Conditional statements

- Conditional statements means we want to run the code lines based on condition
- if rain comes I will not go to school other wise I will go to movie
- Rain is there will effect one process
- Rain is not there will effect another process
- if
- elif
- else

if

In [ ]:
```
# syntax

if <condition>:
    <codeline1>
    <codeline2>
```

- whenver any line start with **keyword(green)** at the end of the line we have **colon(:)**
- whenever we have a **colon(:)** the next lines starts with some **gap**
- and this gap is called as **indentation**
- how many lines we are maintianing gap (indentation) that all are under one area

- if is a conditional statement , it will check the condition is True or False
- if that condition will True then only it will enter inside the if area
- and execute those code lines
- if that condition will False, then it will not enter inside the if area
- and it will not execute those code lines

In [2]:
```
100>10
```

Out[2]:
```
True
```

In [3]:
```
if 100>10:                # if True:
    print("hello")
```

```
hello
```

mistake-1

- Indentation

In [4]:
```
if 100>10:
print("hello")
```

```
  Cell In[4], line 2
    print("hello")
    ^
IndentationError: expected an indented block after 'if' statement on line 1
```

In [5]:
```
if 100>10:
    print("hello")
# Indentation requires 4 spaces
```

```
hello
```

In [6]:
```
input()
```

Out[6]:
```
'a'
```

mistake-2

- colon (:)

In [7]:
```
if 100>10
    print("hello")
```

```
  Cell In[7], line 1
    if 100>10
              ^
SyntaxError: expected ':'
```

mistake-3

- if will expect a condition

In [9]:
```
if:
 print("hello")
```

```
  Cell In[9], line 1
    if:
      ^
SyntaxError: invalid syntax
```

mistake-4

- missing brackets

In [10]:
```
if 100>10:
    print "hello"
```

```
  Cell In[10], line 2
    print "hello"
    ^
SyntaxError: Missing parentheses in call to 'print'. Did you mean print(...)?
```

mistake-5

- never assign a variable to a print statement
- print we are using for to see the answer

In [11]:
```
if 100>10:
    name=print("hello")
```

```
hello
```

mistake-6

- all types of syntax error
- spelling mistakes

In [ ]:
```
if100>10:
```

In [13]:
```
if 100>10:
    print("hello")
    print('good mornig')
```

```
hello
good mornig
```

In [ ]:
```
if 100>10:
    print("hello")
    print('good mornig')
########################################
print("okay")
print("bye")

# step-1: if 100>10  if True
# step-2:  hello
# step-3: good morning
# step-4: okay
# step-5: bye
```

In [14]:
```
print(10)
print(20)
#################################
if 100>10:
    print("hello")
    print('good mornig')
#################################
print("okay")
print("bye")
```

```
10
20
hello
good mornig
okay
bye
```

In [15]:
```
print(10)
print(20)
```

```
if 100>10:
    print("hello")
print('good mornig')
    print("okay")
print("bye")
```

```
  Cell In[15], line 6
    print("okay")
    ^
IndentationError: unexpected indent
```

In [17]:
```
print(10)
if True:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
hello
good mornig
okay
bye
```

In [16]:
```
100>10
```

Out[16]: True

In [18]:
```
print(10)
if 100<10:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
okay
bye
```

In [19]:
```
print(10)
if False:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
okay
bye
```

In [20]:
```
print(10)
if 100:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
hello
good mornig
okay
bye
```

In [21]:
```
bool(100)
```

Out[21]: True

In [22]:
```
print(10)
if 0:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
okay
bye
```

In [23]:
```
print(10)
if 0.0:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
okay
bye
```

In [24]:
```
print(10)
if 'hello':
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
hello
good mornig
okay
bye
```

In [25]:
```
bool('hello')
```

Out[25]: True

In [26]:
```
print(10)
if '':
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
okay
bye
```

In [27]:
```
print(10)
if true:
    print("hello")
    print('good mornig')
print("okay")
print("bye")
```

```
10
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[27], line 2
      1 print(10)
----> 2 if true:
      3     print("hello")
      4     print('good mornig')

NameError: name 'true' is not defined
```

if-else

- if required condition
- if that condition is True, then it will execute if block
- otherwise it can directly go to the else block
- so else block does not required any condition

