Sample Template

Project Title: [Retail Company]

Team Members:
- [Srivadhani karthiga A] [Leader]
- [Praveena A] [Member]
- [Kanishka shree D][Member]
- [Muthulakshmi M][Member]
- [Jayasri] [Member]

Abstract:

A retail company's sales team wants to suggest products to customers. Business users can upload training data and pick features using an easy interface. They can also upload and preview test data to check the model. To make things even simpler, users want visual data analysis.

Project Overview:
The project aims to use machine learning to create a user-friendly product recommendation system for a retail company, enabling personalized recommendations and enhancing the shopping experience..

Technologies Used:

- Programming Language: [e.g., Python]

- Machine Learning Libraries: [e.g., pandas, Scikit-Learn]

- Frameworks: [e.g., Flask, Streamlit]

Data Collection and Preprocessing:

-Data came from various sources within the retail company, including sales transactions and customer profiles.

-Raw data was cleaned by removing errors, duplicates, and handling missing values.

-Features, like customer purchase history and product categories, were engineered.

-Categorical data, such as product categories, were converted into numerical formats.

-Numerical features were scaled for consistency.

-Data was split into training and testing sets for model development and evaluation.

Model Architecture:

This project utilized a machine learning model called a "Collaborative Filtering" model. It is a recommendation model that falls under the category of "Collaborative Filtering," which is very suitable for addressing the problem of recommendation, specifically for recommending products to customers based on their historical interactions and preferences.

Training Process:

The training process for the recommendation system involves:

1. Guessing how much users like products.

2. Checking our guesses against real data.

3. Adjusting our guesses to get closer to reality.

4. Repeating these steps and tweaking our model.

5. Evaluating our model's performance.

6. Deploying the model to make recommendations.

Evaluation Metrics:

Root Mean Squared Error (RMSE): The square root of MSE, providing a measure in the same units as the ratings.

Results and Discussion:

Results of the recommendation system are promising, showing improved product suggestions and user engagement. The collaborative filtering model, trained with diverse datasets, demonstrates accuracy and personalization. Explanations AI aids user understanding, and visual data analysis enhances transparency. Continuous data quality control ensures reliable recommendations. User feedback and monitoring will drive further improvements.

Deployment:

The recommendation system is deployed for live use within the retail company. Users receive personalized product suggestions, leading to increased sales and enhanced customer experiences. Continuous monitoring and maintenance are essential to ensure the system's effectiveness and adapt to changing user preferences.

Conclusion:

In conclusion, the implementation of a Collaborative Filtering-based recommendation system in the retail company has yielded positive results. The system's ability to suggest personalized products to customers enhances the shopping experience and drives sales. Collaboration with business users, the integration of Explanations AI, and visual data analysis functionality have improved transparency and user satisfaction.

References:

https://www.kaggle.com/code/spywinecooler/recommender-system-for-ml-project

Acknowledgments:

Thanks team members who contributed to your project's success.