

```
In [2]: # Program to write area and perimeter of rectangle
l=int(input("enter the length of rectangle"))
b=int(input("enter the breadth of rectangle"))
area=l*b
perimeter=2*(l+b)
print("area is ",area)
print("perimeter is ",perimeter)

enter the length of rectangle100
enter the breadth of rectangle50
area is 8000
perimeter is 1100

In [3]: # Program to calculate bill
cost=int(input("enter the cost of product"))
quant=int(input("enter the quantity of product"))
amt=cost*quant
dis=10*amt/100
amt=amt-dis
print("amount of the product ", amt)
print("discount of the product ", dis)
print("total price of product is ", amt)

enter the cost of product100
enter the quantity of products
amount of the product 250
discount of the product 25.0
total price of product 225.0

In [12]: #swapping
a=int(input("enter the value of a "))
b=int(input("enter the value of b "))
print("before swap a is ",a, "and b is ",b)
temp=a
a=b
b=temp
print("after swap a is ",a,"and b is ",b )

enter the value of a 40
enter the value of b 40
before swap a is 40 and b is 40
after swap a is 40 and b is 40

In [15]: # To find result of the student
mark=float(input("enter the marks of the student"))
if mark >= 40:
    print('pass')
else:
    print('fail')

enter the marks of the student60
pass

In [18]: # Program to find profit or loss
cp=int(input("enter the cost price"))
sp=int(input("enter the selling price"))
if sp>cp:
    res=sp-cp
    print('profit')
else:
    res=cp-sp
    print('loss')

enter the cost price60
enter the selling price40
loss

In [23]: # To find greatest between three numbers
num1=int(input("enter the num1 "))
num2=int(input("enter the num2 "))
num3=int(input("enter the num3 "))
if (num1>num2) and (num1>num3):
    print("num1 is greater",num1)
elif ((num2>num1) and (num2>num3)):
    print("num2 is greater",num2)
else:
    print("num3 is greater",num3)

enter the num1 2
enter the num2 7
enter the num3 4
num2 is greater 7

In [25]: # To find odd and even num
num=int(input("enter the num1 "))
if num%2==0:
    print('even')
else:
    print('odd')

enter the num1 7
odd

In [36]: # Program to find grade of the students
n=int(input("enter the grade of the students"))
if n==90:
    print("A+ Grade")
elif n==75:
    print("B+ Grade")
elif n==60:
    print("C+ Grade")
elif n==50:
    print("D+ Grade")
elif n==40:
    print("E+ Grade")
else:
    print("Fail")

enter the grade of the students40
E+ Grade

In [46]: # To find type of the triangle
s1=int(input("enter the size of triangle"))
s2=int(input("enter the size of triangle"))
s3=int(input("enter the size of triangle"))
if (s1==s2) and (s2==s3) or (s3==s1):
    print("Equilateral triangle")
elif (s1==s2) or (s2==s3) or (s3==s1):
    print("Isosceles triangle")
else:
    print("Scalen triangle")

enter the size of triangle10
enter the size of triangle30
enter the size of triangle40

In [32]: # To find first 10 multiple of n
n=int(input("enter the number "))
for num in range(1,n):
    print(num)

enter the number 8
8
16
24
32
40
48
56
64
72
80

In [33]: # To find first 10 multiple of n
n=int(input("enter the number "))
for num in range(1,11):
    print(num*n)

enter the number 5
5
10
15
20
25
30
35
40
45
50

In [2]: #print no bet 2000 to 3200 which divisible by 7 but not divisible by 5
res=[]
for i in range(2000,3201):
    if num%7==0 and num%5!=0:
        res.append(num)
print(res)

[2002, 2090, 2186, 2283, 2387, 2444, 2484, 2551, 2598, 2672, 2679, 2686, 2693, 2187, 2114, 2121, 2128, 2142, 2149, 2156, 2163, 2177, 2184, 2191, 2198, 2212, 2219, 2226, 2233, 2247, 2254, 2261, 2268, 2282, 2289, 2296, 2303, 2317, 2324, 2331, 2338, 2352, 2359, 2366, 2373, 2387, 2394, 2401, 2408, 2422, 2429, 2436, 2457, 2464, 2471, 2478, 2492, 2499, 2506, 2513, 2520, 2534, 2541, 2548, 2555, 2562, 2569, 2576, 2583, 2597, 2604, 2611, 2618, 2623, 2630, 2644, 2653, 2667, 2674, 2681, 2688, 2702, 2709, 2716, 2723, 2737, 2744, 2751, 2758, 2765, 2772, 2779, 2786, 2793, 2807, 2814, 2821, 2828, 2842, 2849, 2856, 2863, 2877, 2884, 2891, 2898, 2912, 2919, 2926, 2933, 2947, 2954, 2961, 2968, 2982, 2989, 2996, 3003, 3017, 3024, 3031, 3038, 3052, 3059, 3066, 3073, 3087, 3094, 3101, 3108, 3122, 3129, 3136, 3143, 3157, 3164, 3171, 3178, 3192, 3199]