In [ ]:
```
# syntax

if <condtion>:
    <code line>
else:
    <code line>
```

In [28]:
```
if 100>10:
    print("good condition is correct")
else:
    print("not good condition is wrong")
```

```
good condition is correct
```

In [29]:
```
print("hello")
if 100>10:
    print("good condition is correct")
else:
    print("not good condition is wrong")
print("bye")
```

```
hello
good condition is correct
bye
```

In [30]:
```
print("hello")
if 100<10:
    print("good condition is correct")
else:
```

```
    print("not good condition is wrong")
print("bye")
```

```
hello
not good condition is wrong
bye
```

In [31]:
```
print("hello")
if 100>10:
    print("good condition is correct")
print("why you are in middile")
else:
    print("not good condition is wrong")
print("bye")
```

```
  Cell In[31], line 5
    else:
    ^
SyntaxError: invalid syntax
```

In [32]:
```
if True:
    a=10
    b=0
    print(a)   #  10
    print(b)   #  0
    c=a+b
    print(c)  #  10+0=10
    d=b/a     #  0/10 = 0
    print(d)
    e=a/b    #  10/0=  any number /0   means error
    print(e)
```

```
10
0
10
0.0
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
Cell In[32], line 10
      8 d=b/a     #  0/10 = 0
      9 print(d)
---> 10 e=a/b    #  10/0=
     11 print(e)

ZeroDivisionError: division by zero
```

In [ ]:
```
0/10   10/0  0/0
```

In [33]:
```
5/4  # normal division
```

Out[33]:
```
1.25
```

In [34]:
```
5//4  # floor division
```

Out[34]:
```
1
```

In [35]:
```
# modulus operator
5%4  # reminder
```

Out[35]: 1

In [ ]:
```
/ ---  normal division(return type float)
// --- floor division(return type int) quotient
% --- remainder(return int)  sir is my thinking correct
```

In [36]:
```
# wap ask the user enter a number
# find it is a even number or odd number
# idea: any number divide by 2 , the remiander=0
#       it is called as even number

# step-1: num=eval(input())
# step-2: if <condition>:
# step-3     print()
# step-4  else:
# step-5     print()

num=eval(input("enter the number:"))
if num%2==0:
    print(f"the {num} is even")
else:
    print(f"the {num} is odd")
```

```
the 20 is even
```

In [2]:
```
# Implement the above problem by taking a random input  between  1, 100
import random
start=eval(input("enter the start value:"))
end=eval(input("enter the end value:"))
num=random.randint(start,end)
if num%2==0:
    print(f"the {num} is even")
else:
    print(f"the {num} is odd")
```

```
the 129 is odd
```

- we are providing values means it is hard coded
- code should be always generic, with out hard codings

In [3]:
```
# wap ask the user enter the distance
# if distance greater than 25km
#      then enter the charge
#      print the total cost
#otherwise
#      print free ride

distance=eval(input("enter the distance in km:"))
if distance>25:
    charge=eval(input("enter the charge in rs"))
    cost=distance*charge
    print("the total charge is:",cost)
else:
    print("enjoy the free ride")
```

```
the total charge is: 2500
```

In [5]:
```
# wap ask the user enter the distance
# cutoff distance enter 25
# if distance greater than 25km
#      print("good news your charge is aplicable for only remaining of 25")
#      chargeble distance= distance-cutoff
#      then enter the charge
#      print the total cost
#otherwise
#      print free ride

distance=eval(input("enter the distance in km:"))
cutoff_distance=eval(input("enter the cuto ff distance in km:"))
if distance>cutoff_distance:
    chargeble_distance=distance-cutoff_distance
    print("kudos to you the chargeble distance is:",chargeble_distance)
    charge=eval(input("enter the charge in rs"))
    cost=chargeble_distance*charge
    print("the total charge is:",cost)
else:
    print("enjoy the free ride")
```

```
kudos to you the chargeble distance is: 50
the total charge is: 100
```

