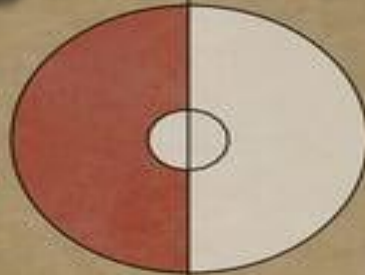# New Age of Pokemon

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Abstract

This project uses a dataset derived from PokeAPI that details attributes on every pokemon species in order to evaluate Pokemon's strength. We used visual analysis and linear regression to analyze the strength of pokemon in each generation, and found that on average, pokemon are getting stronger with each generation. We also concluded that the typing of the pokemon dictates how high it's stats will be and how strong it is.

Motivation

The Pokemon game series has a massive competitive scene, primarily revolving around player vs. player battles. Understanding the impact of newer Pokémon is important for maintaining balanced and fair competition. The strategies used by these players are often influenced by new Pokemon, affecting team compositions and tournament outcomes.

Dataset

Dataset was created using the PokeAPI. This data includes fields relating to each Pokemon's abilities and characteristics. These include:

Species: The Species of Pokemon
Generation: Generation of Pokemon's creation
IV's: Combat Attributes (Attack, Defence, etc.)
Types: Elemental type the Pokemon has

Data Preparation and Cleaning

This dataset was generated by using the PokeAPI to scrape information for each pokemon and species. This resulted in two separate dataframes, which were then combined to include all information in one place.

Generation was formatted into a numeric value, and the 'stats', 'types', 'egg_group', 'abilities' columns were split into their individual values.

Removed all columns not pertaining to analysis

Filtered pokemon to include only original form. No Mega, G-max, Alolan, etc.

Research Questions

Are the Pokemon added in each generation of games stronger than their predecessors?

