

CS 200 - Introduction to Programming

Fall 2022

Assignment 2 Part 2

The Pokemon Game

Due Date: **Sunday, 30th October 2022**

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Now that you are familiar with the basics of our game let's move forward and include some actual interaction between Pokemon and their Trainers!

1. Updating our Pokemon:

Let's get our Pokemon ready for battles!

In the first part, we saved each Pokemon's hit points (hp) in `current_hp`. However, a Pokemon's hp might decrease during a battle, and by reducing `current_hp`, we will lose track of the total hp of a Pokemon.

Let's create the following data member in the Pokemon class:

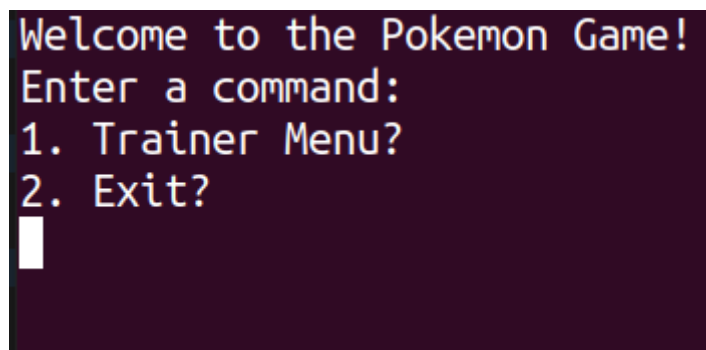
1. **total_hp**: a number of type double that keeps track of a Pokemon's total hp.

After this, you will have to update your class methods accordingly. Specifically, the **default constructor** and the **++ operator**.

2. More Trainers:

Our trainer was getting lonely. Let's fix this by adding more trainers to the game.

Previously, the main menu asked the user if they wanted to access the Trainer Menu or Exit the game. If the user entered 1, and there were no Trainers, the program prompted them to create one.

A screenshot of a terminal window with a dark purple background. The text is displayed in a light blue/cyan monospace font. It shows the main menu of the game: 'Welcome to the Pokemon Game!', 'Enter a command:', '1. Trainer Menu?', '2. Exit?'. A white cursor is positioned at the end of the second line, ready for input.

```
Welcome to the Pokemon Game!
Enter a command:
1. Trainer Menu?
2. Exit?

```

Fig 1. Main Menu from Part 1

Modify your code so that when the user accesses the Trainer Menu, they are prompted with the following options:

```
What would you like to do:
1. Create a Trainer
2. Access a Trainer
3. Exit to Main Menu
```

If the user chooses to "Create a Trainer", the program should ask for appropriate inputs, create a trainer and add it to the dynamic list of trainers (remember?).

If the user chooses to “Access a Trainer”, the program should list all of the current trainers and ask the user the name of the trainer they want to access. **If there are no trainers in the game, display an appropriate message, and ask the user if they will create one. If the user agrees, create a trainer and add it to the dynamic list of trainers.**

What next? Refer to the section “Accessing a Trainer”.

3. Accessing a Trainer:

After the user successfully accesses a Trainer, we’ll display the following options to the trainer:

```
<Trainer Name>'s Menu:  
1. Add Pokemon  
2. Display Pokemon  
3. Manage Current Party  
4. Exit to Main Menu.
```

You know what the first two options do.

If the user chooses option 3, we’ll redirect them to the current party management menu. (See the next section).

4. Current Party:

Finally, we’ll handle the current party array.

What is the current party?

The current party is an array containing at most six (6) Pokemon. Trainers can only fight with the Pokemon in the current party during a battle.

This function will allow users to add and remove Pokemon from a Trainer’s current party.

The user will be presented with the following options:

```
Current Party Management:  
1. View Current Party  
2. Add Pokemon to the Current Party  
3. Remove Pokemon from the Current Party  
4. Return to Trainer Menu
```

1. View Current Party:

- a. Displays the Pokemon in the current party along with their level and hp.

2. Add Pokemon to the Current Party:

- a. Displays the name of the Pokemon from the Trainer's Pokemon collection and asks the Trainer which Pokemon they want to add to the current party.
- b. You will then remove that Pokemon from the Trainer's collection (the `pokemon_owned` array) and add it to the Trainer's current party.

