Python Basic syntax, variables and data types

Week 3, Lecture 2

Course: Programming in Python

What is syntax?

Syntax refers to the rules that define the structure of a language.

Syntax in computer programming means the rules that control the structure of the symbols, punctuation, and words of a programming language

[https://woz-u.com/blog/what-is-syntax-in-computer-programming/]

Example: Use of syntax

- Suppose we consider few words from English language and say like this :

    was killed hunter the by the tiger

- This will not make any sense isn't it. So, if we use the proper syntax or Grammar we can write it correctly as:

    The tiger was killed by the hunter

    Therefore, to write a program in any language (python for this course) it is important to learn the syntax of that particular language.

Syntax: Python Identifiers

- A Python identifier is a name used to identify a variable, function, class, module or other object. An identifier starts with a letter A to Z or a to z or an underscore (_) followed by zero or more letters, underscores and digits (0 to 9)

- Python does not allow punctuation characters within identifier

- Python is a case sensitive language; eg: num1 and Num1 are two different identifier

Syntax: Reserved words

and	exec	not
assert	finally	or
break	for	pass
class	from	print
continue	global	raise
def	if	return
del	import	try
elif	in	while
else	is	with
except	lambda	yield

Syntax: Comments in Python

- A # sign is used before the text which we want to make comment line

- Example:
- # print("Hello, Everyone!")

What is Variable?

Let's see a statement

age=10;

What is **age** in this statement?

age is the name of the variable or we can say the identifier. Then what is variable? Variable is nothing but reserved memory locations associated with the variable name to store value and this value can change. As in this case value of age will change every year.

What is a constant ?

- Consider another example:

  pi=3.14

  In this case our identifier which is *pi* is storing a standard constant value which will never change. So we call it a constant.

- Lets take another example where we take an identifier to store a name of a person:

  name="Ajay"

In this case our identifier *name* is constant as value kept in it will never change for a person.

Different Operations on variable

- Assign values to variable
- Multiple assignment

Python Data Types

- Every value you store in an identifier whether a variable or constant will have a particular data type. Like name will store value of string type (A string is collection of characters).

- Python Numbers
  - Integer
  - Float
  - Complex numbers

- Python List : An ordered sequence of items is called List, There is no need for the value in the list to be of the same data type

- Python Strings
  - Strings in Python are identified as a contiguous set of characters represented in the quotation marks. Python allows for either pairs of single or double quotes

Python Data Types

- Python tuples: The main differences between lists and tuples are: Lists are enclosed in brackets ([ ]) and their elements and size can be changed, while tuples are enclosed in parentheses (( )) and cannot be updated. Tuples can be thought of as **read-only** lists

- Thank you.