Programming in Python

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Repeating Actions

"for" loop

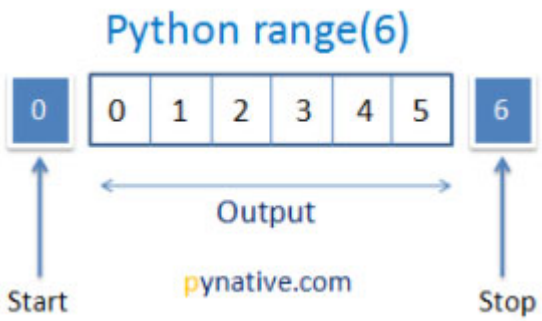
In a range

In [1]:
```
range(0,4,1)
```

Out[1]:
```
range(0, 4)
```

In [2]:
```
# range(Start,Stop,Steps), SSS
list(range(0,4,1))
```

Out[2]:
```
[0, 1, 2, 3]
```



In [3]:
```
# Print all the num in the range: The long way:
print(0)
print(1)
print(2)
print(3)
```

```
0
1
2
3
```

In [4]:
```
# Example 1
for i in range(4):
    print(i)
```

```
0
1
2
3
```

In [7]:
```
import time

# Example 1
for i in range(4):
    print(i)
    print("then")
    time.sleep(1) #only for illustration
```

```
0
then
1
then
2
then
3
then
```

In a list

In [9]:
```
# Example 1: list of strings, call by item:
animals = ['dog', 'cat', 'mouse']

for animal in animals:   # animal can be anything
    print(animal)
    time.sleep(1)
```

```
dog
cat
mouse
```

In [11]:
```
# Example 2: list of strings, call by index:
animals = ['dog', 'cat', 'mouse']

for index in range(len(animals)):
    print(animals[index])
#    print(f" The animal # {i} is a {animals[i]}")
```

```
dog
cat
mouse
```

In [16]:
```
len(animals)
```

Out[16]:
```
3
```

In [ ]:
```
####
```

In [13]:
```
# Example 2: list of strings, call by index:
animals = ['dog', 'cat', 'mouse']

for index, animal in enumerate(animals):
    print(animals[index])
```

```
dog
cat
mouse
```

In [12]:
```
animals = ['dog', 'cat', 'mouse']
list(enumerate(animals))
```

Out[12]:
```
[(0, 'dog'), (1, 'cat'), (2, 'mouse')]
```

In [14]:
```
# C.W.1:
# Given: nums = [32, 28, 30]
# Requred: Calculate the "sum" and the "avg." of the numbers in "nums" list of
```

In [17]:
```
# H.W.1:Solution
nums = [32, 28, 30]

Sum=0

for num in nums:
```

```
    #Sum=Sum+num
    #Sum += num      # Sum=Sum+num

print('The sum of the nums is', Sum)
print('The avg. of the nums is', Sum/len(nums))
```

```
The sum of the nums is 90
The avg. of the nums is 30.0
```

In a dict

In [18]:
```
# Example 1:key
people = {'Bob': 32, 'John': 30, 'Fareedah': 28}

for name in people:   # name=key
    print(name)
```

```
Bob
John
Fareedah
```

In [19]:
```
# Example 2:value
people = {'Bob': 32, 'John': 30, 'Fareedah': 28}

for name in people:
    print(people[name])
```

```
32
30
28
```

In [21]:
```
# Example 3:item
people = {'Bob': 32, 'Joh': 30, 'Sam': 28}

for name,age in people.items():  # name=key & age=vlaue
    print(f"the is {name} : {age} years old")
```

```
the is Bob : 32 years old
the is Joh : 30 years old
the is Sam : 28 years old
```

In [24]:
```
# Example 4:value
people = {'Bob': 32, 'John': 30, 'Fareedah': 28}

Age_Sum = 0
for age in people.values():
    Age_Sum+=age
    print(f"{age}")

print(f"the age sum is {Age_Sum}")
```

```
32
30
28
the age sum is 90
```

