Assignment 2 - Part 2 - COMP2152

Part 2 - Explain your Code (50%)

Write the answers in the doc provided and save and submit Part 2 as a PDF. You do not have to write or submit any new code for this section. I want you to understand how you could work on a piece of code that already exists (as is the case when working with Open Source code), and how to improve it. You can **type** in your answers *or* complete it **by hand** (handwriting MUST be legible) and then scan your submission.

1. **How have we used classes for our project to reuse code?**
   Answer: We used inheritance between classes to reuse code, because if both Heroes and Monsters are characters, they have the same properties, that are combat strength and health points, that are accessed by getters and setters. This way we do not need to write the same attributes and methods for each of them, but they keep having relevant particular and specific attributes for the game.

2. **Provide 1 line of code, as one of many examples, where code is shared between the monster class and the hero class?**
   Answer: The line 6 of hero.py and monster.py classes:
   super().__init__(random.randint(1, 6) * 10, random.randint(1, 6) * 20)

3. **What is the benefit of using complex getters and setters?**
   Answer: Using them we can enhance the encapsulation, once we control the access to these classes properties. Another good part about using complex getters and setters is that it makes easier to validate data and maintain integrity, that is, if we need to change codes, they can help being changed without impacting external code dependencies.

4. **If we didn't use try-except blocks, what would be the problem?**
   Answer: If they were not in the code, any unexpected error on runtime, like user input or file access would drive us to application crash, limiting user experience, making it more challenging for the user to figure out how to use the application. Every code has to have try-except blocks to ensure that the code runs smoothly.

5. **How could we use the name of the operating system or the version of python in your game to prevent errors? Choose just 1 of the above.**
   Answer: Explaining about the python version in the game, it is important to ensure that the code runs only on python version that are compatible with its codebase. It helps to prevent error related to syntax or runtime errors due to incompatibilities about the use of functions that suffered changes between versions.

6. **What's another piece of information we could save inside of the save.txt file? (Remember, we load this information every time we start a new game, so that we can keep track of all the games you have played so far.)**
   Answer: While testing the game, I noticed that as a player that I had to start every game with no items, that is, with an empty inventory. So, a good feature to add to the save.txt would be the last player's inventory of each session. This way hero could continue with the resources, tools, or weapons he had when they last played.

7. **New Feature:**
    a. **Think of 1 new feature you can add to the game that could use list comprehension and nested conditional statements. For now, just write 1 sentence that describes the feature:**

    Loot system that player can chose one of the 2 items.

    Now add your new feature description here:

    My idea is to a feature where, at certain points in the game, players can choose one item from two options. The items available for selection are determined by what the player has done in the game so far, what they currently need, and their achievements.

Examples:

Below are the examples to show you that you can be very creative, and you should have fun with this exercise. You must use an idea that is NOT directly on the list below:

eg a) Add another monster so that the hero can fight 2 monsters at once

eg b) Create a digital board game, that shows the hero moving around to different towns on a map

eg c) Add a dog that runs in front of the hero and discovers features about the world

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    b. **Give the new feature you created a short 2-3 -word a title:**

