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**PROGRAM 1**

**A) Write a** [**Python Program to Calculate the Area of a Triangle**](https://www.programiz.com/python-programming/examples/area-triangle)

**INPUT:**

a=int(input("Base of the triangle = "))

b=int(input("Height of the triangle = "))

c=(a\*b)/2

print("Area of the triangle is ",c)

**OUTPUT:**

Base of the triangle = 10

Height of the triangle = 12

Area of the triangle is 60.0

**B) Write a** [**Python Program to Swap Two Variable**](https://www.programiz.com/python-programming/examples/swap-variables)

**INPUT:**

x = input('Enter value of x: ')

y = input('Enter value of y: ')

temp = x

x = y

y = temp

print("The value of x after swapping: ",x )

print("The value of y after swapping: ",y)

**OUTPUT:**

Enter value of x: 23

Enter value of y: 45

The value of x after swapping: 45

The value of y after swapping: 23

**C) Write a** [**Python Program to Convert Celsius to Fahrenheit**](https://www.programiz.com/python-programming/examples/celsius-fahrenheit)

**INPUT**:

x=int(input("Temperature in Celsius = "))

y= (x\*(9/5))+32

print("Temperature in Fahrenheit is = ",y)

**OUTPUT:**

Temperature in Celsius = 55

Temperature in Fahrenheit is = 131.0

**PROGRAM 2**

**A) Write a** [**Python Program to Check if a Number is Odd or Even**](https://www.programiz.com/python-programming/examples/odd-even)

**INPUT:**

a=int(input("Enter a number = "))

if (a%2==0):

    print("Its an even number")

else:

    print("Its an odd number")

**OUTPUT:**

Enter a number = 4

Its an even number

**B) Write a** [**Python Program to Check if a Number is Positive, Negative or 0**](https://www.programiz.com/python-programming/examples/positive-negative-zero)

**INPUT:**

x=int(input("Enter a number = "))

if (x>0):

    print("The number is positive")

elif (x<0):

    print("The number is negative")

else:

    print("Its zero")

**OUTPUT:**

Enter a number = -5

The number is negative

**C) Write a** [**Python Program to Check Armstrong Number**](https://www.programiz.com/python-programming/examples/armstrong-number)

**INPUT:**

x = int(input("Enter a number: "))

order=len(str(x))

sum = 0

i = x

while i > 0:

   digit = i % 10

   sum += digit \*\* order

   i //= 10

if x == sum:

   print(x,"is an Armstrong number")

else:

   print(x,"is not an Armstrong number")

**OUTPUT:**

Enter a number: 153

153 is an Armstrong number

**PROGRAM 3**

**A) Write a Python program to check if a given number is Fibonacci number?**

**INPUT:**

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

c=0

a=1

b=1

if n==0 or n==1:

    print("Yes It is a Fibonacci number ")

else:

    while c<n:

        c=a+b

        b=a

        a=c

    if c==n:

        print("Yes It is a Fibonacci number")

    else:

        print("No It is not a Fibonacci number")

**OUTPUT:**

Enter the number: 54

No It is not a Fibonacci number

**B) Write a Python program to print cube sum of first n natural numbers.**

**INPUT:**

n=int(input("Enter the value = "))

sum = 0

for i in range (n+1):

    i=i\*i\*i

    sum+=i

print("The sum of cube of first " ,n, " natural number is " , sum)

**OUTPUT:**

Enter the value = 20

The sum of cube of first 20 natural number is 44100

**C) Write a Python program to print all odd numbers in a range**

**INPUT:**

start = int(input("Enter the start of range:"))

end = int(input("Enter the end of range:"))

for i in range(start , end+1):

    if ((i%2)!=0):

        print(i)

