

Participant Clustering and Classification

This project analyzes participants' performance using their **accuracy (%)** and **reaction time (s)**. It combines clustering and classification to group participants and evaluate model performance.

Features

- KMeans clustering (3 groups)
- Support Vector Machine (SVM) classification
- Decision Tree classification
- Confusion matrices with Accuracy, Precision, Recall, and F1-score
- Decision Tree visualization
- KMeans scatter plot of participant groups

Requirements

Install the following libraries:

pandas
matplotlib
scikit-learn

How to Run

Run the Python script:

```
python participant_analysis.py
```

What It Does

1. Groups participants into 3 clusters using KMeans
2. Splits data into training and testing sets

3. Trains SVM and Decision Tree classifiers to predict groups
4. Displays confusion matrices with performance metrics
5. Plots the Decision Tree
6. Shows a scatter plot of clusters

Outputs

- Confusion matrices (SVM and Decision Tree)
- Metrics: Accuracy, Precision, Recall, F1-score
- Decision Tree diagram
- Scatter plot of KMeans groups