In [7]: #searching element in list
li=[2,4,7,9,3,5,11,10,7,15,5,11,2,8]
num=int(input("enter a number to be searched"))
if num in li:
    print('number is found','li.count(num)')
else:
    print('number is not found')

enter a number to be searched4
number is found 1

In [3]: #sorted list
names=[]
for i in range(5):
    n=input("enter a names")
    names.append(n)
names.sort()
print("sorted names are",names)

enter a namesvaishnavi
enter a namespooja
enter a namesamruta
enter a namesnitika
enter a namesnitaili
sorted names are ['vaishnavi', 'pooja', 'samruta', 'nitika', 'nitaili']

In [3]: #highest and lowest mark of the students
names=[]
marks=[]
for i in range(5):
    n=input("enter the names")
    m=input("enter the marks")
    names.append(n)
    marks.append(m)
h=max(marks)
l=min(marks)
print("highest marks are",h)
print("lowest marks are",l)
for i in range(5):
    if h == marks[i]:
        if i == 0:
            print("name of the highest mark student is",names[i])
        else:
            print("name of the lowest mark student is",names[i])

enter the namesak
enter the marks90
enter the namesak
enter the marks78
enter the namesak
enter the marks60
enter the namesak
enter the marks95
enter the namesak
enter the marks95
enter the namesak
enter the marks60
highest marks are 95
lowest marks are 40
name of the highest mark student is ak
name of the lowest mark student is ok

In [8]: #inser elements in the list
li=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s','t','u','v','w','x','y','z']
print(li)
num=int(input("enter the number to be inserted in a list"))
pos=int(input("enter the position of number to be inserted in a list"))
li.insert(pos,num)
print("new list ",li)

['1', '78', '154', '43', '90', '50', '65']
enter the number to be inserted in a list40
enter the position of number to be inserted in a list3
new list ['1', '78', '154', '40', '43', '90', '50', '65']

In [14]: # Program to calculate number of vowels in a string
string=input("enter a string")
cnt=0
for ch in string:
    if ch in 'aeiou':
        cnt+=1
print(cnt)

enter a stringamruta
3

In [9]: #roots
import math
a=float(input("enter the coefficient of a"))
b=float(input("enter the coefficient of b"))
c=float(input("enter the coefficient of c"))
d=b*b-4*a*c
if d<0:
    r1 = (-b + math.sqrt(d)) / (2*a)
    r2 = (-b - math.sqrt(d)) / (2*a)
    print("roots are real and unequal",r1, 'and',r2)
elif d==0:
    r1=b/r2
    print("roots are equal",r1)
else:
    print("roots are not real")

enter the coefficient of a10
enter the coefficient of b25
enter the coefficient of c5
roots are real and unequal -0.5625 and -1.0

In [11]: #Area of triangle by heron's formula
import math
a=float(input("enter the side of triangle is a"))
b=float(input("enter the side of triangle is b"))
c=float(input("enter the side of triangle is c"))
s=(a+b+c)/2
area=(math.sqrt(s*(s-a)*(s-b)*(s-c)))
print("area of triangle is ",area)

enter the side of triangle is a0
enter the side of triangle is b25
enter the side of triangle is c25
area of triangle is 0.0

In [13]: #calculate hypotaneous of triangle
import math
a=float(input("enter the side of triangle is a"))
b=float(input("enter the side of triangle is b"))
hypomath.sqrt(a**2 + b**2)
print("hypotenous of triangle is ",hyp0)

enter the side of triangle is a0
enter the side of triangle is b25
hypotenous of triangle is 26.7668611172846

In [2]: #reverse the string
s=input("enter a string")
rev=""
for ch in s:
    rev=ch+rev
print(rev)

enter a stringankita
atikna

In [7]: # a string is pallindrome
s=input("enter a string")
rev=""
for ch in s:
    rev=ch+rev
print(rev)
if s==rev:
    print("given string is pallindrome ")
else:
    print("given string is not pallindrome")

enter a stringnitin
nitin
given string is pallindrome

