

# ETL Project - Week 12

## An ETL Demonstration using Pokémon

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May 16, 2020

### ABSTRACT

*Inspiration, motivation of doing an ETL project in general, justification for why we're doing the things we're doing, why some contents are necessary, etc.*

## I. INTRODUCTION

Inspiration, motivation of doing an ETL project in general, justification for why we're doing the things we're doing, why some contents are necessary, etc.

## II. EXTRACT

The data-sets used in this ETL Project come from Kaggle—an website designed for data scientists to find and publish data sets, explore and build models in a web-based data-science environment, work with other data scientists, and more. A link to the Pokémon data-sets can be found [here](#).

The two data-sets provided were titled *pokemon-data.csv* (hereon referenced as *Pokémon Dataset*) and *move-data.csv* (hereon referenced as *Moves Dataset*).

The Pokémon Dataset includes information pertaining to each Pokémon, such as: (i) their combat stats; (ii) what type of Pokémon they are; and (iii) their rank on the Pokémon "tier-list"<sup>1</sup>. The data-set also includes a column containing a comprehensive list of every move that Pokémon is capable of learning.

The Moves Dataset provides data related to every move Pokémon can do, including information on: (i) What type of Pokémon are able to complete the move; (ii) the much the move "costs" to do; and (iii) a complete breakdown of all stats related to that move.

The Pokémon Dataset and the Moves Dataset

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<sup>1</sup>A Pokémon's rank on the tier list is used to determine the general consensus on a Pokémon's performance in competitive matches

were provided in the *Comma-Separated Value* (or CSV) format. While the Moves Dataset was a conventional CSV file, the Pokémon Dataset stored their columns as **semi-colon separated values**. This was because some of the columns have their contents stored as lists (such as the list of moves), and the information in the lists were separated by commas. As a result, the author of the data-set decided to separate columns with semi-colons.

## III. TRANSFORM

Using the *Pandas* library, we were able to import the two data-sets as DataFrames. The list entries in these DataFrames were stored as strings. The first necessary transformation was to parse these strings and turn them back into lists.

The next step was to pull out the columns that weren't relevant for this particular project, such as the next generation of the Pokémon and their Abilities. Extracting these irrelevant columns brought the total number of columns from twelve to eight. However, some of the columns still hadn't been separated out properly, such as a Pokémon's 'Type' column sometimes only having a Type 1 and sometimes having both a Type 1 and Type 2. Splitting up the columns that were still containing lists expanded our number of columns from eight back up to eleven.

There was one more column containing way too much information: the 'Move' column. Because some Pokémon are able to learn well over 100 different moves, we decided the best transformation to do for this category is to randomly select one move from the list as the

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representative move for that Pokémon.

The original column names were difficult to work with, often containing spaces and other difficult characters. As a result, a small transformation that needed to be done was to rename several of these difficult-to-operate column names into something simpler (such as adding an under-score between 'Special' and 'Attack' in the column 'Special Attack').

The Moves Dataset required several transformations that were very similar to those in the Pokémon Dataset. The first step was to remove the columns that weren't relevant (bringing the column count from nine down to six). The second step was to do some column-renaming here as well, such as changing 'Name' to 'Move', or 'Type' to 'Move\_Type'.

With all transformations complete on their respective DataFrames, it was time for the final transformation—merging the two DataFrames on the 'Move' column. After completing these transformations, there is

#### IV. LOAD

The final combined DataFrame was loaded into a Postgres database with a table consisting of the following information: 'Name', 'HP', 'Attack', 'Defense', 'Special\_Attack', 'Special\_Defense', 'Speed', 'Type\_1', 'Type\_2', 'Move', 'Move\_Type', 'Category', 'PP', 'Power', 'Accuracy'.