Problem 1

Given two points represented as x1,y1,x2,y2 .
Return the (float) distance between them considering the following distance equation.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Hint
math.sqrt() could be a useful function.

Problem 2

Given a list of numbers, create a function that returns a list where all similar elements have been reduced to a single element.

So [1, 2, 2, 3, 2] returns [1, 2, 3].

Problem 3

Consider dividing a string into two halves.
Case 1:
The length is even, the front and back halves are the same length.

Case 2:
The length is odd, we'll say that the extra char goes in the front half.
e.g. 'abcde', the front half is 'abc', the back half 'de'.
Given 2 strings, a and b, return a string of the form :

(a-front + b-front) + (a-back + b-back)

Problem 4

The program takes a command line argument. This argument is the name of a text file. The program reads all the text, split them and calculate the 20 Most used words in the file and then write them to a file called "popular_words.txt".
Implementation hint:
my_str.split() #returns a List of my_str content by default separated by space.
We can change the delimiter by passing it to split method
Example:
my_str.split(',') #split by comma.

Problem 5

The program takes a string and remove the vowels character from it then print its new version

Implementation hint:

So, “Mobile” becomes “Mbl”

Problem 6

The program takes a string and a character and returns a list with all the locations that character was found in the given string.

Implementation hint:

String “Google” char ‘o’

Outoupt: [1,2]

Bonus

Your game generates a random number and give only 10 tries for the user to guess that number.

Get the user input and compare it with the random number.

Display a hint message to the user in case the user number is smaller or bigger than the random number.

If the user typed a number out of range(100), display a message that is not allowed and don’t count this as a try.

if the user typed a number that has been entered before, display a hint message and don’t count this as a try also.

In case the user entered a correct number within the 10 tries, display a congratulations message and let your

application guess another random number with the remain number of tries.

If the user finished his all tries, display a message to ask him if he want to play a gain or not.

Next time the user open the game , he receives a welcome message tells him the number of games he played, how

many times he won and how many he lost.

Report

1- Python function enumerate()

Show what it does, how it works, and support your answer with an example.

2- Lambda expression

#Anonymous function

3- Import operator module and explore its functions