

Singapore

**Computer Science-083**

**CBSE Class - XI**

**Academic Year 2022-2023**

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Teacher in charge

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1. **Write a Program to calculate simple interest and compound interest.**

p = float(input("Enter principal amount: "))

r = float(input("Enter the interest rate: "))

t = float(input("enter time period in years: "))

SI = (p\*r\*t)/100

CI = (p\*(1+r/100)\*\*(t))



print("Simple interest = ",SI)

print("Compound interest = ",CI)

**Output:**

Text

Description automatically generated

1. **WAP to swap two variables using a third variable.**

a = int(input("Enter the first number: "))

b = int(input("Enter the second number: "))

print("At first the numbers are ", a, b)

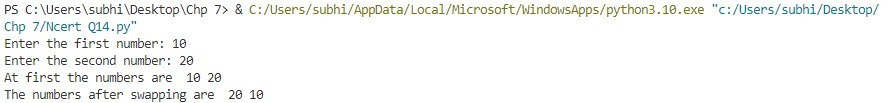
c = a

a = b

b = c

print("The numbers after swapping are ", a,b )

**Output:**



1. **WAP to calculate the volume of the cylinder (πr2h) whose height is 15cm and radius is 8 cm.**

import math

rad = float(input("Enter the radius: "))

height = float(input("Enter the height: "))

print("The radius and height given is",rad,"and",height)

vol = math.pi\*math.pow(rad,2)\*height

print("The volume is",vol)

**Output:**



1. **Write a program to input the radius of a sphere and calculate its volume.**

import math

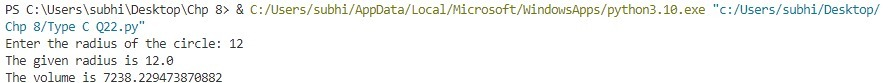
radius = float(input("Enter the radius of the circle: "))

print("The given radius is",radius)

volume = 4/3\*math.pi\*math.pow(radius,3)

print("The volume is",volume)

**Output:**



1. **Write a program to generate 6 random secure OTP between 100000 and 999999.**

import random

otp = random.randint(100001,999999)

print(otp)

**Output:**



1. **WAP that asks a user for a number of years, and then prints out the number of days, hours, minutes and seconds in that number of years.**

years = int(input("How many years? "))

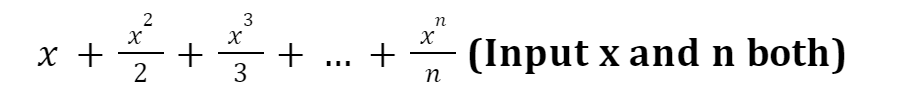
print(f"{years} years is: \n {years \* 365} days \n {years \* 365\*24} hours \n {years \* 365\*24\*60} minutes \n {years \* 365\*24\*60\*60} minutes")

**Output:**

Text

Description automatically generated

1. **Write a python to find the sum of the following series:**



x = int(input("enter x: "))

n = int(input("enter n: "))

sum = 0

for k in range(1,n+1):

sum = sum+ (x\*\*k)/k

print(sum)

**Output:**



1. **Write a program to reverse (3-digit) number.**

num = input("Enter the number to be reversed: ")

print(f"The number given is {num}")

a = num[0]

b = num[1]

c = num[2]

print(f"The reversed number is {c}{b}{a}")

**Output:**



1. **Write a program to print first *n* odd numbers in descending order.**

n = int(input("Enter n: "))

print("The first",n,"odd numbers in descending order is")

for a in range((n\*2)-1,0,-1):

if(a%2 != 0):

print(a,end = ' ')

**Output:**



1. **A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and print out whether it is a leap year or not.**

year= int(input("Enter the year: "))

print("The given year is",year)

if year%4 == 0 and year % 100 !=0 :

print("This is a leap year")

elif year%100 == 0:

if year%400 == 0:

print("This is a leap year")

else:

print("This is not a leap year")

else:

print("This is not a leap year")

