16.5 Homework 5

Introduction

Students will create a C++ program that simulates a Pokemon battle mainly with the usage of a while loop, classes, structs, functions, pass by reference and arrays. Students will be expected to create the player's pokemon and enemy pokemon using object-oriented programming (OOP).

Scenario

You've been assigned the role of creating a Pokemon fight simulator between a player's Pikachu and the enemy CPU's Mewtwo.

You need to create a simple Pokemon battle simulation that will run until one of the pokemon's health points (HP) reaches 0. In the simulation, the player's Pikachu will battle the enemy Mewtwo. The Mewtwo will always be the first one to attack, then you'll attack, and so on until the simulation ends (one of the players runs out of health points). Additionally, Mewtwo will only use one attack on the player, whereas the player's Pikachu has 3 attack options. They can either use "Thundershock", "Quick Attack", or "Electro Ball". Once the battle is over, you will be greeted with the message "You win" or "You lose" depending on whether or not the player's pokemon won the battle.

Instructions to complete the assignment

Your code must perform these major operations:

- Utilize a while loop to continuously get each person's turn (player and CPU)
- Use OOP to create a Pokemon object, allowing 3 attacks which are to be made using functions
- Use an array to hold the move structs in your Pokemon class
- Using print statements that reflect the status of the battle

Move.h (Move Struct) Each move struct must have the following attributes:

- Name (string)
- Damage (int)

Pokemon.h and Pokemon.cpp (Pokemon Class) Each pokemon class must have the following (pritvate) attributes:

- Name (string)
- Health (int)
- Moves (Array of 3 Moves)
- isConfused (boolean)

And will have the following (public) member functions:

- Class constructor. The class constructors takes in name as parameter (Mewtwo or Pikachu) and creates the pokemon object accordingly with the right values for health and available attacks (details in the list below). Note that Mewtwo only gets one attack, so 2 elements of the Moves array will remain empty.
- Mutators (setHealth, setIsConfused, setMoves). In particular, setMoves set all moves at once and requires 6 parameters, a string and a point value for each move, in this order: string move1, int damage1, string move2, int damage2, string move3, int damage3
- Accessors (getHealth, getIsConfused)
- Void type function move(int index, Pokemon& target): this function uses as parameter the index of the attack to use (from 0 to 2) and a reference to the pokemon who is being attacked. The health of the target will be reduced according to the attack received. If Electro Ball is used, the target's health does not change but they get confused and skip the next turn.
- Void type function displayMoves: This function presents the user with a list of available moves, in this format:

```
Thunderbolt, Electro Ball, or Quick Attack
```

Pokemon stats

- Pikachu (274 HP)
    - Thunderbolt (-125 HP)
    - Electro Ball (Confuses a pokemon, target skips a turn)
    - Quick Attack (-90 HP)
- Mewtwo (322 HP)
    - Psycho Cut (-90 HP)

main.cpp

In the main file, create two pokemon objects (a Mewtwo and a Pikachu) and a loop with the following sequence of actions:

- Mewtwo attacks Pikachu
- Pikachu displays moves
- User selects move
- Pikachu attacks Mewtwo

Console Input/Output

• Sample input 1

```
Thunderbolt
Electro Ball
Thunderbolt
Thunderbolt
```

Sample output 1

```
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Thunderbolt
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Electro Ball
It confused Mewtwo!
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Thunderbolt
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Thunderbolt
You win
```

Sample input 2

```
Thunderbolt
Quick Attack
Electro Ball
Quick Attack
```

Sample output 2

```
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Thunderbolt
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Quick Attack
Mewtwo used Psycho Cut
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Electro Ball
It confused Mewtwo!
Thunderbolt, Electro Ball, or Quick Attack
Pikachu used Quick Attack
Mewtwo used Psycho Cut
```

```
You lose
```