Conditional Statements:

1) If statement

In [12]:
```
marks=int(input("Enter marks"))
passing=50
distinction=90
```

```
Enter marks30
```

In [13]:
```
if marks>=distinction:
    print("top")
if marks>=passing and marks<distinction:
    print("pass")
if marks<passing:
    print("Fail")
```

```
Fail
```

In [15]:
```
statement="The coffee is bad"
statement1="I am very good"
if 'bad' in statement:
    print("It's a bad review")
if 'bad' in statement1:
    print("Good Review")
```

```
It's a bad review
```

In [16]:
```
'z' in 'hello'
```

Out[16]:
```
False
```

2) If else statement

In [19]:
```
inp=int(input("Enter number:"))
if(inp%2==0):
    print("Even")
else:
    print("Odd")
```

```
Enter number:5
Odd
```

In [18]:
```
if None:
    print("True")
else:
    print("False")
```

```
False
```

In [24]:
```
inp=int(input("Enter number:"))
if(inp%2==0):
    if(inp%4==0):
        print("Even,Divisible by 4")
    else:
        print("Even,Not Divisible by 4")
else:
    if(inp%3==0):
        print("Odd,Divisible by 3")
    else:
        print("Odd,Not Divisible by 3")
```

```
Enter number:25
Odd,Not Divisible by 3
```

In [31]:
```
#Check if a year is a leap year
year=int(input())
if (year%400==0) or (year%4==0 and year%100!=0):
    print("Leap Year")
else:
    print("Not a Leap Year")
```

```
1997
Not a Leap Year
```

In [35]:
```
#Check if a number exists in given range(inclusive)
n1=int(input("Enter number:"))
lb=50
up=150
if(n1 in range(50,151)):
    print("Yes")
else:
    print("No")
```

```
Enter number:134
Yes
```

In [36]:
```
#Check if a number is multiple of 10
n=int(input("Enter number"))
if(n%10==0):
    print("Yes")
else:
    print("No")
```

```
Enter number200
Yes
```

In [37]:
```
#Check if given string is factor of 100
n=int(input("Enter number:"))
if(100%n==0):
    print("Yes")
else:
    print("No")
```

```
Enter number:200
No
```

In [39]:
```
#Check if given string length is equal to a number
num=12
s=input("Enter a string:")
if(num==len(s)):
    print('Yes')
else:
    print('No')
```

```
Enter a string:mohinijyothi
Yes
```

In [41]:
```
#Check if given string is equal to a number
num=12
s=input("Enter a string:")
if(num==int(s)):
    print('Yes')
else:
    print('No')
```

```
Enter a string:11
No
```

In [47]:
```
#Calculate the number of nanao seconds in a given year(Consider leap year logi
c)
year=int(input("Enter a year:"))
if (year%400==0) or (year%4==0 and year%100!=0):
    tot=366*24*60*60*(10**-9)
    print(tot)
else:
    tot=365*24*60*60*(10**-9)
    print(tot)
```

```
Enter a year:2020
0.0316224
```

3) elif statements

In [48]:
```
#Find the greatest of 3 numbers
a=int(input())
b=int(input())
c=int(input())
if(a>b and a>c):
    print(a,'is big')
elif(b>c and b>a):
    print(b,'is big')
else:
    print(c,'is big')
```

```
12
14
13
14 is big
```

In [51]:
```
marks=int(input("Enter marks"))
if(marks<50):
    print("Fail")
elif(marks>=50 and marks<60):
    print("D")
elif(marks>=60 and marks<70):
    print("C")
elif(marks>=70 and marks<80):
    print("B")
elif(marks>=80 and marks<90):
    print("A")
else:
    print("Distinction")
```

```
Enter marks56
D
```

4) Nested if

In [6]:
```
num=int(input("Enter a number:"))
if(num>=0):
    if num==0:
        print('zero')
    else:
        print('positive')
else:
    print('negative')
```

```
Enter a number:0
zero
```

In [3]:
```
#Check the number of digits in a given number
num=int(input())
n=str(num)
print(len(n))
```

```
1234
4
```

In [9]:
```
#Calculate the square root of a given number
import math
num=int(input())
print(math.sqrt(num))
```

```
625
25.0
```

Loops

In [4]:
```
#Function to print N Natural numbers by using for loop
def natural(n):
    for i in range(1,n+1):
        print(i,end=" ")
    print()
    #return
natural(30)
natural(10)
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
30
1 2 3 4 5 6 7 8 9 10
```

In [3]:
```
#print a string using while loop
s=input()
i=0
while i<len(s):
    print(s[i])
    i=i+1
```

```
mohini
m
o
h
i
n
i
```

In [4]:
```
#print N natural numbers
def natural(n):
    i=1
    while(i<n+1):
        print(i,end=" ")
        i=i+1
natural(30)
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
30
```

In [ ]:
```
#Function to print the alternate value in range in the same line
#range(500,550)--> 500,502,504....549
#start with inclusive and end with exclusive
```

In [10]:
```
def alternate(lb,ub):
    for i in range(lb,ub,2):
        print(i,end=" ")
alternate(500,550)
```

```
500 502 504 506 508 510 512 514 516 518 520 522 524 526 528 530 532 534 536 5
38 540 542 544 546 548
```