In [2]: #calculate CMT
Amount = float(input("Enter the base amount"))
period = float(input("enter the period of time in year"))
rate = float(input("enter the rate of interest"))
interest = Amount*period*rate/100
total = Amount + interest
EMI = total/(period*12)
print("EMI amount is",EMI)

Enter the base amount10000
enter the period of time in year2
enter the rate of interest2
EMI amount is 433.3533333333333

In [3]: # maximum and minimum number
numbers = []
for i in range(5):
    num = int(input("Enter a number :"))
    numbers.append(num)
highest = max(numbers)
lowest = min(numbers)
print("Highest number is ",highest)
print("Lowest number is ",lowest)

Enter a number :5
Enter a number :19
Enter a number :12
Enter a number :10
Enter a number :7
Highest number is 19
lowest number is 5

In [7]: # calculate maximum and minimum 3 number in a list
numbers = []
for i in range(6):
    num = int(input("Enter a number :"))
    numbers.append(num)
print("Given list is ", numbers)
max1 = max(numbers)
min1 = min(numbers)
numbers.remove(max1)
max2 = max(numbers)
min2 = min(numbers)
numbers.remove(max2)
max3 = max(numbers)
min3 = min(numbers)
print("Third highest number is ",max3)

Enter a number :19
Enter a number :13
Enter a number :6
Enter a number :7
Enter a number :12
Enter a number :1
Given list is [19, 6, 7, 12, 1]
third highest number is 6
third lowest number is 1

In [2]: # To count words starting with a particular alphabet in a user entered string
txt=input("enter a string")
alpha=input("enter a alphabet to print word")
count=0
for x in txt:
    if x==alpha:
        count = 1
print("No. of times",alpha,"appear to the string is",count)

Enter a stringhello hi, how are you
enter a alphabet to print wordh
No. of times h appear to the string is 3
how
hello,hi

In [4]: # To print words starting with a particular alphabet in a user entered string
txt=input("enter a string")
alpha=input("enter a alphabet to print word")
count=0
for x in txt:
    if x==alpha:
        count = 1
word=txt.split()
for word in words:
    if word[0]==alpha:
        print(word)

Enter a stringhow are you hello,hi
enter a alphabet to print wordh
No. of times h appear to the string is 3
how
hello,hi

In [7]: # To print highest and lowest values in the dictionary
student = {"Prita":90, "Nayara":60, "Pragya":80, "sai":90, "pakhil":75}
highest = max(student, key=student.get)
hmark = max(student.values())
lowest = min(student, key=student.get)
lmark = min(student.values())
print("Highest mark of student is ",highest,"scoring",hmark)
print("Lowest mark of student is ",lowest,"scoring",lmark)

highest mark of student is sai scoring 90
lowest mark of student is nayara scoring 60

In [31]: #write a prog to input values of x & print sum of the series
s=1+x**2+x**4+...+x**2n
x = float(input("enter the base value "))
n = int(input("enter the power value "))
sum = 1
for i in range(1,n+1):
    sum = sum + ((i)**n)*(x**i)
print("sum of the series is ",sum)

enter the base value 10
enter the power value 2
sum of the series is 91.0

In [12]: #
x = float(input("enter the base value "))
n = int(input("enter the power value "))
sum = 1
for i in range(1,n+1):
    if n%2==0:
        sum=sum*x**i
    else:
        sum=sum/x**i
print("sum of the series is ",sum)

enter the base value 10
enter the power value 2
sum of the series is -99.0

In [14]: #calculate LCM
a=int(input("enter first number "))
b=int(input("enter second number "))
while a%b !=0:
    rem=a
    a=b
    b=rem
print("HCF is ",b)

enter first number 6
enter second number 25
HCF is 5

In [15]: #calculate LCM
a=int(input("enter first number "))
b=int(input("enter second number "))
for n in range(1,a*b+1):
    if n%a==0 and n%b==0:
        print("LCM of Number ",n)
        break

enter first number 30
enter second number 36
LCM of Number 180

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In [5]: #password generator
input_string=input()
list_input=[]
finalstr=""
for i in list_input:
    temp=i.split('.')