**OUTPUT:**

Enter the start of range:7

Enter the end of range:20

7

9

11

13

15

17

19

**PROGRAM 4**

**A) Write a Python Program to Print Pascal Triangle**

**1**

**1 1**

**1 2 1**

**1 3 3 1**

**1 4 6 4 1**

**INPUT:**

from math import factorial

n = 5

for i in range(n):

    for j in range(n-i+1):

        print(end=" ")

    for j in range(i+1):

        print(factorial(i)//(factorial(j)\*factorial(i-j)), end=" ")

    print()

**OUTPUT:**

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

**B) .) WAP to Draw the following Pattern for n number:**

**1 1 1 1 1**

**2 2 2 2**

**3 3 3**

**4 4**

**5**

**INPUT:**

n=5

i=1

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

    for j in range(i,n+1):

        print(i,end=" ")

    i-=1

    print()

**OUTPUT:**

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

**PROGRAM 5:**

**Write a program with a function that accepts a string from keyboard and create a new string after converting character of each word capitalized.**

**INPUT:**

def capital(string):

    word=string.upper()

    print(word)

n=str(input("Enter a string = "))

capital(n)

**OUTPUT:**

Enter a string = hello how are you.

HELLO HOW ARE YOU.

**PROGRAM 6:**

**A) Write a program that accepts a list from user. Your program should reverse the content of list and display it. Do not use reverse () method.**

**INPUT:**

n=(input("Enter is list = ")).split()

l1= list((n))

l2 = l1[::-1]

print(l2)

**OUTPUT:**

Enter is list = 1 2 3 4

['4', '3', '2', '1']

**B)  Find and display the largest number of a list without using built-in function**

**max (). Your program should ask the user to input values in list from keyboard.**

**INPUT:**

mylist = []

size = int(input('How many elements you want to enter? '))

print('Enter',str(size),'positive numbers')

for i in range(size):

    data = int(input())

    mylist.append(data)

max = 0

for data in mylist:

    if data > max:

        max = data

print('The largest number in list is', max)

**OUTPUT:**

How many elements you want to enter? 5

Enter 5 positive numbers

1

2

3

4

5

The largest number in list is 5

**PROGRAM: 7**

**Find the sum of each row of matrix of size m x n.**

**INPUT:**

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

m = int(input("Enter the number of columns:"))

matrix = []

print("Enter values in matrix :")

for i in range(n):

    data =[]

    for j in range(m):

         data.append(int(input()))

    matrix.append(data)

for i in range(n):

    for j in range(m):

        print(matrix[i][j], end = " ")

    print()

for i in range(n):

    sum = 0

    for j in range(m):

        sum = sum + matrix[i][j]

    print('Sum of row',i+1,':',sum)

**OUTPUT:**

Enter the number of rows:2

Enter the number of columns:2

Enter values in matrix :

1

2

3

4

1 2

3 4

Sum of row 1 : 3

Sum of row 2 : 7

**PROGRAM 8:**

**A) Write a program that reads a string from keyboard and display:**

**\* The number of uppercase letters in the string.**

**\* The number of lowercase letters in the string.**

**\* The number of digits in the string.**

**\* The number of whitespace characters in the string.**

**INPUT:**

n=input("Enter a string = ")

uppercase=0

lowercase=0

digits=0

whitespace=0

for i in n:

    if i.isupper():

        uppercase+=1

    elif i.islower():

        lowercase+=1

    elif i.isdigit():

        digits+=1

    elif i.isspace():

        digits+=1

    else:

        print("invalid")

print("The number of uppercase letters in string is :  ",uppercase)

print("The number of loowercase letters in string is :  ",lowercase)

print("The number of digits in string is :  ",digits)

print("The number of white space is :  ",whitespace)

**OUTPUT:**

Enter a string = here THERE in 100 street

The number of uppercase letters in string is : 5

The number of loowercase letters in string is : 12

The number of digits in string is : 3

The number of white space is : 0

**B)** [**Python Program to Find Common Characters in Two Strings**](https://www.sanfoundry.com/python-program-check-common-letters-string/)**.**

