

Week 4 Project Report

Complete Data Analysis & Visualization Project

Project Title: E-commerce Sales Analysis

Project Overview

The E-commerce Sales Analysis project demonstrates a complete data analysis workflow including data loading, cleaning, analysis, visualization, and insight generation.

Project Goals and Objectives

- Understand the importance of data visualization
- Perform data cleaning and preparation
- Analyze sales data using Pandas
- Create professional charts using Matplotlib
- Interpret data and write insights

Setup and Installation Instructions

1. Install Python 3.x from python.org
2. Add Python to PATH
3. Install libraries using pip install pandas matplotlib
4. Open project folder in VS Code
5. Run using python main.py

Code Structure

Week4_Ecommerce_Sales_Analysis/
main.py – Main script
analysis.ipynb – Notebook
data/sales_data.csv – Dataset
visualizations/ – Charts
report/ – Report

Visual Documentation

Bar Chart: Sales by Product
Line Chart: Monthly Sales Trend
Pie Chart: Sales by Region

Technical Details

Algorithm: Load → Clean → Analyze → Visualize → Report

Data Structures: Pandas DataFrame, variables

Architecture: Procedural Python program

Testing Evidence

Normal dataset – Passed
Missing values – Passed
Duplicate records – Passed

Conclusion

This project fulfills all Week 4 quality standards and requirements.