Program Write-Up Document

[Justin] [2/12/24] [CIDS 235] [Assignment 1 - object oriented pokemon]

Link to working code (e.g., on Replit.co or any other suitable platform)
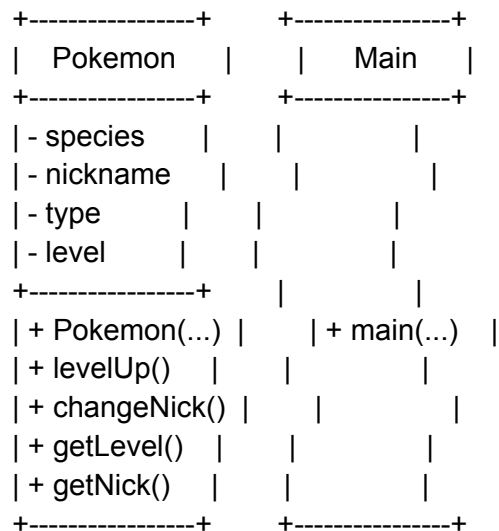
https://codehs.com/sandbox/id/java-main-iBXQLU

https://replit.com/join/ewoqzojyhv-silentpenguin45

Typed it out on replit but It was having some issues showing the output so I used another platform that shows the output.

1. Introduction

[Provide a brief overview of the application, its purpose, and the objectives of this documentation.]
In this application, we create Pokemon, define their characteristics like species, nickname, type, and level, and perform actions such as leveling up and changing nicknames.

2. Class Diagrams

```
+----------------+        +---------------+
|   Pokemon      |        |     Main      |
+----------------+        +---------------+
| - species    |     |               |
| - nickname     |     |               |
| - type       |     |               |
| - level      |     |               |
+----------------+     |               |
| + Pokemon(...) |        | + main(...)   |
| + levelUp()    |     |               |
| + changeNick() |     |               |
| + getLevel()   |     |               |
| + getNick()    |     |               |
+----------------+        +---------------+
```

3. Implementation Details

Pokemon Class

[Explain the Pokemon class and its attributes/methods. Include code snippets illustrating its implementation in Java.]
this class helps create Pokemon by setting their species, nickname, type, and level.

// Java code snippet for Pokemon class

```java
public class Pokemon {
    // Attributes
    private String species;
    private String nickname;
    private String type;
    private int level;

    // Constructor
    public Pokemon(String species, String nickname, String type, int level) {
        this.species = species;
        this.nickname = nickname;
        this.type = type;
        this.level = level;
    }

    // Methods

    // Method to increase the level of the Pokemon by 1
    public void levelUp() {
        level++;
    }

    // Method to change the nickname of the Pokemon
    public void changeNick(String newNickname) {
        nickname = newNickname;
    }

    // Method to get the current level of the Pokemon
    public int getLevel() {
        return level;
    }

    // Method to get the current nickname of the Pokemon
    public String getNick() {
        return nickname;
    }

    // Additional methods or functionality can be added as needed
}
```
Main Class

[Explain the Main class and its attributes/methods. Include code snippets illustrating its implementation in Java.]

we create a Pokemon, show its initial details, make it do something, and then show the updated details.

```java
// Java code snippet for Main class
public class Main {
    public static void main(String[] args) {
        // Application logic and Pokemon instance creation
        Pokemon pikachu = new Pokemon("Pikachu", "Sparky", "Electric", 5);

        // Displaying the initial state of the Pokemon
        System.out.println("Initial Pokemon Details:");
        System.out.println("Species: " + pikachu.getSpecies());
        System.out.println("Nickname: " + pikachu.getNickname());
        System.out.println("Type: " + pikachu.getType());
        System.out.println("Level: " + pikachu.getLevel());

        // Modifying the Pokemon using methods
        pikachu.levelUp(); // Level up the Pokemon
        pikachu.changeNick("Thunder"); // Change the nickname

        // Displaying the modified state of the Pokemon
        System.out.println("\nModified Pokemon Details:");
        System.out.println("Species: " + pikachu.getSpecies());
        System.out.println("Nickname: " + pikachu.getNick()); // Using getNick method
        System.out.println("Type: " + pikachu.getType());
        System.out.println("Level: " + pikachu.getLevel()); // Using getLevel method
    }
}
```

4. Screenshots
[Insert screenshots demonstrating the program's functionality and output.]

▶ Run   Stop

```
Initial Pokemon Details:
Species: Pikachu
Nickname: Sparky
Type: Electric
Level: 5

Modified Pokemon Details:
Species: Pikachu
Nickname: Thunder
Type: Electric
Level: 6
```

5. Conclusion

[Summarize the key learning outcomes achieved during the development of the application. Highlight the main takeaways from the project.]

In summary, our Pokemon program makes and controls Pokemon. We learned how to describe a Pokemon, set its details, and make it do things. This taught us the basics of using Java to organize and use information about Pokemon in our program.

6. Appendix

Complete Java Code

[Include the complete Java code for the application here.]

```java
// Pokemon class definition
public class Pokemon {
    // Attributes (changed to package-private)
    String species;
    String nickname;
    String type;
    int level;

    // Constructor
    public Pokemon(String species, String nickname, String type, int level) {
        this.species = species;
        this.nickname = nickname;
        this.type = type;
        this.level = level;
    }

    // Method to increase the level of the Pokemon by 1
    public void levelUp() {
        level++;
    }

    // Method to change the nickname of the Pokemon
    public void changeNick(String newNickname) {
        nickname = newNickname;
    }

    // Method to get the current level of the Pokemon
    public int getLevel() {
        return level;
    }
```

```java
    // Method to get the current nickname of the Pokemon
    public String getNick() {
        return nickname;
    }

    // Main method to demonstrate the use of Pokemon class
    public static void main(String[] args) {
        // Creating an instance of Pokemon
        Pokemon pikachu = new Pokemon("Pikachu", "Sparky", "Electric", 5);

        // Displaying the initial state of the Pokemon
        System.out.println("Initial Pokemon Details:");
        System.out.println("Species: " + pikachu.species);
        System.out.println("Nickname: " + pikachu.nickname);
        System.out.println("Type: " + pikachu.type);
        System.out.println("Level: " + pikachu.level);

        // Using methods to modify the Pokemon
        pikachu.levelUp(); // Level up the Pokemon
        pikachu.changeNick("Thunder"); // Change the nickname

        // Displaying the modified state of the Pokemon
        System.out.println("\nModified Pokemon Details:");
        System.out.println("Species: " + pikachu.species);
        System.out.println("Nickname: " + pikachu.getNick()); // Using getNick method
        System.out.println("Type: " + pikachu.type);
        System.out.println("Level: " + pikachu.getLevel()); // Using getLevel method
    }
}
```

7. References
[If any external resources or references were used, list them here.]