Lab 4 - Around the While Loop Whirlpool

> Updated: 3/21/2024

> Due Date: iLearn

Building Blocks

You will be building off of your code from Lab 3. If you need help getting a working copy of lab 3, please see the instructor or TA as soon as possible.

Functions

All functions should be outside of your main function.

We will be adding one new helper function and modifying an existing one. We will be adding a *playing()* function that will allow us to ask the user if they want to start a battle. This function will be used for our main loop (discussed below) to allow for the player to continue playing. The skeleton code for *playing()* is below:

```
# NOTE: <code> means that you will write code to do what the line says

def playing():
    # <code> create a while True loop
    <while loop here>
        # <code> get user input into a variable
        # use input with "Would you like to start a battle? (y/n): "

        # <code> if statement where you compare your variable to 'y'
        <if comparison>
            # <code> set some variable, play, to True, to play
            # <code> use break to exit loop
        # <code> elif statement where you compare your variable to 'n'
        <elif comparison>
            # <code> set some variable, play, to False to not play
            # <code> use break to exit loop
    # return the variable, play to let main() know to continue the main
loop or not
    return play
```

You will also be modifiying your existing *calcDamage()* to give crit_damage a default value of 1. This will be in the parameter list as you define calcDamage. This way, when you don't have critical damage, you don't have to pass it, and it will be 1.

Battle

You will be renaming your current *main()* to **battle()**

Your new battle code should be in a function named *battle():* This is renamed from *main()*

All of these new changes will be modifying your existing for loop. We have a turn-based battle system that runs for an *n* number of turns that we set, but now we want to run our battle loop until one of the pokemon faints. We will be using while loops and if statements to accomplish this.

```
# NOTE: <code> means that you will write code to do what the line says

# <code> change turns to 0 to be iterator
turn = 0

# <code> change your for loop to a while True loop
while True:
    # <code> increment turn; add 1 to it at the top of the loop

    print("-"*50)
    print(f"Turn {turn}")

    ###### attacker 1 turn
    # <code> add a while True loop here
    # remember to indent your code to be part of the nested loop!!
    <while loop here>
        print(f"{pokemon_1_name}'s turn!")
        # getting choice for pokemon 1
        choice = printOptions()

        # pokemon_1 attacks pokemon_2
        if choice == 1:
            damage = calcDamage(pokemon_1_ap, crit_multiplier)
            pokemon_2_hp = applyDamage(pokemon_2_hp, damage)
            printOutcome(pokemon_1_name, pokemon_2_name, damage,
pokemon_2_hp)
            # <code> use break to exit loop
        elif choice == 2:
            print(f"{pokemon_1_name} passes turn")
            break
        else:
            print("Not an option!")
        ### end of nested while loop

    # outside of nested while loop!
    # <code> create an if block to compare pokemon2's hp to 0
    # <code> if less than or equal to 0, print pokemon2 fainted
    # <code> use break to exit the loop
```

```
    ###### attacker 2 turn
    # <code> add a while True loop here
    # remember to indent your code to be part of the nested loop!!
    <while loop here>

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

        # pokemon_2 attacks pokemon_1
        if choice == 1:
            #change this calcDamage to only take a single argument
            damage = calcDamage(pokemon_2_ap)
            pokemon_1_hp = applyDamage(pokemon_1_hp, damage)
            printOutcome(pokemon_2_name, pokemon_1_name, damage,
pokemon_1_hp)
            # <code> use break to exit loop
        elif choice == 2:
            print(f"{pokemon_2_name} passes turn")
            break
        else:
            print("Not an option!")
        ### end of nested while loop

    # outside of nested while loop!
    # <code> create an if block to compare pokemon1's hp to 0
    # <code> if less than or equal to 0, print pokemon1 fainted
    # <code> use break to exit the loop
```

Main

Your new main will be very short. This code is responsible for calling the function *playing()* and *battle()*. You will then call main at the bottom of the file the same way as you have been.

```
# completed main()
def main():
    while playing():
        battle()
```

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
Press 1 or 2 to continue: 1
Pikachu attacks Charmander for 27.0 damage.
Charmander's HP is now 63.0.

Charmander's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Charmander attacks Pikachu for 22 damage.
Pikachu's HP is now 78.

--------------------------------------------------
Turn 2
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Pikachu attacks Charmander for 27.0 damage.
Charmander's HP is now 36.0.

Charmander's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Charmander attacks Pikachu for 22 damage.
Pikachu's HP is now 56.

--------------------------------------------------
Turn 3
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Pikachu attacks Charmander for 25.5 damage.
Charmander's HP is now 10.5.

Charmander's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Charmander attacks Pikachu for 21 damage.
Pikachu's HP is now 35.
```

```
------------------------------------------------
Turn 4
Pikachu's turn!
Option 1: Attack
Option 2: Pass
Press 1 or 2 to continue: 1
Pikachu attacks Charmander for 22.5 damage.
Charmander's HP is now 0.

Charmander fainted!
Would you like to start a battle? (y/n): n
```

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