

Python Programming

Department of Computer Science & Engineering





CHAPTER-1

Basics





Why You Should **LEARN PYTHON** Right Now



What is Python?

- High Level Programming Language
- Shorter Language(3-5 lines than java, 5-10 lines than c++)
- Since 1991, consistently in top 10 most popular computing language

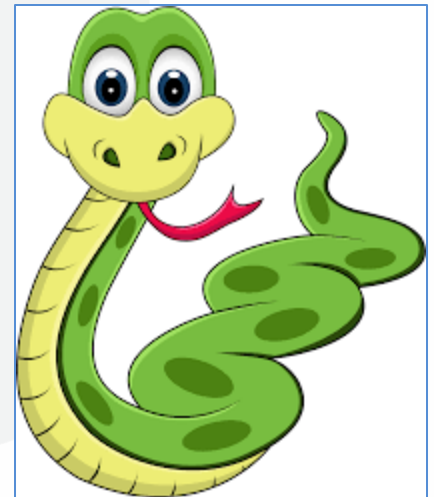


Image source : <https://www.nicepng.com/>



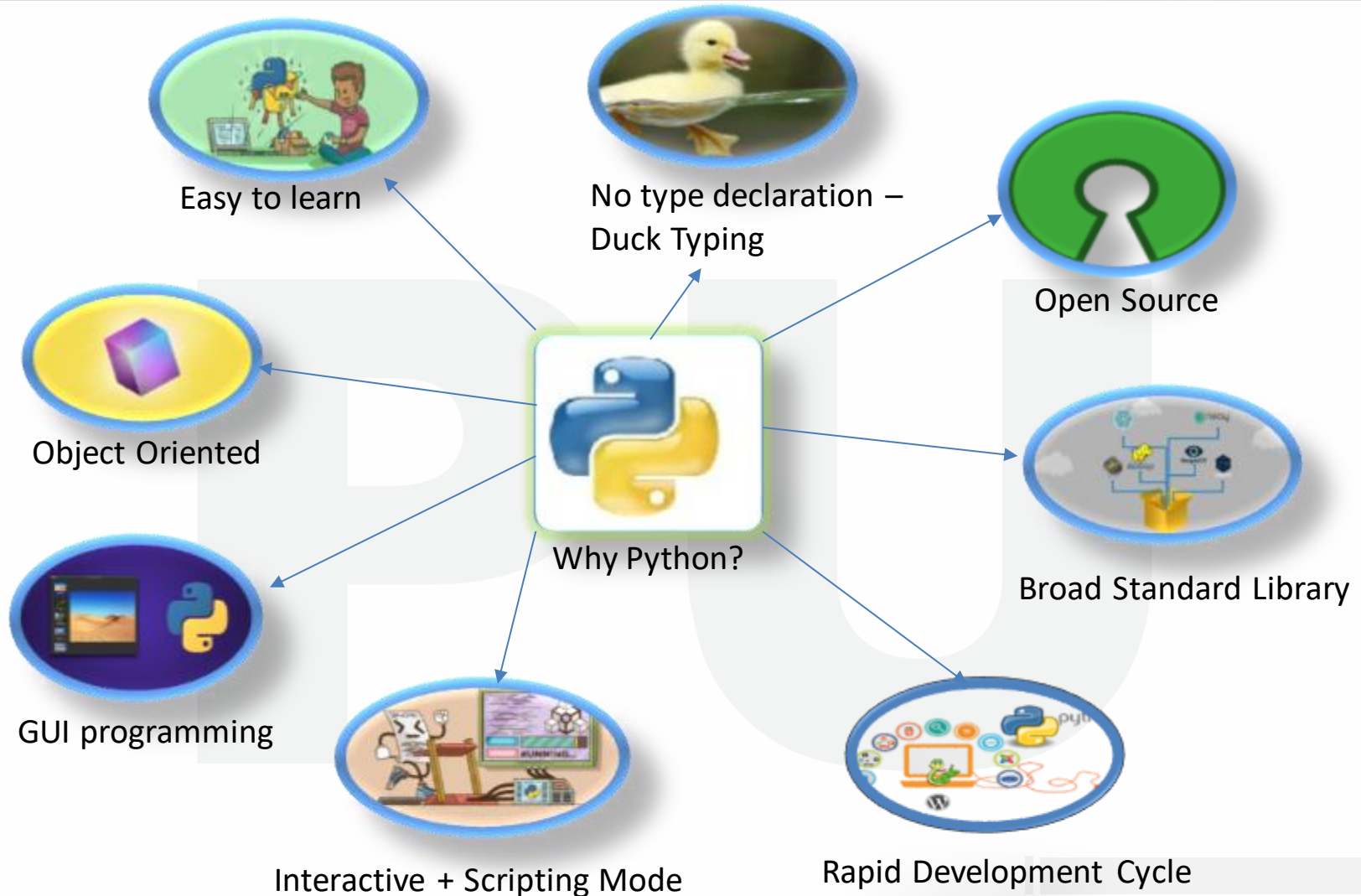
History

- Invented in the Netherlands, early 90s by Guido van Rossum
- Named after Monty Python
- Open sourced from the beginning
- Managed by Python Software Foundation