In [25]:
```
# H.w.1: Age avarage
# Given: people = {'Bob': 32, 'John': 30, 'Fareedah': 28}
# Requird: Calculate the age avarage of the people in the "people dictionery"
```

In [26]:
```
people = {'Bob': 32, 'John': 30, 'Fareedah': 28}

Age_Sum = 0
for age in people.values():
    Age_Sum += age   # Age_Sum = Age_Sum + age
```

```
print('The avg. of the ages is', Age_Sum/len(people))
```

```
The avg. of the ages is 30.0
```

In a string

In [27]:
```
import time

# Example 1
name="Mustafa"
for letter in name:
    print (f" {letter.upper()}")
    time.sleep(1)  # only for illustration
```

```
M
U
S
T
A
F
A
```

Nested loop

In [30]:
```
import time

# Example 1: list
letters = ["A", "B","C"]

for letter in letters:
    print (f" {letter}:")
    time.sleep(1)

    for i in range(5):
        print (f" {i}")
        time.sleep(1)
```

```
A:
0
1
2
3
4
B:
0
1
2
3
4
C:
0
1
2
3
4
```

In [31]:
```
# Example 2: list
people = ["Jhon", "Archi"]
skills=["Python", "Matlab"]

for name in people:
    print (f" {name} skils are:")
    print (f" {name} skils are:")
```

```
#     for skill in skills:
#         print (f" {skill}")
```

```
Jhon skils are:
Python
Matlab
Archi skils are:
Python
Matlab
```

In [36]:
```
# Example 2: list
people = ["Jhon", "Archi"]
skills=["Python", "Matlab"]

for i in range(2):
    name=people[i]
    skill=skills[i]
    print (f" {name}:{skill}")
    #print (f"  ")

#     for skill in skills:
#         print (f" {skill}")
```

```
Jhon:Python
Archi:Matlab
```

In [37]:
```
# Example 3: Dict
people = {'Bob': {"Python":85, "Matlab":30},
          'Sam': {"Java":25, "Matlab":80}}

for name, skill in people.items():  # name=key & age=vlaue
    print(f"{name} skils are:")
    time.sleep(3)

    for skill, progress in skill.items():
        print(f"             {skill} with {progress}% progress")
        time.sleep(1)
```

```
Bob skils are:
             Python with 85% progress
             Matlab with 30% progress
Sam skils are:
             Java with 25% progress
             Matlab with 80% progress
```

"while" loop

while true: code will run (or output)

In [44]:
```
# Example 1:
a=5

while a<=6:
    print (a)
    a +=1       # a = a + 1
    time.sleep(1)  # only for illustration
```

```
5
6
```

In [41]:
```
a=5
a<=4
```

Out[41]:
```
False
```

In [45]:
```
# Example 2:
a=100

while a<4:
    print (a)
    a +=1
else:
    print ("Condition is not valid")
```

```
Condition is not valid
```

In [46]:
```
# Example 3:
Name = ['Bob','John','Jamiu']
a=0

while a<len(Name):
    print (Name[a])
    a+=1
```

```
Bob
John
Jamiu
```

In [47]:
```
# Example 4
Name = ['Bob','John','Jamiu']
a=0

while a<len(Name):
    print (f"#{a+1} {Name[a]}")
    a+=1
```

```
#1 Bob
#2 John
#3 Jamiu
```

In [49]:
```
# H.W 1: Simple bookmark manger:
# Required: Creat a list of 3 favorite websites (Input only 3 websites).
# Hint: use while, input and append.
# Hint: during the input show a letter for how many places left to input.
```

In [50]:
```
# Hint:
x=input("Input x value: ")
print(f'x= {x}')
```

```
Input x value:
x=
```

Output example:

```
Website name without https://googgle
Website is added, 2 places left
Website name without https://yahoo
Website is added, 1 places left
Website name without https://hhgghcf
Website is added, 0 places left
----------------------------------------
----------------------------------------
The favorite websites of the user are: ['https://googgle', 'https://yahoo', 'https://hhgghcf']
```