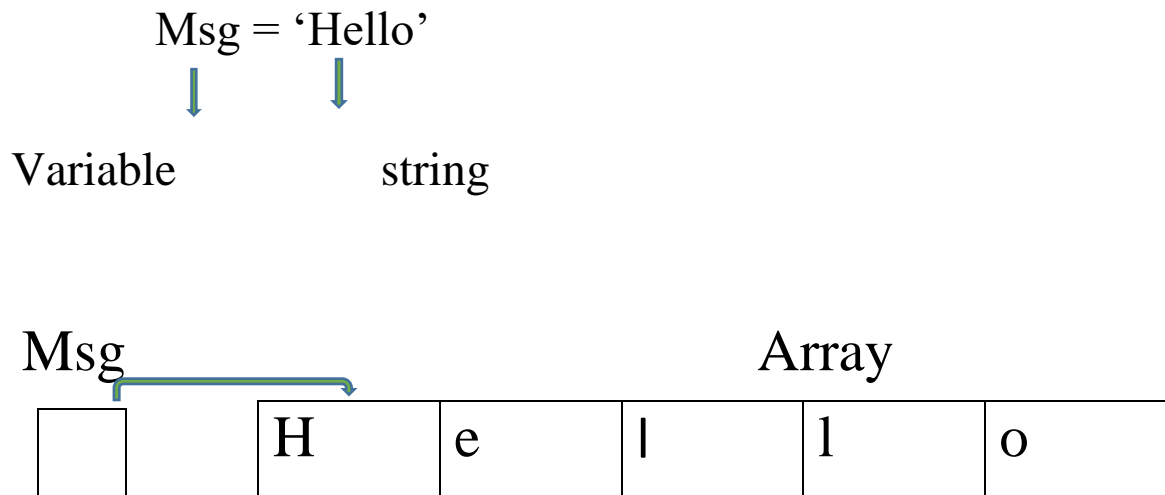# Introduction: For Loop

- Loops are useful for repeatedly executable statements
- While loop works on conditions whereas while loop don't

How for loop works

Msg = 'Hello'

Variable   string

Msg   Array

	H	e	I	l	o

So the string is arranged in the form of an array.

Suppose if we write For x in msg:
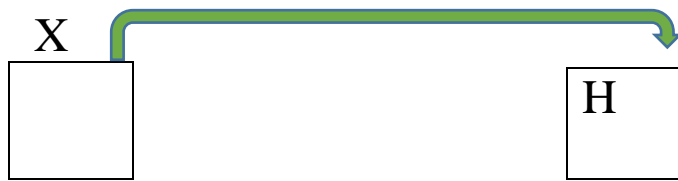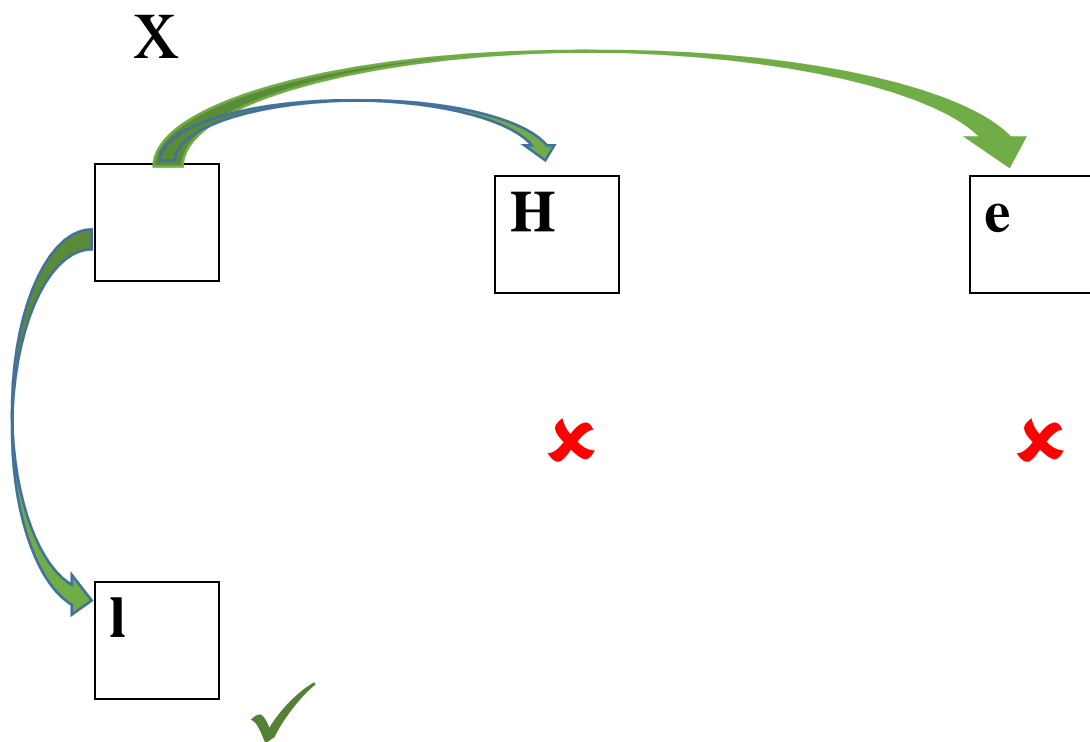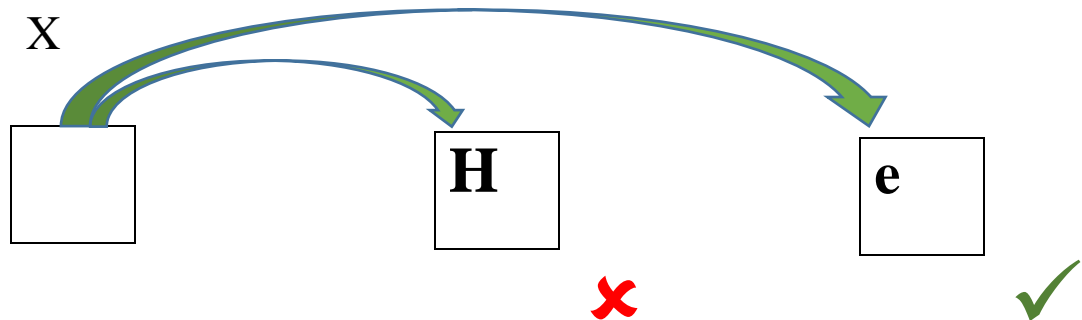
Print(x)

