

Python Practical Questions.

i. Write a program to print all Armstrong numbers in a given range. Note: An Armstrong number is a number whose sum of cubes of digits is equal to the number itself. E.g.
 $370 = 3^3 + 7^3 + 0^3$

ii. Write a function to obtain sum n terms of the following series for any positive integer value of X
 $X + X^3/3! + X^5/5! + X^7/7! + \dots$

iii. Write a function to obtain sum n terms of the following series for any positive integer value of X
 $1 + x/1! + x^2/2! + x^3/3! + \dots$

iv. Write a program to multiply two numbers by repeated addition e.g.
 $6 * 7 = 6 + 6 + 6 + 6 + 6 + 6 + 6$

v. Write a program to compute the wages of a daily laborer as per the following rules :-
Hours Worked Rate Applicable Upto first 8 hrs Rs100/-

- a) For next 4 hrs Rs30/- per hr extra
- b) For next 4 hrs Rs40/- per hr extra
- c) For next 4 hrs Rs50/- per hr extra
- d) For rest Rs60/- per hr extra

vi. Accept the name of the labourer and no. of hours worked. Calculate and display the wages. The program should run for N number of labourers as specified by the user.

Vii. Write a function that takes a string as parameter and returns a string with every successive repetitive character replaced by '?'. e.g. school may become scho?l.

Viii. Write a program that takes in a sentence as input and displays the number of words, number of capital letters, no. of small letters and number of special symbols.

ix. Write a Python program that takes list of numbers as input from the user and produces a cumulative list where each element in the list at any position n is sum of all elements at positions upto n-1.

x. Write a program which takes list of numbers as input and finds:

- a) The largest number in the list
- b) The smallest number in the list
- c) Product of all the items in the list

xi. Write a Python function that takes two lists and returns True if they have at least one common item.

xii. Write a Python program to combine two dictionary adding values for common keys.

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d1 = {'a': 100, 'b': 200, 'c': 300}
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d2 = {'a': 300, 'b': 200, 'd': 400}
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Sample output: Counter({'a': 400, 'b': 400, 'd': 400, 'c': 300})

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xiii. Write a program that takes sentence as input from the user and computes the frequency of each letter. Use a variable of dictionary type to maintain and show the frequency of each letter.

xiv. Apply recursive call to do the following:

- a) Product of two numbers using repetitive addition
- b) Print Fibonacci series upto term n

xv. Write a program to input two numbers as input and compute the greatest common divisor

xvi. Write a function that takes two filenames f1 and f2 as input. The function should read the contents of f1 line by line and write them onto f2.

xvii. Write a function that reads the contents of the file f3.txt and counts the number of alphabets, blank spaces, lowercase letters, number of words starting with a vowel and number of occurrences of a word "hello".

xviii. Write a program to replace 'a' with 'b', 'b' with 'c', ..., 'z' with 'a' and similarly for 'A' with 'B', 'B' with 'C', ..., 'Z' with 'A' in a file. The other characters should remain unchanged.

xix. Write a NumPy program to find the most frequent value in an array.