Operators in python

- Mathematical operators (+, -, , /, %, //, *)
  - also known as arithmatic operators
- Logical operators

```
- logical operators always give boolean values

and, or, not, in
```

- Relational operators

```
- relational operators return boolean value
- operators that we use for comparison

<, >, <=, ==, >=, !=
```

Mathematical operators

```
+   (addition)
-   (substraction)
*   (multiplication)
/   (division)
%   (modulo operator)
//  (floor division)
**  (exponentiation)
```

Difference between / (division) and // (floor division)

- floor division will always give qotient as a int (whole number)
- division will give qotient as float value

In [5]:

```
10 / 5
```

Out[5]:

```
2.0
```

In [7]:

```
11 // 5
```

Out[7]:

```
2
```

short-hand operators

- only used for incrementing or decrementing.

- short-hand operators are used for addition / substraction

-=, +=

In [31]:

```
foo = 100
foo = foo + 50
foo
```

Out[31]:

```
150
```

In [33]:

```
foo = 100
foo += 50
foo
```

Out[33]:

```
150
```

In [34]:

```
bar = 100
bar = bar - 40
bar
```

Out[34]:

```
60
```

In [36]:

```
bar = 100
bar -= 40
bar
```

Out[36]:

```
60
```

Logical operators - `and` , `or`

In [10]:

```
True and True
```

Out[10]:

```
True
```

In [11]:

```
True and False
```

Out[11]:

```
False
```

In [12]:

```
False and False
```

Out[12]:

```
False
```

In [13]:

```
False and True
```

Out[13]:

```
False
```

In [14]:

```
True or True
```

Out[14]:

```
True
```

In [15]:

```
True or False
```

Out[15]:

```
True
```

In [16]:

```
False or False
```

Out[16]:

```
False
```

In [17]:

```
False or True
```

Out[17]:

```
True
```

Logical operators - `not`

In [19]:

```
not True
```

Out[19]:

```
False
```

In [20]:

```
not False
```

Out[20]:

```
True
```

Logical operators - `in`

- used for memebership check in any collection

In [22]:

```
# `list` is a collection of multiple values

foo = [1, 2, 3, 4]

2 in foo
```

Out[22]:

```
True
```

In [23]:

```
foo = [1, 2, 3, 4]

10 in foo
```

Out[23]:

```
False
```

Relational operators: Equality `==`

In [24]:

```
100 == 100
```

Out[24]:

```
True
```

In [25]:

```
True == True
```

Out[25]:

```
True
```

In [26]:

```
99 == 100
```

Out[26]:

```
False
```

`assignment operator` vs `equality operator`

In [27]:

```
foo = 100
```

In [28]:

```
"prashant" == "prashant"
```

Out[28]:

```
True
```

In [30]:

```
foo = "prashant"
foo == "prashant"
```

Out[30]:

```
False
```

program to convert days into months

In [ ]:

```
print("hello world!")
```

In [54]:

```
days = input("how many days it has been? ")
days = int(days)
months = days // 30
remaining_days = days % 30
print(months)
print(remaining_days)
```

```
how many days it has been? 31
1
1
```

In [ ]:

```
### to convert temperature from Fahrenheit to celcius

# formulae - (32°F − 32) × 5/9 = 0°C

# step 1: take input from user (Fahrenheit)
# step 2: type cast user input into `int`
# step 3:  (Fahrenheit - 32) * (5/9)
```

In [38]:

```
f = input("please enter temp in Fahrenheit :  ")
f = int(f)
c = (f - 32) * (5 / 9)
print(c)
```

```
please enter temp in Fahrenheit :  100
37.77777777777778
```

In [40]:

```
float("30.50")
```

Out[40]:

```
30.5
```

In [41]:

```
counter = 0
counter = counter + 1
counter = counter + 1
counter = counter + 1
print(counter)
```

```
3
```

In [43]:

```
counter = 0
counter += 1
counter += 1
print(counter)
```

```
2
```

In [47]:

```
bool(100)    # call / invoke
```

Out[47]:

```
True
```

In [48]:

```
bool(0)
```

Out[48]:

```
False
```