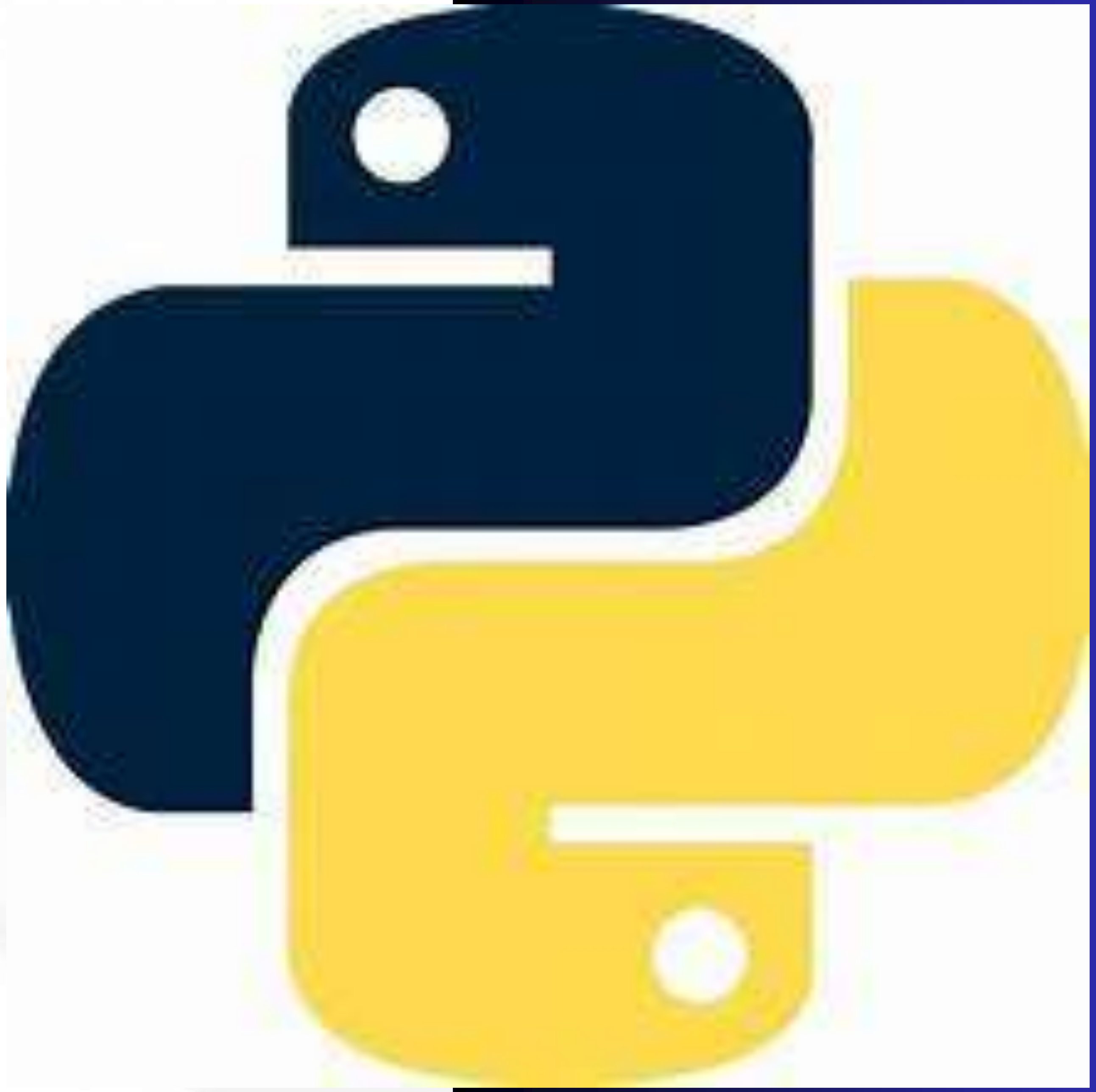
PYTHON



WHAT IS PYTHON ..?

Python is a high-level general purpose programming language.

Guido Van Rossum invented Python in 1991.

He named it Python because he was highly inspired by a show “Monthly Python’s Flying Circus”.

