

**University of Westminster**

**School of Computer Science and Engineering**

**5**

**DATA004W Data Science Project Lifecycle**

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# Specification and Links

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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\_das hboardVideo.webm](https://github.com/muazzammm/w1998467_CW_DS/blob/main/w1998467_dashboardVideo.webm)

The video is uploaded in the GitHub repository. It can be viewed by clicking ‘View Raw’.

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

# Aims and Objectives

The primary goal of this project is to design and implement an interactive dashboard using Streamlit. The dashboard is expected to serve as a tool for visualizing and analyzing data from the Global Superstore lite dataset, allowing users to view and gain an insightful understanding of sales data. The dataset includes a wide range of sales information across various countries, profitability measures and sales trends, which allow for the analysis and generate valuable insights. Python libraries like Pandas, Matplotlib, Seaborn and Plotly were used for making visualizations. These tools were crucial for handling data efficiently and making sure the dashboard works smoothly.

The main objective is to create a dashboard that is easy for users to interact with. Different types of visualizations, including bar charts, line charts, pie charts and maps are used to present data in a clear and understandable manner offering insights according to customer preferences. The dashboard will be highly interactive, allowing users to change what data they see by using filters like date ranges, product types and areas. This flexibility will allow users to find the information according to their specific needs.

The project also aims to bring out important findings about how well products are selling, the amount of profit they are making, and what the future sales trend will look like based on current findings. These insights are specifically chosen as they are important in making sales forecasting. Providing insights such as products that are selling the best, and observing how these numbers vary depending on the location, will be helpful for businesses to decide where to focus their efforts. There is also an intention to integrate comparative analyses to allow users to anticipate future demand and adjust their inventory and marketing strategies accordingly.

Visualizations such as displaying the total sales and profit metrics prominently on the dashboard to provide quick outlook of the financial performance of the company were included in the dashboard. Identifying the top selling and most profitable products helps in identifying product demand and profitability. To identify seasonal patterns and market changes, the monthly sales trend of the company was visualized. The sales and profits geographical visualizations were included to allow users to see which regions are performing well and which are underperforming.

This project does not only focus on building a dashboard to analyze data but also on giving users a way to easily interact with complex data and make decisions based on it. The “Minger Sales Analysis” is designed to show data effectively to enhance decision making.

# Requirements

Functional Requirements:

* The visualizations in the dashboard such as total sales and profit metric, Segmented sales data by customer type and monthly sales data must be included and displayed.
* Allow users to filter data using the parameters that were set including date ranges and product types.
* Immediate update of the data when filters are applied or when new data is available.
* Proper data processing capabilities to ensure that the filtered and latest information is presented.
* Prevention of data display errors ensuring data integrity.

Non-Functional Requirements:

* High performance in the dashboard where it should respond to the user’s requirement without delays.
* Speed and reliability to ensure smooth process of the dashboard.
* The dashboard works on any electronic device to maintain convenience.
* Convenient navigations and understandable filters to allow user friendly experience.

# Test Cases

## Test case 01

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC1*** | **Title:** | | ***Dashboard Loading test*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

## Test case 02

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC2*** | **Title:** | | ***Initial visual display test*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

## Test case 03

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC3*** | **Title:** | | ***Verify Dashboard data filters*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

## Test case 04

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC4*** | **Title:** | | ***Interactive dashboard test*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

## Test case 05

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC5*** | **Title:** | | ***Error handling and output test*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

## Test case 06

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | ***TC6*** | **Title:** | | ***Dashboard refresh test*** |
| **Description** | | |  | |
| **Steps and input data** | | |  | |
| **Dependencies** | | |  | |
| **Expected result** | | |  | |

# Test Log

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TC** | **Date** | **Executed by** | **Actual result** | **Pass/**  **Fail** | **Notes** |
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