**INPUT:**

s1=input("Enter first string:")

s2=input("Enter second string:")

a=list(set(s1)&set(s2))

print("The common letters are:")

for i in a:

    print(i)

**OUTPUT:**

Enter first string:Jatin

Enter second string:Jamming

The common letters are:

J

a

i

n

**C)** [**Python Program to Count the Number of Vowels in a String**](https://www.sanfoundry.com/python-program-count-number-vowels-string/)**.**

**INPUT:**

n= input("Enter a string = ")

vowels="aeiouAEIOU"

count=0

for i in n:

    if i in vowels:

        count+=1

print("The number of vowels are = " , count)

**OUTPUT:**

Enter a string = Hello there how are you

The number of vowels are = 9

**PROGRAM 9:**

**A) Write a Python program to check if a specified element presents in a tuple of**

**tuples.**

**Original list:**

**((‘Red’ ,’White’ , ‘Blue’),(‘Green’, ’Pink’ , ‘Purple’), (‘Orange’, ‘Yellow’, ‘Lime’))**

**Check if White present in said tuple of tuples!**

**True**

**Check if Olive present in said tuple of tuples!**

**False**

**INPUT:**

n = [("Red" ,"White" , "Blue"),("Green", "Pink" , "Purple"), ("Orange", "Yellow", "Lime")]

print("Given tuple: ",n)

if any('White' in i for i in n):

   print("White is present in our tuple of tuples")

else :

   print("White is not present in our tuple of tuples")

if any("olive" in i for i in n):

   print("Olive is present in our tuple of tuples")

else :

   print("Olive is not present in our tuple of tuples")

**OUPUT:**

Given tuple: [('Red', 'White', 'Blue'), ('Green', 'Pink', 'Purple'), ('Orange', 'Yellow', 'Lime')]

White is present in our tuple of tuples

Olive is not present in our tuple of tuples

**B) Write a Python program to remove an empty tuple(s) from a list of tuples.**

**Sample data: [(), (), ('',), ('a', 'b'), ('a', 'b', 'c'), ('d')]**

**Expected output: [('',), ('a', 'b'), ('a', 'b', 'c'), 'd']**

**Expected output: [('',), ('a', 'b'), ('a', 'b', 'c'), 'd']**

**INPUT:**

num=[ (), ('',),(), ('a', 'b'), ('a', 'b', 'c'), ('d')]

for tuple in num:

if (len(tuple)==0):

num.remove(tuple)

print(num)

**OUTPUT:**

[('',), ('a', 'b'), ('a', 'b', 'c'), 'd']

**PROGRAM 10:**

**Write a Program in Python to Find the Differences Between Two Lists Using Sets.**

**INPUT:**

li1 = [10, 15, 20, 25, 30, 35, 40]

li2 = [25, 40, 35]

set\_dif = set(li1).difference(set(li2))

final = list(set\_dif)

print(final)

**OUTPUT:**

[20, 10, 30, 15]

**PROGRAM 11:**

**A) Write a Python program Remove duplicate values across Dictionary Values.**

**Input : test\_dict = {‘Manjeet’: [1], ‘Akash’: [1, 8, 9]}**

**Output : {‘Manjeet’: [], ‘Akash’: [8, 9]}**

**Input : test\_dict = {‘Manjeet’: [1, 1, 1], ‘Akash’: [1, 1, 1]}**

**Output : {‘Manjeet’: [], ‘Akash’: []}**

**INPUT:**

test\_dict = {"Manjeet": [1], "Akash": [1, 8, 9]}

print(“test\_dict= ”, test\_dict)

n=[value for values in test\_dict.values()  for value in values]

unique\_dict={key:[] for key in test\_dict}

for key,values in test\_dict.items():

    unique\_values=[value for value in values if n.count(value)==1 ]

    print(unique\_values)

    unique\_dict[key]=unique\_values

print(“UPDATED DICT: ”,unique\_dict)

