

**Pokémon Project**

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**Problem Statement:**

1. Pokémon is a group of adorable creatures peacefully colonizing a planet until humans come along and make them combat each other in order to get shiny badges and we can call them Pokémon masters.
2. In this universe, there exists a group of rare and often strong Pokémon, known as Legendary Pokémon. Unfortunately, there are no detailed criteria that define these Pokémon.
3. The only way to recognize a Legendary Pokémon is through information from official media, such as the game or anime.
4. This data set includes 721 Pokémon, including their number, name, first and second type, and basic stats: HP, Attack, Defense, Special Attack, Special Defense, and Speed. The legend of a Pokémon cannot be suspected only by its Attack and Defense. It would be worth finding which variables can define the legend of a Pokémon. The strategy is to analyze the data and perform a predictive task of classification to predict the legend of a Pokémon using a decision tree algorithm.

**Tasks to be performed:**

1. Load the dataset using pandas module
2. Perform missing value analysis on the dataset.
3. From the dataset, calculate the count of each category in the Primary Type column.
4. Calculate the Grass Pokémon by filtering the primary type as Grass and from the filtered dataset, extract those Pokémons who are having poison as their secondary type.
5. From the above filtered data, extract the Pokémon who is having the fastest speed and store the data in my grass Pokémon.
6. Calculate the Water Pokémon by filtering the primary type as Water and from the filtered dataset, extract those Pokémon’s who are having ‘flying’ as their secondary type.
7. From the above filtered data, extract the Pokémon who is having maximum defense and store the data in my water Pokémon.
8. Calculate the Firefighting Pokémon by filtering the primary type as Fire and from the filtered dataset, extract those Pokémons who are having ‘Psychic’ as their secondary type.
9. From the above filtered data, extract the Pokémon who is having maximum attack and store the data in my fire pokemon.
10. Combine grass,water and file pokemon extracted above and store the combined data in Frame.
11. Split the dataset in train and test set and have a 70:30 split ratio for the model having defense as feature and attack as target.
12. Use Linear Regression model for training on top of the train set.
13. Calculate the predictions of the model and check the performance of the model using r2 score and rmse value.
14. Use the Label encoder module to change the object format data to numerical data for classification model.
15. Split the dataset in train and test set and have a 70:30 split ratio for the model having all the columns except the last column as feature values and Legendary as target.
16. Now use a decision tree for training on top of the train set.
17. Calculate the predictions of the model using predict().
18. Calculate the accuracy of the model using accuracy\_score().
19. Check the performance matrix of the model using classification\_report().