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Take Home Project Report
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Analysis of Pokemon Dataset and Classification of Legendary Pokemon

Problem: Is it possible to build a classification model to identify legendary pokemon?

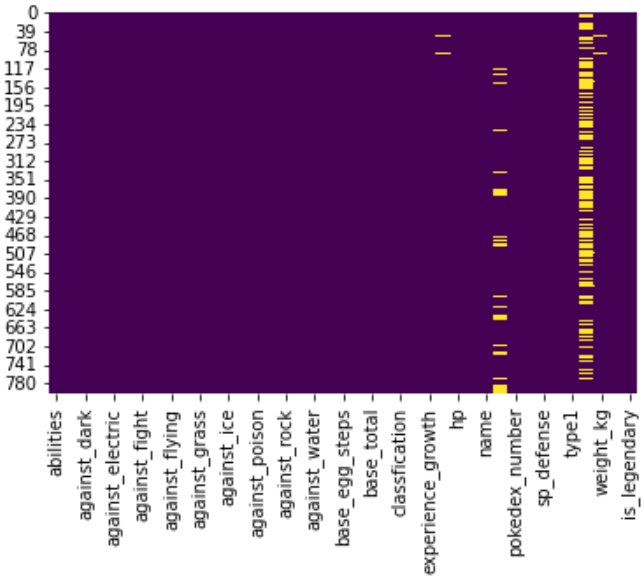
After my analysis of the Pokemon Dataset, I conclude that a classification model to identify legendary pokemon with high accuracy can be built after the correction of the following discrepancies I discovered during my analysis:

1. Data Completeness

1.1 Problem: Features had many null values.

The following features contained many null values:

- *percentage_male,*
- *type2*
- *height_m*
- *weight_kg*



1.2 Problem: Non-homogenous data types within features

The *capture_rate* feature contains object(str) values as well as int64 values.

1.2 Recommendations:

- Collect more data on the height and weight of different pokemon.
- Add a category for genderless pokemon, as the majority of null values from. *percentage_male* are from genderless pokemon.
- Collect more data on pokemon with a valid *type2.*
- Reformat values within features to be the same across pokemon for consistency.

2. Data Relevance

2.1 Problem: Features in the dataset were not significant to determining if a pokemon is legendary

The following features were removed because they did not affect the the legendary status of the pokemon:

- *abilities*
- *classification*
- *name*
- *type1*
- *type2*

2.2 Recommendations:

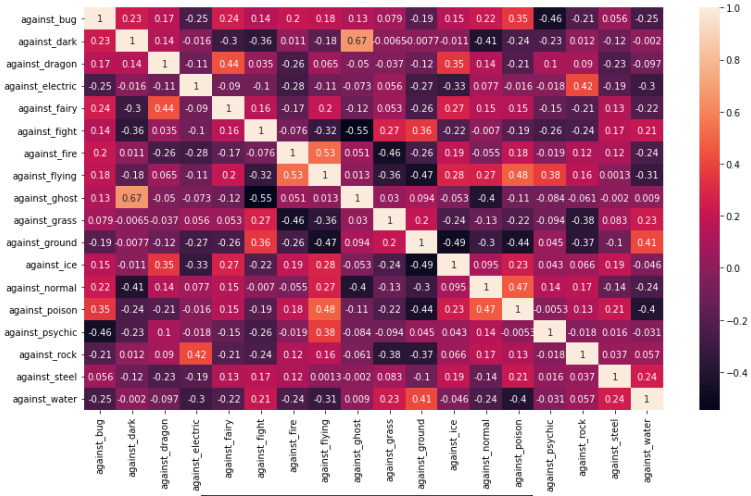
- Collect more relevant statistical information to better the results of classification

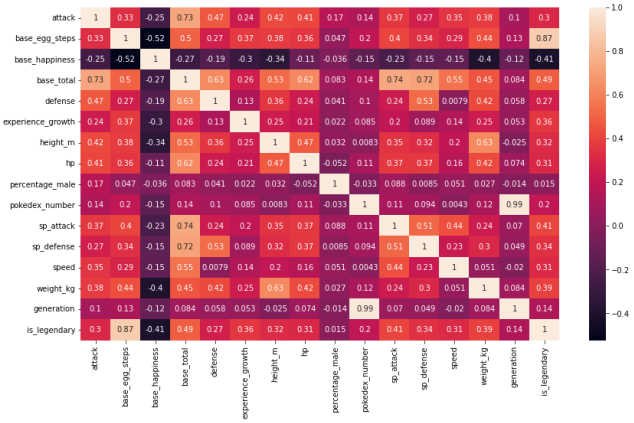
3. Multicollinearity of Predictors

2.1 Problem: Multicollinearity is suggested by the dataset

The following factors suggest multicollinearity in the dataset:

- Correlation Matrices
    - The correlation matrices show a high correlation between the following independent variables:
        - *base_total - attack, defense, sp_attack, sp_defense, speed*
- Variance Inflation Factor
    - The values for *base_total, defense, sp_attack, sp_defense,* and *speed* are infinity, and the values for *base_eggs_steps* and *base_happiness* are very large (*pokedex_number* can be ignored)





18	attack	inf
19	base_egg_steps	12.820566
20	base_happiness	20.207886
21	base_total	inf
22	capture_rate	5.174524
23	defense	inf
24	experience_growth	53.508518
25	height_m	4.545480
26	hp	inf
27	pokedex_number	209.208980
28	sp_attack	inf
29	sp_defense	inf
30	speed	inf