Dictionary

In [38]:
```
# Dictionaries key-value pair separated by commas
dict1 = {
    1 : "one",
    2 : "two",
    3 : "three",
    4 : "four"
}

dict1[3]
```

Out[38]: 'three'

In [39]:
```
dict1.get(2)
```

Out[39]: 'two'

In [42]:
```
# Adding element to dictionary
dict1[5] = "five"
print(dict1)

# Pop to remove an element

dict1.pop(5)
print(dict1)
```

```
{1: 'one', 2: 'two', 3: 'three', 4: 'four', 5: 'five'}
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [44]:
```
for x,y in dict1.items():
    print("key:",x,"value:",y)
```

```
key: 1 value: one
key: 2 value: two
key: 3 value: three
key: 4 value: four
```

Functions

In [56]:
```
def sum(x,y):
    print(x+y)

sum(2,3)
```

```
5
```

In [57]:
```
# Calculator
def calculator(operand1, operand2, operator):
    if operator == '+':
        return operand1 + operand2
    elif operator == '*':
        return operand1 * operand2
    elif operator == '/':
        if operand2 != 0:
            return operand1 / operand2
        else:
            return none
    else:
        return "invalid inputs"
output = calculator(10, 20, '*')
print(output)
```

```
200
```

Loops

In [53]:
```
# While Loop
i = 1
while i<4:
  print(i)
  i += 1
```

```
1
2
3
```

In [55]:
```
# For loop
for x in "india":
  print(x)
```

```
i
n
d
i
a
```

operators

In [47]:
```
a = 2
b = 4

print(a+b)
print(a-b)
print(a*b)
print(a/b)
```

```
6
-2
8
0.5
```

In [48]:
```
print(a==b)
```

```
False
```

In [49]:
```
print(a<b)
```

```
True
```

Statements

In [ ]:
```
# If Statement
a = 2
b = 3
if a<b:
  print("a is smaller than b")
```

In [51]:
```
a = 10
b = 20
if a == b:
  print("a and b are equal")
elif a > b:
  print("a is greater than b")
else:
  print(" b is greater than c")
```

```
b is greater than c
```

Exercise

In [58]:
```
# Area of triangle
a = float(input('Enter first side: '))
b = float(input('Enter second side: '))
c = float(input('Enter third side: '))

# calculate the semi-perimeter
s = (a + b + c) / 2

# calculate the area
area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
print('The area of the triangle is %0.2f' %area)
```

```
Enter first side: 5
Enter second side: 6
Enter third side: 7
The area of the triangle is 14.70
```

Basics of Python

In [4]:
```
# Expressions
2+3
```

Out[4]: 5

In [5]:
```
print("Hello World")

# Statements
for i in range(3):
    print(i)
```

```
Hello World
0
1
2
```

Data Types

In [6]:
```
type(80)
```

Out[6]: int

In [7]:
```
type('hello')
```

Out[7]: str

In [8]:
```
type(99.9)
```

Out[8]: float

In [9]:
```
type(6>5)
```

Out[9]: bool

Casting Data Types

In [10]:
```
int(2.3)
```

Out[10]: 2

In [12]:
```
str(9)
```

Out[12]: '9'

In [11]:
```
float(4)
```

Out[11]: 4.0

Lists

In [19]:
```
animals = ["dog", "cat", "sheep", "goat", "tiger","lion"]

print(animals[2])
print(animals[-1])
print(animals[2:5])
```

```
sheep
lion
['sheep', 'goat', 'tiger']
```

In [ ]:
```
# Adding new element to list
animals.append('cow')
print(animals)
```

In [28]:
```
# Removing element from list

animals.remove("goat")
print(animals)
```

```
['dog', 'cat', 'tiger', 'lion', 'cow']
```

In [29]:
```
animals.clear()
print(animals)
```

```
[]
```

Tuple

In [34]:
```
animals = ("bear", "dog", "cat", "rat", "goat")

print(animals[-2])
print(len(animals))
```

```
rat
5
```

In [32]:
```
# looping through tuple
for i in animals:
    print(i)
```

```
bear
dog
cat
rat
goat
```

In [36]:
```
# Joining tuples using +
letters = ('a','b','c')
numbers = (1, 2, 3)
letter_numbers = letters + numbers

print(letter_numbers)
```

```
('a', 'b', 'c', 1, 2, 3)
```