“or” operator

“or” keyword represent logical operator
“or” is binary operator and required 2 operands.

Truth table of “or” operator

Opr1	Opr2	Opr1 or opr2
True	True	True
False	True	True
True	False	True
False	False	False

```
>>> True or False
True
>>> False or True
True
>>> 10>5 or 10>20
True
>>> 10>20 or 10>5
True
>>> 10>20 or 10>30
False
>>> 100 or 200
100
>>> 0 or 200
200
>>> 0 or 0 or 300
300
```

Precedence of logical operators

1. Not
2. And
3. Or

```
>>> 100 and 300 or 400
300
>>> 100 or 200 and 300
100
```

```
>>> 0 and 300 or 400
400
```

Example:

```
# Write a program to find input character is vowel or not

ch=input("Enter any character ")
print("Vowel") if ch=='a' or ch=='o' or ch=='u' or ch=='i' or ch=='e' else
print("Not vowel")
```

Output

```
Enter any character o
Vowel

Enter any character a
Vowel

Enter any character x
Not vowel
```

Example:

```
# Write a program to input name ,2 subject marks and calculate total,avg
and result

name=input("Enter Name of Student ")
sub1=int(input("Enter Subject1 Marks "))
sub2=int(input("Enter Subject2 Marks "))
total=sub1+sub2
avg=total/2
print("Name :",name)
print("Subject1 Marks :",sub1)
print("Subject2 Marks :",sub2)
print("Total Marks :",total)
print("Avg Marks :",avg)
result="FAIL" if sub1<40 or sub2<40 else "PASS"
print("Result :",result)
```

Output

```
Enter Name of Student Suresh
Enter Subject1 Marks 35
Enter Subject2 Marks 99
```

Name : Suresh
Subject1 Marks : 35
Subject2 Marks : 99
Total Marks : 134
Avg Marks : 67.0
Result : FAIL

“not” operator

“not” is a keyword, which represents logical operator
It is a unary operator and required one operand
In application development not not operator is used along with other operands

Example: not in, is not

```
>>> a=True
>>> b= not a
>>> c=False
>>> d=not c
>>> print(a,b)
True False
>>> print(c,d)
False True
>>> e=not 10>20
>>> print(e)
True
>>> f=not 10>5
>>> print(f)
False
```

Example of multiple conditional operators within expression

```
>>> 10 if True else 20
10
>>> 10 if False else 20
20
>>> 10 if False else 20 if True else 30
```

20
>>> 10 if False else 20 if False else 30
30

Example:

```
# Write a program to input name ,2 subject marks and calculate total,avg and grade
# A ---> >=80
# B -->  >=60 <80
# C --> >=50 < 60
# D --> <50

name=input("Enter Name of Student ")
sub1=int(input("Enter Subject1 Marks "))
sub2=int(input("Enter Subject2 Marks "))
total=sub1+sub2
avg=total/2
print("Name :",name)
print("Subject1 Marks :",sub1)
print("Subject2 Marks :",sub2)
print("Total Marks :",total)
print("Avg Marks :",avg)
grade="A" if avg>=80 else "B" if avg>=60 and avg<80 else "C" if avg>=50 and avg<60 else "D"
print("Grade :",grade)
```

Output

```
Enter Name of Student Suresh
Enter Subject1 Marks 70
Enter Subject2 Marks 50
Name : Suresh
Subject1 Marks : 70
Subject2 Marks : 50
Total Marks : 120
Avg Marks : 60.0
Grade : B
```

Membership Operator

Membership operator is a binary operator and required 2 operands.

Membership operator is used with collection data types.

“in” keyword represents membership operator.
This operator returns True, if given value exists in collection of values
This operator returns False, if given value not exists in collection of values.
Membership operator returns Boolean value.

1. in
2. not in

Example:

```
>>> 10 in {10,20,30,40}
True
>>> 10 in {100,200,300,400}
False
>>> "naresh" in ["ramesh","suresh","rajesh"]
False
>>> "a" in "naresh"
True
>>> "i" in "naresh"
False
>>> "es" in "naresh"
True
```

Example:

```
# write a program to find input character is vowel or not

ch=input("Enter any character ")
print("vowel") if ch in "aeiouAEIOU" else print("not vowel")
```

Output

```
Enter any character a
vowel

Enter any character A
vowel
```

Example of not in operator

```
>>> 10 not in [10,20,30,40,50]
False
```

```
>>> 100 not in  [10,20,30,40,50]
True
```

Identity Operator

1. Python is a object oriented programming language
2. In object oriented programming languages data is represents as objects and data types class
3. Every object creation required class
4. Class is a model of object