Project plan

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Contents

1 Description

1.1 The basics

The game is a text-based, turn-based, player-vs-CPU fighting and adventure game. Initially, the player chooses to catch 3 Pokemon from a given list of several Pokemon, each with unique details and stats (name, type, level, HP, basic attack, special attack, and defense). It is explained to the player that their objective is to reach a final landmark (the top of Mount Fuji), and that to get there, they will encounter enemies (CPUs), each holding 1 to 3 Pokemon. The player will have to battle and defeat 10 enemies, each being more difficult than the last. After defeating the 3rd, 6th, and 9th enemy, the player will encounter a new landmark, which will act as a checkpoint. If the player's pokemon are all defeated in a battle, the player will be returned to the most recently passed checkpoint, and if any enemies were defeated after passing the checkpoint, they will be reset, and the player will have to battle them again. The player wins the game once they have defeated all 10 enemies, and reached the top of Mount Fuji.

1.2 Pokemon

- Name: Each Pokemon has a unique name.

- Type: Each Pokemon possesses a type (either water, fire, or grass).

    - Water is weak to grass attacks.
    - Fire is weak to water attacks.
    - Grass is weak to fire attacks.

- HP: Each Pokemon possesses a particular amount of health points (HP), when this reaches zero, the Pokemon is defeated. If a player's Pokemon is defeated in battle, the player is given a choice as to which of their remaining Pokemon they want to swap into the battle. If a CPU's Pokemon is defeated in battle, it is randomly swapped out with one of their remaining Pokemon.

- Basic Attack: Each Pokemon has a basic attack. When this attack is used against an enemy Pokemon, a base-amount of HP is removed from it. If the attacking Pokemon's attack stat is higher than the opponent Pokemon's defense stat, additional HP is also removed from the opponent Pokemon. This additional amount is calculated using the difference in the attack stat of the attacking Pokemon and the defense stat of the opponent Pokemon.

- Special Attack: Similar to the standard attack and functions the same. However, the special attack also possesses a 'type' (coinciding with that of the Pokemon). The type of special attack can be either water, fire, or grass.

    - Water special attacks:
        * Take off $2\times$ (base amount + any difference in attack / defense) amount of HP against a fire-type Pokemon.
        * Take off $\frac{1}{2} \times$ (base amount + any difference in attack / defense) amount of HP against a grass-type Pokemon.
        * Take off the base amount + any difference in attack / defense amount of HP against another water-type Pokemon.
    - Fire special attacks:

* Take off 2× (base amount + any difference in attack / defense) amount of HP against a grass-type Pokemon.
* Take off $\frac{1}{2}$ × (base amount + any difference in attack / defense) amount of HP against a water-type Pokemon.
* Take off the base amount + any difference in attack / defense amount of HP against another fire-type Pokemon.

– Grass special attacks:
* Take off 2× (base amount + any difference in attack / defense) amount of HP against a water-type Pokemon.
* Take off $\frac{1}{2}$ × (base amount + any difference in attack / defense) amount of HP against a fire-type Pokemon.
* Take off the base amount + any difference in attack / defense amount of HP against another grass-type Pokemon.

- Defense: If an attacking Pokemon's attack stat is higher than the opponent Pokemon's defense stat, additional HP is also removed from the opponent Pokemon. Otherwise, only a base amount of HP is removed from opponent Pokemon. A Pokemon can also use a 'defense move', which increases the defense stat of the Pokemon that used it for the duration of the battle.

- Level: The level of each Pokemon is dependent on how much XP they have received. XP is gained by defeating other Pokemon. Defeating higher-level Pokemon gives the winning Pokemon more XP than lower-level Pokemon. After passing certain XP thresholds, a Pokemon can 'level up', which gives an increase to HP, attack, special attack, and defense. After passing certain level thresholds, a Pokemon can 'evolve', which gives a slightly larger increase to HP, basic attack, special attack, and defense, as well as altering the Pokemon's name and appearance. When a Pokemon evolves, it is also 'taught' a new move, which may be a basic or special attack, or a defense move. The new move will be stronger than previous moves of the same type.

1.3 Battling

Battling is turn-based, meaning that the player and the CPU each take turns making a move. Before battling, the player will be given a choice as to which Pokemon they would like to send into battle first. For each turn, the player can either choose to use a basic attack, a special attack, a defensive move, or to swap Pokemon. Basic and special attacks, as well as defensive moves have been explained above. Choosing to swap Pokemon will give the player the opportunity to send a different Pokemon into battle. After each time the player makes a move, the CPU will be given the same options to make a move. It is explained above what occurs when a Pokemon reaches 0. If all of the player's Pokemon are defeated, the CPU will be determined the winner, and vice versa.

2 Potential classes

2.1 Player

Data:

- Pokemon owned
- Level

Functions:

- Add/remove Pokemon owned
- Increment/decrement level

2.1.1 Person

Data:

- Name
- Skill points (for leveling up)

Functions:

- Set name
- Increment/decrement skill points
- Get action from user

2.1.2 Computer

Functions:

- Get action randomly

2.2 Pokemon

Data:

- Name
- Type
- Level
- Health
- Attack
- Defense
- Speed
- Moves learnt

Functions:

- Increment/decrement level
- Increment/decrement health
- Increment/decrement attack
- Increment/decrement defense
- Increment/decrement speed
- Add/remove moves learnt

2.3   Menu

Data:

- Title
- Options (vector)

Functions:

- Print menu
- Set title
- Set options

3   Timeline

Mid-term break

- Finalize plan

- Prototypical testing

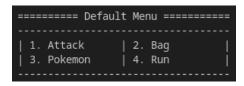## Week 9

- Submit plan

- Begin coding

Week 10

- Finish version 1

Week 11

- Finish coding

4   User interface

The game will use a command-line interface. This will be done using the Menu class to display the options to the user, and the user will be able to select an option by typing the corresponding number.

```
========== Default Menu ===========
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| 1. Attack     | 2. Bag          |
| 3. Pokemon    | 4. Run          |
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```

5   Unit testing and debugging