Python & GIT Basics Assignment

1. Create two vectors y and $\hat{y}$ having **the same** dimensions, where $\hat{y}$ should consist of random numbers between [0,1) and y should contain 0s and 1s, for example, y=[0,1,1,0,1,0,0,1,...,1]. Compute the given expression:

$$O = -\frac{1}{n}\sum_{i=1}^{n}[y_i \log_2(\hat{y}_i) + (1 - y_i)\log_2(1 - \hat{y}_i)]$$

   Where n = 100, is the total number of elements in y and $\hat{y}$

Note: The expression *O*, which you have computed is actually a **Cross-Entropy** loss function used in machine learning for classification tasks which tells us how bad or good the model is performing, if *O* is large then the model is performing worst and vice versa.

2. Write a Python class to find a pair of elements (indices of the two numbers) from a given array whose sum equals a specific target number.
   Note: There will be multiple solutions, so create a dictionary where the keys represent just S.No(1,2,3,4…..) and the value corresponding to the key represents the indices of the two numbers
   For example: Input: numbers= [10,20,10,40,50,60,70], target=50
   Output: {1: [0, 3], 2: [2, 3], 3: [3, 0], 4: [3, 2]}

3. You are required to create an account on GitHub, then
   - Fork this Github repository
   - Create a folder named "Name_Rollno" in which you have all the contents of whatever submission you wanna make(solutions to question 1 and 2)
   - Upload the folder onto the forked repository
   - Create a pull request
     The solutions for the assignment will be shared with you guys the day before the next session.

For any doubts regarding the assignment, we have opened a discussion forum in the GitHub Repository. You can ask your doubts in the forum :)

All the best for the assignment👍