Mr. Josie

AP Computer Science A

4/4/2022

Pokémon Tournament Total: 50 Points

Due: End of Class on May 16th

*Tournament Date: tbd*

*Project template was written by Cash Hilstad*

**Description:** You will travel across the lands, searching far and wide. Write a class to understand the power that’s inside. To extend a class is your real test, to learn it is the cause.

**Learning Objectives:**

1. Gain a deeper understanding of how classes are written
2. Gain a deeper understanding of how classes are extended and how inheritance works
3. Understand how to overwrite methods
4. Write various constructors for different purposes
5. Write a set of print and test methods
6. Write a set of accessors/mutators
7. Understand how classes can work together

**Pokemon Class:**

Your project is to write a class that extends Pokemon. The class will be combined with a Battler class to simulate a Pokemon battle. You will have access to both classes to see how they are written. Here are the attributes of the Pokemon class:

**Attributes:**

String name

boolean fainted

int health

int maxHealth

int speed

int attack

int specialAttack

int defense

int specialDefense

String[] moves (to be initialized by the user)

String[] validMoves = {“debug”, “Slap, “Kick”,“Laser”,“PlasmaShot”,“Heal”,“Fortify”,“Sharpen”, “Focus”,“Turntables”, “Switch”,“Resist”,“Coin Flip”, "Death Ray", "Body Slam","Leech","Intimidate", "Tickle", "Self Destruct"};

**Your Task:**

You will extend the Pokemon class as written and be tasked to create a number of methods to build on the concept of inheritance. Your class will be your first and last name as it appears on the class roster. For example, my header would look like:

public class BenJosie extends Pokemon

*\*Note: You will also need to change the file name to reflect this. The file should be called BenJosie.java*

**Writing Methods:**

You will fill in each of the following methods:

*Setters*

setName(String newName)

setHealth(int newHealth)

setSpeed(int newSpeed)

setAttack(int newAttack)

setSpecialAttack(int newSpecialAttack)

setDefense(int newDefense)

setSpecialDefense(int newSpecialDefense)

setMove(String move, int index)

*Getters*

getName()

getHealth()

getSpeed()

getAttack()

getSpecialAttack()

getDefense()

getSpecialDefense()

getMove(int index)

*Print Methods*

You must write three different forms of print(), using different parameters. For example, your should probably have a version to print your Pokemon’s name and each stat for testing purposes. One could print the move list. Etc.

* Your default print method should (at minimum) print name on one line, and health on another line. For example, after calling josiemon.print() I might see the following result:

Name: Josiemon

Health: 70%

*Constructors (use the name of your own class)*

BenJosie()\*default constructor, notes below

BenJosie(String name, int maxHealth, int speed, int attack,

int specialAttack, int defense, int specialDefense, String[] moves)

**\*Notes on default constructor\***

We will use this constructor when we make an instance of your Pokemon for the Tournament. Therefore, it is **the most important part of this project.** In order to balance our Pokemon, they must adhere to these rules:

1. Each attribute must have a value between 50-200
2. Your 6 stats (maxHealth, speed, attack, specialAttack, defense, specialDefense) must not exceed 600.

*You may test your Pokemon using three provided methods (no need to rewrite):*

1. validateStats(Pokemon target, int maxPoints)
2. validateMoves(Pokemon target)
3. validate(Pokemon target, int maxPoints)

**To Begin:**

1. Navigate to the template found at: https://replit.com/@bjosie/Pokemon-Template?v=1.
2. Create a new .java file based on your name.
3. Within that file, the first line should say: public class BenJosie extends Pokemon {
4. Write the methods outlined above!

**Turn-In:**

To turn in the assignment, you will need to do the following:

* Download your BenJosie.java file and upload to canvas.

**Move List (Also outlined in the moveDef.txt file found in the template):**

Format:

move, type, chance to hit, power

Normal Moves

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Slap, physical, 0.9, 0.9

A safe and effective phyiscal move. Unlikely to fail.

Kick, physical, 0.75, 1.25

A riskier physical move, less likely to hit. When it hits, it hits hard.

Laser, special, 0.9, 0.9

A safe and effective special move. Unlikely to fail.

Plasma Shot, special, 0.75, 1.25

A riskier special move, less likely to hit. When it hits, it hits hard.

Heal, other, 1.0, n/a

Heal yourself for a small amount.

Fortify, other, 1.0, n/a

Increase your defense by a small amount.

Resist, other, 1.0, n/a

Increase your special defense by a small amount.

Sharpen, other, 1.0, n/a

Increase your attack by a small amount.

Focus, other, 1.0, n/a

Increase your special attack by a small amount.

Switch, other, 0.8, n/a

Flip your attack and defense stats, both phyiscal and special.

Leech, physical, 0.75, 0.75

Weaker phyiscal attack. Gain the health you took from the enemy.

Intimidate, other, 0.75, n/a

Intimidate your opponent, dropping their attack stats.

Tickle, other, 0.75, n/a

Tickle your opponent, dropping their defense stats.

Rush, other, 0.6, n/a

Attack over and over again, each time doing 1-7 damage.

Chip, other, 1.0, n/a

Chip at your target's health. They lose 10% of their current health.

Premium Moves (Each premium move can only be used ONE TIME per battle)

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Turntables, other, 1.0, n/a

Flip your opponent's attack and defense stats, both physical and special.

Coin Flip, special, 0.5, 3.0

Flip a coin. If heads, deal massive damage. If tails... take some damage.

Death Ray, special, 0.99, 2.0

Fire a super-powerful special attack.

Body Slam, physical, 0.99, 2.0

Land a strong physical slam onto your target.

Self Destruct, special, 0.75, 5.0

Explode. Leave yourself at 1hp.

Adrenaline Rush, other, 1.0, n/a

Lose half of your current health, but double all your stats.