**Output:**

Text, letter

Description automatically generated

Letter

Description automatically generated

1. **WAP to print the following pattern:**

**A**

**A B**

**A B C**

**A B C D**

**A B C D E**

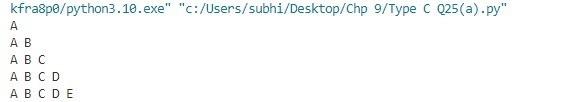
for x in range(1,6):

for i in range(0,x):

print(chr(65+i), end = ' ')

print()

**Output:**



1. **WAP to print the following pattern:**

**Chart, scatter chart

Description automatically generated**

for row in range(5):

    for col in range(5):

        if row+col ==2 or col-row == 2 or row-col == 2 or row+col == 6:

            print("\*",end = '')

        else:

            print(" ",end = '')

    print()

**Output:**



1. **WAP to print the following pattern:**

**Chart, scatter chart

Description automatically generated**

for row in range(7):

    for col in range(4):

        if col == 0 or row == col or row+col == 6:

            print(" \*",end = '')

        else:

            print(' ',end = "")

    print()

**Output:**

Text

Description automatically generated with low confidence

1. **Write a program that should do the following:**

**1)Prompt the user for a string**

**2)Extract all the digits from the string**

**3)If there are digits: Sum the collected digits together**

**Print out:**

1. **The original string**
2. **The digits**
3. **The sum of digits**

**4)If there are no digits:**

**Print the original string and a message “has no digits”.**

string =  input("Enter the string: ")

sum = 0

for i in range(len(string)):

    if string[i].isdigit()== True:

        print(string[i])

        sum+=float(string[i])

if sum==0:

    print(string,"has no digits")

else:

    print("The sum of the digits is",sum)

**Output:**

Text, letter

Description automatically generated

1. **WAP that does the following:**
2. **Takes two inputs: the first integer and the second string**
3. **From the input string extract all the digits, in the order they occurred in the string.**

**If no digits occur, set the extracted digits to 0.**

1. **Add the integer input and the digits extracted from the string together as integers.**
2. **Print a statement like:**

**“Integer\_Input + string\_digits = Sum”**

string =  input("Enter the string: ")

num = int(input("Enter the integer: "))

sum = 0

ch = ''

for i in range(len(string)):

    if string[i].isdigit()== True:

        sum+=float(string[i])

        ch+=string[i]

if ch=='':

    integer = 0

    print(num,"+",integer,"=",num+integer)

else:

    integer = int(ch)

    print(num,"+",integer,"=",num+integer)

**Output:**

Text

Description automatically generated

1. **WAP that takes two strings from the user and displays the smaller string line and larger string line as per this format:**

**1st letter last letter**

**2nd letter 2nd letter**

**3rd letter 3rd last letter**

str\_1 = input("Enter the first string: ")

str\_2 = input("Enter the second string: ")

larger\_string = ''

smaller\_string = ''

if len(str\_1)>len(str\_2):

larger\_string = str\_1

smaller\_string = str\_2

else:

larger\_string = str\_2

smaller\_string = str\_1

print(smaller\_string)

for i in range(len(larger\_string)//2):

print(' '\*i+larger\_string[i]+' ' \* (len(larger\_string) - 4\* i+3)+larger\_string[len(larger\_string) - i - 1])

**Output:**

A picture containing text

Description automatically generated

1. **WAP that reads a line and a substring. It should then display the number of occurrences of the given substring in the line.**

line = input("Enter the line: ")

sub = input("Enter the substring: ")

print(line.count(sub))