It will print like this

H

e

l

l

o

first it prints H

X

H

Then again it repeats using for and prints the next letter

X

H
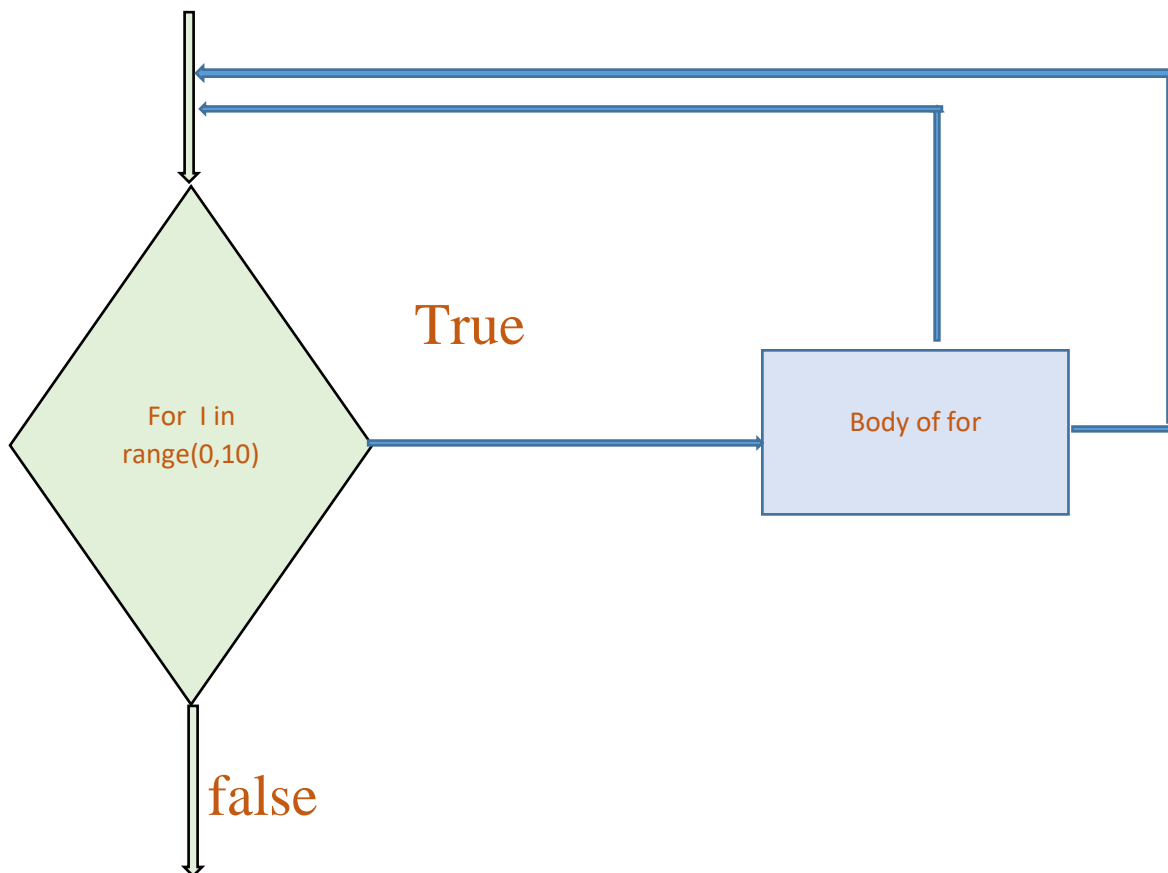
e

✖ ✔

X

H

e

✖ ✖

l

✔

It goes on repeating till the end of an array

This loop is also called as foreach loop in languages like java and c++

Msg='hello'

For x in msg:#for loop runs for each statement in the sequence

  (print x)

Flow chart(for loop)

True

For I in range(0,10)

Body of for

false

so if the value condition is true so loop of the body is executed continuously and then at one point it stops.

Basically for loop depends upon the elements in a sequence.

Elements has finished means false and elements has not finished means true.

What is Range?

- Range is a function
- Suppose range(10)
- 0,1,2,3,4,5,6,7,8,9 it will stop at just one number before the last number.
- If you give range(5,10) 5,6,7,8,9

- Start   End
- Can also give step range(1,10,2) 1,3,5,7,9

- Start   End   Step
- Range(10,0,-1) 10,9,8,7,6,5,4,3,2,1

- Start   End   Step
- Range(-10,-1,2) –10,-8,-6,-5,-4
