

WISSEN 



Exploring Partnership Opportunities

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What is Python?

Python is an object-oriented, high-level programming language with integrated dynamic semantics primarily for **web** and **app development**



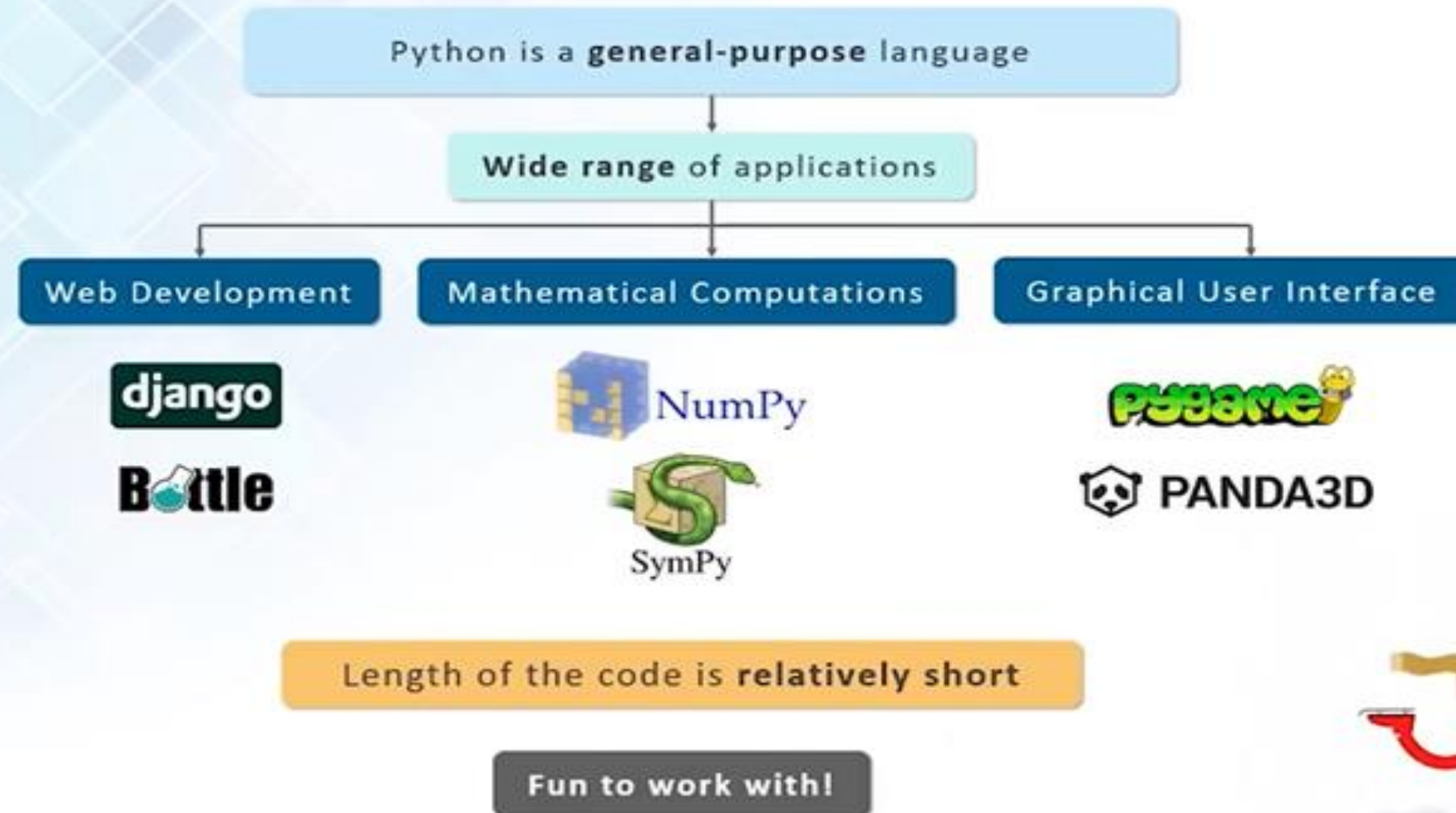
My name is **Guido van Rossum** and I created **Python**!

Is Python a New Language?

Fact: Python has been in existence since the **1980s**.

It has gained a lot of momentum in the beginning of the **21st century** and still rising in popularity across the world.

Why Should You Learn Python?





