Some Questions

General loops and conditionals

- Write a program that asks the user for a number n and prints the sum of the numbers 1 to n such that only multiples of three or five are considered in the sum, e.g. 3, 5, 6, 9, 10, 12, 15 for n=17.
- Write a program that asks the user for a number n and gives them the possibility to choose between computing the sum and computing the product of 1,…,n.
- Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 2000 and 3200 (both included).
- Write a program that prints *all* prime numbers till n. (n is the user input).
- Write a program which can compute the factorial of a given numbers.
- Write a program for printing fibonacci series till n.
- Write a program to find factors of a number.
- Write a program that computes the value of a+aa+aaa+aaaa with a given digit as the value of a. Suppose the following input is supplied to the program: 9, Then, the output should be: 11106.
- Write a program which repeatedly reads numbers until the user enters "stop". Once "stop" is entered, print out the total, count, and average of the numbers. If the user enters anything other than a number then also stop.
- A robot moves in a plane starting from the original point (0,0). The robot can move toward UP, DOWN, LEFT and RIGHT with a given steps. The trace of robot movement is shown as the following:
  UP 5
  DOWN 3
  LEFT 3
  RIGHT 2
  The numbers after the direction are steps. Please write a program to compute the distance from current position after a sequence of movement and original point. If the distance is a float, then just print the nearest integer.
  If above given as input to the program:
  Then, the output of the program should be: 2

Strings and lists:

- Find the length of a string using loops (not len()).
- Write a program that accepts a sentence and calculate the number of letters and digits.
- Write a program that accepts a sentence and calculate the number of upper case letters and lower case letters.
- Swap cases in a string using loops.
- Write a program that counts the occurrence of a character in a string.
- Output the integer number indicating the total number of occurrences of the substring in the original string.
- Check if there are K consecutive 1's in a binary number.
- Reverse a string.
- Find the only one non repeated number in a string (rest all have pairs).
- Given five positive integers, find the minimum and maximum values that can be calculated by summing exactly four of the five integers.

- https://www.hackerrank.com/challenges/picking-numbers/problem
- A website requires the users to input username and password to register. Write a program to check the validity of password input by users.
  Following are the criteria for checking the password:
- 1. At least 1 letter between [a-z]
- 2. At least 1 number between [0-9]
- 3. At least 1 letter between [A-Z]
- 4. At least 1 character from [$#@]
- 5. Minimum length of transaction password: 6
- 6. Maximum length of transaction password: 12
- Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.
- Given the participants' score sheet for your University Sports Day, you are required to find the runner-up score. You are given n scores. Store them in a list and find the score of the runner-up.
- https://www.hackerrank.com/challenges/text-wrap/problem
- https://www.hackerrank.com/challenges/palindrome-index/problem
- https://www.hackerrank.com/challenges/find-digits/problem
- https://www.hackerrank.com/challenges/staircase/problem
- https://www.hackerrank.com/challenges/find-second-maximum-number-in-a-list/problem

Functions , ds and modules:
- Define a function which can generate a list where the values are square of numbers between 1 and 20 (both included). Then the function needs to print all values except the first 5 elements in the list.
- Write a program to sort a list of tuples (name, age, height). print the sorted tuple on name , age and height.
- Define a function which can print a dictionary where the keys are numbers between 1 and 3 (both included) and the values are square of keys.
- Write a program which can filter even numbers in a list by using filter function.
- Write a program which can find in a list all the elements which are square of an even number.
- Write a program for matrix (list of lists) addition using list comprehensions.
- Write up a module of area of different 2d, 3d surfaces like circle, square, rectangle, cube, cuboid, cylinder, sphere.
- Make an unbaised coin simulator.
- Make a biased coin simulator with 60% head and 40% tails.

Files, module and classes:
- Write a python script that counts the number of image files in a directory. Take directory name as an input and print the count.
- Write a program to read the contents of a textfile.
- Write a program to append a message in a text file.
- Write a program that takes text file as an input and count the number of words in the file.
- Write a program that truncates a file and then writes a custom message entered by a user to a text file.
- Implement exception handling wherever required in all the previous questions.
- Write a program to make a class for car. Use the desired attributes to model a car.
- Implement single inheritance.