Project Title: Customer Spending Score Prediction using Random Forest Algorithm

Project Idea: The aim of this project is to predict customer spending scores using the Random Forest algorithm. By analyzing the Mall Customers Dataset, which includes demographic information such as CustomerID, Gender, Age, Annual Income, and Spending Score, we will develop a predictive model that accurately estimates the spending score.

Software: Python will be used for implementing the project, utilizing essential libraries such as NumPy, Pandas, and Scikit-learn.

Teammate: I will be working on this project individually.

Project Tasks:

1. Data Analysis: Perform exploratory data analysis on the Mall Customers Dataset, gaining insights into customer demographics and spending patterns through statistical analysis, data visualization, and identifying inconsistencies.
2. Data Preprocessing: Handle missing values, encode categorical variables, and scale numerical features to prepare the dataset for the Random Forest algorithm.
3. Feature Selection: Identify the most relevant features that contribute to predicting the spending score, improving the efficiency and accuracy of the model.
4. Model Development: Implement the Random Forest algorithm to train a predictive model on the preprocessed dataset, known for its ability to handle complex relationships and produce accurate predictions.
5. Model Evaluation: Assess model performance using appropriate evaluation metrics such as mean squared error or accuracy, depending on whether the spending score is treated as a regression or classification problem.
6. Results and Conclusion: Present the analysis results, including visualizations and insights gained from the predictive model. Discuss the implications of the findings and provide recommendations for businesses to effectively understand and target their customer base.

In conclusion, this project aims to develop a predictive model using the Random Forest algorithm to estimate customer spending scores based on demographic information. By analyzing the Mall Customers Dataset and implementing the proposed approach, we anticipate obtaining valuable insights into customer behavior and providing a useful tool for businesses.

Thank you for considering this proposal. I look forward to working on this project and delivering a comprehensive final report.

Sincerely, Halil Kılcı

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