

ISLab Python Course

Session 4: Control Flow in Python

Presenters:

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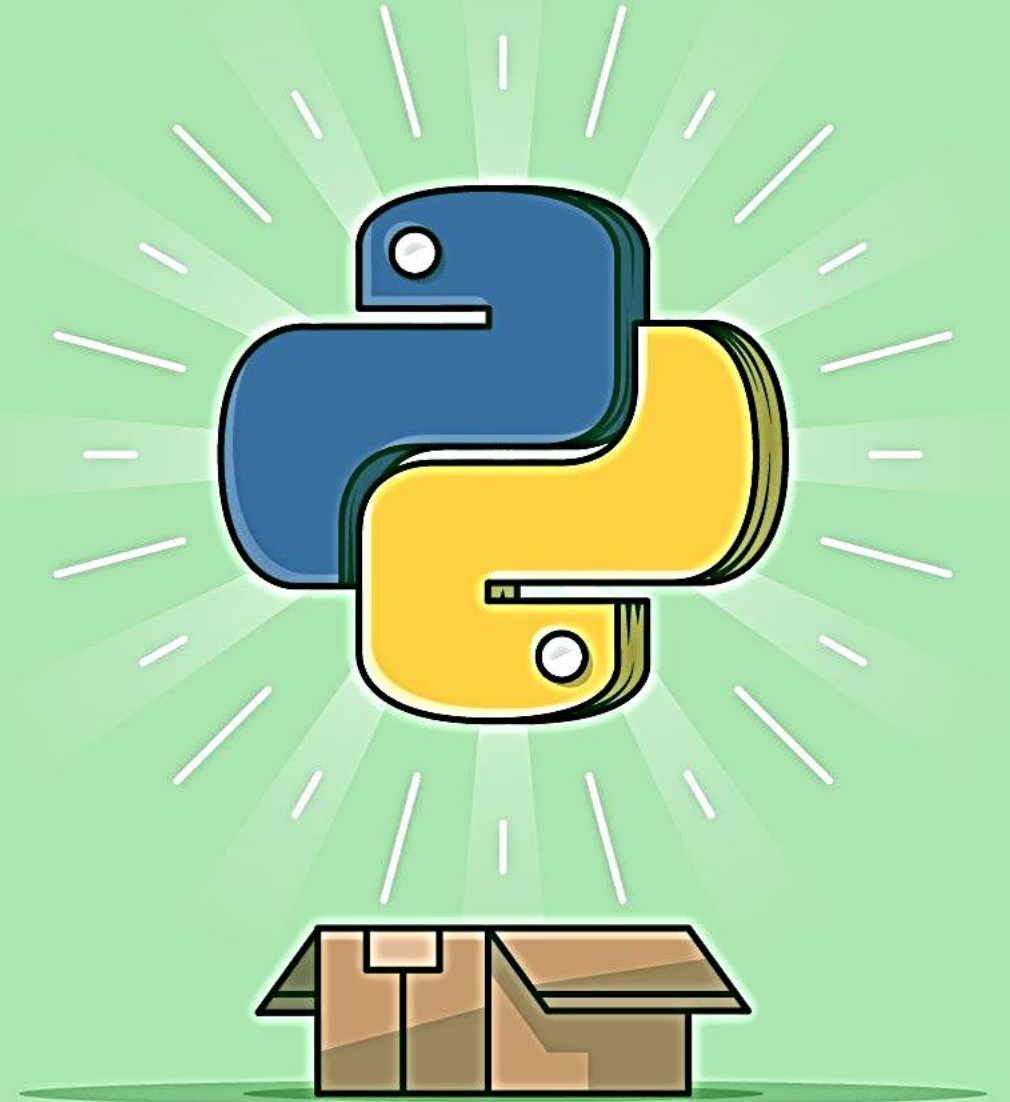
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Indentation

- Indentation refers to the spaces at the beginning of a code line
- Python uses indentation to indicate a block of code
- Python will give you an error if you skip the indentation
- The number of spaces is up to you as a programmer, but it has to be at least one
- You have to use the same number of spaces in the same block of code, otherwise Python will give you an error

Python

The indentation in Python is very important to code runs

Some Other Programming Languages

The indentation in code is for readability only

Indentation

```
value = 3
if value<5:
    print(f"Value {value} is less than 5.")
```

Control Flow

Conditionals

Loops &
Iterations

Conditionals: If

if condition:
do this
do that

.....



Single Condition

if (cond1) **and** (cond2):
do this
do that

.....



Multiple Conditions
(All must be True)

if (cond1) **or** (cond2):
do this
do that

.....



Multiple Conditions
(Only one must be True)

Conditionals: If, elif, else

```
if condition:  
    do this  
    do that  
else:  
    do sth_else
```

.....

```
if (cond1) and (cond2):  
    do this  
    do that  
elif cond3:  
    do sth_else
```

.....

```
if cond1:  
    do this  
elif cond2:  
    do that  
elif cond3:  
    do sth  
else:  
    do sth_else
```

.....

Loops & Iterations: While

while condition:

do this

do that

even modify condition

.....

while cond1 **and** cond2:

do this

do that

even modify condition

.....

while cond1 **or** cond2:

do this

do that

even modify condition

.....

range() function

- A built-in function that:
 - returns a sequence of numbers
 - starts from 0 by default
 - increments by 1 by default
 - stops before a specified number

range(start,stop,step)

Loops & Iterations: For

- Used to iterate over a sequence
- The sequence can mean a sequence of:
 - characters (a string)
 - any of composite data types: Lists, Sets, Tuples, and Dictionaries
- Looping method is not necessarily identical for each data type
 - Review the examples for a clear understanding

```
# loop for 5 times, starting from 1  
for i in range(1, 6):  
    print(i)
```

```
1  
2  
3  
4  
5
```