
# Python 3.x

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# What we will cover today?

- Assignment Solution
- Loops – While and For
- Assignment

# IF ELSE – ASSIGNMENT SOLUTION

```
h = int(input("Enter hardness"))
c = int(input("Enter carbon content"))
t = int(input("Enter tensile strength"))
if h>50 and c<0.7 and t > 5600:
    print("Grade 10")
elif h > 50 and c < 0.7:
    print("Grade 9")
elif c < 0.7 and t > 5600:
    print("Grade 8")
elif h > 50 and t > 5600:
    print("Grade 7")
elif h > 50 or c < 0.7 or t > 5600:
    print("Grade 6")
else:
    print("Grade 5")
```

```
year = int(input("Enter a year"))
if year%4 == 0:
   if year%100 != 0:
      print("Leap year")
   else:
      if year%400 == 0:
         print("Leap year")
      else:
         print("not Leap year")
else:
   print("not Leap year")
```

# IF ELSE – ASSIGNMENT SOLUTION

```
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
num3 = float(input("Enter third number: "))

if (num1 > num2) and (num1 > num3):
        largest = num1
elif (num2 > num1) and (num2 > num3):
        largest = num2
else:
        largest = num3
print("The largest number is",largest)
```

```
character=input(
"Enter single character:")
asciival=ord(character)

If (asciival >= 65 )and (asciival <=90):
        print("Upper Case")

elIf (asciival >= 97 )and (asciival <=122):
        print("Lower Case")

elIf (asciival >= 48 )and (asciival <=57):
        print("Number")
else:
        print("Special Character")
```

# Loop Structures Rules

- Loop structures are delimitated by indentation (no endif, or {})
- For loops iterate over the elements of a list
- When same set of instructions have to be repeated for set number of times, we need a loop

**For Loop :**

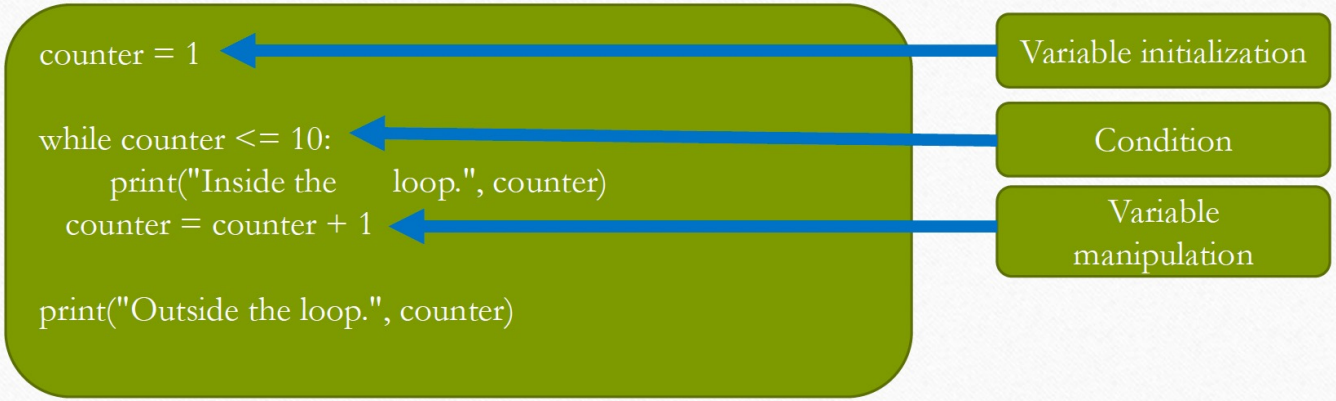
```
x = range(3)
for n in x:
    print( n)
```

**While Loop :**

```
a = 0
while a < 3:
            a = a + 1
  print( a)
print ('All Done')
```

# While Loop

- `while (condition):`
  - `do this`



# Exercise While Loop

- Print numbers from backwards 10 to 1

```
counter=10
while(counter>=1):
    print(counter)
    counter=counter-1
```

# Exercise: If inside while loop/increment counter by 2

Print even numbers from 1 to 100 using a while loop

```
n=1
while n<=100:
        if n%2==0:
                print(n)
        n=n+1
```