Figure 1.1 Python Release





Moral of the Python Story

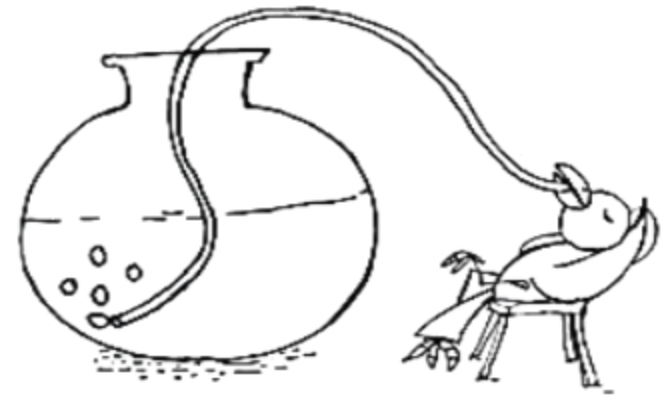
Non-programmer



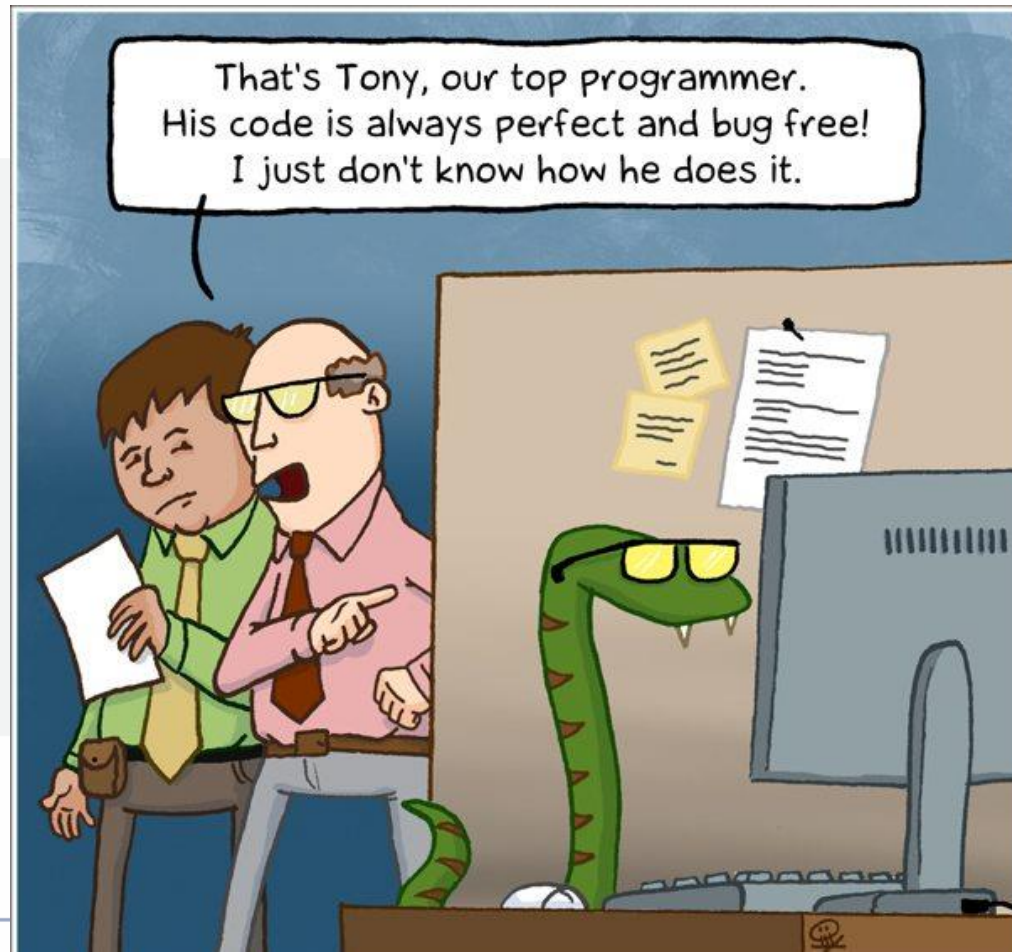
Programmer

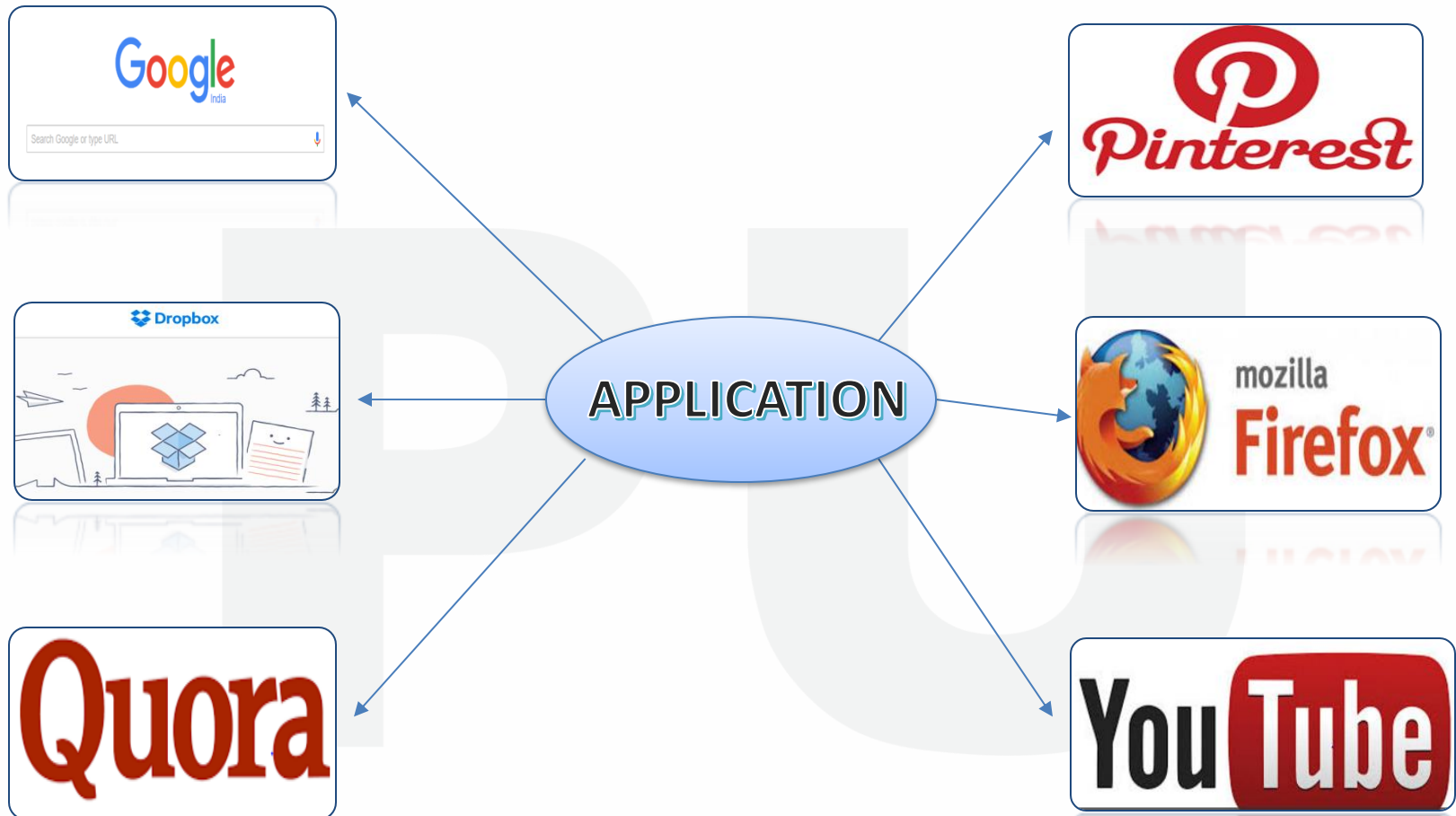


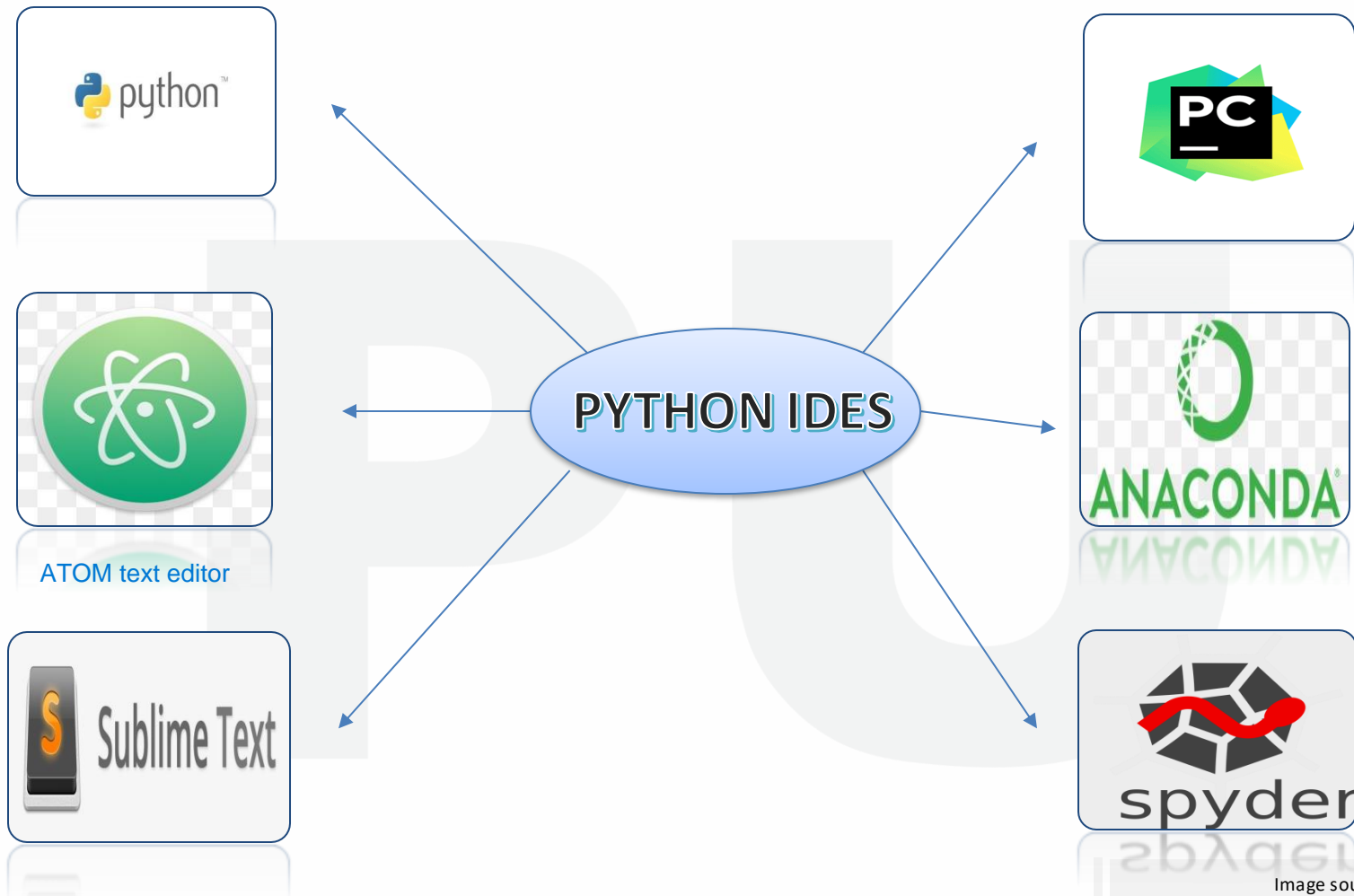
Python Programmer



Moral of the Python Story









Reserved Words

- Reserved Words can not be used as identifiers name

Python has 31 keywords¹:

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

Identifier

➤ A name given to identify variables, user defined function, class and object

➤ Rules

1. Must start with letter or underscore
2. Must contain only letters, numbers or underscores
3. Case sensitive
4. Keywords are not allowed

- ☐ **Valid:** `my_var` `_x` `var1`
- ☐ **Not Valid:** `my.var` `2x` `var$`
- ☐ **Different:** `My_var` `my_var` `x` `X`

Figure 1.2 Identifier Example



Operators

- Required to perform an operation on variables

Arithmetic Operators

Operators	Name
+	Addition
-	Subtraction
*	Multiplication
/	Division
**	Power
%	Reminder
//	Integer division

Table 1.1 Arithmetic Operators

Comparison Operators

Operators	Name
==	Equal
!=	Not equal
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Table 1.2 Comparison Operators



Operators

Logical Operators

Operator	Operation
and	(x and y) is true if both x and y are true
or	(x or y) is true if either x or y is true
not	True value will become false

Table 1.3 Logical Operators

Special Operators

Operator	Operation
is	Returns true if identity of two operands are same, else false
is not	Returns true if identity of two operands are not same, else false
in	Returns True if a sequence with the specified value is present in the object
not in	Returns True if a sequence with the specified value is not present in the object

Table 1.4 Special Operators



Python As Interactive Shell

- Get immediate output after typing one python instruction
- Python Installation:
 - Get latest python release(3.0 OR above) from official website

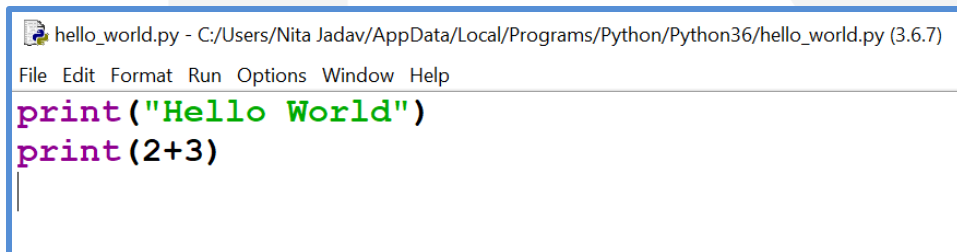
<http://www.python.org/download>

```
>>> print("Hello")
Hello
>>> 2**3
8
>>> 2/3
0.6666666666666666
>>> 2//3
0
>>> |
```