Firefox has over "**230k lines of code**" written in Python



Microsoft promotes Python development with its IDE, **Visual Studio Code**




Netflix shares that they make extensive use of Python for **data science**



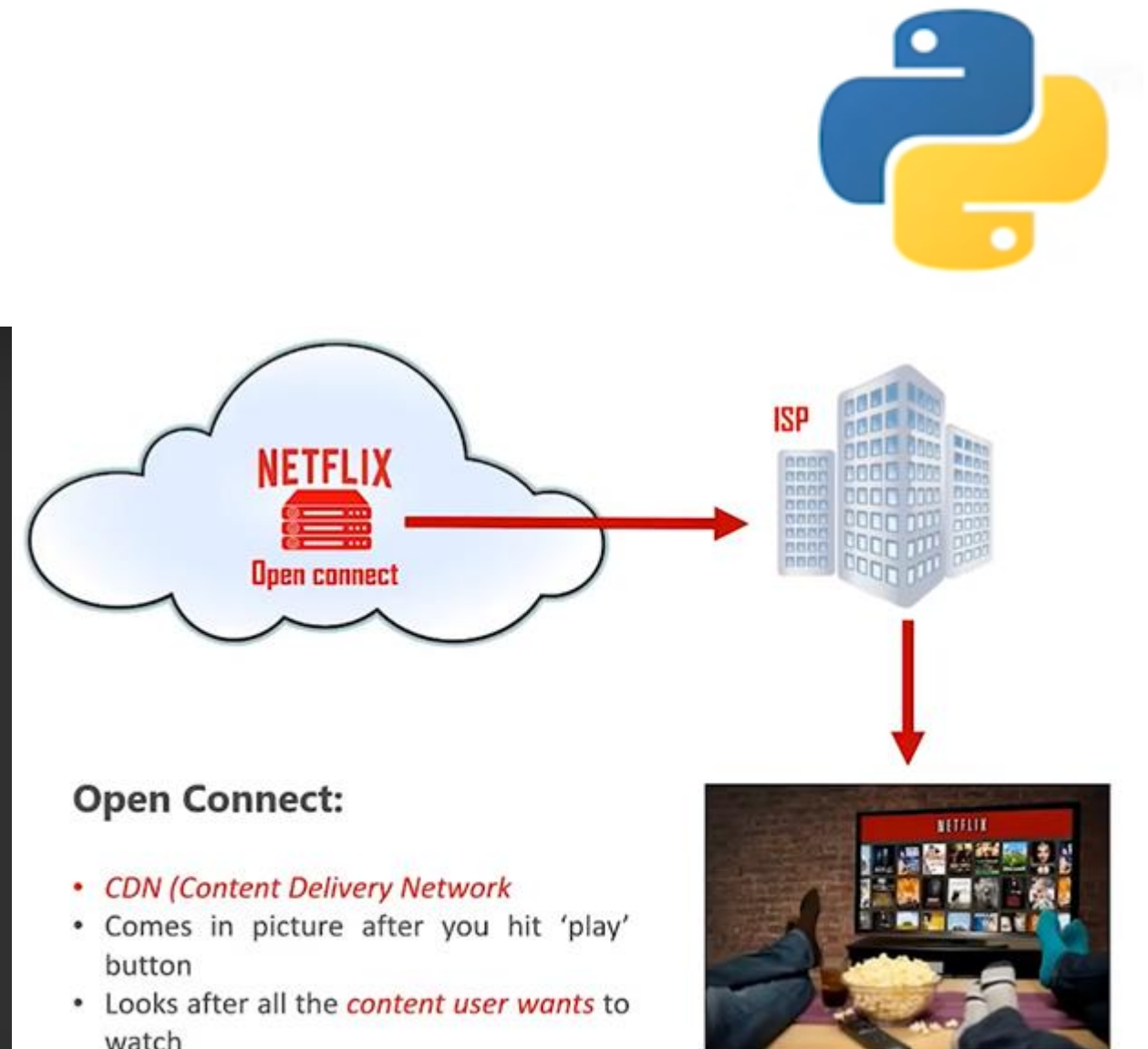
Uber says it uses **Jupyter Notebook** and **IPython** to share the **data**

NETFLIX



"We use *Python* through the *full content lifecycle*, from deciding which content to fund all the way to *operating the CDN* that serves the final video to 148 million members"

- Engineers at Netflix





A few companies that use Python.

Simplicity and Readability



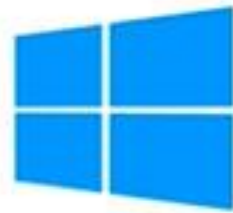
```
class HelloWorld {  
    public static void main( String []args ) {  
        System.out.println( "Hello World!" );  
    }  
}
```



