

Lecture-09: Iterating by index of sequences

Iterating by index of sequences:

We can also use the index of elements in the sequence to iterate. The key idea is to first calculate the length of the list and in iterate over the sequence within the range of this length.

See the below example:

```
# Python program to illustrate
# Iterating by index
list = ["geeks", "for", "geeks"]
for index in range(len(list)):
    print list[index]
```

Output:

```
Geeks
For
geeks
```

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Using else statement with for loops: We can also combine else statement with for loop like in while loop. But as there is no condition in for loop based on which the execution will terminate so the else block will be executed immediately after for block finishes execution.

Below example explains how to do this:

```
# Python program to illustrate
# combining else with for
list = ["geeks", "for", "geeks"]
for index in range(len(list)):
    print list[index]
else:
    print "Inside Else Block"
```

Output:

Geeks

for

geeks

Inside Else Block



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Nested Loops:

Python programming language allows to use one loop inside another loop. Following section shows few examples to illustrate the concept.

Syntax:

```
for iterator_var in sequence:  
    for iterator_var in sequence:  
        statements(s)  
        statements(s)
```

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The syntax for a nested while loop statement in Python programming language is as follows:

```
while expression:  
    while expression:  
        statement(s)  
        statement(s)
```

A final note on loop nesting is that we can put any type of loop inside of any other type of loop. For example a for loop can be inside a while loop or vice versa.

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Example:

```
adj = ["red", "big", "tasty"]
fruits = ["apple", "banana", "cherry"]
for x in adj:
    for y in fruits:
        print(x, y)
```

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OUTPUT

red apple
red banana
red cherry
big apple
big banana
big cherry
tasty apple
tasty banana
tasty cherry



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```
# nested for loops in Python
from __future__ import print_function
for i in range(1, 5):
    for j in range(i):
        print(i, end=' ')
    print()
```

Output:

```
1
2 2
3 3 3
4 4 4 4
```

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References:

1. Introduction to Computation and Programming using Python, by John Guttag, PHI Publisher
2. Python Programming using problem solving Approach by Reema Thareja, Oxford University, Higher Education Oxford University Press; First edition (10 June 2017), ISBN-10: 0199480173
3. Fundamentals of Python first Programmes by Kenneth A Lambert, Copyrighted material Course Technology Inc. 1 st edition (6th February 2009)
4. <https://www.tutorialspoint.com/python/index.htm>
5. <https://www.w3schools.com/python/>

*****END OF THE LECTURE*****

*****THANK YOU*****

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