
From: Kirk Byers

Sent: Monday, December 19, 2022 4:14 PM

To: sydasif78@hotmail.com

Subject: [PyNet Learning Python] - Lesson1 / Why Python, the Shell, and Strings

Note: There is a table of contents for each video at the bottom of this email including timestamps to where various content is located. This should be helpful in navigating the videos.

Note2: You should be fundamentally focused on Python3 at this point in time and should be actively migrating any legacy Python2 code to Python3. Python2 support ended (from the Python core developers) on January 1, 2020.

In this email of Learning Python we are going to cover the following:

1. **Introduction**
Video <https://vimeo.com/243034300>
Length is 7 minutes
2. **Why Learn Programming?**
Video <https://vimeo.com/243905715>
Length is 1 minute
3. **Why Python?**
Video <https://vimeo.com/243909371>
Length is 3 minutes
4. **Python2 versus Python3**
Video <https://vimeo.com/243912631>
Length is 2 minutes
5. **Characteristics of Python**
Video <https://vimeo.com/243918300>
Length is 5 minutes
6. **The Python Interpreter Shell**
Video <https://vimeo.com/242411259>
Length is 9 minutes

7. **IPython**
Video <https://vimeo.com/242460561>
Length is 4 minutes
8. **Printing to stdout and Reading from stdin**
Video <https://vimeo.com/243028886>
Length is 6 minutes
9. **Dir, Help, and Variables**
Video <https://vimeo.com/243480156>
Length is 10 minutes
10. **Python Strings (Part 1)**
Video <https://vimeo.com/243481392>
Length is 6 minutes
11. **Python Strings (Part 2)**
Video <https://vimeo.com/243482081>
Length is 8 minutes
12. **Python Strings (Part 3)**
Video <https://vimeo.com/243482871>
Length is 10 minutes
13. **Python String Formatting (Part 1)**
Video <https://vimeo.com/243936489>
Length is 12 minutes
14. **Python String Formatting (Part 2)**
Video <https://vimeo.com/243956669>
Length is 4 minutes

Additional Content:

[Google Python Course on Strings](#)

[Automate the Boring Stuff with Python \(Chapter 6 on Strings\)](#)

*Read up through the section on `.join()` and `.split()` string methods.

1. Python naming conventions:

a. For variable names, function names, object names, and module names use lower case separated by underscore, for example:

```
my_router  
find_set_of_devices  
convert_id_string_to_list
```

b. For class names, capitalize the first letter of each word. Do not use any underscores. For example:

```
ManyToManyField  
ClientHistory  
UserProfile
```

c. For constants, use all upper case; use underscores for word separation.

```
PI = 3.14  
EMAIL_MODE  
EMAIL_FROM_ADDRESS
```

Exercises

Reference code for these exercises is posted on GitHub at:

https://github.com/ktbyers/pynet/tree/master/learning_python/lesson1

1. Create a Python script that has three variables: `ip_addr1`, `ip_addr2`, `ip_addr3` (representing three corresponding IP addresses). Print these three variables to standard output using a single print statement.

Make your print statement compatible with both Python2 and Python3.

If you are using either Linux or MacOS make your program executable by adding a shebang line and by changing the files permissions (i.e. `chmod 755 exercise1.py`).

2. Prompt a user to enter in an IP address from standard input. Read the IP address in and break it up into its octets. Print out the octets in decimal, binary, and hex.

Your program output should look like the following:

```
$ python exercise2.py
Please enter an IP address: 80.98.100.240

      Octet1      Octet2      Octet3      Octet4
-----
      80          98          100         240
0b1010000  0b1100010  0b1100100  0b11110000
      0x50          0x62          0x64          0xf0
-----
```

Four columns, fifteen characters wide, a header column, data centered in the column.

3. Create three different variables the first variable should use all lower case characters with underscore (_) as the word separator. The second variable should use all upper case characters with underscore as the word separator. The third variable should use numbers, letters, and underscore, but still be a valid variable Python variable name.

Make all three variables be strings that refer to IPv6 addresses.

Use the from future technique so that any string literals in Python2 are unicode.

compare if variable1 equals variable2
compare if variable1 is not equal to variable3

4. Create a show_version variable that contains the following

```
show_version = "*0          CISCO881-SEC-K9          FTX0000038X
"
```

Remove all leading and trailing whitespace from the string.

Split the string and extract the model and serial_number from it.

Check if 'Cisco' is contained in the model string (ignore capitalization).

Check if '881' is in the model string.

Print out both the serial number and the model.

5. You have the following three variables from the arp table of a router:

```

mac1 = "Internet 10.220.88.29      94 5254.abbe.5b7b ARPA FastEthernet4"
mac2 = "Internet 10.220.88.30      3 5254.ab71.e119 ARPA FastEthernet4"
mac3 = "Internet 10.220.88.32     231 5254.abc7.26aa ARPA FastEthernet4"

```

Process these ARP entries and print out a table of "IP ADDR" to "MAC ADDRESS" mappings. The output should look like following:

IP ADDR	MAC ADDRESS
10.220.88.29	5254.abbe.5b7b
10.220.88.30	5254.ab71.e119
10.220.88.32	5254.abc7.26aa

Two columns, 20 characters wide, data right aligned, a header column.

CLASS OUTLINE

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 3. People you can ask questions to
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Kirk Byers

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