-
- Start End Step
- this is how range function works

Coding

Input:

```python
msg='Hello'
for x in msg:
    print(x)
```

Output:

H

e

l

l

o

it's printing as H e l l o one by one . so, for loop executes for each element inside given statement.

Usually this types of things which are having elements called as sequence.

Input:

```python
for i in range(10): #it will take in from 0 to 10
    print(i)
```

Output:

0

1

2

3

4

5

6

7

8

9

Input:

```python
for i in range(5,10): #it will print 5 to 10
    print(i)
```

Output:

5

6

7

8

9

Input:

```python
for i in range(0,10,2): #it will print on every
two steps from 0 to10
    print(i)
```

Output:

0

2

4

6

8

Process finished with exit code 0

Input:

```python
for i in range(10,0,-1): #it prints the numbers in
reverse order
    print(i)
```

Output:

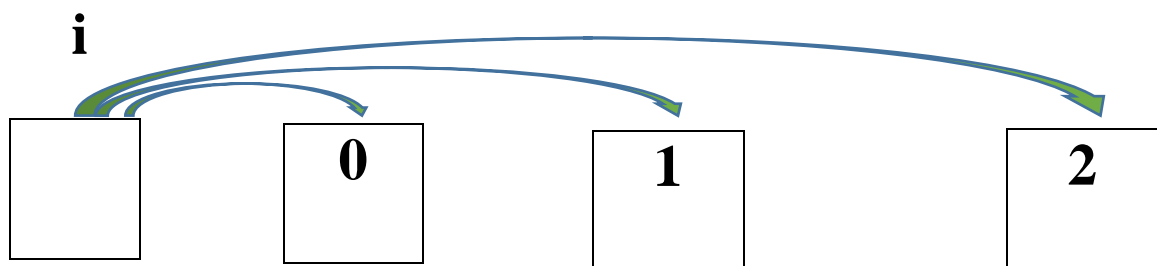10

9

8

7

6

5

4

3

2

1

How i is working ?

```
For i in range(0,10):
Print(i)
```

i

It works upto 10.

For each I in this range(0,10)

Print(i) will be executed

Each i is 0,1,2---upto 9