1. **General Purpose**

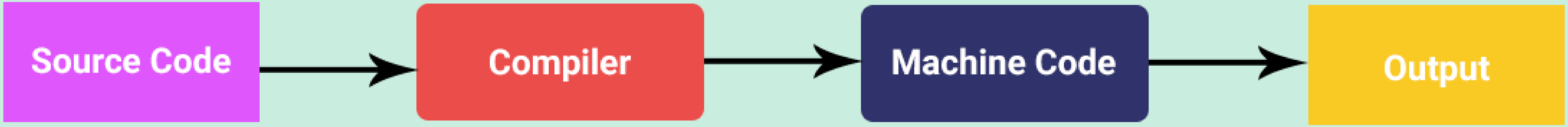
2. **High level**

3. **Interpreted**

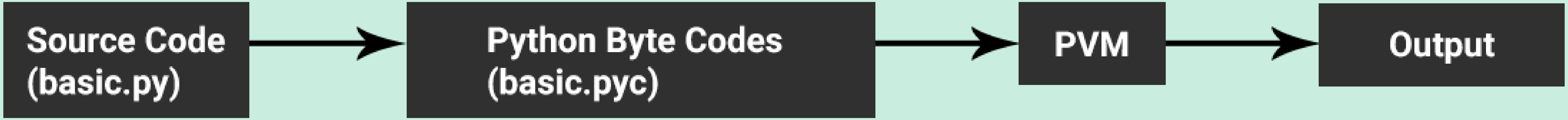
4. **Dynamically Typed**

5. **Multi-paradigm**

Compiler Works

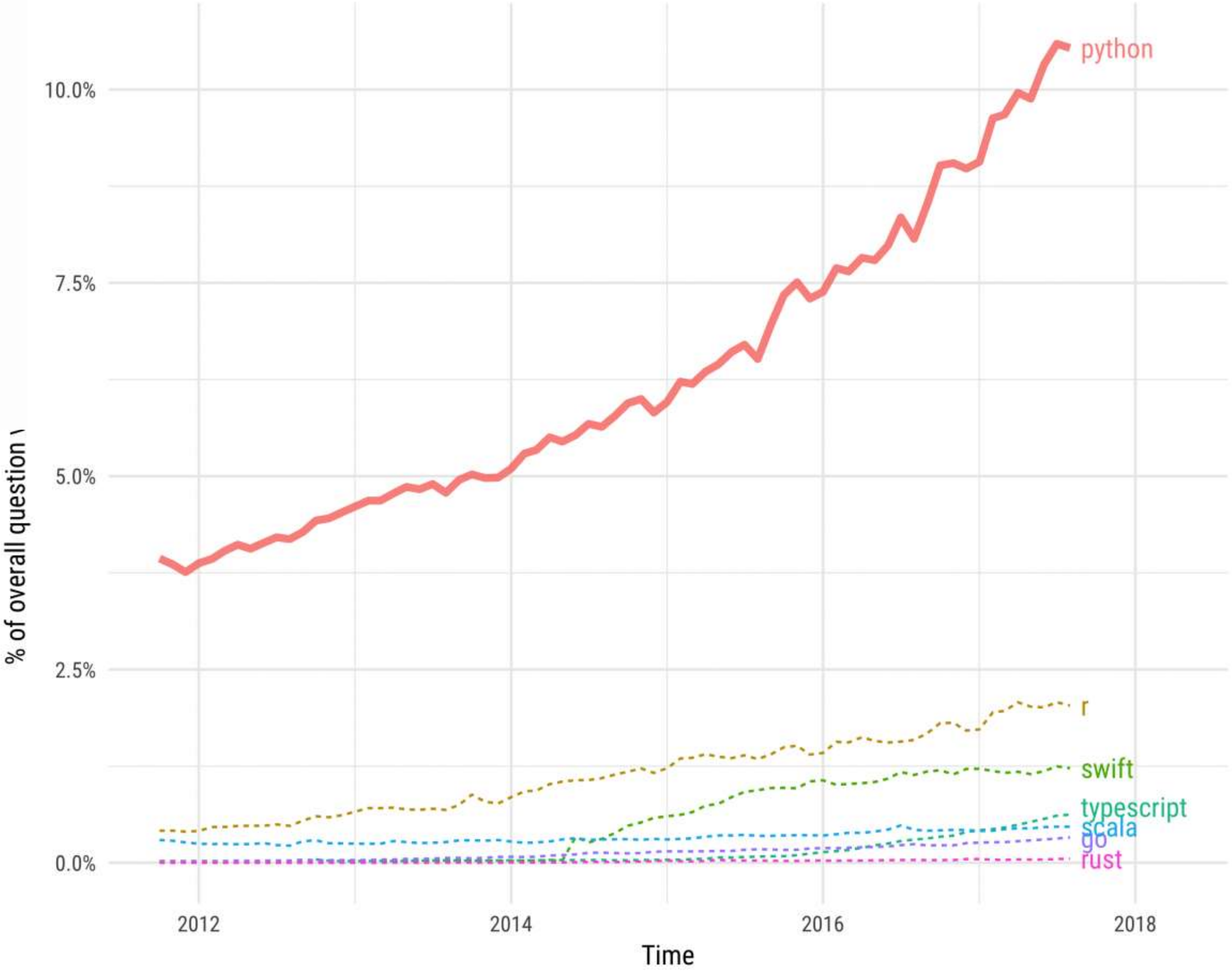


Interpreter Works



Intermediate Instruction

Python Virtual Machine



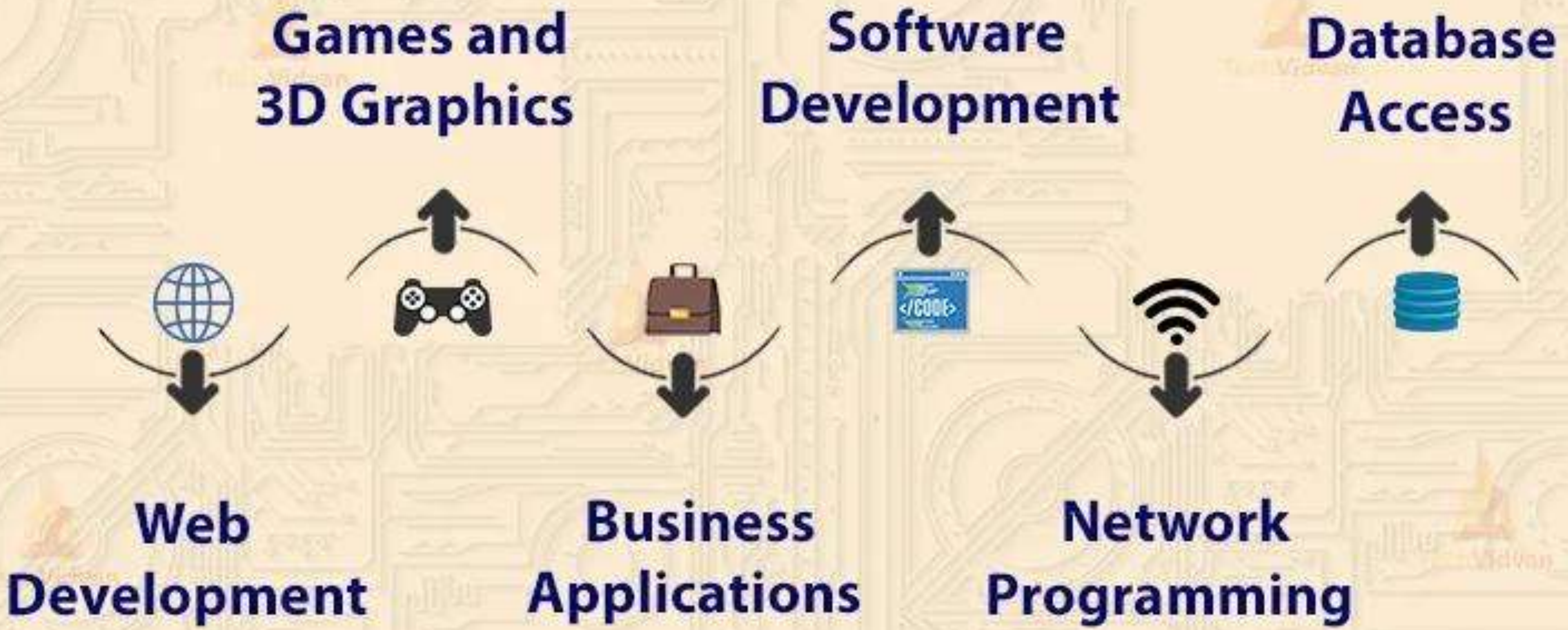
Python compared to smaller, growing technologies

Based on question traffic in World Bank high-income countries

Top Companies using Python

NOKIA
NASA
Dropbox
amazon
reddit
YAHOO!
Maps
IBM
Quora
Walt Disney
FEATURE
ANIMATION

Applications of Python



Web Development

Games and 3D Graphics

Business Applications

Software Development

Network Programming

Database Access

DESIGNER
SOFTWARE
DIGITAL
VISION
COMPUTER
SEO
INFORMATION
RESPONSIVE
MEDIA
SKETCH
PROGRAM
APPLICATION
MOBILE
PAGE
PEOPLE
LAPTOP
DATA
TECHNOLOGY
NOTEBOOK
ONLINE
OFFICE
DESIGN
WEB
PROGRAMMING
DEVICE
WEBSITE
COMMUNICATION
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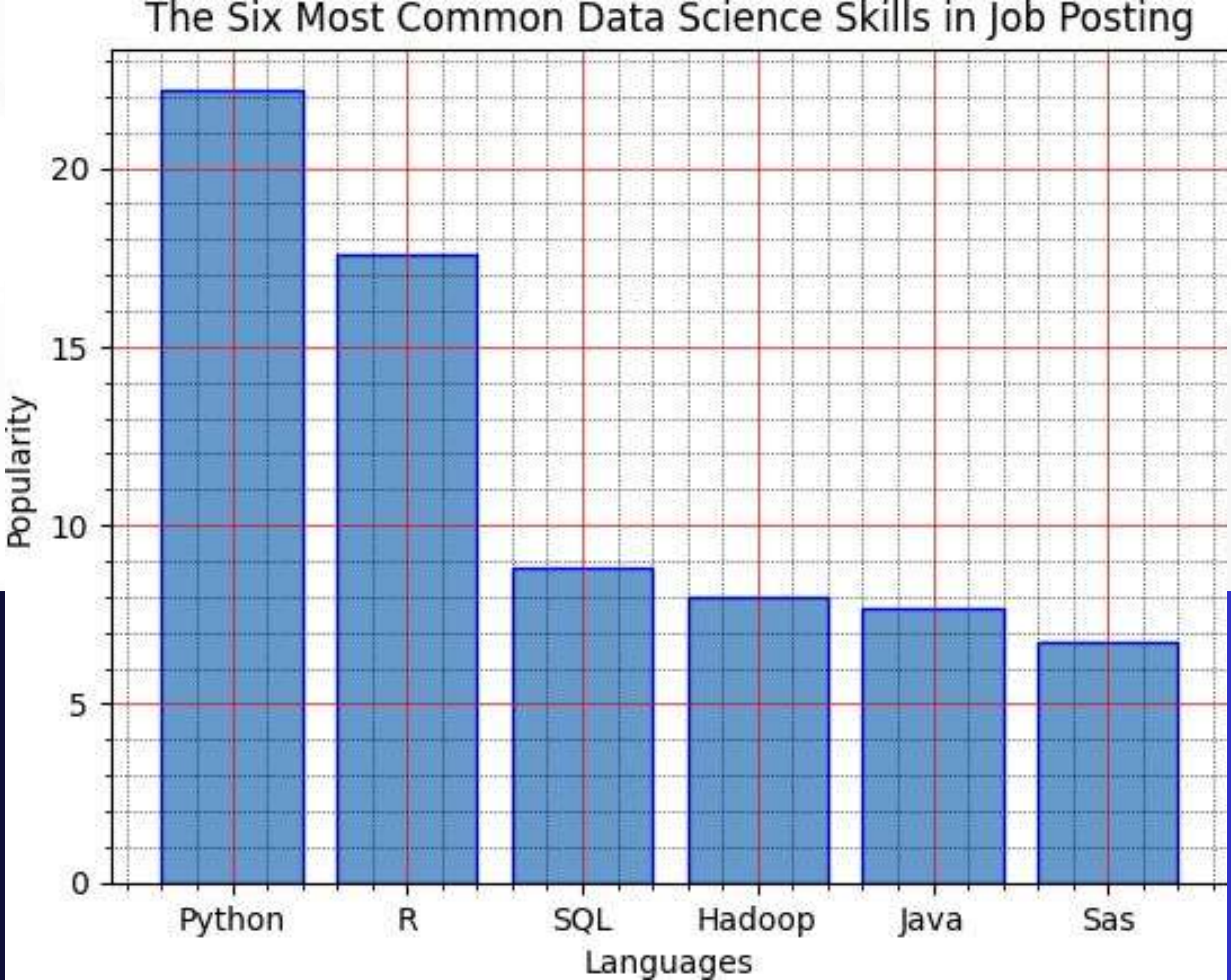
WWW
CONTENT
DEVELOPER
DISPLAY
CODE
SCREEN
CODING
STRATEGY