In [8]:
```
# wap ask the user enter the course
# ask the user enter the Institute
# if the course equal to data science and institute equal to naresh it
#     then you are good
# otherwise
#     you are bad
course=input("enter the course:")
institute=input("enter the institute:")
if course=='data science' and institute=='naresh it':
    print("good")
else:
    print("bad")
```

```
good
```

In [11]:
```
course=input("enter the course:")
institute=input("enter the institute:")
if course=='data science' or institute=='naresh it':
    print("good")
else:
    print("bad")
```

```
bad
```

- and means two conditions need to satisfy
- or means any one condition enough to satisfy

In [ ]:
```
ir why can't we use eval in first two lines of code

eval =====evaluate === math familiy ==== numbers only
```

In [13]:
```
eval(input())
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[13], line 1
----> 1 eval(input())

File <string>:1

NameError: name 'sai' is not defined
```

In [20]:
```
# wap ask the user enter a random number between 1 to 10, treat this as number1
# ask the user enter another number from keyboard, treat this as number2
# if number1 equal to number2
#     print you won
# otherwise
#     print you lost
import random
num1=random.randint(1,10)
print(num1)
num2=eval(input("enter the number2:"))
if num1==num2:
    print("you won")
else:
    print("you lost")
```

```
1
you won
```

- Till now we have seen one condition problem
- which means if that condition is True will get one answer
- if that condition False then will get another answer
- How about if we have more than 2 conditions
- if-elif-else
- two conditions means 3 results
- if has one condition
- elif has second condition
- if both are false then the result in else

In [ ]:
```
if <condition>:
   <statements>

elif <condition>:
    <statements>
else:
    <statement>

if-else (1)
if-elif-else(2)
if-elif-elif-else(3)
```

In [22]:
```
# wap ask the user enter number
# if number equal to 1 then print one
# if number equal to 2 then print two
# if number equal to 3 then print three
# otherwise  print enter a valid number
num=eval(input("enter the number:"))
if num==1:
    print("one")
elif num==2:
    print("two")
elif num==3:
    print("three")
else:
    print("enter the valid number")
```

```
three
```

In [23]:
```
num=eval(input("enter the number:"))
if num==1:print("one")
elif num==2:pr# int("two")
elif num==3:print("three")
else:print("enter the valid number")
```

```
enter the valid number
```

In [26]:
```
# wap ask the user enter a number
# if that number greater than zero print postive
# if that number less than zero print negative
# otherwise print zero
num1=eval(input('enter num1'))
if num1 > 0:
    print('positive')
elif num1 <0:
    print('negative')
else:
    print('zero')
```

```
zero
```

In [ ]:
```
# WAP ask the user enter the percentage of marks 0 to 100
# if percentagw gretaer than 90  print A garde
# if percentage between 75 to 90 print B garde
# if percentage between 50 to 75 print C grade
# if percentage between 35 to 50 print D grade
# if percentage less than 35 print Fail

percentage=eval(input("Enter the percentage of marks:"))
if percentage>=90:
    print('A grade')
elif percentage<90 and percentage>=75:
    print('B grade')
elif percentage<75 and percentage>=50:
    print('C grade')
elif percentage<50 and percentage>=35:
    print('D grade')
else:
    print('Fail')
```

In [30]:
```
percentage=eval(input("Enter the percentage of marks: between 0 to 100"))
if percentage>=90:   # True
```

```
    print('A grade')
elif percentage>=75:  # tRU
    print('B grade')
elif percentage>=50: # T
    print("C")
elif percentage>=35: # T
    print("D")
else:
    print("Fail")

# 95

# 80
# if  80>=90   F
# elif 80>=75  true
# elif 80>=50:  true
```

```
A grade
```

In [31]:
```
# WAP ask the user enter the age
# if the age greater tahn 100 print you are lucky
# if the age gretaer than 75 print old age
# if the age  between 50 to 75 print ss
# if the age between  30 tp 50 print MA
# if the age between  15 to 30 print young age
# if the afe between less than 15 print kid
age=eval(input("Enter the age: "))
if (age>=75):     # F
    print("old age")
elif (age>=50):   # T
    print("senior citizen")
elif (age>=30):   # T
    print("middle age")
elif (age>=15):   # T
    print("young age")
else:
    print("kid")
```

```
senior citizen
```

