

Assignment 3

1) How does break, continue and pass work?

Break:

The break statement in Python terminates the current loop and resumes execution at the next statement, just like the traditional break found in C.

The most common use for break is when some external condition is triggered requiring a hasty exit from a loop. The break statement can be used in both while and for loops

Example:

```
for letter in 'Python':  
    if letter == 'h':  
        break  
    print 'Current Letter :', letter
```

Continue:

The continue statement in Python returns the control to the beginning of the while loop. The continue statement rejects all the remaining statements in the current iteration of the loop and moves the control back to the top of the loop.

The continue statement can be used in both while and for loops.

Example:

```
for letter in 'Python':  
    if letter == 'h':  
        continue  
    print 'Current Letter :', letter
```

Pass:

The pass statement in Python is used when a statement is required syntactically but you do not want any command or code to execute.

The pass statement is a null operation; nothing happens when it executes. The pass is also useful in places where your code will eventually go, but has not been written yet.

Example:

```
for letter in 'Python':  
    if letter == 'h':  
        pass  
        print 'This is pass block'  
    print 'Current Letter :', letter  
  
print "Good bye!"
```

2) What is the difference between list and tuples in Python?

Differences between List and Tuple in Python.

Parameters	List	Tuple
Type	A list is mutable in nature.	A tuple is immutable in nature.
Consumption of Memory	It is capable of consuming more memory.	It is capable of consuming less memory.
Time Consumption	The list iteration is more time-consuming. It is comparatively much slower than a tuple.	The tuple iteration is less time-consuming. It is comparatively much faster than a list.
Methods	It comes with multiple in-built methods.	These have comparatively lesser built-in methods in them.
Appropriate Usage	It is very helpful in the case of deletion and insertion operations.	It is comparatively helpful in the case of read-only operations, such as accessing elements.
Prone to Error	The list operations are comparatively much more error-prone. Some unexpected changes and alterations may take place.	Any such thing is hard to take place in a tuple. The tuple operations are very safe and not very error-prone.

3) What are function in python?

Function:

- Function blocks begin with the keyword `def` followed by the function name and parentheses `()`.
- Any input parameters or arguments should be placed within these parentheses. You can also define parameters inside these parentheses.
- The first statement of a function can be an optional statement - the documentation string of the function or *docstring*.
- The code block within every function starts with a colon `(:)` and is indented.
- The statement `return [expression]` exits a function, optionally passing back an expression to the caller. A return statement with no arguments is the same as `return None`

Calling a Function

Defining a function only gives it a name, specifies the parameters that are to be included in the function and structures the blocks of code.

Once the basic structure of a function is finalized, you can execute it by calling it from another function or directly from the Python prompt.

Pass by reference vs value

All parameters (arguments) in the Python language are passed by reference. It means if you change what a parameter refers to within a function, the change also reflects back in the calling function

Function Arguments:

You can call a function by using the following types of formal arguments –

- Required arguments
- Keyword arguments
- Default arguments
- Variable-length arguments

4) What is a lambda function?

A function is an object that is able to accept some sort of input, possibly modify it, and return some sort of output. In Python, a lambda function is a one-line shorthand for function. A simple lambda function might look like this:

Example:

```
add_two = lambda my_input: my_input + 2
print(add_two(3))
print(add_two(100))
print(add_two(-2))
```

5) How can you generate random number in Python?

The function `randint()` generates *random* integers for you. If you call the function, it returns a random integer `N` such that $a \leq N \leq b$.

The `randint()` method to generates a whole number (integer). You can use `randint(0,50)` to generate a random number between 0 and 50.

```
import random
x = random.randint(0,50)
print(x)
```

6) What is the difference between range & x-range?

1) The range is an inbuilt function that generates the list. It creates a static list before running the iteration

x-range returns x-range sequence object.

2) As `range()` created a list of all the elements and save it before iterating. Whereas, x-range does not save any element and evaluate each element during each iteration.

3) Running `x-range()` is slower as compared to the `range()` as x-range evaluates the value of the element during each iteration. It is also called as lazy evaluation.

7) How do you write comments in Python?

1) Single line comment

Single line comment in Python using hash symbol

2) A multiline comment

"For writing multiline comment, just use
Triple single quotes
One before the text and the other at the last
"