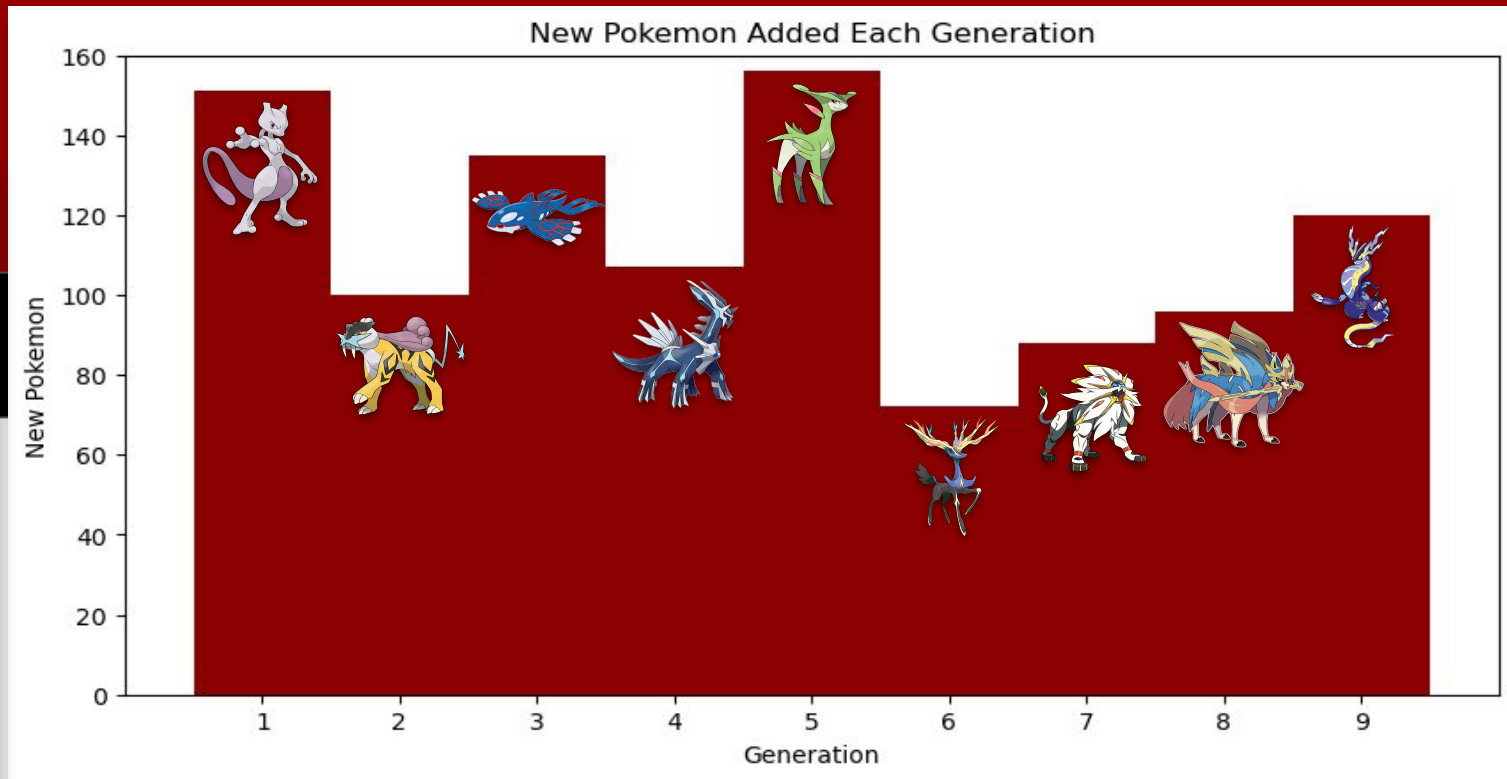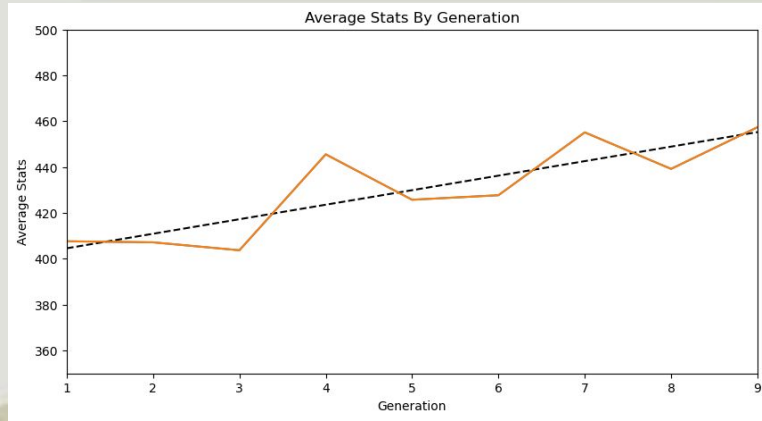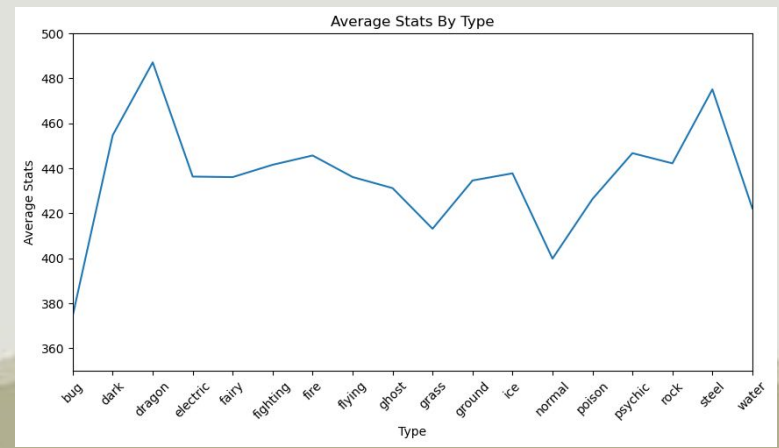Does the Pokemon's type affect its strength?

Methods

This project uses regression analysis, as well as visualizations to analyze the data.

Each generation brings a number of new pokemon. Currently, the total is 1025 Pokemon in their base forms. For the purpose of this project, we are only looking at these 1025.

generation	species
1	151
2	100
3	135
4	107
5	156
6	72
7	88
8	96
9	120

Stats By Type   Lv 18

Average Stats By Type

Stats By Generation   Lv 9

Average Stats By Generation

Based on the plots, we can see the later generation pokemon seem to be getting stronger overall. As well as a large inequality of strength based on the type of the Pokemon. This is unsurprising however, because bug types are typically seen as inferior compared to dragon.

Limitations

This project focussed on base forms of pokemon only. The addition of g-max, mega, or regional variants may alter the outcome. This data was sourced from PokeAPI. I am unsure on how updated this data may be on an individual basis. Pokemon's Stats and types may be different from what they are widely recognized as. In addition, the types considered are based on the pokemon's primary type, and doesn't consider additional typings.

Conclusions

On Average, Pokemon in later generations are getting stronger based on their stat total. While this may not be the best way to categorize strength, as it does not take into account movesets or typing, it does show that the later generations have the potential to be more powerful.

The Pokemon's type does show it's strength. We have concluded that a bug type pokemon is much weaker than a dragon type. However, in practice it is possible for a bug type to be more versatile than a dragon type.

Acknowledgements

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References

No references were used.