Data Science Intern Assignment

Submitted by:

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GitHub Repository: https://github.com/poonamv28/zeotap-assignment

Project Overview

This project analyzes eCommerce transaction data to derive actionable business insights, create customer recommendations, and perform customer segmentation. The analysis is divided into three main components: Exploratory Data Analysis, Customer Lookalike Model, and Customer Segmentation.

Methodology

1. Exploratory Data Analysis

- Comprehensive analysis of customer behavior patterns
- Product performance metrics and trends
- Regional sales distribution
- Transaction value analysis
- Temporal patterns in customer activity

2. Customer Lookalike Model

- Feature engineering using customer profiles
- Transaction history analysis
- Similarity score calculation
- Top 3 recommendations for first 20 customers
- Model validation and testing

3. Customer Segmentation

- K-means clustering implementation
- Davies-Bouldin Index optimization
- Cluster visualization and analysis
- Segment profiling and characterization

Key Findings

The analysis revealed several important insights about customer behavior and product performance. The customer segmentation identified distinct groups with unique characteristics, and the lookalike model successfully identified similar customers with high accuracy.

Technical Implementation

Technologies Used:

- Python 3.x
- Pandas & NumPy for data manipulation
- Scikit-learn for machine learning
- Matplotlib & Seaborn for visualization

Repository Structure:

- Poonam_Vetal_EDA.ipynb
- Poonam_Vetal_Lookalike.ipynb
- Poonam_Vetal_Clustering.ipynb
- Supporting PDF reports and CSV files