The Six Most Common Data Science Skills in Job Posting
20
15
10
5
0
Popularity
Python
R
SQL
Hadoop
Java
Sas
Languages

ABOUT

KEYWORDS IN PYTHON

1 Python keywords cannot be used as the names of variables, functions, and classes.

2 Keywords are some predefined and reserved words in Python

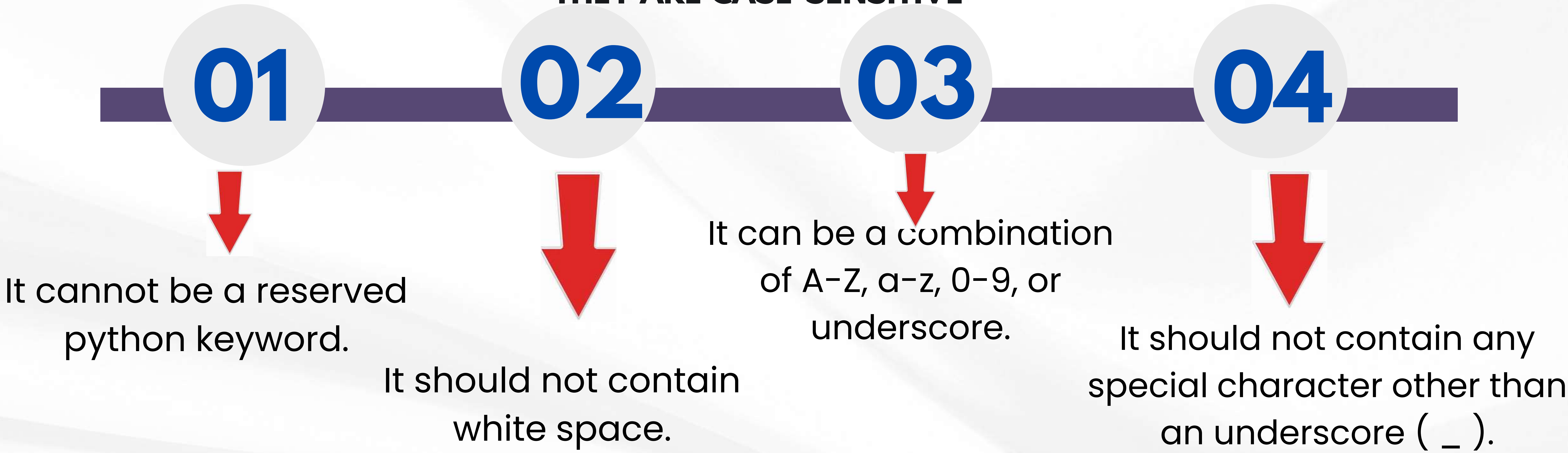
```
# code
import keyword

print(keyword.kwlist)
```

IDENTIFIERS IN PYTHON

IDENTIFIER IS A USER-DEFINED NAME GIVEN TO A VARIABLE, FUNCTION, CLASS, MODULE, ETC.

THE IDENTIFIER IS A COMBINATION OF CHARACTER DIGITS AND AN UNDERSCORE.

THEY ARE CASE-SENSITIVE



01

It cannot be a reserved python keyword.

02

It should not contain white space.

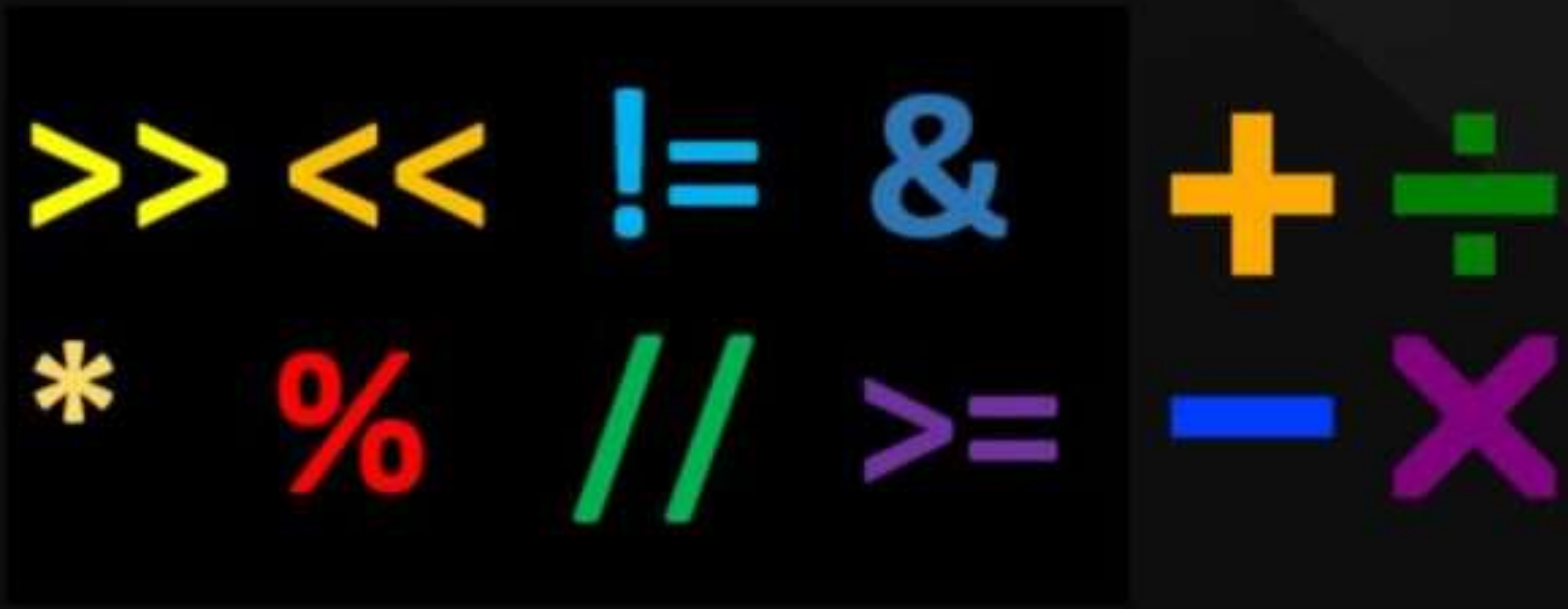
03

It can be a combination of A-Z, a-z, 0-9, or underscore.