**Output:**

Text

Description automatically generated

1. **Write a program to convert a given number into equivalent Roman number (store its value as a string). You can use following guidelines to develop solution for it:**
2. **From the given number, pick successive digits, using %10 and /10 to gather the digits from right to left.**
3. **The rules for Roman Numerals involve using four pairs of symbols for ones and five, tens and fifties, hundreds and five hundreds. An additional symbol for thousands covers all the relevant bases.**
4. **When a number is followed by the same or smaller number, it means addition. "II" is two 1's = 2. "VI" is 5 + 1 = 6.**
5. **When one number is followed by a larger number, it means subtraction. "IX" is 1 before 10 = 9. "IIX isn't allowed, this would be "VIII". For numbers from 1 to 9, the symbols are "I" and "V", and the coding works like this. "I" , "II", "III", "IV", "V", "VI", "VII", "VIII", "IX".**
6. **The same rules work for numbers from 10 to 90, using "X" and "L". For numbers from 100 to 900, using the symbols "C" and "D". For numbers between 1000 and 4000, using "M".**

n = int(input("Enter the number: "))

num = (1000, 900, 500, 400, 100, 90, 50, 40, 10, 9, 5, 4, 1)

rom = ('M', 'CM', 'D', 'CD','C', 'XC','L','XL','X','IX','V','IV','I')

roman = ''

for i in range(len(num)) :

count = int(n / num[i])

roman += str(rom[i] \* count)

n -= num[i] \* count

print("Roman number =",roman)

**Output:**



1. **WAP to read a line and prints its statistics like:**
2. **No. of Lowercase Letters**
3. **No. of Symbols**
4. **No. of Digits**
5. **No. of Alphabets**

line = input("Enter the line: ")

lower = 0

digit = 0

alpha = 0

sym = 0

for i in range(len(line)):

    if line[i].islower() == True:

        lower+=1

    if line[i].isdigit() == True:

        digit+=1

    if line[i].isalpha() == True:

        alpha+=1

    if not line[i].isalnum() and not line[i].isspace():

        sym+=1

print("No. of Lowercase Letters =",lower)

print("No. of Symbols =",sym)

print("No. of Digits =",digit)

print("No. of Alphabets =",alpha)

**Output:**

Text

Description automatically generated

1. **WAP that reads an integer and check whether it is palindrome or not.**

n = input("Enter the numbers: ")

num = int👎

dup = num

rev\_no = 0

while dup>0:

rem = dup%10

rev\_no = (rev\_no\*10)+rem

dup = dup//10

if num == rev\_no:

print("It is a palindrome!")

else:

print("It is not a palindrome!")

**Output:**

Text, letter

Description automatically generated

1. **Input a list of strings. Create a new list that consists of those strings with their first characters removed.**

lst = eval(input("Enter a list of string: "))

print("The given list is",lst)

for i in range(len(lst)):

lst[i] = lst[i][1:]

print("The list with the first characters removed is",lst)

**Output:**



1. **Write a program that reads the *n* to display *nth* term of Fibonacci series.**

series = [0,1]

n = int(input("Enter n(0 to 20): "))

for i in range(n-1):

series.append(series[i]+series[i+1])

print(series)

value = series[len(series)-1]

print("The value of the",n,"th character is",value,end = '')

**Output:**



1. **Write a program to move all duplicate values in a list to the end of the list.**

lst = eval(input("Enter the list: "))

for i in range(len(lst)):

for j in range(len(lst)):

if lst[i] == lst[j]:

lst.append(lst.pop(lst.index(lst[i])))

print(lst)

**Output:**



1. **Write a program that rotates the elements of a list so that element at the first index moves to the second index, the element in the second index moves to the third and element at the last index moves to the first index.**

lst = eval(input("Enter the list to be rotated: "))

print("Before rotation: ",lst)

lst.insert(0,lst[-1])

lst.pop(-1)

print("After rotation: ",lst)

**Output:**



1. **Input a list of numbers to find largest element in a tuple.**

n = int(input("How many number: "))

list = []

while n>0:

num = int(input("Enter the numbers: "))

list.append(num)

n-=1

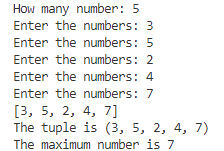
print(list)

tup = tuple(list)

print("The tuple is",tup)

print("The maximum number is",max(tup))

**Output:**



1. **Given a nested tuple tup1 = ((1,2), (3, 4.15, 5.15), (7, 8, 12, 15)). Write a program that displays the means of individual elements of tuple tup1 and then displays the mean of these computed means.**