

SUPERVISED LEARNING- CSGO ROUND WINNER

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MISSION

Objective:

The primary objective of this project is to conduct a comprehensive exploration and comparison of multiple machine learning algorithms for the classification of round winners in the popular tactical shooter game Counter-Strike: Global Offensive (CS:GO).

Background:

CS:GO is a highly competitive multiplayer game where two teams, Counter-Terrorists (CT) and Terrorists (T), engage in a series of rounds with the aim of achieving specific objectives. The outcome of each round can significantly impact the overall outcome of the game. Understanding the factors that influence round victories is crucial for improving gameplay strategies and enhancing competitive performance.



APPROACH

1. **Exploratory Data Analysis (EDA):** Conduct a thorough exploration of the dataset to gain insights into the distribution, variability, and relationships among different attributes. This involves visualizing data distributions, examining correlations, and identifying potential patterns or trends.
2. **Feature Selection and Engineering:** Select relevant features that are likely to have a significant impact on predicting round winners. Additionally, explore opportunities for feature engineering, such as creating new features or transforming existing ones to improve model performance.
3. **Machine Learning Algorithms:** Implement and compare multiple machine learning algorithms suitable for classification tasks. This includes algorithms such as Logistic Regression, Decision Trees, Random Forest, Support Vector Machines (SVM), and Gradient Boosting Machines (GBM). Each algorithm will be trained and evaluated using appropriate evaluation metrics to assess its performance in predicting round winners.
4. **Model Comparison:** Compare the performance of different machine learning models based on various evaluation metrics such as accuracy, precision, recall, and F1-score. Additionally, consider factors such as model interpretability, computational efficiency, and potential for generalization to real-world scenarios.

DATASET DISCRIPTION

- CS:GO is a tactical shooter game where two teams, Counter-Terrorists (CT) and Terrorists (T), compete in a series of rounds. The dataset contains 122,410 records with 97 attributes. Key attributes include:
- **time_left**: Time remaining in the current round.
- **ct_score**: Score of the Counter-Terrorist team.
- **t_score**: Score of the Terrorist team.
- **map**: The map being played on.
- **bomb_planted**: Indicates if the bomb has been planted.
- Various attributes related to player health, armor, money, weapons, and grenades for both teams.
- **round_winner**: The winner of the round (CT or T).

CONCLUSION

By leveraging machine learning techniques and thorough analysis of the CS:GO round winner dataset, we aim to develop accurate and reliable models for predicting round outcomes. This project will provide valuable insights into the factors influencing round victories in CS:GO and contribute to enhancing gameplay strategies and competitive performance.

THANK YOU

