Type and Classes

Sunday, January 07, 2018 10:44 AM

1. Type of Variables:
    a. Numbers: integer

    ```
    i = 42

    >>> i = i + 1
    >>> print i
    43
    >>>
    ```

    b. Changing Data Types

    ```
    i = 42                  # data type is implicitly set to 
    integer
    i = 42 + 0.11           # data type is changed to float
    i = "forty"       # and now it will be a string
    ```

    c. Strings

    ```
    >>> s = "A string consists of characters"
    >>> s[0]
    'A'
    >>> s[3]
    't'
    >>> s[len(s)-1]
    's'

    >>> s[-1]
    's'
    >>> s[-2]
    'r'
    ```

    d. Read more about python variable :
        i. https://www.python-course.eu/variables.php

2. Class
    a. **Code Example 1 - defining a class**

    ```
    # Defining a class
    class class_name:
      [statement 1]
      [statement 2]
      [statement 3]
      [etc.]
    ```

    b. **Code Example 2 - Example of a Class**

    ```
    #An example of a class
    class Shape:
        def __init__(self, x, y):
            self.x = x
            self.y = y
            self.description = "This shape has not been described yet"
            self.author = "Nobody has claimed to make this shape yet"
        def area(self):
            return self.x * self.y
        def perimeter(self):
            return 2 * self.x + 2 * self.y
        def describe(self, text):
    ```

```
    self.description = text
def authorName(self, text):
    self.author = text
def scaleSize(self, scale):
    self.x = self.x * scale
    self.y = self.y * scale
```

c. Using a Class

```
rectangle = Shape(100, 45)
#finding the area of your rectangle:
print(rectangle.area())

#finding the perimeter of your rectangle:
print(rectangle.perimeter())
#describing the rectangle
rectangle.describe("A wide rectangle, more than twice\
 as wide as it is tall")
#making the rectangle 50% smaller
rectangle.scaleSize(0.5)
#re-printing the new area of the rectangle
print(rectangle.area())
```

3. Excise:
    a. Define a class People
        i. The Class People will have two variable name and age

            Example of use your People class:
            bob=People("Bob",13);

        ii. And one method/function: info(),

            print(bob.info());
            "My name is Bob, my age is 13"

    b. Advance learning
        i. Google object oriented programming, and understand what is
            - □ Encapsulation
            - □ Data Abstraction