

Practical Python Programming

Jack Wang

WEEK 01

a. Why Python? The landscape of computer programming languages.

```
import sys

a = sys.stdin.readline()
b = sys.stdin.readline()
c = int(a) + int(b)
print c
```

%> python add.py

Things to explain

```
import
variables
sys
stdin
readline (reads a string)
int (converts a string to an integer)
print
```

Pros and Cons

....

Interesting Links:

<http://statisticstimes.com/tech/top-computer-languages.php>
<https://www.python.org/doc/essays/comparisons/>
http://crashworks.org/if_programming_languages_were_vehicles/

b. Setup the development environment.

<https://www.londonappdeveloper.com/setting-up-your-windows-10-system-for-python-development-pydev-eclipse-python/>

c. “Hello World!” of Python.

```
print "Hello World!"
print "Hello Again"
print "Python Class Week 1."
print 'Python is a computer programming language ...'
print "I'd much rather see python, the snake"
print 'There is a book called "Charming Python"'
print "The book is about 'Python programming'"
```

d. Comments And Pound Characters.

```
# A comment, put down as much comments as you want.
# Anything after the # is ignored by python.
print "I could have code like this." # and the comment after is ignored
# You can also use a comment to "disable" or comment out a piece of
code:
# print "This won't run."
print "This will run."
```

e. Numbers And Math.

+ plus
- minus
/ slash
*** asterisk**
% percent
< less- than
> greater- than
<= less- than- equal
>= greater- than- equal

```
print "I will now count my packages:"
print "Express International", 25 + 30 / 6
print "2 Days", 100 - 25 * 3 % 4
print "Now I will count the Ground:"
print 3 + 2 + 1 - 5 + 4 % 2 - 1 / 4 + 6
print "Is it true that 3 + 2 < 5 - 7?"
print 3 + 2 < 5 - 7
print "What is 3 + 2?", 3 + 2
print "What is 5 - 7?", 5 - 7
print "Oh, that's why it's False."
print "How about some more."
print "Is it greater?", 5 > - 2
print "Is it greater or equal?", 5 >= - 2
print "Is it less or equal?", 5 <= - 2
```

f. Variables And Names.

```
cars = 100
space_in_a_car = 4.0
drivers = 30
passengers = 90
cars_not_driven = cars - drivers
cars_driven = drivers
carpool_capacity = cars_driven * space_in_a_car
average_passengers_per_car = passengers / cars_driven
print "There are", cars, "cars available."
print "There are only", drivers, "drivers available."
```

```

print "There will be", cars_not_driven, "empty cars today."
print "We can transport", carpool_capacity, "people today."
print "We have", passengers, "to carpool today."
print "We need to put about", average_passengers_per_car, "in each car."

```

g. More Variables And Printing.

```

my_name = 'Zed A. Shaw'
my_age = 35 # not a lie
my_height = 74 # inches
my_weight = 180 # lbs
my_eyes = 'Blue'
my_teeth = 'White'
my_hair = 'Brown'
print "Let's talk about %s." % my_name
print "He's %d inches tall." % my_height
print "He's %d pounds heavy." % my_weight
print "Actually that's not too heavy."
print "He's got %s eyes and %s hair." % (my_eyes, my_hair)
print "His teeth are usually %s depending on the coffee." % my_teeth
# this line is tricky, try to get it exactly right
print "If I add %d, %d, and %d I get %d." % (
    my_age, my_height, my_weight, my_age + my_height + my_weight)

```

h. Strings And Text

```

x = "There are %d types of people." % 10
binary = "binary"
do_not = "don't"
y = "Those who know %s and those who %s." % (binary, do_not)
print x
print y
print "I said: %r." % x
print "I also said: '%s'." % y
hilarious = False
joke_evaluation = "Isn't that joke so funny?! %r"
print joke_evaluation % hilarious
w = "This is the left side of..."
e = "a string with a right side."
print w + e

```

i. More Printing

```

print "Mary had a little lamb."
print "Its fleece was white as %s." % 'snow'
print "And everywhere that Mary went."
print "." * 10 # what'd that do?
end1 = "C"
end2 = "h"
end3 = "e"
end4 = "e"

```

```

end5 = "s"
end6 = "e"
end7 = "B"
end8 = "u"
end9 = "r"
end10 = "g"
end11 = "e"
end12 = "r"
# watch that comma at the end. try removing it to see what happens
print end1 + end2 + end3 + end4 + end5 + end6,
print end7 + end8 + end9 + end10 + end11 + end12
# Here's some new strange stuff, remember type it exactly.
days = "Mon Tue Wed Thu Fri Sat Sun"
months = "Jan\nFeb\nMar\nApr\nMay\nJun\nJul\nAug"
print "Here are the days: ", days
print "Here are the months: ", months
print """
There's something going on here.
With the three double- quotes.
We'll be able to type as much as we like.
Even 4 lines if we want, or 5, or 6.
"""

```

j. What Was That?

```

tabby_cat = "\tI'm tabbed in."
persian_cat = "I'm split\non a line."
backslash_cat = "I'm \\ a \\ cat."
fat_cat = """
I'll do a list:
\t* Cat food
\t* Fishies
\t* Catnip\n\t* Grass
"""
print tabby_cat
print persian_cat
print backslash_cat
print fat_cat

```

Escape Sequences

This is the list of all the escape sequences Python supports. You may not use many of these, but memorize their format and what they do anyway. Also try them out in some strings to see if you can make them work.

Escape What it does.

```

\\ Backslash (\)
\' Single- quote (')
\" Double- quote (")
\a ASCII bell (BEL)
\b ASCII backspace (BS)
\f ASCII formfeed (FF)
\n ASCII linefeed (LF)
\N{name} Character named name in the Unicode database (Unicode only)
\r ASCII carriage return (CR)
\t ASCII horizontal tab (TAB)

```

\uxxxx Character with 16- bit hex value xxxx (Unicode only)
\Uxxxxxxxx Character with 32- bit hex value xxxxxxxx (Unicode only)
\v ASCII vertical tab (VT)
\ooo Character with octal value oo
\xhh Character with hex value hh

An interesting code snippet

```
while True:
    for i in ["/", "- ", "|", "\\ ", "|"]:
        print "%s\r" % i,
```