**OUTPUT:**

test\_dict= {"Manjeet": [1], "Akash": [1, 8, 9]}

UPDATED DICT: {'Manjeet': [], 'Akash': [8, 9]}

**B) Write a Python program to Count the frequencies in a list using dictionary in Python.**

**INPUT:**

list= [1, 1, 1, 5, 5, 3, 1, 3, 3, 1,4, 4, 4, 2, 2, 2, 2]

dic={}

for i in list:

    if i in dic:

        dic[i]+=1

    else:

        dic[i]=1

for key,values in dic.items():

     print(f"{key}:{values}")

**OUTPUT:**

1:5

5:2

3:3

4:3

2:4

**PROGRAM 12:**

# **A) Write a Python Program to Capitalize First Letter of Each Word in a File.**

**INPUT:**

fe=open("f.txt","r")

x=fe.read()

print(x.title())

**OUTPUT:**

Hello! My Name Is Jatin

We Are At Chitkara

Enjoying Our Weekend

**B) Write a Python Program to Print the Contents of File in Reverse Order.**

**INPUT:**

fe=open("g.txt","r")

x=fe.read()

print(x)

for j in x[::-1]:

print(j,end='')

**OUTPUT:**

we are at chitkara

araktihc ta era ew

**PROGRAM 13:**

**WAP to catch an exception and handle it using try and except code blocks**

**INPUT:**

a=(input())

try:

     for i in range(1,11):

        print(f"{int(a)}x{i}={int(a)\*i}")

except Exception as e:

    print(e)

print("hello world!")

**OUTPUT :**

jatin

invalid literal for int() with base 10: 'harry'

hello world!

**PROGRAM 14:**

**Write a Python Program to Append, Delete and Display Elements of a List using Classes.**

**INPUT:**

class list\_class():

   def \_\_init\_\_(self):

      self.n=[]

   def add\_val(self,a):

      return self.n.append(a)

   def remove\_val(self,b):

      self.n.remove(b)

   def display\_val(self):

      return (self.n)

l1 = list\_class()

choice = 1

while choice!=0:

   print("0. Exit")

   print("1. Add elements")

   print("2. Delete element")

   print("3. Display list")

   choice=int(input("Enter your choice: "))

   if choice==1:

      n=int(input("Enter element to add to the list... "))

      l1.add\_val(n)

      print("List: ",l1.display\_val())

   elif choice==2:

      n=int(input("Enter number to delete.."))

      l1.remove\_val(n)

      print("List: ",l1.display\_val())

   elif choice==3:

      print("List: ",l1.display\_val())

   elif choice==0:

      print("Exit")

   else:

      print("Invalid choice!")

print()

**OUTPUT:**

0. Exit

1. Add elements

2. Delete element

3. Display list

Enter your choice: 1

Enter element to add to the list... 2

List: [2]

0. Exit

1. Add elements

2. Delete element

3. Display list

Enter your choice: 1

Enter element to add to the list... 4

List: [2, 4]

0. Exit

1. Add elements

2. Delete element

3. Display list

Enter your choice: 2

Enter number to delete..2

List: [4]

0. Exit

1. Add elements

2. Delete element

3. Display list

Enter your choice: 3

List: [4]

**PROGRAM 15:**

**Write a** [**Python Program to Find the Area and Perimeter of the Circle using Class**](https://www.sanfoundry.com/python-program-class-compute-area-perimeter-circle/)**.**

**INPUT:**

class Circle:

def \_\_init\_\_(self, radius):

self.radius = radius

def area(self):

return 3.14 \* self.radius \*\* 2

def perimeter(self):

return 2 \* 3.14 \* self.radius

c = Circle(5)

print("Area of the circle:", c.area())

print("Perimeter of the circle:", c.perimeter())

**OUTPUT:**

Area of the circle: 78.5

Perimeter of the circle: 31.400000000000002