the AdventureWorks DW 2022 database.

Tools: SQL Server

2. Build a Data Warehouse

Task: Extract sales data from the AdventureWorks DW 2022 database to populate the warehouse.

Deliverable: A functional data warehouse. Create a new database to insert the tables needed for the analysis. Within this database create a schema "Production" to store the tables.

You can find additional information about the tables used for the exercise here:

https://dataedo.com/samples/html/Data_warehouse/doc/AdventureWorksDW_4/modules/Internet_Sales_101/module.html

Tables in Production: The production layer will include the following tables:

- production.Sales (from dbo.FactInternetSales)
- production.Date (from dbo.DimDate)
- production.Currency (from dbo.DimCurrency)
- production.Products (from dbo.DimProduct)
- production.Customers (from dbo.DimCustomer)

✦ for customers perform a join to retrieve information about the country of the customer

from the table dbo.DimGeography

Tools: SQL Server

3. Calculate Key Performance Indicators (KPIs)

Task: Once you created the DataWarehouse in SQL Server, use it as the source of the PowerBI report then calculate specific KPIs for sales.

Deliverable: A PBI report with calculated measures using DAX.

KPIs to Calculate:

1. Revenue
2. # customers
3. # orders
4. Volume
5. AOV (Average Order Value)
6. UPT (Units per Transaction)
7. Orders per Customer
8. Revenue per customer
9. Average Price

4. Create a Sales Dashboard to answer critical business questions

Task: Use the dashboard and KPIs to answer business questions.

Deliverable: A dashboard with visuals to answer each of the questions below.

List of Business Questions:

- What was the revenue in FY 2012 and FY 2013 (Assume Fiscal Year Starts 01/01 and ends 31/12)?
- In FY 2013, which country had the highest AOV?
- How did the Orders per customer increase over the years?
- What is the peak month in terms of sales? Is the business seasonal?
- What explains the increase in revenue between FY 2012 and FY 2013?
    - Was the increase related to the launch of new products?
    - Was the increase related to a price effect?
    - Was the increase related to a volume effect?
    - Was the increase related to new customers?