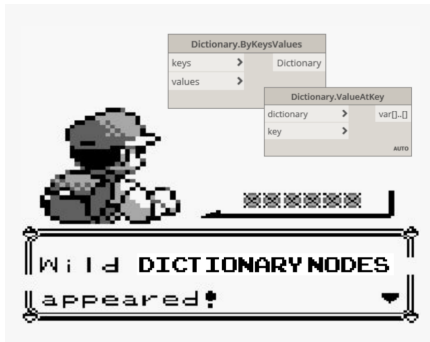# Lab 5 - Dictionary Duel: The Pythonic Path to Pokémon Mastery!

Updated: 4/10/2024

Due Date: iLearn

Building Blocks

You will be building off of your code from lab 4. If you need help getting a working copy of lab 4, please see the instructor or TA as soon as possible.

Variable Changes

We will be modifying our code to use lists and dictionaries! We will create two dictionaries that will hold each pokemon's data. We will have a dictionary for pokemon_1 and pokemon_2 that will replace our current pokemon variables. We will also be modifying some functions to accept dictionaries instead of our collection of variables. Remember that we can create a dictionary and a list like this:

```
my_dictionary = {"my_key1":"my_value", "my_key2":200}
my_list = [10, 20, 50]
```

Your dictionary for each pokemon will contain the following keys: Name, HP, AP.

Your list for each pokemon will be an item list, this will hold the amount of each of the two items that the pokemon carries. The list will have index 0 and 1.

Index 0: will represent potions

Index 1: will represent attack_up

Functions

We will be adding two new helper functions and modifying an existing one. We will be adding a *attack()* function that will hold our attack components. *useItem()* function will allow the player to select and use an item. We will also be adding a third option to *printOptions()* **"Option 3: Item"**

```python
# pokemon_atk and pokemon_def are dictionaries.
# these will be passed by reference
def attack(pokemon_atk, pokemon_def, crit_multiplier=1):
    # IMPORTANT: Modify the below to use the dictionaries passed
    damage = calcDamage(pokemon_atk_ap, crit_multiplier)
    pokemon_def_hp = applyDamage(pokemon_def_hp, damage)
    printOutcome(pokemon_atk_name, pokemon_def_name, damage,
pokemon_def_hp)

# pokemon is a dictionary and items is a list
def useItem(pokemon, items):
    while True:
        # print 1. Use potion items[0]
        # print 2. Use attack_up items[1]
        # print 3. Cancel
        # create variable choice and assign it the value of user input
        # if choice is 1 and items[0] is greater than 0:
            # add 10 to pokemon's HP
            # subtract 1 from item[0]
            # print that the pokemon's HP was increased by 10 to new HP
              break
        # elif choice is 2 and items[1] is greater than 0:
            # add 10 to pokemon's AP
            # subtract 1 from item[1]
            # print that the pokemon's AP was increased by 10 to new AP
              break
        # elif choice is 3, break
```

Battle

We will be modifying our battle code to use the dictionaries from the Variable Changes section. Our dictionaries will replace the current variables that hold our pokemon data.

We will also be modifying the while loop that controls our turns in battle. We will be adding an elif to each turn loop to call *useItem()* and replacing the attack components with our new *attack()* function.

We will also need to modify any call to the replaced variables. Example: if we use the variable *pokemon_1_name,* then we need to replace that with *pokemon_1["Name"]*

```
###### attacker 1 turn
<while loop here>
    print(f"{pokemon_1_name}'s turn!")
    # getting choice for pokemon 1
    choice = printOptions()

    # pokemon_1 attacks pokemon_2
    ### MODIFY THIS BLOCK ###
    if choice == 1:
        # call attack(pokemon_1, pokemon_2, crit_multiplier)
        break
    elif choice == 2:
        print(f"{pokemon_1_name} passes turn")
        break
    elif choice == 3:
        # call useItem(pokemon_1, pokemon_1_list)
        break
    else:
        print("Not an option!")
    ### end of nested while loop


###### attacker 2 turn
<while loop here>

    print(f"{pokemon_2_name}'s turn!")
    # getting choice for pokemon 2
    choice = printOptions()

    # pokemon_2 attacks pokemon_1
    ### MODIFY THIS BLOCK ###
    if choice == 1:
        # call attack(pokemon_2, pokemon_1, crit_multiplier)
        break
    elif choice == 2:
        print(f"{pokemon_2_name} passes turn")
        break
    elif choice == 3:
        # call useItem(pokemon_2, pokemon_2_list)
        break
    else:
        print("Not an option!")
    ### end of nested while loop
```

Example Output

```
Would you like to start a battle? (y/n): y
Welcome to the Python Pokemon Battle Simulator!
#################################################
--------------------------------------------------
Turn 1
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Pikachu attacks Charmander for 28.5 damage.
Charmander's HP is now 61.5.

Charmander's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Charmander attacks Pikachu for 24 damage.
Pikachu's HP is now 76.


--------------------------------------------------
Turn 2
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 3
1. Use potion (3)
2. Use attack_up (1)
Choose an item to use: 1
Pikachu HP increased by 10 to 86

Charmander's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Charmander attacks Pikachu for 24 damage.
Pikachu's HP is now 62.


--------------------------------------------------
Turn 3
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 3
1. Use potion (2)
2. Use attack_up (1)
```

```
Choose an item to use: 2
Pikachu AP increased by 10 to 25

Charmander's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Charmander attacks Pikachu for 23 damage.
Pikachu's HP is now 39.


_____
Turn 4
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Pikachu attacks Charmander for 30.0 damage.
Charmander's HP is now 31.5.

Charmander's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Charmander attacks Pikachu for 21 damage.
Pikachu's HP is now 18.


_____
Turn 5
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Option 3: Item
Choose an option to continue: 1
Pikachu attacks Charmander for 34.5 damage.
Charmander's HP is now 0.

Charmander fainted!
```

Turning in Assignment

Please zip your file before turning it in through iLearn. This is to prevent iLearn from deleting your file (it can happen).

How to zip file on Windows: https://support.microsoft.com/en-us/windows/zip-and-unzip-files-8d28fa72-f2f9-712f-67df-f80cf89fd4e5

How to zip file on MacOS: https://support.apple.com/guide/mac-help/zip-and-unzip-files-and-folders-on-mac-mchlp2528/mac