

Generator and Lambda Functions

Textbook

Python Generator and Lambda Functions

Python has several kinds of functions that are useful at certain times. Let's explore two of them.



Generator Functions

Now let's learn about a specific type of function called a [generator function](#).

A generator function uses `yield` instead of `return`. If a function has the word `yield` in it, it automatically is considered a generator.

```
1 def myFunction():  
2     yield 1  
3     yield 2  
4     yield 3  
5
```

Try it!

Note: Unlike the return statement, the yield statement allows the function to continue

Notice how the above code doesn't print anything. This is because generator functions return a specific kind of information called a [generator object](#). These objects are accessed by using a for loop.

```
1 def myFunction():  
2     yield 1  
3     yield 2  
4     yield 3  
5  
6 for x in myFunction():  
7     print(x)
```

Try it!

This will now print

1

2

3

Generator functions are useful in working with large data sets when you want to return lists of information.

Python Lambda Functions



There's another specific type of function called a [lambda function](#). Lambda functions are an example of [anonymous functions](#). Anonymous functions don't have a name and are generally used for short-term, quick situations.

The lambda functions work the exact same way as a normal function, but just look a little different.

Here is an example of a lambda function.

```
1 (lambda x: x + 1)(2)
```

Try it!

This will print out `3`

Let's figure out what is happening here. The above function has the following parts.

- `lambda` This is the function name. Since they are anonymous, we just use lambda.
- `x:` This is the parameter.
- `x + 1` This is the code that tells the parameter what to do.
- `(2)` This is the argument.

So we just look in the second parentheses and use that value in the code that comes after the colon.

Another example of a lambda function.

```
1 (lambda a: a * 4)(3)
```

Try it!

This will print out `12`

See how short these functions are? They are often used inside of normal functions.

Assigning names to Lambda Functions

Although lambda functions are considered anonymous, they can also have names assigned to them.

```
1 myfunction = lambda x : x + 10
2
3 print(myfunction(5))
```

Try it!

Notice how we use a normal parameter in a function call instead of parentheses around the lambda function.

If you look closely, the above lambda function has the same behavior as this normal function.

```
1 def myfunction(x):
2     return x + 10
3
4 print(myfunction(5))
```

Try it!

These are just different ways of creating functions! Often there are many ways to create code that does the same thing.

Questions (4)

1. What kind of function is the following an example of?

MULTIPLE CHOICE

```
def myfunction(a): print(a + 4) myfunction(2):
```

Choose the correct answer:

- A. generator function
- B. lambda function
- C. normal function
- D. for loop

2. What kind of function is the following an example of?

MULTIPLE CHOICE

```
def myFunction(): yield 23 yield 5 yield 94 for x in myFunction(): print(x)
```

Choose the correct answer:

- A. generator function
- B. regular function
- C. lambda function
- D. This is not an example of a function

3. What kind of function is the following an example of?

MULTIPLE CHOICE

```
myfunction = lambda x : x + 10 print(myfunction(5))
```

Choose the correct answer:

- A. generator function
- B. lambda function
- C. normal function
- D. for loop

4. What is an anonymous function?

Choose the correct answer:

- A. A function that does not have a name
- B. A function that does not get used
- C. A function that does not print anything
- D. A function that does not have comments above it.

Answer Keys & Solutions

Questions

1. What kind of function is the following an example of?

MULTIPLE CHOICE

Correct Answer:

- A. generator function ✗ Incorrect
- B. lambda function ✗ Incorrect
- C. normal function ✓ Correct
- D. for loop ✗ Incorrect

Explanation:

Generator functions have the word yield and lambda functions have the word lambda.

2. What kind of function is the following an example of?

MULTIPLE CHOICE

Correct Answer:

- A. generator function ✓ Correct
- B. regular function ✗ Incorrect
- C. lambda function ✗ Incorrect
- D. This is not an example of a function ✗ Incorrect

Explanation:

Generator functions have the word yield and lambda functions have the word lambda.

3. What kind of function is the following an example of?

MULTIPLE CHOICE

Correct Answer:

- A. generator function ✗ Incorrect

B. lambda function

✓ Correct

C. normal function

✗ Incorrect

D. for loop

✗ Incorrect

Explanation:

Generator functions have the word yield and lambda functions have the word lambda.

4. What is an anonymous function?

MULTIPLE CHOICE

Correct Answer:

A. A function that does not have a name

✓ Correct

B. A function that does not get used

✗ Incorrect

C. A function that does not print anything

✗ Incorrect

D. A function that does not have comments above it.

✗ Incorrect