Python (Varables)

- ✓ You can use any letter, the special characters "_" and every number provided you do not start with it.
- ✓ White spaces and signs with special meanings in Python, as "+" and "-" are not allowed.
- ✓ I usually use lowercase with words separated by underscores as necessary to improve readability.
- ✓ Remember that variable names are case sensitive. Python is dynamically typed, which means that you don't have to declare what type each variable is.
- ✓ In Python, variables are a storage placeholder for texts and numbers.
- ✓ It must have a name so that you are able to find it again.
- ✓ The variable is always assigned with the equal sign, followed by the value of the variable.
- ✓ There are some reserved words for Python and cannot be used as variable name.
- ✓ The variables are being referred in the program to get the value of it.
- ✓ The value of the variable can be changed later on.

Store the value 10 in a variable named foo

```
foo = 10
```

Store the value of foo+10 in a variable named bar

```
bar = foo + 10
```

List of some different variable types:

```
x = 123                 # integer
x = 123L                # long integer
x = 3.14                # double float
x = "hello"             # string
x = [0,1,2]             # list
x = (0,1,2)             # tuple
x = open('hello.py', 'r')   # file
```

You can also assign a single value to several variables simultaneously multiple assignments.

Variable a, b and c are assigned to the same memory location, with the value of 1

```
a = b = c = 1
```

Example

```
length=1.10
width =2.20
area= length * width
print "The area is: ", area
```

This will printout: The area is:2.42

Constants

A constant is a type of variable whose value cannot be changed. It is helpful to think of constants as containers that hold information which cannot be changed later. Non technically, you can think of constant as a bag to store some books and those books cannot be replaced once placed inside the bag.

Assigning value to a constant in Python

In Python, constants are usually declared and assigned on a module. Here, the module means a new file containing variables, functions etc which is imported to main file. Inside the module, constants are written in all capital letters and underscores separating the words.

Example 3: Declaring and assigning value to a constant

Create a constant.py

```
PI = 3.14
GRAVITY = 9.8
```

Create a main.py

```
import constant
print(constant.PI)
print(constant.GRAVITY)
```

When you run the program, the output will be:

```
3.14
9.8
```

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In the above program, we create a constant.py module file. Then, we assign the constant value to PI and GRAVITY. After that, we create a main.py file and import the constant module. Finally, we print the constant value.

Note: In reality, we don't use constants in Python. The globals or constants module is used throughout the Python programs.

Rules and Naming convention for variables and constants

- ✓ Create a name that makes sense. Suppose, vowel makes more sense than v.
- ✓ Use cameiCase notation to declare a variable. It starts with lowercase letter.
  For Example:
  myName
  myAge
  myAddress
- ✓ Use capital letters where possible to declare a constant.
  For example:
  PI
  G
  MASS

TEMP

- ✓ Never use special symbols like !, @, #, $, %, etc.
- ✓ Don't start name with a digit.
- ✓ Constants are put into Python modules and meant not be changed.
- ✓ Constant and variable names should have combination of letters in lowercase (a to z) or uppercase (A to Z) or digits (0 to 9) or an underscore (_).

For example:
snake_case
MACRO_CASE
camelCase
CapWords

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