In [14]:
```
#Function to print reverse of given range in the same line
def reversee(lb,ub):
    for i in range(ub,lb,-1):
        print(i,end=" ")
reversee(500,550)
```

```
550 549 548 547 546 545 544 543 542 541 540 539 538 537 536 535 534 533 532 5
31 530 529 528 527 526 525 524 523 522 521 520 519 518 517 516 515 514 513 51
2 511 510 509 508 507 506 505 504 503 502 501
```

In [15]:
```
#Function to print the odd numbers in reverse order
def oddreverse(lb,ub):
    for i in range(ub,lb,-1):
        if(i%2!=0):
            print(i,end=" ")
oddreverse(500,550)
```

```
549 547 545 543 541 539 537 535 533 531 529 527 525 523 521 519 517 515 513 5
11 509 507 505 503 501
```

In [17]:
```
#Function to calculate the sum of numbers in a range
def sum1(lb,ub):
    sum=0
    for i in range(lb,ub):
        sum=sum+i
    print(sum)
sum1(10,30)
```

```
390
```

In [18]:
```
#Function to calculate the avg of a given range
#(1,5)->3
def sum1(lb,ub):
    sum=0
    count=0
    for i in range(lb,ub):
        sum=sum+i
        count=count+1
    print(sum/count)
sum1(10,30)
```

```
19.5
```

In [21]:
```
#Function to generate all leap years in a given time period
#[2000,2020]->2000 2004 2008 2012 2016 2020
def leapyears(lb,ub):
    for i in range(lb,ub+1):
        if(i%400==0 or (i%4==0 and i%100!=0)):
           print(i)
leapyears(2000,2020)
```

```
2000
2004
2008
2012
2016
2020
```

In [2]:
```
#Calculate number of days in a given time period using leap Year logic
#For every year in the given time period,if the year is not a leap year->add 3
65 to sum.If leap year add 366 to sum
def totaldays(lb,ub):
    sum1=0
    for i in range(lb,ub+1):
        if(i%400==0 or (i%4==0 and i%100!=0)):
           sum1=sum1+366
        else:
            sum1=sum1+365
    print(sum1)
totaldays(2000,2020)
```

```
7671
```

In [1]:
```
#Function to print all numbers divisible by 6
#and not a factor of 100 in a given range(lb,ub) inclusive
def divisibleby6(lb,ub):
    for i in range(lb,ub):
        if(i%6==0 and 100%i!=0):
            print(i)
divisibleby6(6,60)
```

```
6
12
18
24
30
36
42
48
54
```

In [3]:
```
#Function to find the avg of cubes of all even numbers
#in a given range(lb,ub) inclusive
#1,10->2,4,6,8,10->avg(8,64,216,64*8,1000)
def cubesofeven(lb,ub):
    num=0
    sum1=0
    for i in range(lb,ub+1):
        if(i%2==0):
            sum1=sum1+(i**3)
            num=num+1
    print(sum1/num)
cubesofeven(1,10)
```

```
360.0
```

In [4]:
```
#Function to generate the sum of factors for a given number
#12->1 2 3 4 6 12
def factorsum(num):
    for i in range(1,num+1):
        if(num%i==0):
            print(i)
factorsum(12)
```

```
1
2
3
4
6
12
```

In [9]:
```
#Function to check if a given number is Prime
def prime(num):
    count=0
    for i in range(1,num+1):
        if(num%i==0):
            count=count+1
    if(count==2):
        print("prime")
    else:
        print("not prime")
prime(13)
```

```
prime
```

In [10]:
```
#Function to calculate the average of first N prime numbers
def avg(num):
    sum1=0
    for i in range(1,num):
        sum1=sum1+i
    print(sum1/num)
avg(18)
```

```
8.5
```

In [14]:
```
#Iterate the integers from 1 to 50, for multiples of 3 print “Fizz” and for mu
ltiples of 5 print “Buzz” and for multiples of both 3 and 5 print “FizzBuzz”.
def integers(lb,ub):
    for i in range(lb,ub+1):
        if(i%3==0 and i%5==0):
            print(i,"FizzBuzz")
        elif(i%3==0):
            print(i,"  Fizz")
        elif(i%5==0):
            print(i,"  Buzz")

integers(3,30)
```

```
3   Fizz
5   Buzz
6   Fizz
9   Fizz
10   Buzz
12   Fizz
15 FizzBuzz
18   Fizz
20   Buzz
21   Fizz
24   Fizz
25   Buzz
27   Fizz
30 FizzBuzz
```

In [15]:
```
#Program to print the multiplication table from range between 10 to 20
(Ex: 3 x 10 = 30….)
def mul(num,lb,ub):
    for i in range(lb,ub+1):
        print(num,"*",i,"=",num*i)
mul(5,10,20)
```

```
5 * 10 = 50
5 * 11 = 55
5 * 12 = 60
5 * 13 = 65
5 * 14 = 70
5 * 15 = 75
5 * 16 = 80
5 * 17 = 85
5 * 18 = 90
5 * 19 = 95
5 * 20 = 100
```

In [25]:
```
#Function to generate all Perfect numbers in a given range
#Perfect Number - Sum of all its factors is equal to the number itself
##6 - 1, 2, 3.............lb, ub
def perfect(lb,ub):
    for i in range(lb,ub+1):
        sum1=0
        for j in range(1,i):
            if(i%j==0):
                sum1=sum1+j
        if(i==sum1):
            print(i)
perfect(1,100)
```

```
6
28
```

In [ ]:
```

```