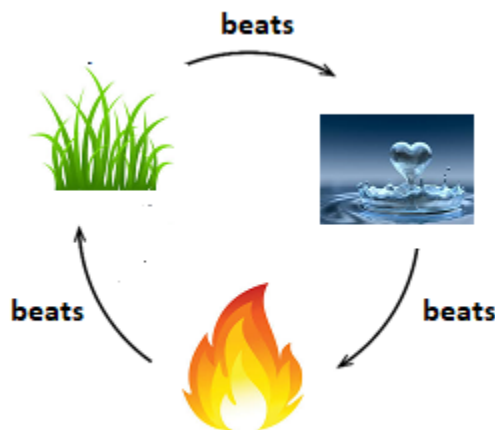


**Assignment (35%)**

**(Total = 100 marks)**

**Part I (70%)**

You are to design and create a **Monster Battle** game to be played between a player and the computer. The player and the computer will each choose **fire**, **water** or **grass Monster**. It has 3 possible outcomes: a draw if both player and computer choose the same Monster, a win for player if the Monster he chooses is stronger or a loss if it is weaker. The diagram below shows the win-loss relationship between the Monsters.



Each game consists of 3 rounds, and the requirements of the game are as follow:

- The game starts with 10 points for each player. The player can choose to use a minimum of 1 point or up to the amount of points that he has. For example, if the player is left with 2 points, he cannot use 3 points to play the next game. Otherwise, the program displays "You do not have enough points!".
- For each round of the game, the player will enter **0** for fire monster, **1** for grass monster or **2** for water monster. If he enters an invalid option, he will lose that round automatically.
- At the end of the 3 rounds, the outcome of the game must be displayed. If the player wins the game, he will be awarded the points he used to play, but if he loses, the same amount of points will be deducted. If the game ends with a draw, the points remain unchanged. The game will stop if the player has no more points left, or when he enters -1 to quit.

The output of a game must at least cover the following scenarios:

- You do not have enough points.
- Tie! Your points remain unchanged.
- You won the game with X points added.
- You lost the game with X points deducted.
- You entered an invalid option, you lost!
- You have no more points, end of game!

**Sample Output:**


```
You have 10 points.
Enter the number of points to be used for next game: 15
You do not have enough points.

You have 10 points.
Enter the number of points to be used for next game: 5
Enter 0(fire), 1(grass) or 2(water): 2
You are water and computer is grass, you lost!
Enter 0(fire), 1(grass) or 2(water): 2
You are water and computer is fire, you won!
Enter 0(fire), 1(grass) or 2(water): 2
You are water and computer is fire, you won!
You have 2 win, 1 loss and 0 draw
You won the game with 5 points added.

You have 15 points.
Enter the number of points to be used for next game: 15
Enter 0(fire), 1(grass) or 2(water): 1
You are grass and computer is fire, you lost!
Enter 0(fire), 1(grass) or 2(water): 1
draw!
Enter 0(fire), 1(grass) or 2(water): 10
You entered an invalid option, you lost!
You have 0 win, 2 loss and 1 draw
You lost the game with 15 points deducted.

You have no more points. End of game!
```

- a) Design the program to play the one round of a game with the computer. (30 marks)

- Draw the flowchart. 
- Write the code. Name the Python file as AsgnPla.

**Sample Output:**

```
Enter 0(fire), 1(grass) or 2(water): 2
You are water and computer is fire, you won!

Enter 0(fire), 1(grass) or 2(water): 10
You entered an invalid option, you lost!
```

- b) Modify the **flowchart** and create a new Python File `AsgnP1b`. Copy the codes from `AsgnP1a` to `AsgnP1b`. Modify `AsgnP1b` to play 3 rounds of a game with the computer.



(25 marks)

Sample Output:

```
Enter 0 (fire), 1 (grass) or 2 (water): 1
You are grass and computer is water, you won!
Enter 0 (fire), 1 (grass) or 2 (water): 1
You are grass and computer is fire, you lost!
Enter 0 (fire), 1 (grass) or 2 (water): 1
draw!
You have 1 win, 1 loss and 1 draw
Tie!

Enter 0 (fire), 1 (grass) or 2 (water): 2
You are water and computer is grass, you lost!
Enter 0 (fire), 1 (grass) or 2 (water): 2
You are water and computer is fire, you won!
Enter 0 (fire), 1 (grass) or 2 (water): 2
You are water and computer is fire, you won!
You have 2 win, 1 loss and 0 draw
You won the game.
```

- c) Create a new Python File `AsgnP1c`. Copy the codes from `AsgnP1b` to `AsgnP1c`. Modify `AsgnP1c` to fulfil all the requirements stated in the question.



(15 marks)

## **Part 2 (30%)**



Include the following additional features to enhance the playability of the game:

- Add in a “void” feature to allow player to void the current round of play. This feature can only be used for one round of play.  
(10 marks)
- Ensure that all necessary validation and checks are in place so that the program will not terminate abnormally.  
(10 marks)
- Include a leader board feature to display the top 10 players that has the longest winning streak. No sample output for this feature.  
(10 marks)

## Sample Outputs

```
You have 10 points and 1 void chance
Enter the number of points to be used for next game: 5
Enter 0(fire), 1(grass) or 2(water) or V (Void): 2
draw!
Enter 0(fire), 1(grass) or 2(water) or V (Void): 2
You are water and computer is grass, you lost!
Enter 0(fire), 1(grass) or 2(water) or V (Void): 2
You are water and computer is fire, you won!
You have 1 win, 1 loss and 1 draw
Tie! Your points remain unchanged.

You have 10 points and 1 void chance
Enter the number of points to be used for next game: 4
Enter 0(fire), 1(grass) or 2(water) or V (Void): 0
You are fire and computer is grass, you won!
Enter 0(fire), 1(grass) or 2(water) or V (Void): 2
You are water and computer is grass, you lost!
Enter 0(fire), 1(grass) or 2(water) or V (Void): 2
You are water and computer is fire, you won!
You have 2 win, 1 loss and 0 draw
You won the game with 4 points added.

You have 14 points and 1 void chance
Enter the number of points to be used for next game: 5
Enter 0(fire), 1(grass) or 2(water) or V (Void): 10
You entered an invalid option, you lost!
Enter 0(fire), 1(grass) or 2(water) or V (Void): V
Your game is void.

You have 14 points and 0 void chance
Enter the number of points to be used for next game: 14
Enter 0(fire), 1(grass) or 2(water): 0
You are fire and computer is water, you lost!
Enter 0(fire), 1(grass) or 2(water): 0
You are fire and computer is water, you lost!
Enter 0(fire), 1(grass) or 2(water): 2
You are water and computer is fire, you won!
You have 1 win, 2 loss and 0 draw
You lost the game with 14 points deducted.

You have no more points. End of game!
```

*~ End ~*