In [ ]:
```
# wap ask the user enter 2 numbers
# num1
# num2
# you need to print
# enter operation 1  for addition
# enter operation 2 for mult
# enter oper 3  for sub
# enter oper 4  for div

# enter the operation between 1 to 4
# if operation equal to 1 then do add
# if operation equal to 2 then do mul
# if operation equal to 3 then do sub
# if operation equal to 4 then do div
# otherwise print  enter a valid number
```

In [2]:
```
num1=eval(input("Enter  first number:"))
num2=eval(input("Enter second number:"))
print("Enter operation 1 for addition")
print("Enter operation 2 for mul")
```

```
print("Enter operation 3 for sub")
print("Enter operation 4 for div")
op=eval(input("Enter a choice  of operation between 1 to 4:"))
if op==1:
    sum=num1+num2
    print(f"Addition of two number is {sum}")
elif op==2:
    mul=num1*num2
    print(f"multiplication of two number is {mul}")
elif op==3:
    sub=num1-num2
    print(f"Subtraction of two number is {sub}")
elif op==4:
    div=num1/num2
    print(f"Division of two number is {div}")
else:
    print("Enter a valid number")
```

```
Enter operation 1 for addition
Enter operation 2 for mul
Enter operation 3 for sub
Enter operation 4 for div
Division of two number is 0.5
```

In [4]:
```
num1=eval(input("Enter  first number:"))
num2=eval(input("Enter second number:"))
print("Enter operation 1 for addition")
print("Enter operation 2 for mul")
print("Enter operation 3 for sub")
print("Enter operation 4 for div")
op=input("Enter a choice  of operation between 1 to 4:")
if op=='1':
    sum=num1+num2
    print(f"Addition of two number is {sum}")
elif op=='2':
    mul=num1*num2
    print(f"multiplication of two number is {mul}")
elif op=='3':
    sub=num1-num2
    print(f"Subtraction of two number is {sub}")
elif op=='4':
    div=num1/num2
    print(f"Division of two number is {div}")
else:
    print("Enter a valid number")
```

```
Enter operation 1 for addition
Enter operation 2 for mul
Enter operation 3 for sub
Enter operation 4 for div
multiplication of two number is 600
```

In [ ]:
```
# wap ask the user enter the gender
# if gender equal to male
#      ask the user enter age
#      if the age greater than 60 print SS
#      if the age  between 30 to 60 print maman
#      if the age  between 15 to 30 print young man
#      otherwise print boy
# elif gender equal to female
#      ask the user enter age
```

```
#      if the age greater than 60 print SS
#      if the age  between 30 to 60 print mawoman
#      if the age  between 15 to 30 print young Girl
#      otherwise print Girl
# Otherwise:
#      print enter a valid gender
```

In [6]:
```
gender=input("Enter the Gender (male/female) :")
if gender=='male':
    age=eval(input("Enter your age:"))
    if age>=60:
        print("Senior citizen")
    elif age>=30:
        print("Middle age man")
    elif age>=15:
        print("Young man")
    else:
        print("Boy")
elif gender=='female':
    age=eval(input("Enter your age:"))
    if age>=60:
        print("Senior citizen")
    elif age>=30:
        print("Middle age woman")
    elif age>=15:
        print("Young girl")
    else:
        print("Kid")

else:
    print("enter a valid gender")
```

```
Senior citizen
```

In [ ]:
```
# wap ask the user enter a number
# if that number greater than or equal to zero
#       if number equal to zero
#             print zero
#       else
#          print postive
# else
#      print negative
```

In [9]:
```
num = eval(input("Enter a number"))
if num >= 0:
    if num == 0:
        print("Zero")
    else:
        print("Postive")
else:
    print("Negative")
```

```
Zero
```

In [ ]:
```
# take theree numbers
# num1  num2  num3
# find the maximum value
```