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



Convenience



Windows 10



MacOS



Use your **favorite** Operating System

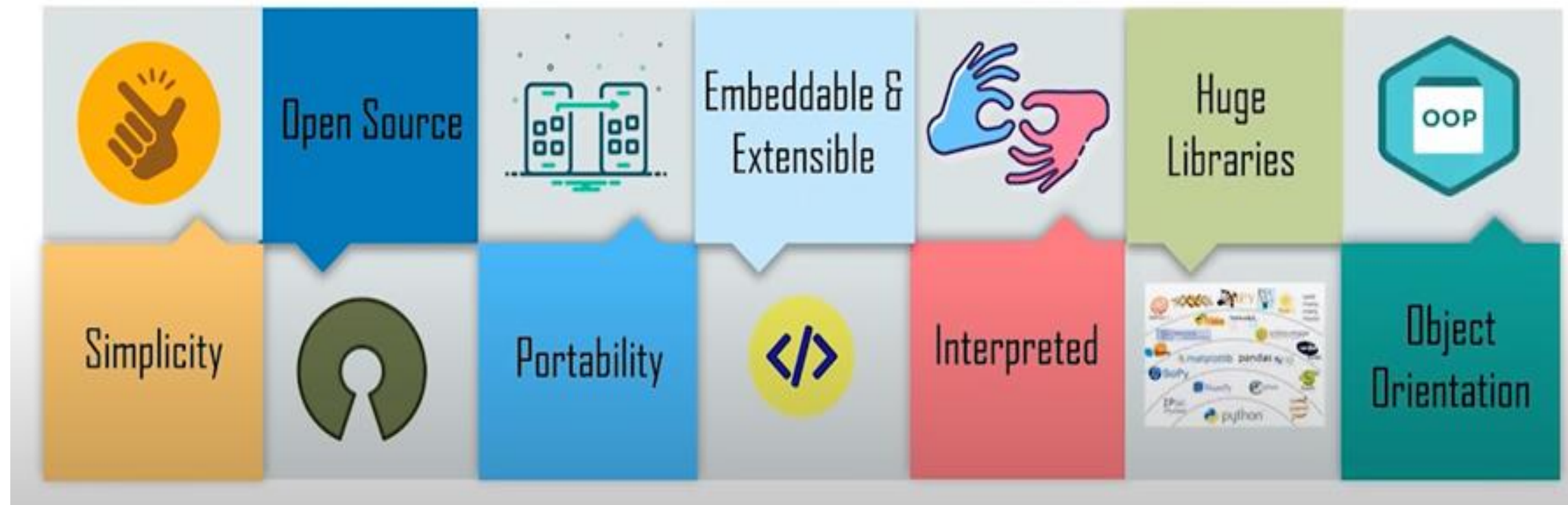
Cross-Language Operations

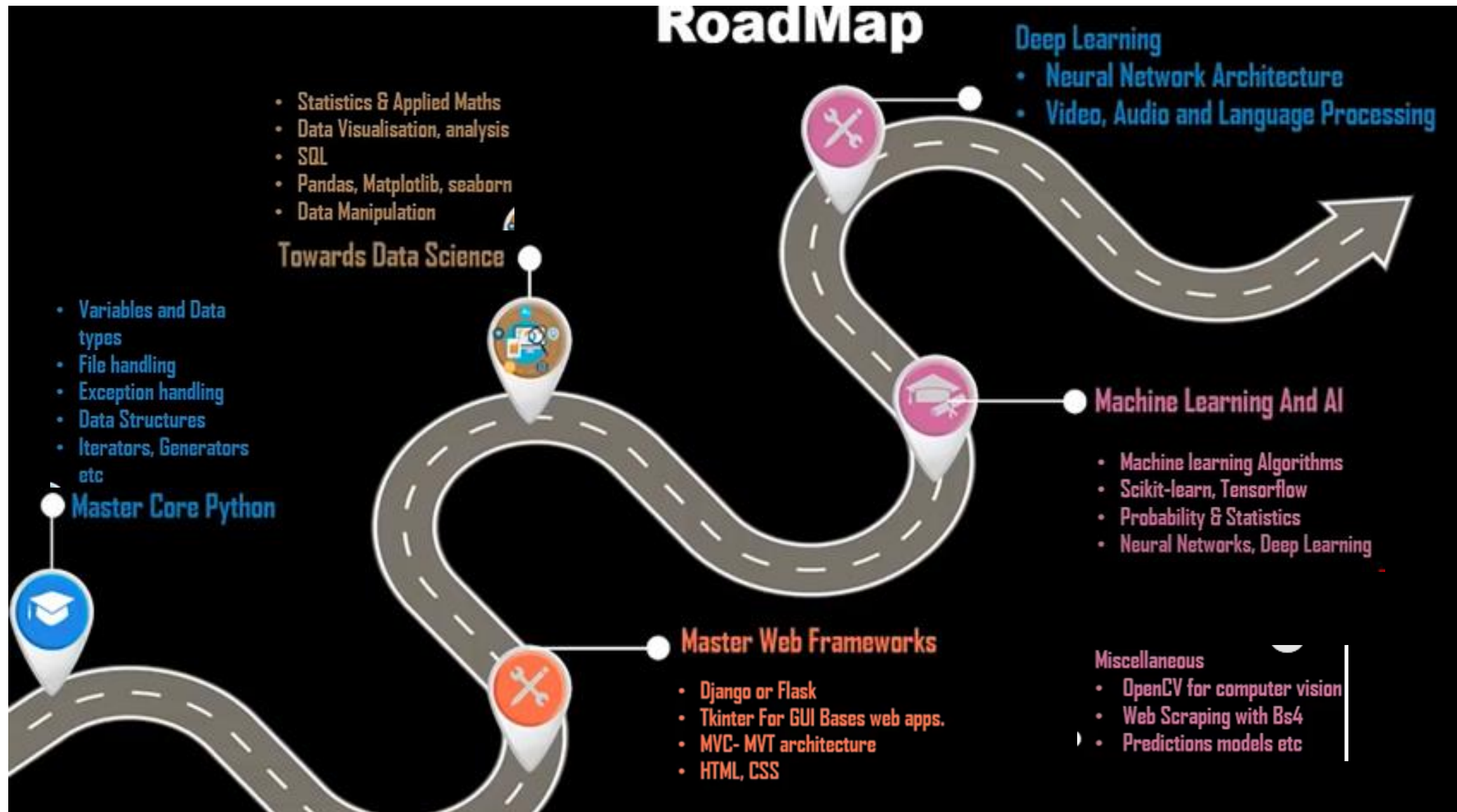


“ The **#1** language for a reason! ”



