

# 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.