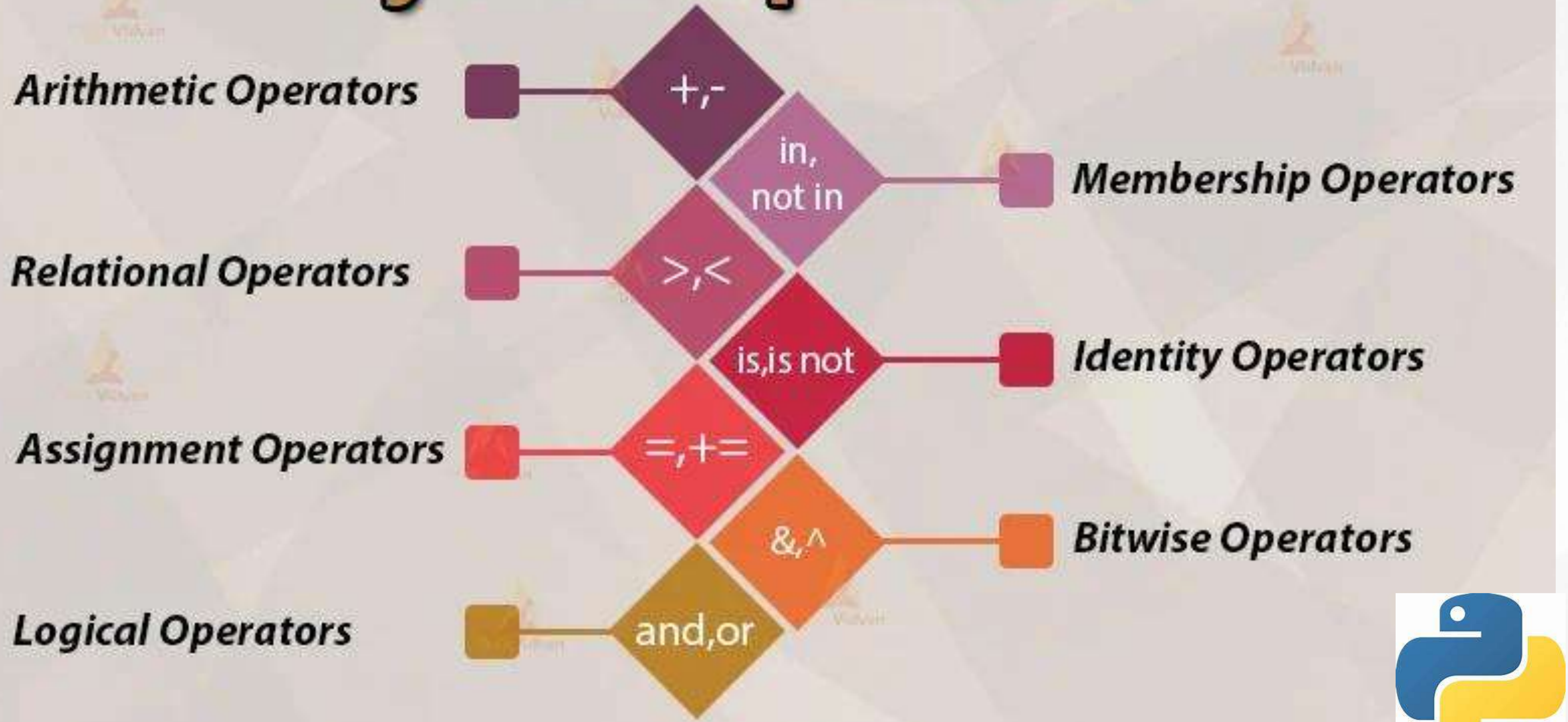
04

It should not contain any special character other than an underscore (_).

Operators in **Python**



Python Operators



Arithmetic Operators

+,-

in,
not in

Membership Operators

Relational Operators

>,<

is,is not

Identity Operators

Assignment Operators

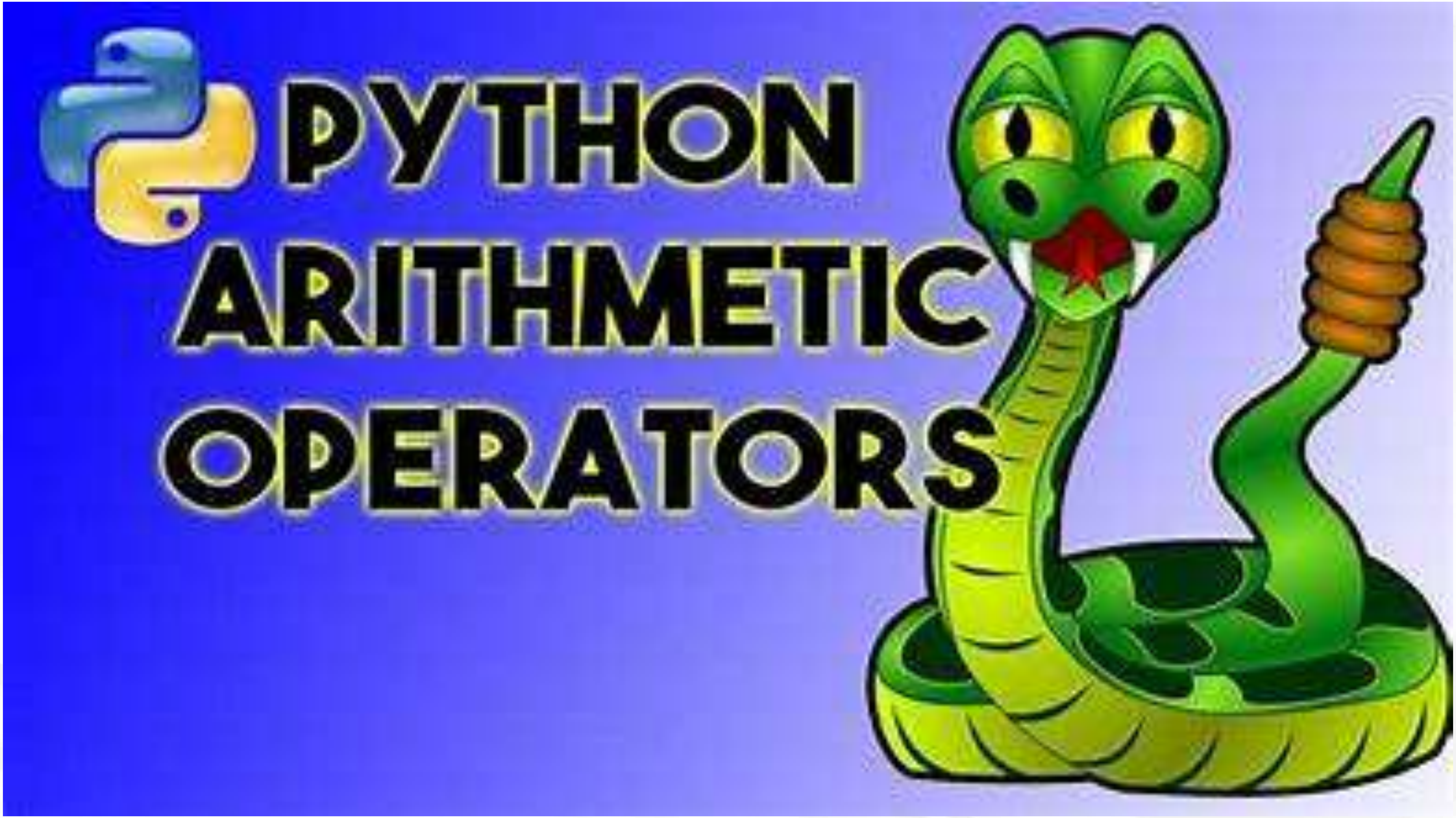
=,+=

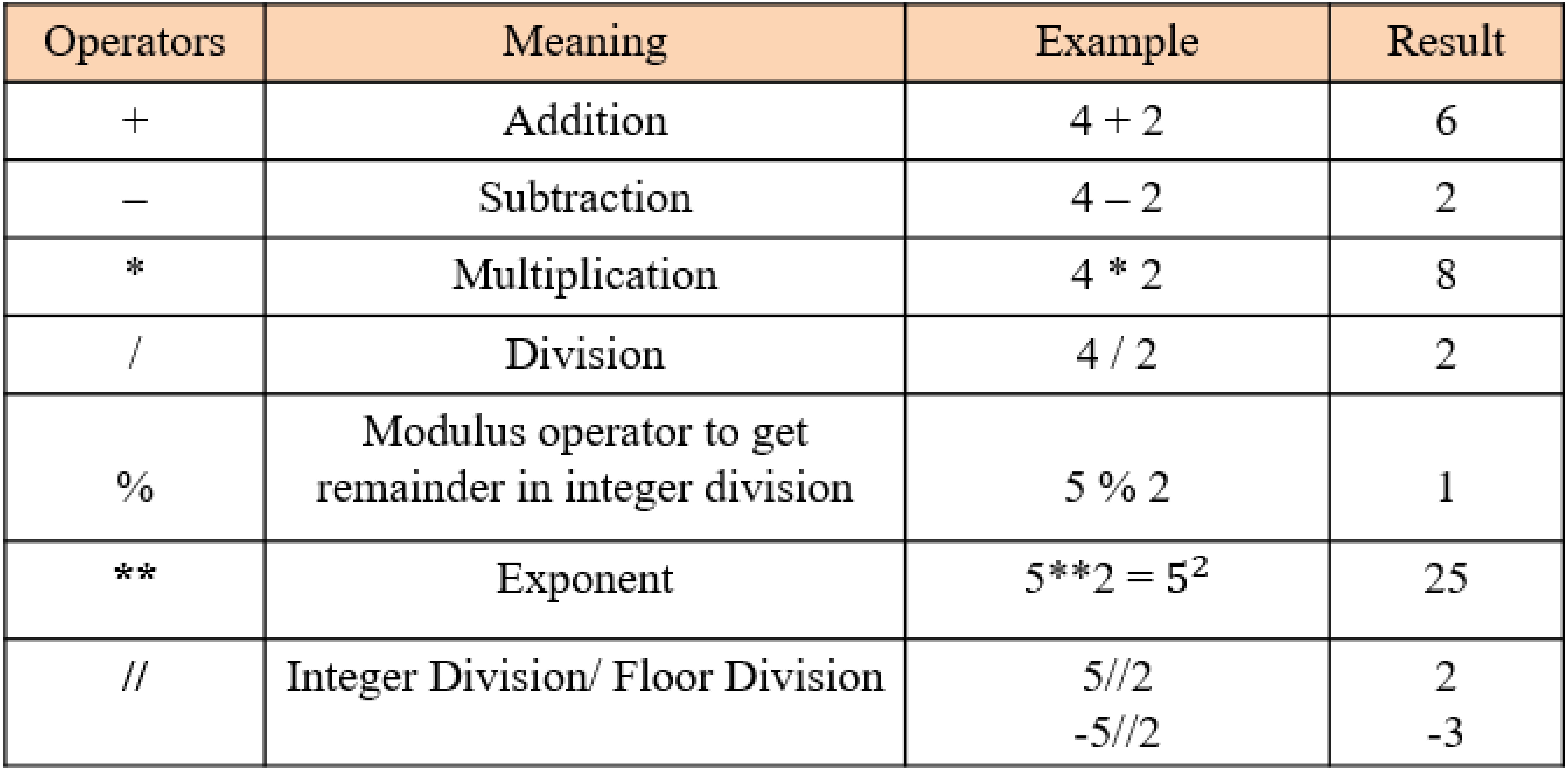
&,^

Bitwise Operators

Logical Operators

and,or


PYTHON
ARITHMETIC
OPERATORS



Operators	Meaning	Example	Result
+	Addition	4 + 2	6
–	Subtraction	4 – 2	2
*	Multiplication	4 * 2	8
/	Division	4 / 2	2
%	Modulus operator to get remainder in integer division	5 % 2	1
**	Exponent	5**2 = 5^2	25
//	Integer Division/ Floor Division	5//2 -5//2	2 -3

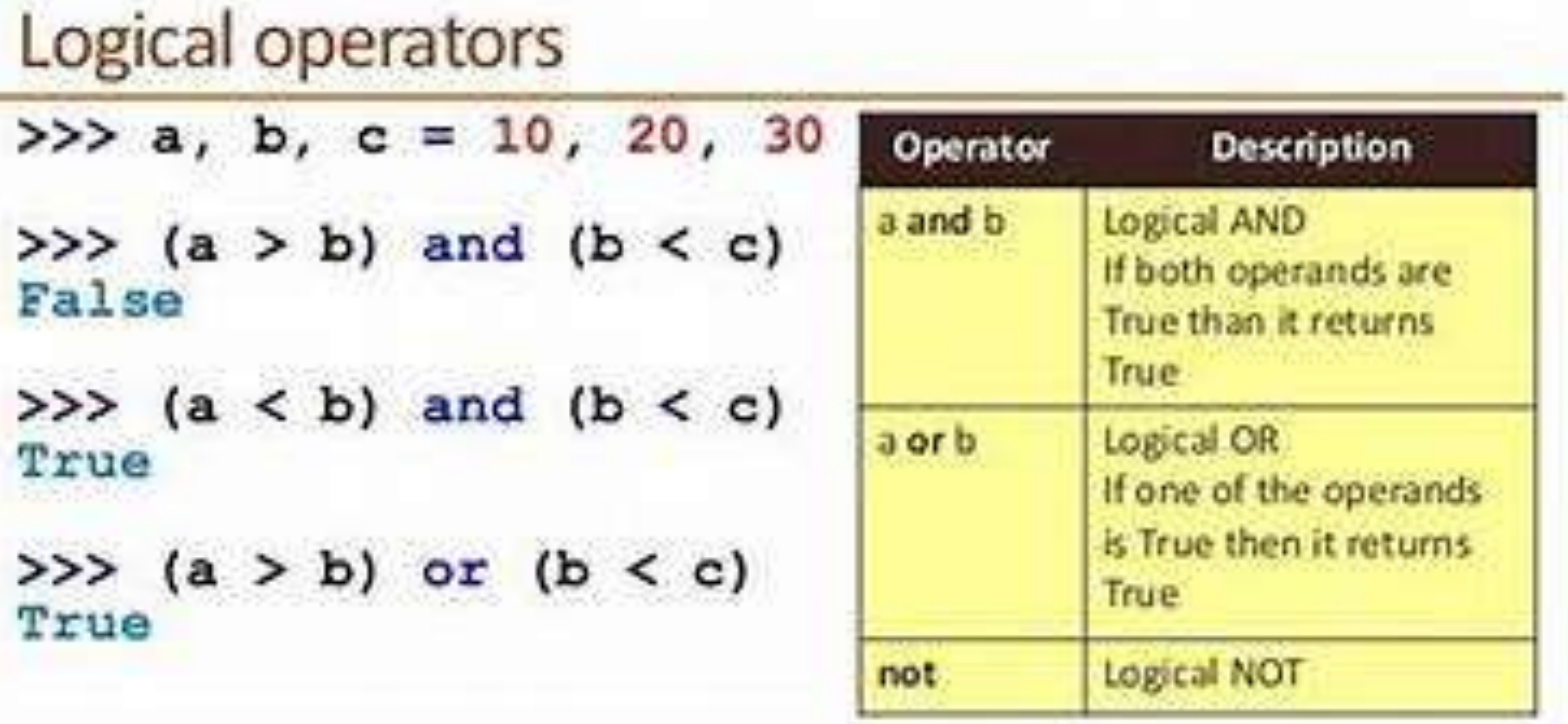
Assignment Operators

Assignment operator	Sample expression	Explanation	Assigns
Assume : int c=3, d=5,e=4,f=6,g=12			
+=	c+=7	c=c+7	10 to c
-=	d-=4	d=d-4	1 to d
*=	e*=5	e=e*5	20 to e
/=	f/=3	f=f/3	2 to f
%=	g%=9	g=g%9	3 to g

Relational Operators

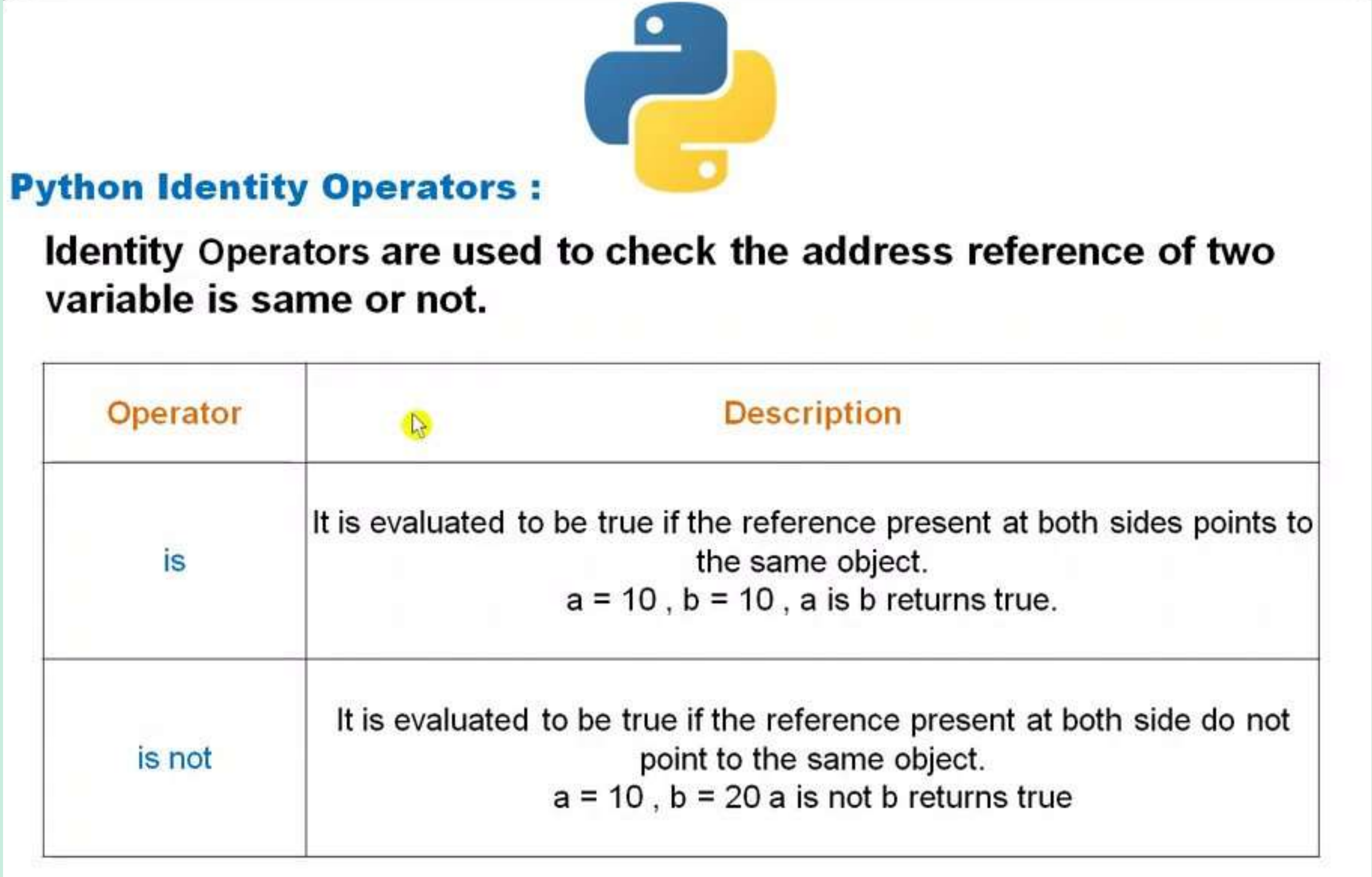
Operators	Meaning	Example	Result
<	Less than	5<2	False
>	Greater than	5>2	True
<=	Less than or equal to	5<=2	False
>=	Greater than or equal to	5>=2	True
==	Equal to	5==2	False
!=	Not equal to	5!=2	True

Logical operators



```
>>> a, b, c = 10, 20, 30

>>> (a > b) and (b < c)
False

>>> (a < b) and (b < c)
True

>>> (a > b) or (b < c)
True
```

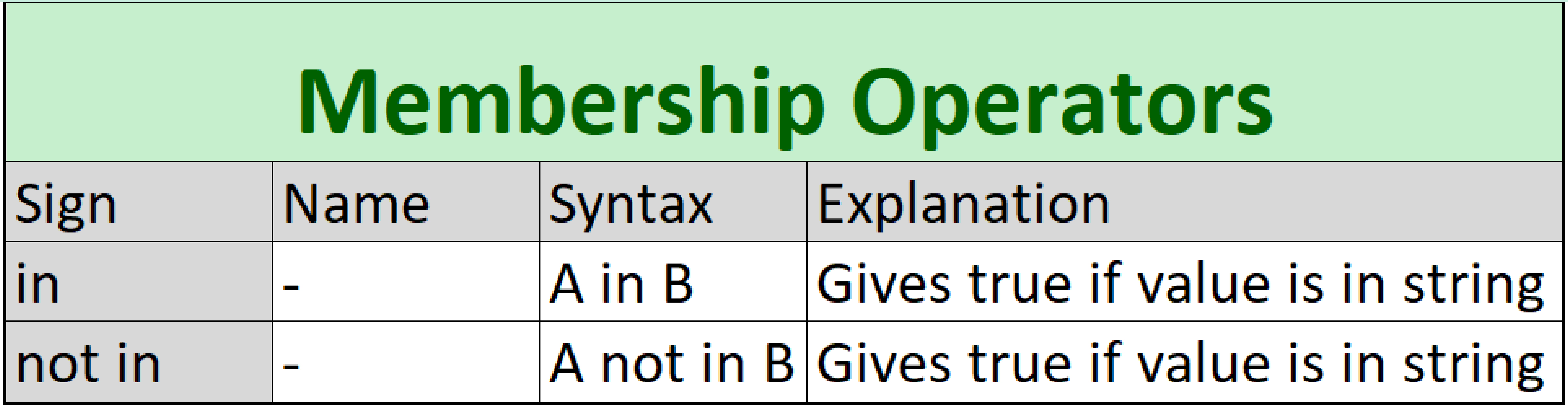
Operator	Description
a and b	Logical AND If both operands are True than it returns True
a or b	Logical OR If one of the operands is True then it returns True
not	Logical NOT



Python Identity Operators :

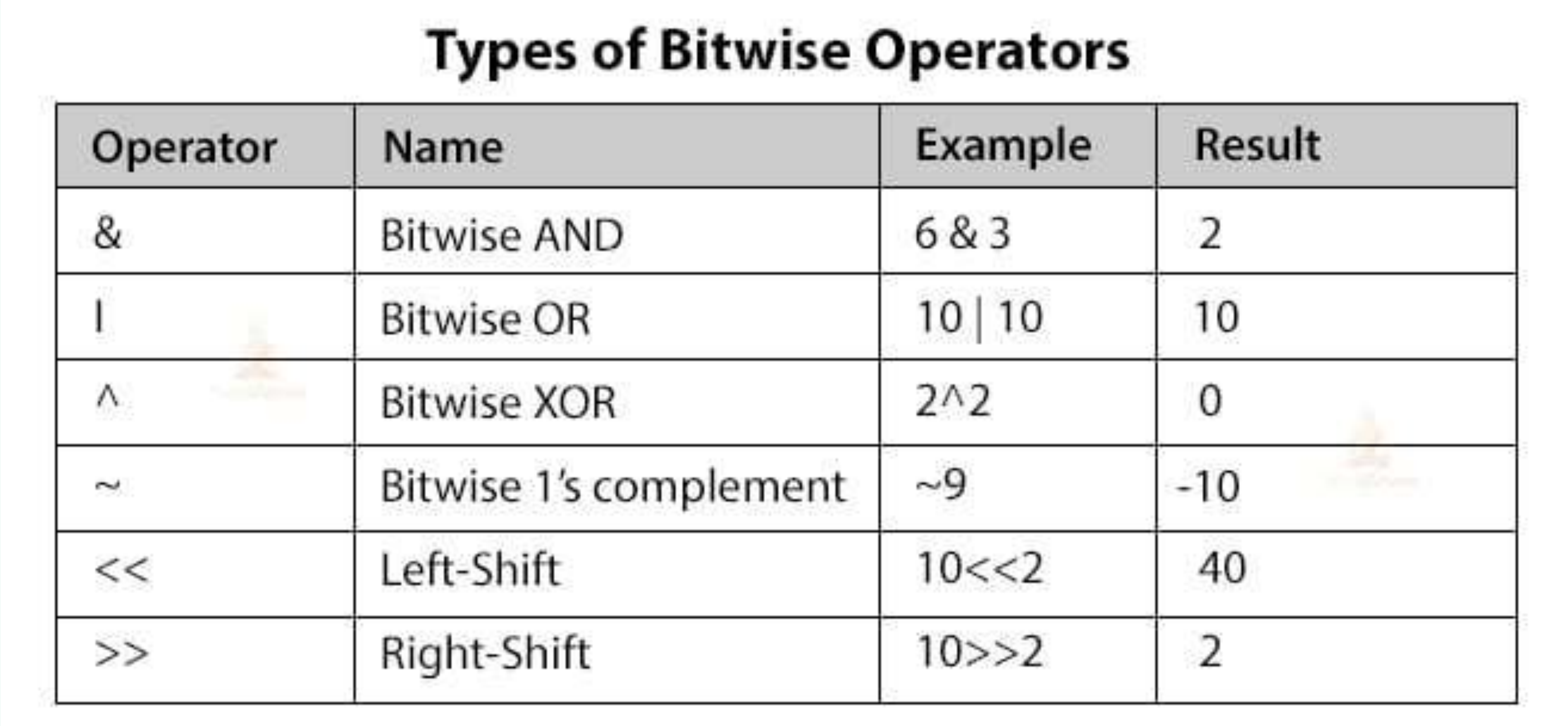
Identity Operators are used to check the address reference of two variable is same or not.