Features of Python







Python has topped the list with **28.73%** share in popularity.
In the last five years, Python has had 18.2% growth

Rank	Change	Language	Share	Trend
1		Python	28.73 %	+4.5 %
2		Java	20.0 %	-2.1 %
3		Javascript	8.35 %	-0.1 %
4		C#	7.43 %	-0.5 %
5		PHP	6.83 %	-1.0 %

Source: *GitHub*



Career Opportunities





Location

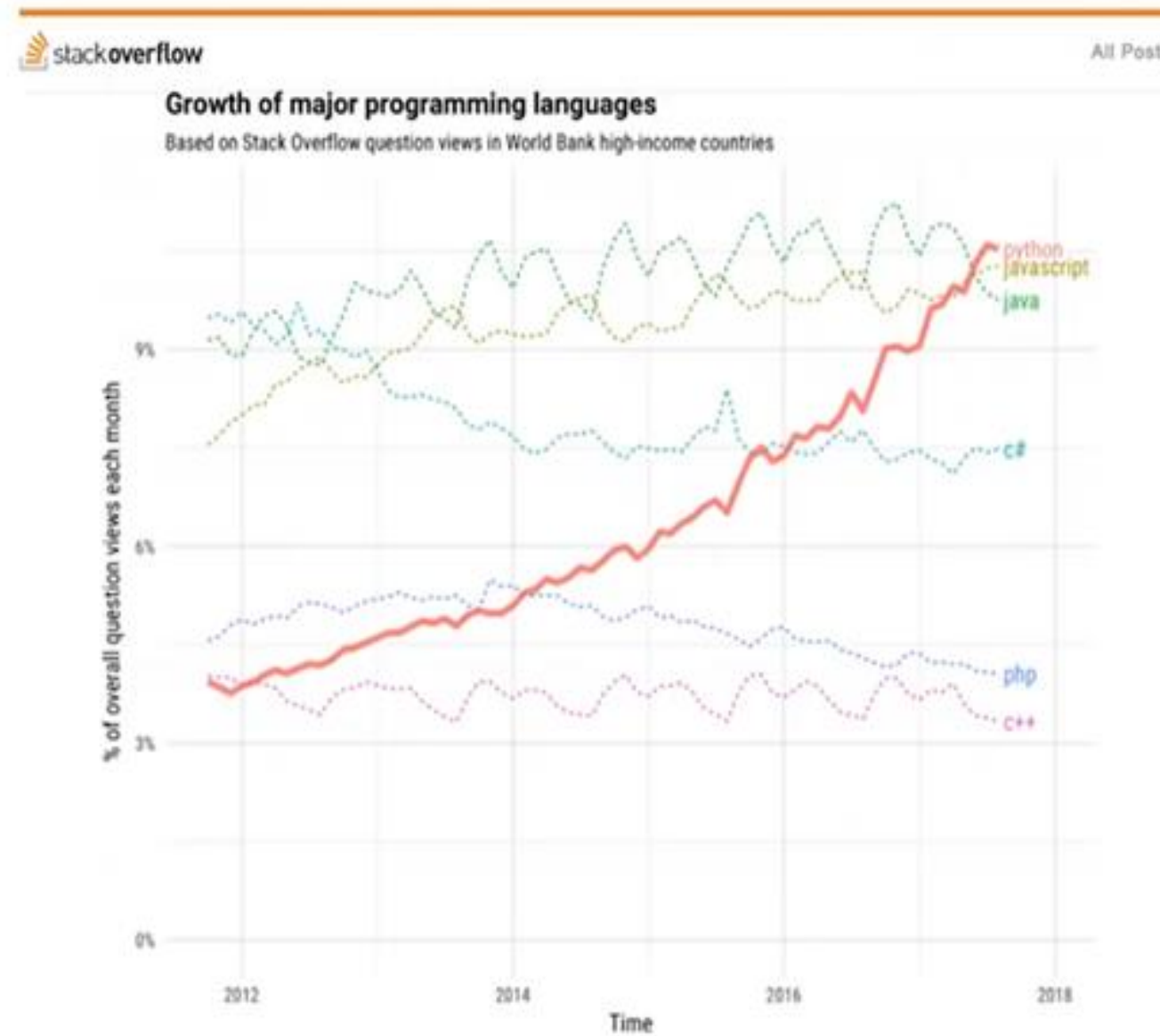


Location	Average Salary
Gurgaon	Rs 734K
Bangalore	Rs 664K
New Delhi	Rs 591K
Pune	Rs 545K
Mumbai	Rs 545K



