

Project Overview:

This project utilizes decision tree classifiers to predict whether a company is classified as "Domestic Ultimate" or "Global Ultimate" based on various operational, financial, and structural characteristics. By analyzing feature importance, the model provides insights into the key determinants for these classifications, guiding further predictive modeling and strategic decision-making.

Key Insights and Findings:

Domestic Ultimate: The `employee_domestic_ratio` is the most significant feature for predicting whether a company is classified as "Domestic Ultimate."

Other important features include `employee_global_ratio` and `company_age`, indicating that the relative number of employees and the company's age are critical factors.

Global Ultimate: `employee_domestic_ratio` is also a key determinant in predicting "Global Ultimate" status.

Similarly, `employee_global_ratio` and `company_age` contribute significantly to distinguishing global companies.

Common Features for Both Targets:

`employee_domestic_ratio`, `employee_global_ratio`, and `company_age` are essential for predicting both "Domestic Ultimate" and "Global Ultimate" classifications.

View the Results:

The script will output:

Model Accuracy: Displays the accuracy of the decision tree model for both target variables.

Feature Importance: A bar chart showing the top 15 most important features for predicting "Domestic Ultimate" and "Global Ultimate."

Decision Tree Visualization: A graphical representation of the decision tree, showing how the classification is made.

Recommended Features: Identifies the key features that should be considered for further modeling based on feature importance.