

Python

Programming Assignments



Assignment 1 :

A number is called an Armstrong number if the sum of the cubes of the digits of the number is equal to the number. For example $153 = 1^3 + 5^3 + 3^3$. Write a Python Code that asks the user to enter a number and returns if it is Armstrong or not.

Assignment 2 :

Write a Python Code that calculates the HCF and LCM of two numbers.

Assignment 3 :

Write a Python Code to display and find the sum of the series $1+11+111+1111$ upto n. For eg. If $n=4$, the series is : $1+11+111+1111$. Take the value of 'n' as input from the user.

Assignment 4 :

Amicable numbers are found in pairs. A given pair of numbers is Amicable if the sum of the proper divisors (not including itself) of one number is equal to the other number and vice – versa. For example 220 & 284 are amicable numbers

First we find the proper divisors of 220:

220:1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110

$1 + 2 + 4 + 5 + 10 + 11 + 20 + 22 + 44 + 55 + 110 = 284$

Now, 284: 1, 2, 4, 71, 142

$1 + 2 + 4 + 71 + 142 = 220$

Write a Python Code to check that the input pair of numbers is amicable.

Assignment 5 :

Write a Python Code for the following problem:

Given a positive integer n, print the binary representation of n.

Assignment 6 :

A triangular number is one which can be represented by that number of pebbles in a symmetric triangle. The first five triangular numbers are 1, 3, 6, 10 and 15. Write a Python Code to test if a number 'n' is triangular or not. It should display TRUE if it is triangular and FALSE if not.

$T_1=1$ $T_2=3$ $T_3=6$ $T_4=10$ $T_5=15$

Assignment 7 :

Write a Python Code to find the reverse of an integer number.

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Assignment 8 :

Write a Python Code to input n numbers in a Lists, calculate the sum of all even numbers and all odd numbers in the List and print the larger sum.

Example:

If the array contains the following elements:

2, 3, 3, 5, 4, 8, 7, 11, 2

The sum of all even elements is $2+4+8+2=16$ Sum of all odd elements is $3+3+5+7+11=29$ Therefore, the output should be 29.

Assignment 9:

Write a Python Code to calculate the volume of the following shapes: Cube, Cuboid, Sphere, Cylinder and Cone. Ask the user which one s/he wants to calculate, and take the appropriate required inputs. Then print the result. The input should be taken in the main function and calculations for every solid should be done in a separate function by passing appropriate arguments.

Example:

If the user chooses the option for cube, only one input is required i.e., the side. The volume is then calculated and printed. If the user chooses the option for cuboid, only three inputs are required i.e., length, breadth and height. The volume is then calculated and printed

Assignment 10:

Write a Python Code to check if a number has three consecutive 5s. If yes, print YES, else print NO.

Example:

Number: 1353554 Result: NO

Number: 345559 Result: YES

Assignment 11:

Write a Python Code to accept 10 values in an integer array. Display the number of odd, even, and negative numbers.

Assignment 12:

Write a Python Code to accept the basic salary of an employee from the user. Calculate the gross salary on the following basis:

Basic	HRA	DA
1 - 4000	10%	50%
4001 - 8000	20%	60%
8001 - 12000	25%	70%
12000 and above	30%	80%

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Assignment 13:

Write a Python Code to convert degrees Fahrenheit to degrees Celsius. (The conversion formula is $^{\circ}\text{C} = 5/9 * (^{\circ}\text{F} - 32)$.) Use it to print a Fahrenheit-to-Centigrade table for -40 to 220 degrees Fahrenheit, in increments of 10 degrees. (Remember that the integer expression 5/9 gives 0, so you won't want to use integer division.)

Assignment 14:

An Electricity board charges the following rates for use of electricity.

- For the First 200 units : Rs 1 per unit.
- For the next 100 units : Rs 1.5 per unit
- Beyond 300 units : Rs 2 Per unit.

Write a Python Code to read no of unit consumed and print out total charge amount.

Assignment 15:

Write a Python Code, which will print two digit numbers whose sum of both digit is multiple of seven. e.g. 16,25,34.....

Assignment 16:

Write a Python Code, That reads list of n integer and print sum of product of consecutive numbers.

if n=7 and numbers are 4,5,2,5,6,4,7

then output is $4*5+5*2+2*5+5*6+6*4+4*7 = 122$.

Assignment 17:

Write a Python Code to take a list of n elements from the user. Store it in an List. Reverse the list.

Assignment 18:

Write a Python Code that take 2 integer sets A[] and b[] as input and prints results of following set operations:

- A union B (Write function set_union())
- A intersection B (Write function set_intersection())
- A-B and B-A (Write function set_difference())

Assignment 19:

Write a Python Code to check whether a given string is palindrome or not.

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Assignment 20:

Input size and values in two arrays A and B, of max size 100. Then, compute $A[i]+B[i]$ and store in Python List . And compute $A[i]*B[i]$ and store in array D.

Assignment 21:

Compute taxes for a given income with tax slab rates as follows...

- slab 1... 0-2500: 0%
- slab 2... 2500-5000: 10%
- slab 3... 5000-10000: 20%
- slab 4... 10000+: 30%

(for each range of a given income, the tax rate is different)

e.g. input: $x = 5200$

divisions are 0-2500, 2500-5000, 5000-5200

calculation:

0-2500 of x :

0% of 2500 = 0

2500-5000 of x :

10% of 2500 = 250

5000-1000 of x :

20% of 200 = 40

output: 290

Assignment 22:

Input date, month and year from the user, and using if elif else..., display in worded format. e.g.

input: $d=16, m=7, y=1992$

output: 16th July, 1992