Location	Average Salary
California	\$122K
New York	\$121K
Washington	\$116K
Virginia	\$115K
Maryland	\$112K

Popularity



Installing Python on Windows

Step 1:

Go to python.org and head to the Downloads page



Installing Python on Windows

Step 2:

Click on "Download Python 3.8.0"



Download the latest version for Windows

Download Python 3.8.0

Looking for Python with a different OS? Python for [Windows](#),
[Linux/UNIX](#), [Mac OS X](#), [Other](#)

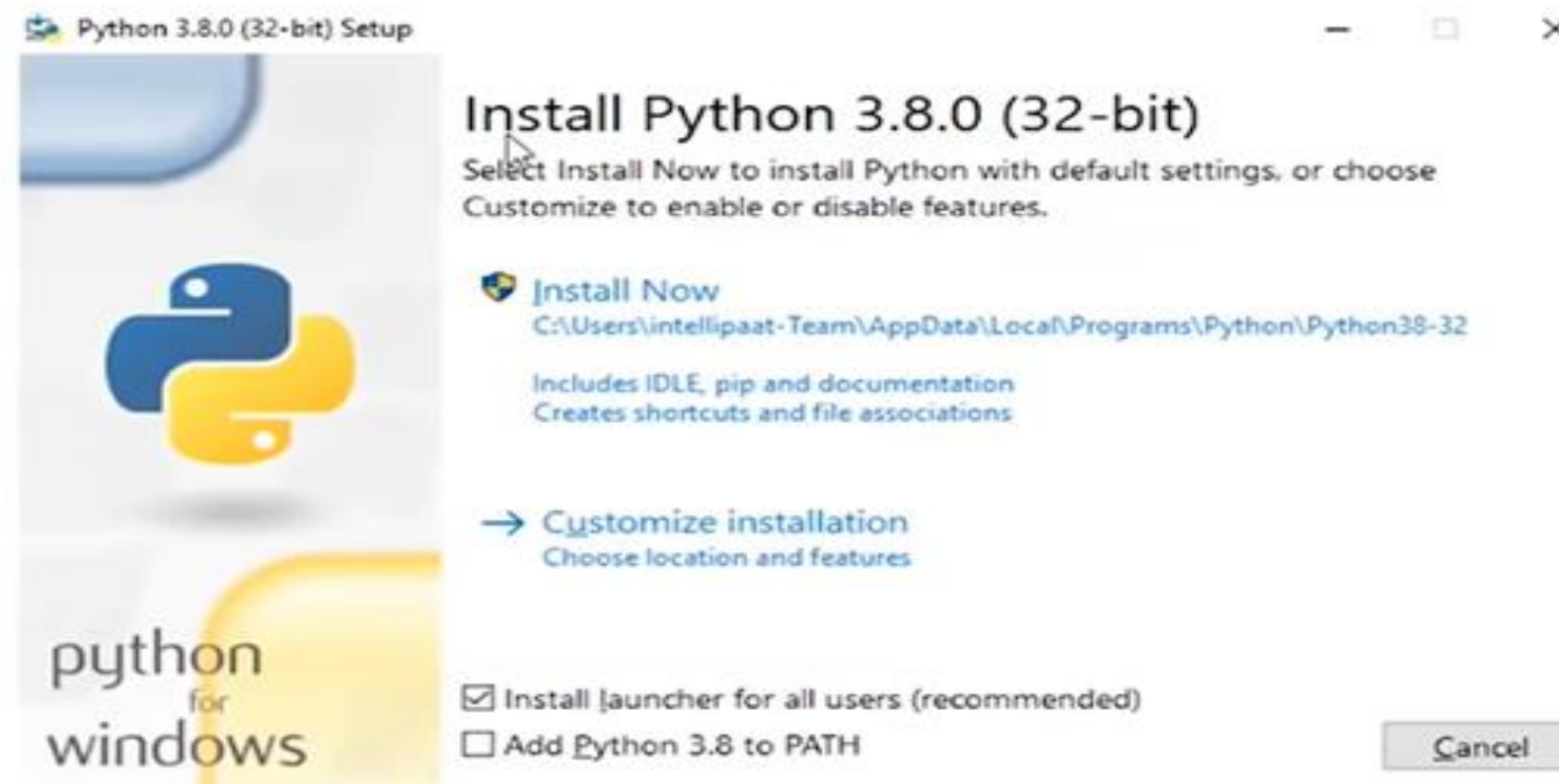
Want to help test development versions of Python? [Prereleases](#),
[Docker images](#)

Looking for Python 2.7? See below for specific releases

Installing Python on Windows

Step 3:

Open the installer and you should be presented with this screen!



