

In [ ]: For vs While  
if we know the numebr of iterations then we should always use **for** loop  
**while** if we know the condition of any statement then we should use **while** loop

In [1]: *#Count the Digit*  
number=int(input("Enter the Number"))  
str\_number=str(number)  
print(len(str\_number))

Enter the Number1234  
4

In [5]: number=int(input("Enter a number")) #123  
count=0  
**while** number!=0:  
    number=number//10 #->#12   #1   #0  
    count=count+1  
    print(number)       #->1       2    3

Enter a number1234  
123  
12  
1  
0

In [ ]: 153--> 1\*\*3+5\*\*3+3\*\*3=153--> #0+3\*\*3=27  
          1+125+27   =153  
153--> % --> 5\*\*3=125   1\*\*3=1  
          //--> 1

In [12]: *#Armstrong Number*  
number=int(input("Enter a number"))#153  
m=number  
sum=0  
**while** number!=0:  
    rem=number%10 #-> 3   ---> 5 -->1  
    sum=sum+(rem\*rem\*rem)#-> sum=0+27 --27   ---> 27+125=152 --> 152+1\*1\*1=153  
    number=number//10 #->15 -->1 -->0  
    print("Each case remainder",rem)  
    print("Each case sum",sum)  
    print("Each case digits",number)  
print("At last number value is",number)  
print("Value of Userinput number",m)  
**if**(sum==m):  
  
    print("Number is armstrong")  
**else**:  
    print("Number is not armstrong")

Enter a number153  
Each case remainder 3  
Each case sum 27  
Each case digits 15  
Each case remainder 5  
Each case sum 152  
Each case digits 1  
Each case remainder 1  
Each case sum 153  
Each case digits 0  
At last number value is 0  
Value of Userinput number 153  
Number is armstrong

In [11]: *#Armstrong number*  
number=int(input("Enter a number"))#371  
m=number  
sum=0  
**while** number!=0:  
    rem=number%10 #-> 1   ---> 7 -->3  
    sum=sum+(rem\*rem\*rem)#-> sum=0+1 --1   ---> 1+343=344 --> 344+27 =371  
    number=number//10 #->37 -->3 -->0  
    print("Each case remainder",rem)  
    print("Each case sum",sum)  
    print("Each case digits",number)  
print("At last number value is",number)  
print("Value of Userinput number",m)  
**if**(sum==m):  
  
    print("Number is armstrong")  
**else**:  
    print("Number is not armstrong")

Enter a number371  
Each case remainder 1  
Each case sum 1  
Each case digits 37  
Each case remainder 7  
Each case sum 344  
Each case digits 3  
Each case remainder 3  
Each case sum 371  
Each case digits 0  
At last number value is 0  
Value of Userinput number 371  
Number is armstrong

In [ ]: *#Strong Number*  
145--> fact(1)+fact(4)+fact(5)=145  
          1+24+120=145

In [14]: **import** math  
*#Strong number*  
number=int(input("Enter a number"))#145  
m=number  
sum=0  
**while** number!=0:  
    rem=number%10 #->5 -->4 -->1  
    sum=sum+math.factorial(rem) #-> 0+120=120--> 120+24=144 -->144+1=145  
    number=number//10 #->14 -->1 -->0  
    print("Each case remainder",rem)  
    print("Each case sum",sum)  
    print("Each case digits",number)  
print("At last number value is",number)  
print("Value of Userinput number",m)  
**if**(sum==m):  
  
    print("Number is strong")  
**else**:  
    print("Number is not strong")

Enter a number145  
Each case remainder 5  
Each case sum 120  
Each case digits 14  
Each case remainder 4  
Each case sum 144  
Each case digits 1  
Each case remainder 1  
Each case sum 145  
Each case digits 0  
At last number value is 0  
Value of Userinput number 145  
Number is strong

In [22]: *#Maximum in a list*  
x=[1,2,3,4,5,50,23,1234,321,356]  
max\_val=x[0] #1  
**for** i **in** x:  
    **if** i>max\_val:  
        max\_val=i #2 #3 #4 #5  
print(max\_val)

1234

In [ ]: *#Write a program that appends the square of each number to a new list.*  
x=[1,2,3,4,5,6,7]  
output:  
[1,4,9,16,25,]

In [24]: x=[1,2,3,4,5,6,7]  
y=[]  
**for** i **in** range(len(x)):  
    ele=x[i]\*\*2  
    y.append(ele) #at last posiiton  
print(y)

[1]  
[1, 4]  
[1, 4, 9]  
[1, 4, 9, 16]  
[1, 4, 9, 16, 25]  
[1, 4, 9, 16, 25, 36]  
[1, 4, 9, 16, 25, 36, 49]

In [27]: *#Prduct of digits*  
*#153==1\*5\*3*  
num=int(input())  
product=1  
**while** num!=0:  
    rem=num%10 #->3   --->5   -->1  
    product=product\*rem   # -->3   --->15   --->15  
    num=num//10# -->15   #--->1 -->  
print(product)

153  
15

In [29]: *#Sum of digits*  
*#153==1\*5\*3*  
num=int(input())  
sum=0  
**while** num!=0:  
    rem=num%10 #->3   --->5   -->1  
    product=sum+rem   # -->3   --->15   --->15  
    num=num//10# -->15   #--->1 -->  
print(product)

153  
9

In [32]: *#Write a program to display sum of odd numbers and even numbers that fall between 12 and 37*  
sum\_odd=0  
sum\_even=0  
**for** i **in** range(12,38):  
    **if** i%2==0:  
        sum\_even=sum\_even+i  
    **else**:  
        sum\_odd=sum\_odd+i  
print("Sum of odd numbers",sum\_odd)  
print("Sum of Even Numbers ",sum\_even)

Sum of odd numbers 325  
Sum of Even Numbers   312

In [33]: *#Write a program to display all the numbers which are divisible by 11 but not by 2*  
*#between 100 and 500.*  
**for** i **in** range(100,501):  
    **if** i%11==0 and i%2!=0:  
        print(i)

121  
143  
165  
187  
209  
231  
253  
275  
297  
319  
341  
363  
385  
407  
429  
451  
473  
495

In [34]: *#Write a program to print numbers from 1 to 20 except multiple of 2 & 3.*  
**for** i **in** range(1,21):  
    **if** i%2!=0 and i%3!=0:  
        print(i)

1  
5  
7  
11  
13  
17  
19

In [ ]: *#Perfect Number*  
#6 --> 1+2+3=6

In [41]: *#Find the factors of the given number*  
n=int(input())  
**for** i **in** range(1,n):  
    **if** n%i==0:  
        print(i)

98  
1  
2  
7  
14  
49

In [45]: rows=int(input("enter the last no"))  
col=int(input("enter the last no"))  
**for** i **in** range(0,row) :  
    **for** j **in** range(0,col) :  
        print(i,j,end="")  
    print()

enter the last no5  
enter the last no5  
0 00 10 20 30 4  
1 01 11 21 31 4  
2 02 12 22 32 4  
3 03 13 23 33 4  
4 04 14 24 34 4

In [48]: a=10  
b=20  
int(a-b)

Out[48]: -10

In [ ]: