MA 678
Final Project Proposal
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Personal statement:

I have a keen interest in the e-commerce sector, so my career goal is to become a data analyst which concentrates at financial data. Then use e-commerce transactional data to analyze, predictive modeling, and other strategies to inform business decisions. This project is a cornerstone in my path to achieving this goal as it offers the opportunity to dive deep into e-commerce transactional data, allowing me to practice the extraction of actionable insights from complex datasets, a skill crucial for my future role in financial analysis within the e-commerce industry.

Questions:

So, based on personal statement, my goal for this project is:

How can historical e-commerce transaction data be used to predict future purchasing patterns and inform inventory management?

Data source:

This is a sales transaction data set of UK-based e-commerce (online retail) for one year which is found on Kaggle, and this is the link of data source:

https://www.kaggle.com/datasets/gabrielramos87/an-online-shop-business

Proposed timeline of work:

EDA 1st part: (Nov.9th – Nov.14th)

Formulating core questions followed by a preliminary exploration of the data to uncover patterns in customer buying behavior, product sales performance, and seasonal fluctuations in data related to sales.

Data Processing: (Nov.15th – Nov.20th)

Data cleaning, treatment of missing values, outlier identification, and preparation for modeling

Modeling and validation: (Nov.21st – Nov.30th)

The most difficult part in the project. Developing predictive models to forecast sales and understand customer behaviors, followed by rigorous model validation to ensure robustness and reliability.

EDA 2nd part: (Dec.1st – Dec.7th)

Create relevant charts and graphs to tackle the questions posed in the initial stage of EDA, determining if these visual tools successfully provide the sought-after insights. Subsequently, synthesize the findings derived from the visual data analysis and posed queries.

Write up: (Dec.8th – Dec.11th)

Finalizing the report to include methodology, findings, and actionable strategies for inventory management.