Installing Python on Windows

Step 4:

Verify your installation

```
Python 3.8.0 (tags/v3.8.0:fa919fd, Oct 14 2019, 19:21:23) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print("Hello, world!")
Hello, world!
>>> _
```



Just run a small code to be sure!

```
>>> a=10
>>> b=20
>>> c=a*b
>>> print(c)
200
>>> _
```





Install all the libraries you want!



Introduction To PyCharm



PyCharm is one of the most widely used IDEs for Python programming language

Cross-Platform IDE for Python

Python 2.x

Python 3.x





PyCharm has very good start-up and industry traction



PyCharm

Features

- Specialized project views
- Quick switching between files
- Facilitates Web Development
- More than 1000 plug-ins
- Programmers can write their own plug-ins
- 81 of the top 100 companies make use of Pycharm

Size

150-176 MB

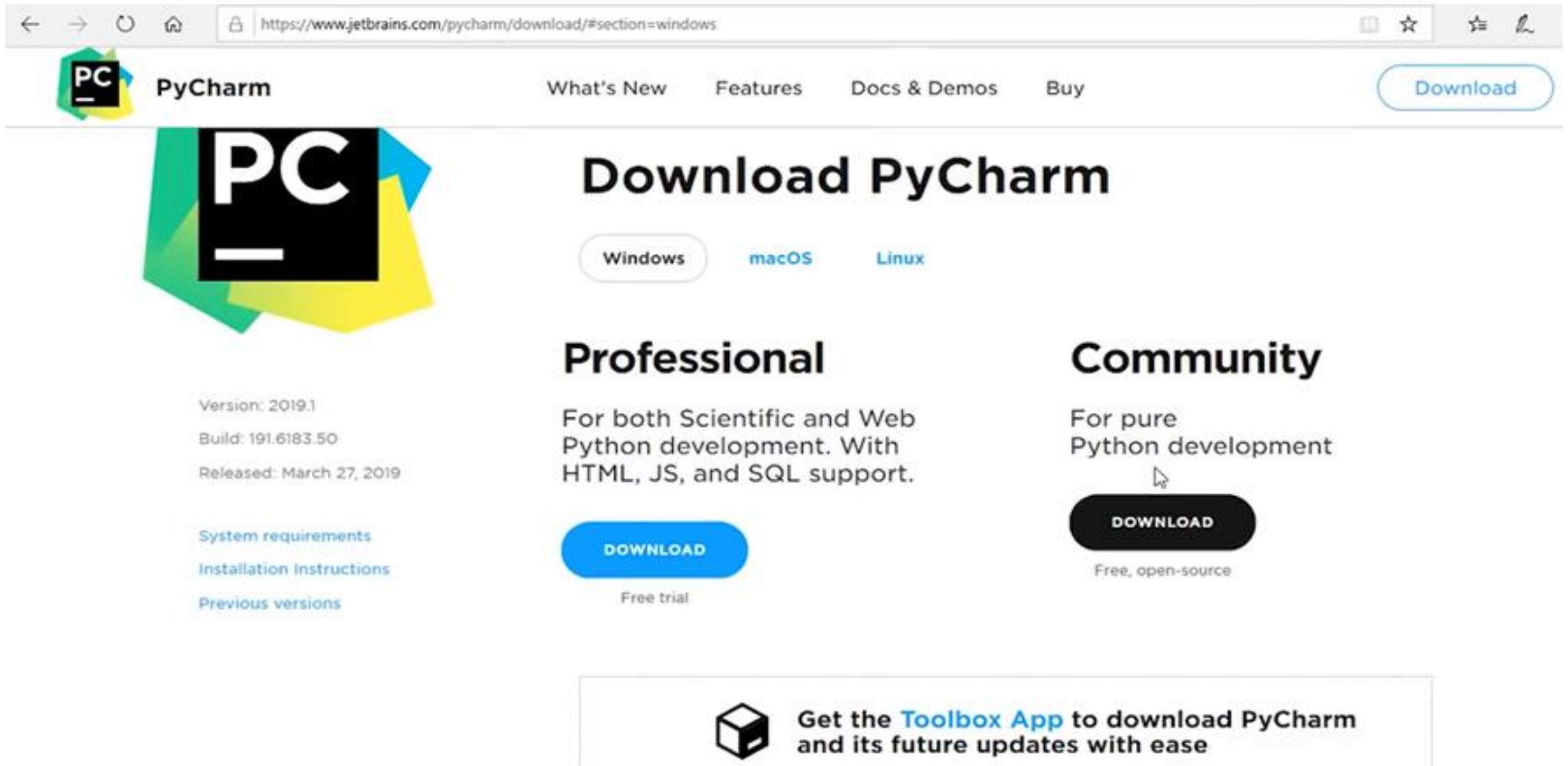
License

Apache License

Price

Community – Free
Professional – \$199
per user





The screenshot shows the JetBrains PyCharm download page in a web browser. The browser's address bar displays the URL <https://www.jetbrains.com/pycharm/download/#section=windows>. The page features the PyCharm logo on the left, which includes a large 'PC' on a black background with green and yellow geometric shapes. To the right of the logo, the text 'PyCharm' is displayed. The navigation bar includes links for 'What's New', 'Features', 'Docs & Demos', and 'Buy', along with a 'Download' button. The main heading is 'Download PyCharm', with tabs for 'Windows', 'macOS', and 'Linux'. Below this, there are two columns: 'Professional' and 'Community'. The 'Professional' column describes it as 'For both Scientific and Web Python development. With HTML, JS, and SQL support.' and offers a 'Free trial' download. The 'Community' column describes it as 'For pure Python development' and offers a 'Free, open-source' download. At the bottom, a banner promotes the 'Toolbox App' for downloading PyCharm and its updates.

Version: 2019.1
Build: 191.6183.50
Released: March 27, 2019

[System requirements](#)
[Installation instructions](#)
[Previous versions](#)

Download PyCharm

Windows macOS Linux

Professional


For both Scientific and Web Python development. With HTML, JS, and SQL support.

DOWNLOAD
Free trial

Community

For pure Python development

DOWNLOAD
Free, open-source

 Get the **Toolbox App** to download PyCharm and its future updates with ease

Atom

Features

- Enables support for third-party packages
- Allows installation and management of packages
- Provides support for a number of languages other than Python
- Exception reporting package

Compatibility
Cross-Platform

License
MIT

Price
Open-Source



Basics



Variables and Data types



Functions, Exceptions, I/O Operations



Loops, Control Statements, Conditional Statements



Data Structures



OOPs Concepts, File Handling etc

Python Variables

Variable is created as soon as you assign a value to it. It does not need any commands unlike other programming languages.

Assigning a Single Value

Assigning Multiple Values

Assigning a single value to a variable:

```
a = 10
name = 'Victor'
salary = 2000.23
print (a)
print (name)
print (salary)
```

```
10
Victor
2000.23
```

Python Variables

Assigning a Single
Value

Assigning Multiple
Values

Assigning multiple values:

```
a=b=c=10  
x,y,z=10,20,30  
print(y)  
print(z)  
print(a)
```

```
20  
30  
10
```

Python Tokens

Keywords

Identifiers

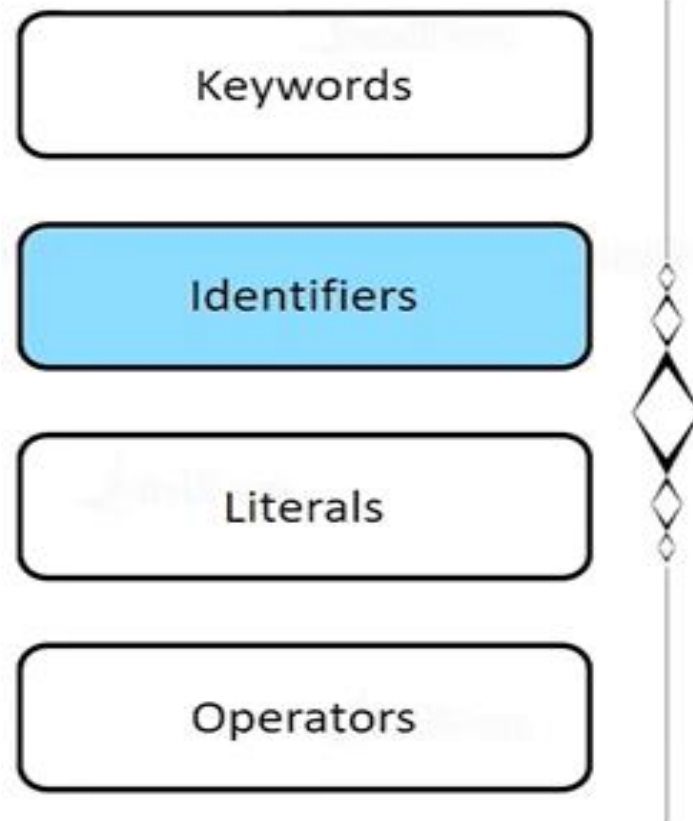
Literals

Operators

Python Keywords

True	False	None	and	as
is	def	class	continue	break
else	finally	elif	del	except
global	for	if	from	import
raise	try	or	return	pass
nonlocal	in	not	is	lambda

Python Tokens



An **identifier** is the name used to identify a variable, function, class, or object

Rules for naming an identifier:

1. No special character, except underscore (`_`), can be used as an identifier
2. Keywords should not be used as an identifier
3. Python is case sensitive, i.e., 'Var' and 'var' are two different identifiers
4. The first character of an identifier can be a alphabet or underscore (`_`) but not a digit