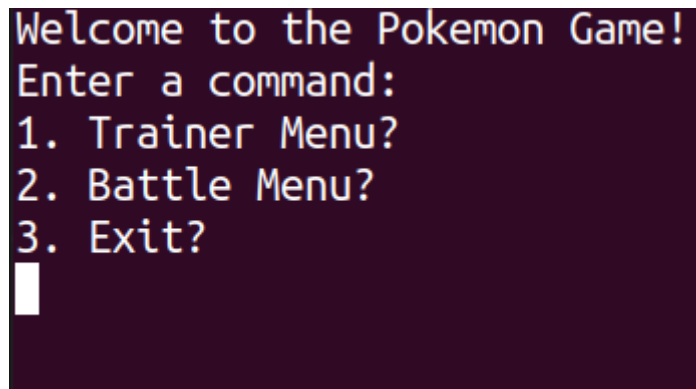
3. Add Pokemon to the Current Party:

- a. Displays the current party and asks the user which Pokemon they want to remove.
- b. Remove that Pokemon from the current party and add it back to the Trainer's collection.

5. Poke Battles:

We are finally set for battles!

Update the main menu (Figure 1) by adding a new option for the battle menu, like the following:



```
Welcome to the Pokemon Game!
Enter a command:
1. Trainer Menu?
2. Battle Menu?
3. Exit?
█
```

Fig 2. Updated Main Menu

If the user selects the “Battle Menu” and:

- 1. There are less than two Trainers in the game, display an error message telling the user that there must be at least two trainers for the game a battle to take place.
- 2. If there are two or more trainers, display the name of the Trainers and ask the user to enter the name of Trainer 1 and Trainer 2 (the two trainers that will battle each other).
 - a. A battle is impossible if any of the two Trainers have no Pokemon in the current party. Display an error message and return to the Battle Menu.

Print a few empty lines to prepare our terminal for the battle, and let's begin.

Implement the battle to mimic the following steps:

1. Display the Pokemon in Trainer 1's current party.
2. Ask Trainer 1 to select one Pokemon.
3. Display the Pokemon in Trainer 2's current party.
4. Ask Trainer 2 to select one Pokemon.
5. Ask Trainer 1 about their next move.
 - a. Every trainer has three choices in battle.
 - i. Attack^[1]
 - ii. Switch^[2]
 - iii. Forfeit^[3]
6. Ask Trainer 2 about their next move.
7. Perform the actions.
8. Repeat Step 5 and 7 until one of the Trainers run out of usable Pokemon^[4] or forfeits the match.
9. Award XP^[5] to the winning trainer's Pokemon.

- **Attack:**

- If both the Trainers choose to attack, the Pokemon with the higher speed will attack first, and the other Pokemon will attack second. An attack reduces the hp of the attacked Pokemon by the attacker Pokemon's attack value.
- The turn will end if the opponent Pokemon passes out (hp reaches 0) after the first Pokemon attacks; the turn will end.
- The next turn will ask the Trainer to switch Pokemon if any Pokemon passes out during the battle.

- **Switch:**

- A trainer can switch Pokemon by replacing the active Pokemon with any other (Pokemon with non-zero hp) from the current party.
- A trainer can either switch during their turn or when their active Pokemon passes out.
- If a trainer decides to switch during their turn, and the opponent trainer decides to attack, the attack will land first, and the switch will occur second.

- **Forfeit:**

- Any trainer can choose to forfeit the match during the battle, resulting in an automatic win for the opponent.

- **Usable Pokemon:**

- A trainer runs out of usable Pokemon if all the Pokemon in the current party pass out.

- **XP:**

- After a win, every Pokemon in the winning Trainer's current party receives 10 XP points.

6. Post Battle:

After a battle ends, restore the hit points of all Pokemon in the current party for both the Trainers.

7. Bonus (Optional):

For those who want to continue adding features to the game.

Possible Features:

1. Level-up functionality
2. Stat-boosting Items functionality
3. Stadiums boost the stat of a certain type of Pokemon functionality.

One bunker cookie from me for every bonus feature implemented :P

Good luck and Happy Coding! 😊