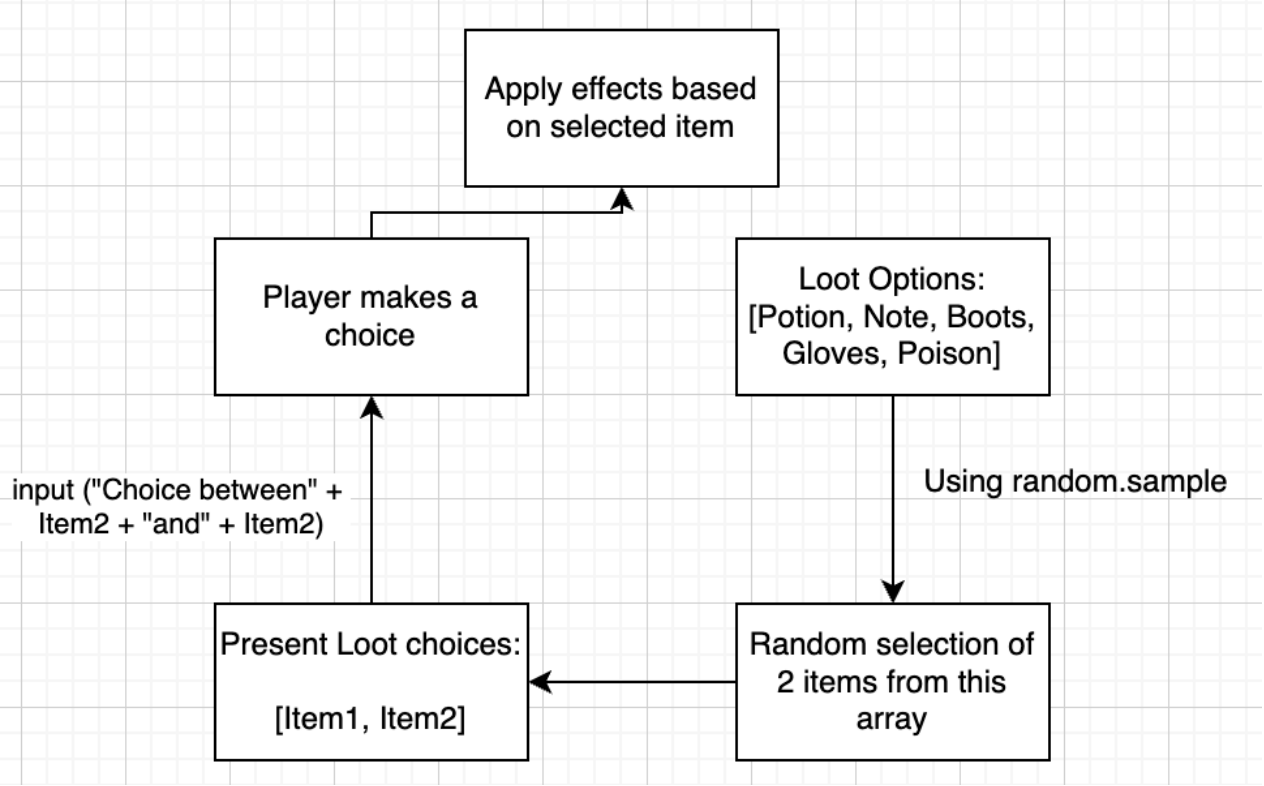
    Now write your Title here:

