Programming and Problem Solving through Python Language
O Level / A Level

Chapter -3: Introduction to Python Language

Download Python Software

The up-to-date source code, binaries, documentation is available on the official website of Python https://www.python.org/

Steps to install Python on Windows OS.

- Follow the link for the Windows installer *python-ABC.msi* file where ABC is the version you need to install.
- To use this installer *python-ABC.msi*, the Windows system must support Microsoft Installer 2.0. Save the installer file to your local machine and then run it to find out if your machine supports MSI.
- Run the downloaded file. This brings up the Python install wizard, which is really easy to use. Just accept the default settings, wait until the install is finished, and you are done.

Setting path at Windows

To add the Python directory to the path for a particular session in Windows −

At the command prompt – type

path %path%;C:\Python and press Enter.

Where C:\Python is the path of the Python directory

Executing Python Program

C:\myFile> python helloworld.py

write first Python file, called **helloworld.py**, which can be done in any text editor.

helloworld.py

```
print("Hello, World!")
```

Python Indentation

- Indentation refers to the spaces at the beginning of a code line.
- Python uses indentation to indicate a block of code.

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 such as @, $, and % within identifiers.

Reserved Words

It cannot used as constant or variable or any other identifier names.

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				

Creating Variables

- Variables are containers for storing data values.
- Unlike other programming languages, Python has no command for declaring a variable.
- A variable is created the moment you first assign a value to it.

```
x= 5
y= "John"
print(x)
print(y)
```

Variable Names

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume).

Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)

#Legal variable names:	#Illegal variable names:
myvar = "John" my_var = "John" _my_var = "John" myVar = "John" MYVAR = "John" myvar2 = "John"	2myvar = "John" my-var = "John" my var = "John"

Assign Value to Multiple Variables

```
x, y, z = "Orange", "Banana", "Cherry"
x = y = z = "Orange"
```

Output Variables

The Python `print` statement is often used to output variables.

To combine text and a variable, Python uses the `+` character:

Example

```
x = "awesome"
print("Python is " + x)
```

Global Variables

Variables that are created outside of a function are known as global variables.

Global variables can be used by everyone, both inside of functions and outside.

```
x = "awesome"

def myfunc():
        x = "fantastic"
         print("Python is " + x)

myfunc()

print("Python is " + x)
```

The global Keyword

When you create a variable inside a function, that variable is local, and can only be used inside that function.

To create a global variable inside a function, you can use the **global** keyword.

```
x = "awesome"

def myfunc():
        global x
        x = "fantastic"

myfunc()

print("Python is " + x)
```