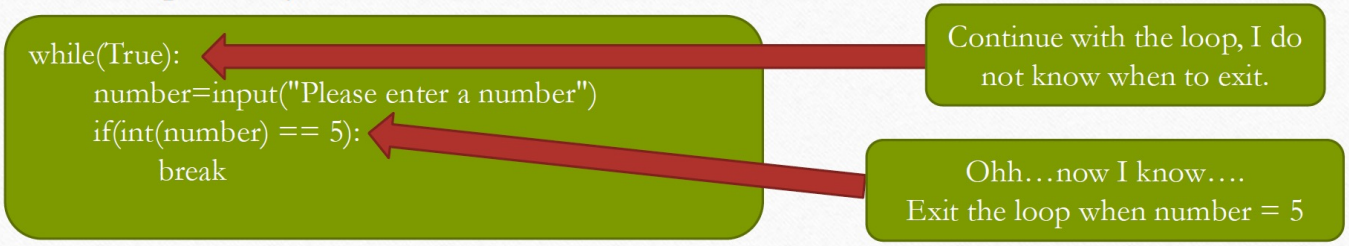
# Exercise: Storing values in loop

Write a program to find addition of all even numbers from 1 to 100

```
counter=2
addition=0
while(counter<=100):
        addition = addition +counter
        counter=counter+2
print(addition)
```

# Break

- break - exits the loop immediately, and unconditionally ends the loop's operation; the program begins to execute the nearest instruction after the loop's body;



# String Loop

In a loop,

- Take name as input. Print the “Hi name”
- If input is “enough”,print thankyou and exit the program

```
while(True):
        name = input('Please enter your name')
        if name == 'enough':
                print('Thankyou')
                break
        print('Hi',name)
```

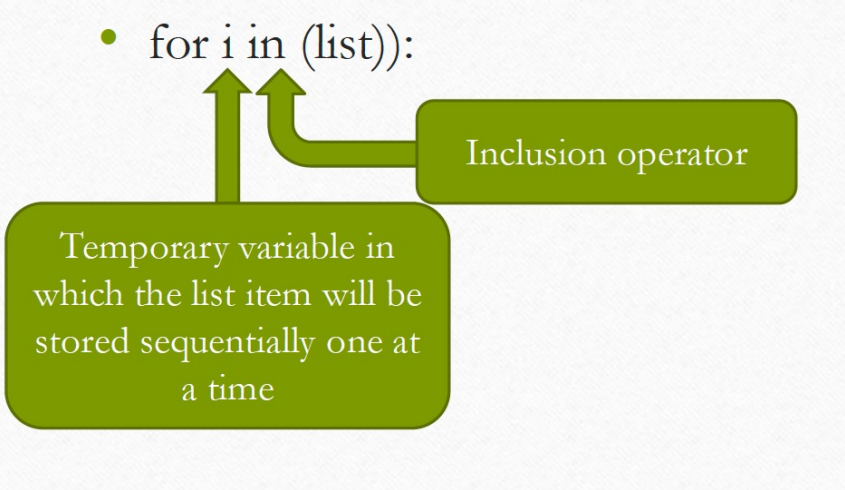
# Exercise break

In a loop, continuously ask for the score. Go on adding this score. When score is 100 or greater than 100, print “Yay!!! Century!” and come out of the program

```
scoresum = 0
while(True):
        score = int(input('enter score')
        scoresum = scoresum + score
        if scoresum >=100:
                print('Yay!!! Century!')
                break
```

# For Loop

- Looping through a list.
- In each iteration one of the element is picked sequentially for processing
- Unlike while loop, no need of counter in a for loop



# For Loop Example

```
for fruit in (“mango”,”banana”,”pear”):
        print(fruit)
```

```
mango
banana
pear
```

# Range Function

- Range function returns sequence of numbers, starting from 0 (default) and incremented by 1 (default)
- Syntax range(start, stop, step)
- Start – optional. Default 0. integer number specifying from which number to start
- Stop – mandatory.  Integer number specifying where to stop
- Step – optional. Default 1. integer number specifying increments
- range(10): returns list of sequential numbers from 0 to 9
- range(1,11): returns sequential numbers from 1 to 11
- range(1,11,2): returns odd numbers from 1 to 9
- range(0,10,2): returns even numbers from 0 to 8
- range(10,0): returns numbers from 10 to 1
- Example
  - X=range(3, 8, 2)

  Will print 3, 5, 7

# Using range() in for loop

- for number in range(10):
  print(number)

- prints numbers from 0 to 9

# for loop Exercise

- Vowel eater: Print the given name without vowels
- For a given word, print the number of alphabets in the word
- Accept number from user and calculate the sum of all number between 1 and given number

# for loop Exercise Solution

- Vowel eater: Print the given name without vowels

```
name=input('Enter your name')
for n in name:
    if n in ['a', 'e', 'i' , 'o' , 'u']:
        print(n)
```

- Accept number from user and calculate the sum of all number between 1 and given number

# Any Question ?


# Thank you !