    Choice Loot System

Examples:
eg a) Multiple Monsters
eg b) Roam Towns
eg c) Dog Scout

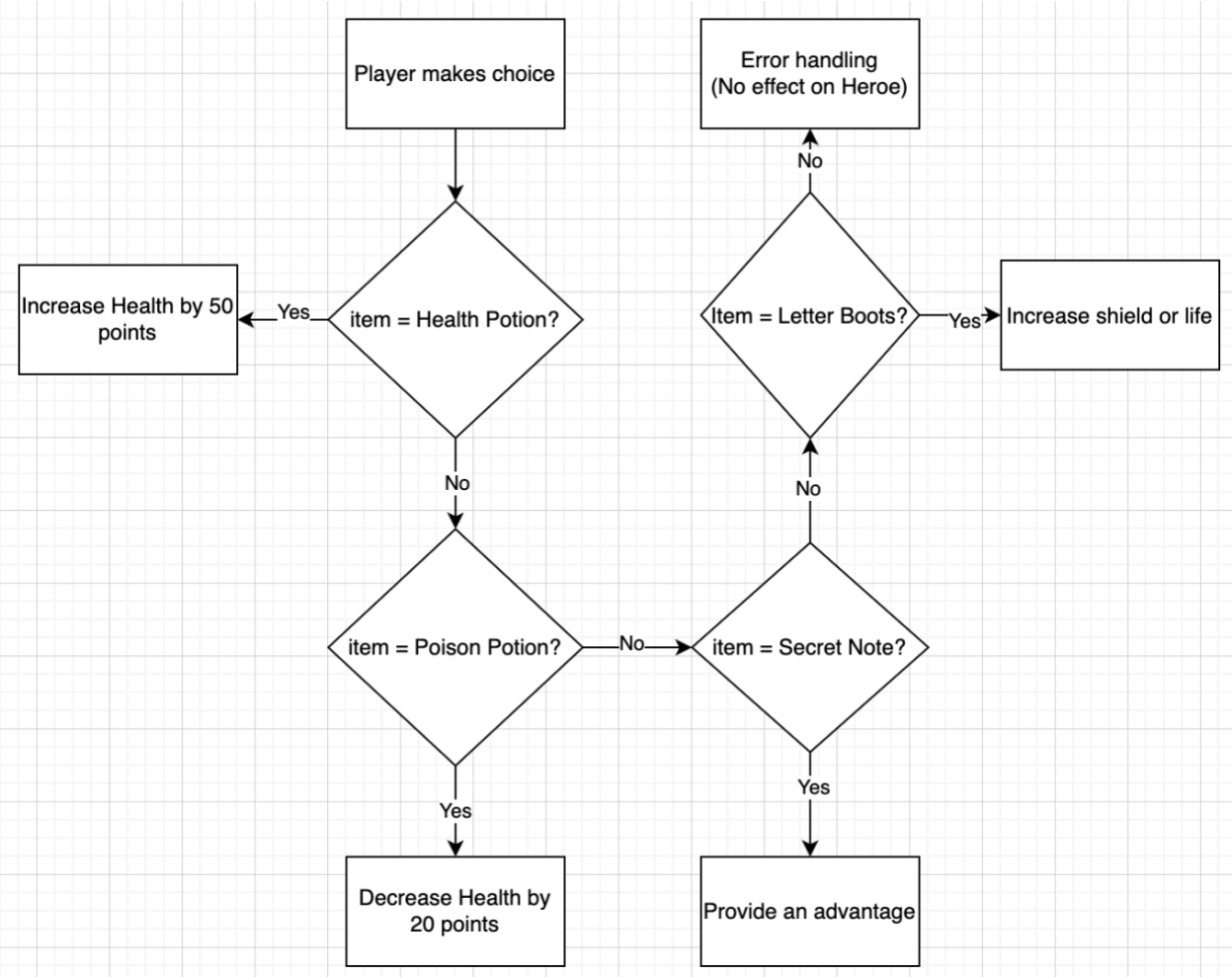
c. **Explain how you could implement the idea you chose. You must explain how you would use both of the control structures below. Draw a diagram, map, and sketch for each (you can use any software for this, e.g. Draw.io). You don't have to match the style of diagram that I have here, just use a visual to describe your idea. Note, you must have loops and conditional statements diagrammed below as needed:**

Using a list comprehension loop:
A list comprehension can be used to randomly select two items from the available loot options, ensuring that the player has a choice between distinct items based on their current needs or game strategy.



i. **Using nested conditional statements**

Nested conditional statements will determine the effects of the selected item on the player's attributes such as health, agility, or defensive stats. Occurring after presenting the two loot options to the player and receiving the choice.



Example:

eg b) Roam Towns

i. **Using a list comprehension loop**
Every time in the loop, move one square in 1 direction, (N, E, S, W). Have a variable that keeps track of the Hero's location by saving values of the board. We can have 2 nested for loops and store the map as a 2D array.

Eg.
Hero location is currently at Row 3, Column D.
Town 2 location is at Row 4, Column G.
Town 1 location is at Row 1, Column A .

Diagram:

	A	B	C	D	E	F	G	H	I
1	(town1_loc)								
2									
3				(player_loc)					
4								(town2_loc)	

ii. **Using a nested Conditional Statement**
If the hero is in Town 2, **then** allow the hero to buy armor but not sell. Otherwise, the hero can sell armor but cannot buy.

Create an array of armor options available in Town 2. He could also trade some of his loot based on the value of the loot he has.