# Title: Excel Report Generator

## Introduction

The Excel Report Generator is a Python-based project designed to automate the process of converting raw CSV datasets into structured and styled Excel reports. It integrates data analysis, visualization, and automation to transform unprocessed data into meaningful summaries that aid in business decision-making.

## Abstract

This project focuses on building a reporting system that loads CSV datasets, generates pivot tables, computes summary statistics, and creates charts to highlight trends. The processed results are exported into an Excel workbook with multiple sheets, formatted headers, and embedded visuals. The system includes a simple graphical interface to allow users to upload data files and save the generated reports without needing programming knowledge. By combining automation with usability, the tool enhances reporting accuracy and reduces manual effort.

## Tools Used

Pandas: Data loading, cleaning, and pivot table creation.

Matplotlib: Chart generation and visualization.

Openpyxl: Excel export with styling and formatting.

Tkinter: GUI for file upload and save dialogs.

# Steps Involved in Building the Project

1. Load raw CSV data into a pandas DataFrame.

2. Perform preprocessing and create pivot tables for summarized insights.

3. Generate charts using matplotlib to visualize category and regional trends.

4. Export data, summaries, and charts into Excel using openpyxl with styled headers.

5. Add descriptive statistics (mean, median, min, max) into a dedicated sheet.

6. Build a GUI with Tkinter for user-friendly file selection and saving.

# Conclusion

The Excel Report Generator successfully automates the conversion of raw CSV data into professional Excel reports. It reduces manual reporting time, improves accuracy, and simplifies data analysis for both technical and non-technical users. The project demonstrates how Python can be applied to integrate data processing, visualization, and automation in a single workflow, making it a practical tool for businesses, analysts, and students.