# PokéData Challenge: Unleash the Power of Python and Apache Beam

Welcome to the "PokéData Processing Challenge: Unleash the Power of Python and Apache Beam"! This assessment is designed to evaluate your proficiency in Python programming and data processing using Apache Beam. In this challenge, you will leverage the PokéAPI: https://pokeapi.co/ to extract information about Pokémon, transform the data using Apache Beam, and load it into an SQLite database. Additionally, you will showcase your advanced data processing skills by implementing an extra feature.

You'll demonstrate your ability to handle external data, perform transformations, and visualize the results. This challenge not only assesses your technical skills but also encourages creativity and problem-solving.

## Task 1: Data Extraction

Retrieve data from the [PokéAPI](https://pokeapi.co/) (<https://pokeapi.co>) to get information about a set of Pokémon (use this set: type/3) . Use the requests library in Python to make an API call and extract details such as id, name, height, and weight for the first 50 Pokémon. Print the extracted details. And save the results into a file format that can be processed in the next task.

## Task 2: Data Transformation with Apache Beam

Design a data transformation pipeline using Apache Beam to perform the following tasks on the extracted Pokémon data:

* Convert the height and weight attributes to meters and kilograms, respectively.
* Create a new column called bmi (Body Mass Index) using the formula: bmi = weight / (height^2). Round the result to two decimal places.

Print the first 50 rows of the transformed dataset.

## Task 3: Data Loading

Create a function to load the transformed Pokémon data into an SQLite database. Assume the database schema has a table named pokemon\_data with the following structure:

CREATE TABLE pokemon\_data (

id INTEGER PRIMARY KEY,

name TEXT,

height REAL,

weight REAL,

bmi REAL

);

Load the transformed data into the pokemon\_data table in the SQLite database.

## Task 4: Extra Feature - Advanced Data Processing

Implement any additional feature that showcases advanced data processing skills. For example, you can calculate and print the average BMI of all Pokémon in the dataset or find the Pokémon with the highest BMI.

## Task 5: Data Visualization

Visualize the data in the pokemon\_data table using a free online dashboard tool (e.g., Google Data Studio). Create visualizations such as a scatter plot showing the relationship between height and weight, a histogram of BMI values, etc.

## Additional Guidelines:

* Ensure your code is well-organized, includes comments, and follows best practices.
* Handle errors gracefully, especially during API calls and database operations.
* Provide a README file with instructions on how to set up the SQLite database, install dependencies, and run each script.

## Deliverable:

### Git Repository:

Create a new Git repository for this assessment.

### Commit Structure:

Ensure that your Git commit messages are clear and meaningful, reflecting the purpose of each commit.

Follow a logical sequence of commits that corresponds to the tasks in the assessment. For example, separate commits for data extraction, transformation, loading, and any additional features.

### Submission:

Submit the link to your Git repository as the deliverable for this assessment.