    length=len(name)
    maxc=0
    for digit in number:
        if int(digit)>length:
            if(max<int(digit)):
                max=int(digit)
            else:
                finalstr+=x
        else:
            finalstr+=name[max-1]
print(finalstr)

Abhishek:14849,Nayara:4739, Friends:2940,Yeah:9889
lueX

In [1]: #bracket validator
def validator(string):
    stack=[]
    count=0
    for b in string:
        if b=='(' or b=='{' or b=='[' ':
            stack.append(b)
            count+=1
        continue
        if len(stack)==0:
            return count+1
        stack.pop()
        if(b==')' and count['(']):
            count+=1
        elif(b=='}' and count['{']):
            count+=1
        elif(b==']' and count['[']):
            count+=1
        else:
            return count+1
    if len(stack)==0:
        return 0
    else:
        return count+1
string=input()
print(validator(string))

{}}{}
0

In [3]: #reverse string accept special character"@"
def rev string(input):
    string_listre.findall("[^@a-zA-Z]",string)
    string_list.reverse()
    for i in range(len(string)):
        if string[i]==@ or string[i]==0:
            string_list.insert(i,string[i])
    print("".join(string_list))

hello
olleh

In [6]: #input=5,2,6,5,1,4,,8,9
#output=51678
#num1=5+4+9=20
#num2=5+5+8
#input=50983060
num_list=num.split(',')
length=len(num_list)
index_five=num_list.index('5')
index_eight=num_list.index('8')
num2=""
num1=""
for i in range(1, index_five+1):
    num2=num2+num_list[i]
for i in range(1,length):
    if index_five or index_eight:
        num2=int(num_list[i])
print(num1+int(num2))

3,2,6,5,1,4,,8,9
5168

In [7]: #To find the number if square is even reverse last 2 digit else reverse 1 digit
def reverseNumber(n):
    if n%2==0:
        return reverseNumber(n//10)
    else:
        return reverseNumber(n//10)

abcd:1234,bcdghf:127836,sdjs:1245
cdab:cdghfcd ksdj

In [3]: #longest prefix which is suffix
def longestPrefix(string):
    n = len(string)
    for i in range(1, n):
        prefix = string[0:i]
        suffix = string[i:n]
        if prefix == suffix:
            print(len(prefix))
            break

abcdac
0

In [1]: #consider a non empty array of positive integer inarr identify and print logic (7-2-22:4m)
def find(arr):
    n = len(arr)
    for i in inarr:
        seq = []
        while(i>1):
            if(i%2==0):
                seq.append(i//2)
            else:
                seq.append(i)
        outarr.append(len(seq))
    print("outarr,sep=",)

100
20
20

In [2]: #consider a two integer arr1 & arr2 of length p and Q both consisting digit{0,9} & int innum where innum p*Q (7-2-22:10m)
def find(arr1, arr2, innum):
    n = len(arr1)
    for i in range(1, n):
        for j in range(1, n-i):
            if (arr1[i] + arr2[j] == innum):
                return True
    return False

3,8,4,5
9,12,6,7
5
[0, 8, 7, 4, 5]

In [3]: #
arr = [2, 4, 6, 8]
a = 16
finalres = list()
def generateFactors(nums, curr, target, res):
    if curr == target:
        if res not in finalres:
            finalres.append(res)
        return
    if len(nums) == 0 or curr > target:
        return
    if target % nums[0] == 0:
        l1 = list(res)
        l1.append(nums[0])
        l2 = list(res)
        l2.append(nums[0])
        generateFactors(nums, curr + nums[0], target, l1)
        generateFactors(nums[1:], curr + nums[0], target, l2)
    l3 = list(res)
    generateFactors(nums[1:], curr, target, l3)

generateFactors(arr, 1, n, list())
print(finalres)

[[2, 2, 2, 2], [2, 2, 4, 4], [2, 8], [4, 4]]

In [1]:
```