Operator	Description
is	It is evaluated to be true if the reference present at both sides points to the same object. a = 10 , b = 10 , a is b returns true.
is not	It is evaluated to be true if the reference present at both side do not point to the same object. a = 10 , b = 20 a is not b returns true



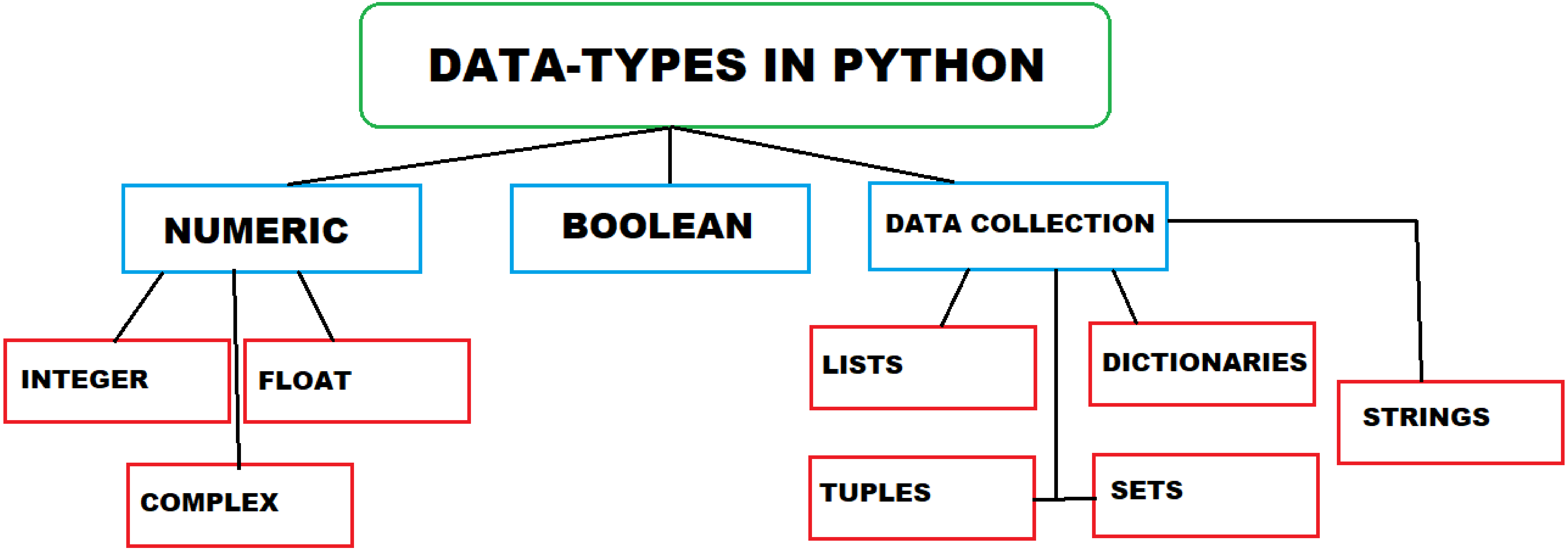
Membership Operators

Sign	Name	Syntax	Explanation
in	-	A in B	Gives true if value is in string
not in	-	A not in B	Gives true if value is in string



Types of Bitwise Operators

Operator	Name	Example	Result
&	Bitwise AND	6 & 3	2
|	Bitwise OR	10 | 10	10
^	Bitwise XOR	2^2	0
~	Bitwise 1's complement	~9	-10
<<	Left-Shift	10<<2	40
>>	Right-Shift	10>>2	2



