University of Westminster

School of Computer Science and Engineering

5DATA004W Data Science Project Lifecycle

Arafath Riyas

UOW no. _ W1961998

IIT NO. _ 20211613

Table of Contents

Table of Contents

Name: Arafath RIyas

Student Id: 20211613 (IIT) / w1961998 (UOW)

Group Number: 7

Link to Streamlit app:

https://w1998467cwds-96evrzqcqsva6tj7k6wqch.streamlit.app/

Link to video:
https://github.com/muazzammm/w1998467_CW_DS/blob/main/w1998467_dashboardVideo.webm

.

Link to GitHub repository: https://github.com/muazzammm/w1998467_CW_DS

Aims and Objectives

The primary objective of this project is to create an interactive and insightful dashboard that analyzes the Global Superstore Lite dataset using the Streamlit, Pandas, and Plotly modules. With 999 sales records containing various details such as product categories, countries, and more, the dashboard is an effective tool for collecting vital insights.

Our goal was to create a user-friendly dashboard that prioritized usability and accessibility in order to optimize insight extraction. We created a dynamic dashboard using visualizations such as pie charts, bar charts, maps, and line charts, allowing users to thoroughly examine the dataset. The use of filters increases interaction by allowing users to adjust analysis to their individual needs.

Furthermore, the project aimed to go deeper into sales performance analysis, discovering trends, patterns, and areas for improvement in order to maximize overall effectiveness. Furthermore, we sought to identify top-performing products and regions through detailed analysis of sales and profit data, providing actionable insights for strategic decision-making.

The chosen visualizations, such as sales vs. discount analysis, total sales by category, top products by sales and profit, region-wise analysis, geographic distribution of orders and sales by country, time series analysis of sales, and shipping mode distribution, were carefully chosen to cover a wide range of insights required for informed decision-making.

Ultimately, this project simplifies complex data, allowing users to make better-informed decisions and get insights into profitability, sales performance, descriptive analysis, and other areas. The MINGER analysis dashboard provides users with a comprehensive tool for browsing the dataset and deriving actionable insights.

Requirements

Functional Requirements:

- The dashboard must display total sales and profit information prominently.
- Enable users to filter data based on specified parameters, such as date ranges and product types.
- Ensure that the dashboard shows real-time modifications when filters are applied or new data is available.
- Ensure that the dashboard runs smoothly even with large amounts of data, providing a seamless user experience.
- Implement checks to maintain data accuracy and prevent any errors from appearing on the dashboard

Non-Functional Requirements:

- The dashboard must respond promptly to user actions, with minimal delays.
- The dashboard should be compatible with a variety of electrical devices to make it more accessible and convenient for users.
- Navigation elements and filters should be clear and simple to comprehend, allowing users to engage with the dashboard more easily and improving the overall user experience.

Test Cases

Test case 01

#	*TC1*	Title:	***Data Retrieval Test***
Description		Verify that the dashboard retrieves data from the designated source successfully.	
Steps and input data		Access the dashboard.	
Dependencies		Proper data source configuration.	
Expected result		The dashboard loads with data displayed in the visualizations, indicating successful data retrieval.	

Test case 02

#	*TC2*	Title:	***Visualization Accuracy Test***
Description		Confirm that the visualizations accurately represent the visualizations with the right data.	
Steps and input data		Compare the data displayed in the visualizations with the raw data from the source. Checking if the input data is valid.	
Dependencies		Availability of raw data for comparison.	
Expected result		The data presented in the visualizations matches the source data, ensuring accuracy.	

Test case 03

#	*TC3*	Title:	***Filter Functionality Test***
Description		Ensure that the dashboard filters function correctly to refine data display.	
Steps and input data		Apply various filters (e.g., date range, product category) in the dashboard and testing them out	
Dependencies		Proper implementation of filter functionality.	
Expected result		The visualizations adjust dynamically based on applied filters, providing relevant insights.	

Test case 04

#	*TC4*	Title:	***Performance Test***
Description		Evaluate the dashboard's performance in terms of loading speed and responsiveness	
Steps and input data		Access the dashboard.	
Dependencies		Stable internet connection	
Expected result		The dashboard loads quickly and responds to user interactions.	

Test case 05

#	*TC5*	Title:	***Cross-Browser Compatibility Test***
Description		Ensure that the dashboard works properly across many web browsers.	
Steps and input data		Access the dashboard using various web browsers (e.g., Chrome, Firefox, Safari)	
Dependencies		Access to multiple web browsers	
Expected result		The dashboard's functionality and design remain consistent across supported web browsers.	

Test Log

TC	Date	Executed by	Actual result	Pass/ Fail	Notes
1	16.05.2024	Arafath Riyas	Dashboard loaded within 5 to 7 seconds	Pass	Loaded quickly
2	16.05.2024	Arafath Riyas	The correct data was retrieved from the dataset	Pass	Data was taken from the specified source
3	16.05.2024	Arafath Riyas	All the visualization were displayed	Pass	Proper visualizations
4	16.05.2024	Arafath Riyas	Upon changing the filters, the output was also updated	Pass	All filters are working
5	16.05.2024	Arafath Riyas	Loaded across different browser	Pass	Tried in safari browser