Python As Script

- Write sequence of statements into file and tell python to execute it
- Python file uses extension as '.py'
- Execute your python file from command prompt with command :
'python hello_world.py'
- Create a script:
 - Open a file from your python idle 3.0
 - Write python statements
 - Execute file by choosing 'Run Module' or press F5

A screenshot of the Python IDLE 3.6.7 window. The title bar reads 'hello_world.py - C:/Users/Nita Jadav/AppData/Local/Programs/Python/Python36/hello_world.py (3.6.7)'. The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The code editor contains two lines of Python code: `print("Hello World")` and `print(2+3)`.

```
hello_world.py - C:/Users/Nita Jadav/AppData/Local/Programs/Python/Python36/hello_world.py (3.6.7)
File Edit Format Run Options Window Help
print("Hello World")
print(2+3)
```

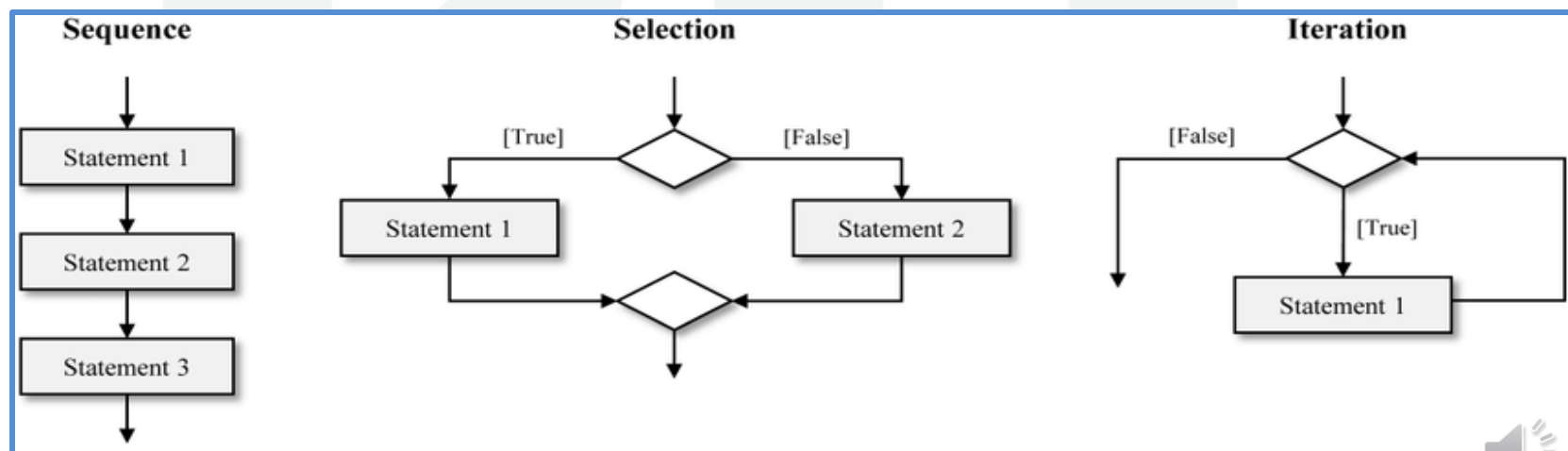
A small window showing the output of the Python script. It contains the text 'Hello World' on the first line and '5' on the second line.

```
Hello World
5
```



Code Flow in Python

- Python code is sequence of statements to perform task
- Some statements can be selective based on conditions
- Some statements can be iterative
- Some group of statements may be used again at different places



Indentation in Python

➤ Line indentation used to identify block of code

```
n=input("Number:")  
i=0  
total=0  
while(i<n):  
    a=input("enter:")  
    total = total +a  
    i=i+1
```

While
Block



Comments in Python

- Statements ignored by python
- Use '#' sign to write comment
- Used to provide documentation to python statements

```
n=input("Number:") #To read value of n from user  
i=0  
total=0
```

Python comment



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