



# Checkpoint I: Project Proposal

Group: G11

Date: 2022/10/03

## 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 6 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/giorgiocarbhone/complete-competitive-pokmon-datasets-may-2022>. We will build 6+ 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; [...]; Speed; [...]
890; Eternatus; [...]; 8; [...]; Poison; Dragon; [...]; 140; [...]; 130; [...]
```

```
(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
```