DATA-TYPES IN PYTHON

NUMERIC

BOOLEAN

DATA COLLECTION

INTEGER

FLOAT

COMPLEX

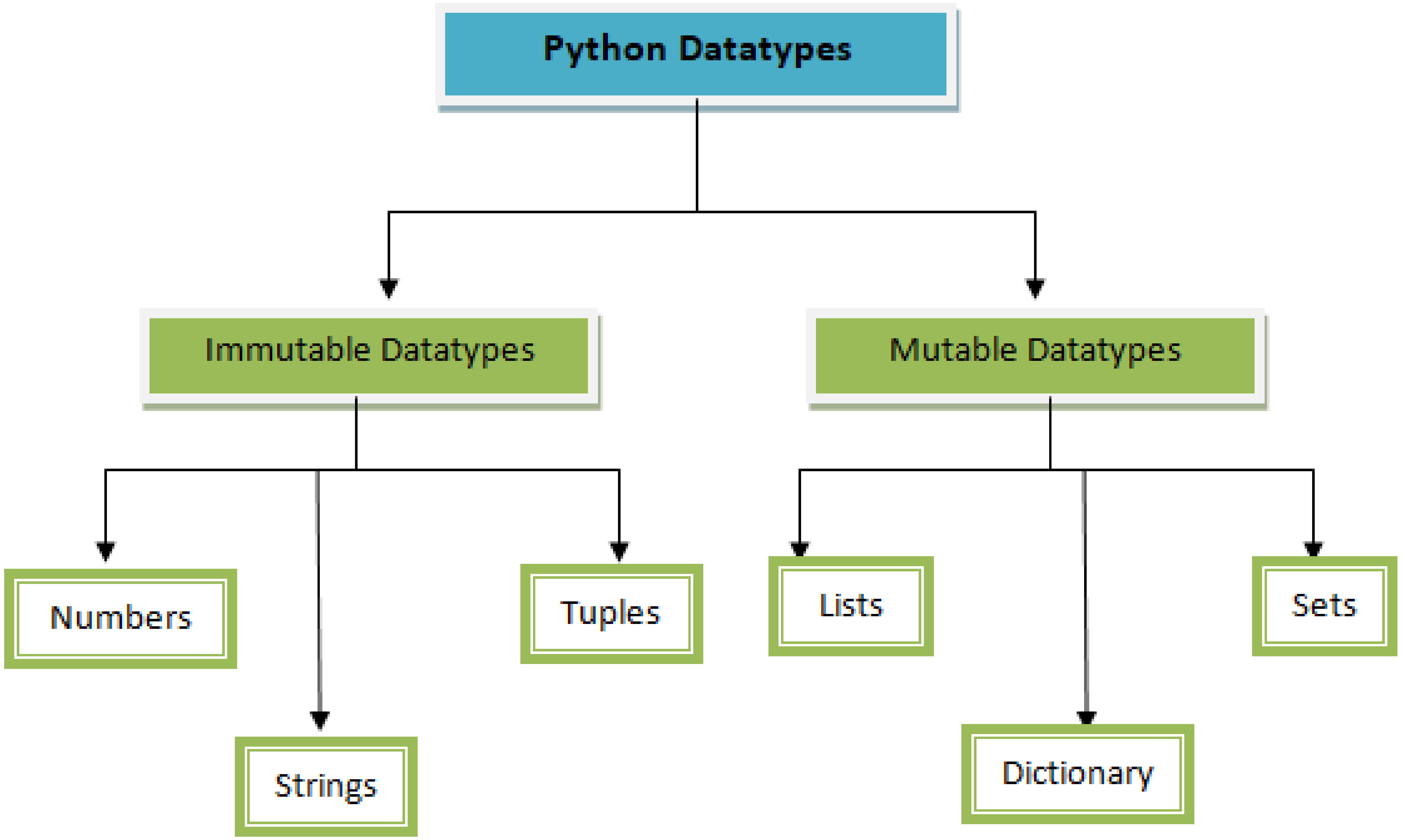
LISTS

DICTIONARIES

STRINGS

TUPLES

SETS

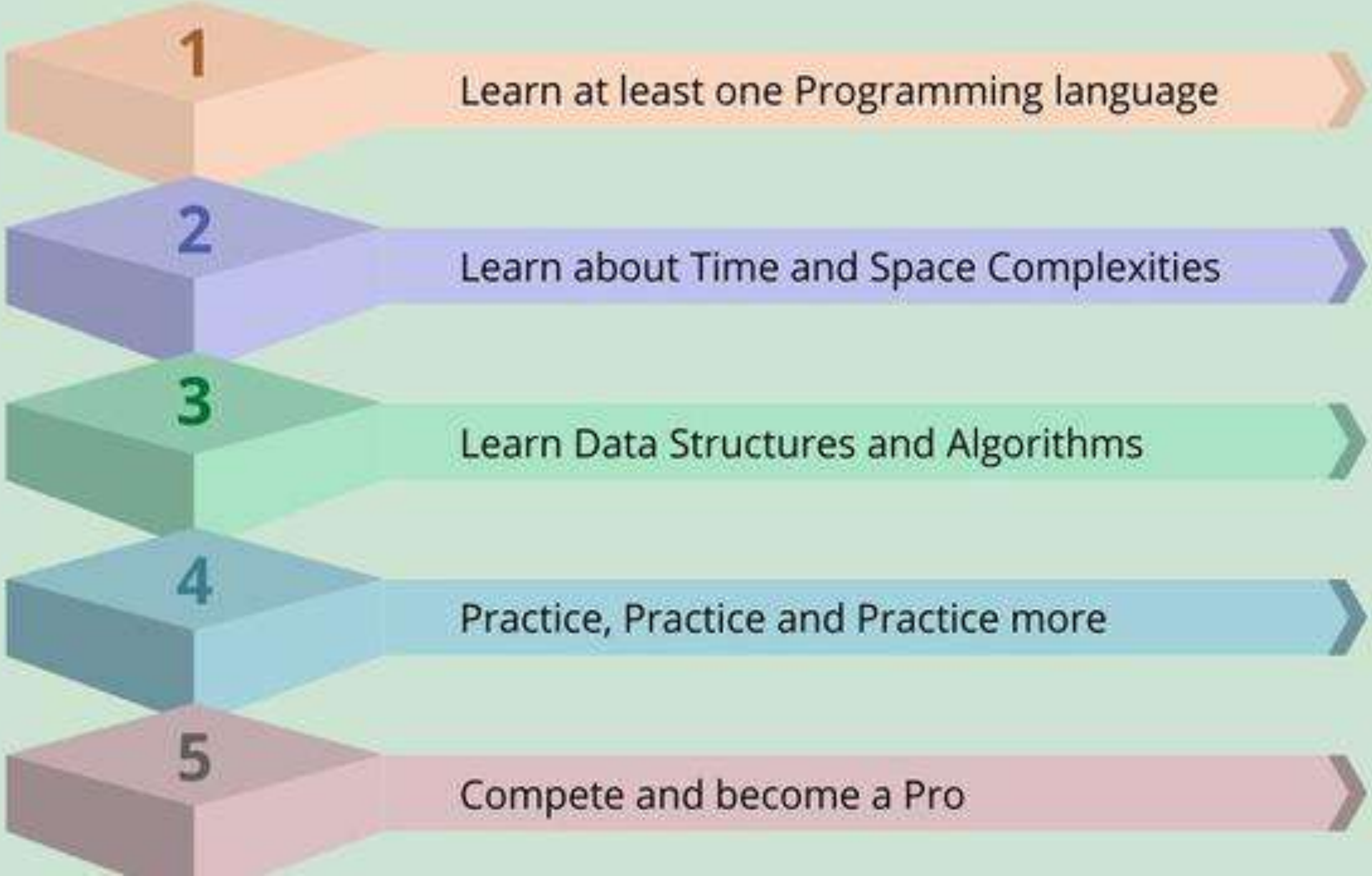

Python Datatypes
Immutable Datatypes
Mutable Datatypes
Numbers
Strings
Tuples
Lists
Dictionary
Sets

WHAT IS DATA STRUCTURE..?

WHY TO LEARN DATA STRUCTURES..?

5 Steps to learn DSA

from scratch



1 Learn at least one Programming language

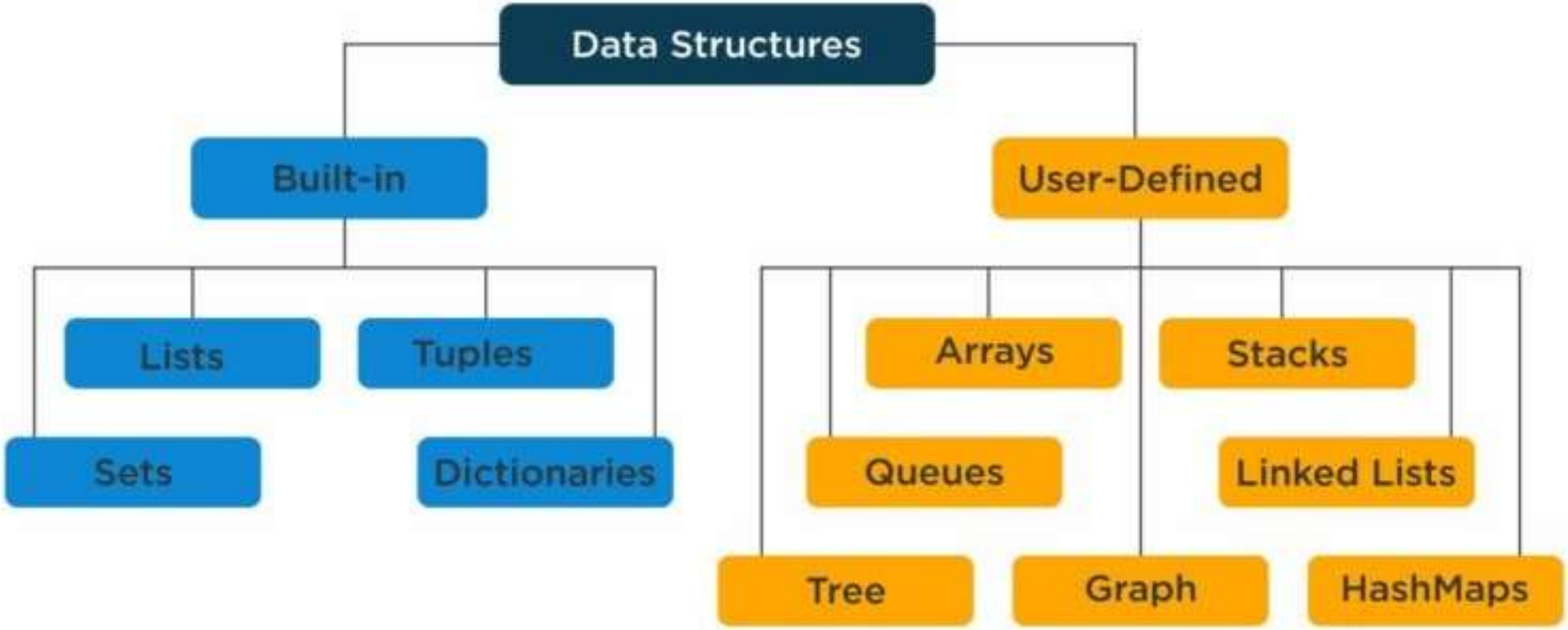
2 Learn about Time and Space Complexities

3 Learn Data Structures and Algorithms

4 Practice, Practice and Practice more

5 Compete and become a Pro

Data Structures in Python



- Data Structures
  - Built-in
    - Lists
    - Tuples
    - Sets
    - Dictionaries
  - User-Defined
    - Arrays
    - Stacks
    - Queues
    - Linked Lists
    - Tree
    - Graph
    - HashMaps