



UGANDA CHRISTIAN
UNIVERSITY

MASTER OF SCIENCE IN COMPUTER SCIENCE

COURSE UNIT: OOP PYTHON PROGRAMMING

PROPOSAL: SALES DATA ANALYZER PROJECT

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Problem Statement

Small and medium-sized enterprises (SMEs) in Uganda play a vital role in the national economy, contributing about 20% to the GDP and employing over 1.5 million people. (Akiiza, n.d.) Despite this contribution, many small businesses still struggle to make data-driven decisions due to limited access to affordable data analytics tools. Most rely on handwritten records or basic spreadsheets that do not offer meaningful insights into trends, sales performance, or customer preferences. (Duncan, n.d.)

As a result, many businesses face inefficiencies in inventory management, poor forecasting, and missed opportunities for growth. The Sales Data Analyzer aims to bridge this gap by developing a simple Python-based program that reads and processes sales data from CSV files, analyzes the data, and provides valuable insights such as total revenue, top-products, and sales summaries. This will help small business owners make smarter, data-driven decisions without needing complex software or advanced technical skills.

Project Objectives

1. To create a Python program that reads and processes sales data from CSV files.
2. To calculate total revenue, average sales per product, and identify best-selling products.
3. To generate easy-to-understand visual reports showing sales performance.
4. To enable small business owners to use data analytics in their day-to-day decision-making.

Project Scope

The project will focus on analyzing sales data in CSV format from Kaggle for retail business, including product names, quantities sold, prices, and dates of sale. The system will calculate total revenue, determine top-performing products, and summarize key sales indicators. The project will not include database or web integration, ensuring simplicity and ease of use for small business operators.

Methodology and Tools

The program will be developed using Python 3.x, focusing on fundamental programming techniques such as: File Handling (using the csv module), Loops and Conditional Statements for data processing, Data Aggregation using dictionaries and lists, Error Handling for missing or invalid data

Key Libraries: csv for reading and writing data files, statistics for calculating averages, collections. Counter for identifying top products, matplotlib for generating visual summaries.

Expected Outcomes

1. A working Python program that can analyze and summarize sales data.
2. Visual reports showing total revenue, best-selling products, and average sales.
3. A user guide explaining how to input data and interpret the output.

Relevance of the Project

This project promotes digital empowerment among small businesses by offering an affordable, accessible way to analyze sales data. By providing basic data analytics capabilities, the project also strengthens digital literacy and contributes to sustainable entrepreneurship.

Expected Deliverables

Python source code(py), Sample sales dataset (CSV), Visual Output, User documentation.

Conclusion

The Sales Data Analyzer is a simple yet impactful project that demonstrates the power of Python in solving real-world problems. It applies core programming concepts to create a practical solution for small business challenges.

References

- Akiiza, C. (n.d.). *Assessing Sales Forecasts and Business Growth of Small and Medium Enterprises in Kabale Municipality Kabale District: A Case Study of Mega Bakery.*
- Duncan, A. K. (n.d.). *Information Communication Technology and Business Performance: A Case Study of Selected Sme's in Kampala-Uganda A Dissertation Submitted to The College Of Economics and Management in Partial Fulfillment of the Requirements for the A Ward Of bachelor's degree in business computing Of Kampala International.*