Checkpoint I: Project Proposal

Group: G11
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Domain

Pokémon is a series of video games in which you can build teams of animal-like creatures (Pokémon) and pit them against other people's teams in turn-based battles. Pokémon players can battle their teams against each other, online, competitively.

Each team can have up to six Pokémon.

Each Pokémon has the following main attributes:

- A set of Base Stats (Health Points, Attack, Defense, Special Attack, Special Defense, Speed);
- An ability, which may give them an advantage in battle (abilities may be split into groups according to function);
- An item which they may carry and which may have an in-battle effect;
- A nature, which influences their reaction to certain types of items;
- A set of up to four moves (associated with a type and damage class – special, physical, or status –, and which have the attributes "accuracy" and "power");
- A generation of Pokémon games that they were first created in.

In this project, we will be analyzing common patterns in Pokémon attributes – both in the games, and in Pokémon competitive playing.

Dataset

Dataset description:

- There are 19 joint datasets available, all regarding information related to the competitive Pokémon video game, with particular reference to the period February - August 2022. Due to time constraints, we will initially be using 5 out of those 19 datasets as basis for our visualization (over 35 attributes total, over 70.000 items total), creating derived datasets as necessary.
- The data selected includes information about Pokémon (e.g.: df_pokemon.csv), Pokémon prevalence in teams (e.g.: bridge_pokemon_pokemon_USED_IN_TEAMS_WITH.csv), Pokémon attributes (e.g.: df_moves.csv, bridge_pokemon_moves_MAY_LERN.csv), and attributes' prevalence (e.g.: bridge_pokemon_move_USED_WITH_MOVE.csv).
- The data used is available at https://www.kaggle.com/datasets/giorgiocarbone/complete-competitive-pokmon-datasets-may-2022. We will build 5+ database tables from the selected datasets and use them to interpret the information as necessary.

Example Questions

Competitive Pokémon battling generally occurs between two teams of six Pokémon, and there is no disadvantage to having a full team of six, so competitive teams with less than six members are rare, and, for this analysis, it is considered that a Pokémon in a team always has at least one teammate.

Pokémon types work in a rock-paper-scissors mechanic (e.g.: the Fire-Type is strong against the Grass-Type; the Grass-Type is strong against the Water-Type; the Water-Type is strong against the Fire-Type). Pokémon in a team that are of different Types may help cover for each other's weaknesses in battle.

Pokémon attributes influence the result of a battle. For example:

- A move will be more powerful if its type corresponds to that of the Pokémon using it, and less powerful if it is a move the opponent is strong against;
- A move's power may be influenced by the Speed Stat of the Pokémon it is used by/against, or by an item in use;
- A Pokémon with a higher Speed Stat will usually act first in a turn;
- Moves have power (how hard they hit), and Power Points (PP) – using a move reduces its PP, and when PP runs out, you cannot use that move for the rest of the battle.

A few relevant questions (all regarding competitive play):

- For two Pokémon who are teammates, which are the most often used Pokémon type combinations between each teammate?
- How has the HP Stat of Poison-Type Pokémon evolved throughout generations, both in the game as a whole and in Pokémon chosen for competitive play?
- How does a Pokémon's Type (and number of Types) influence its Stats, and the Stats prioritized by competitive players?
- What is the most used move type in Fire-Type/Water-Type team combinations?
- Do competitive players prioritize move availability (PP) or move power, when choosing moves for their Pokémon?

Data Sample

Ex:

```
(from "df_pokemon.csv")
id; name; [...]; generation; [...]; Type1; Type2; [...]; HP; [...]; Usage Percentage;
[...]
890; Eternatus; [...]; 8; [...]; Poison; Dragon; [...]; 140; [...]; 20; [...]

(from "bridge_pokemon_pokemon_USED_IN_TEAMS_WITH.csv")
Use_Percentage(%); Pokemon; Teammate
25.902%; Pikachu; Incineroar

(from "bridge_pokemon_move_USED_WITH_MOVE.csv")
Move; Use_Percentage(%); Pokemon; Name
Protect; 98.672%; Incineroar; Protect

(from "df_moves.csv")
Name; [...]; Power; [...]; PP; [...]
Double Slap; [...]; 15; [...]; 10 [...]; [...]

(from "bridge_pokemon_pokemon_USED_IN_TEAMS_WITH.csv")
Move; Use_Percentage(%); Pokemon; Name
Protect; 98.672%; Zacian Crowned Sword; Protect
```