Python Tokens

Keywords

Identifiers

Literals

Operators

A **literal** is the raw data given to a variable

Various Types of Literals

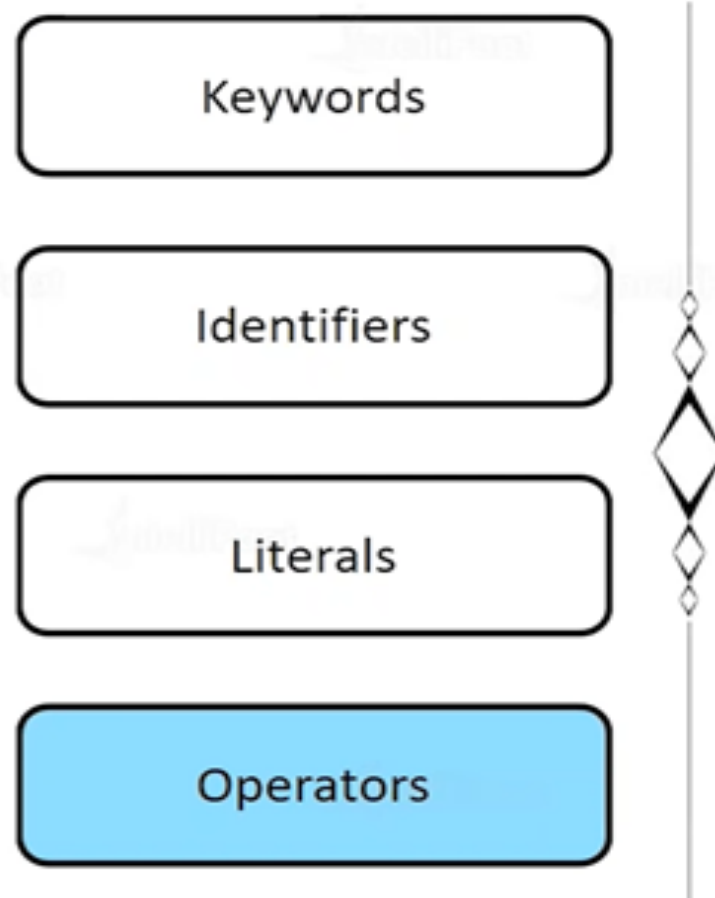
String literals

Numeric literals

Boolean literals

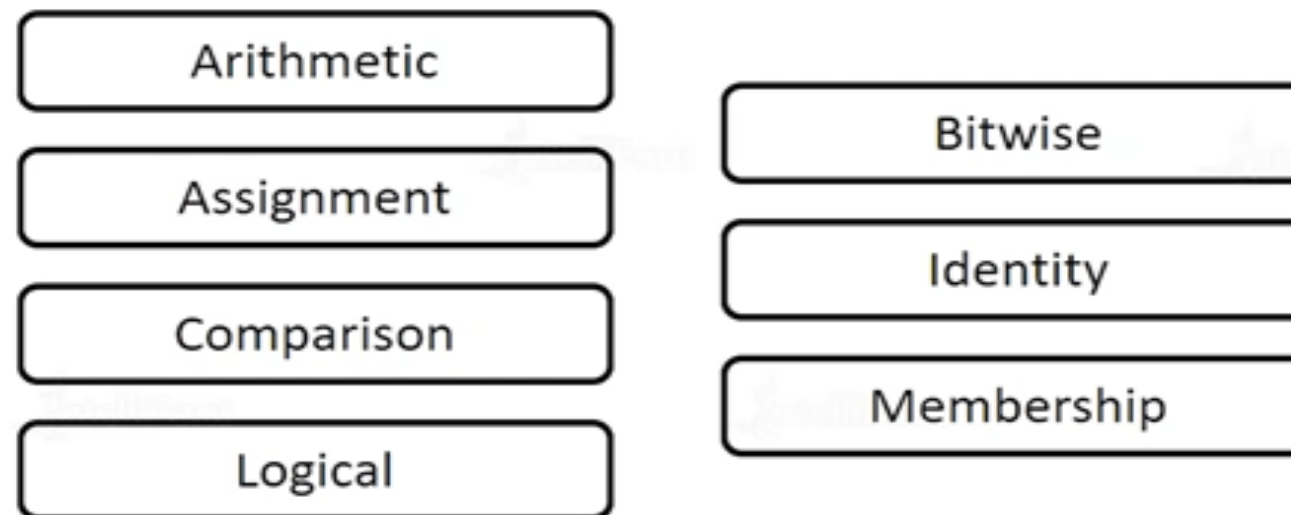
Special literals

Python Tokens



Operators are special symbols that are used to carry out arithmetic and logical operations

Various Types of Operators



How to write Comments in Python?

Comments in Python start with a # character

```
#Comments in Python start like this  
print("Comments in Python start with a #")
```

OUTPUT -

```
Comments in Python start with a #
```


Single-line Comments

Can appear either in an individual line or inline with some other code.

```
# multiplying two variables  
a=1  
b=2  
c=a*b  
print(c) # printing result
```

OUTPUT - 2

Multi-line Comments

Can appear anywhere, but each line should be prefixed by # character.

```
#adding 2 variables  
#printing the result in a new variable  
a=2  
b=3  
c=a+b  
print(c)
```

OUTPUT - 5

Docstring Comments

Documentation strings written within quotes that act as comments.

```
"""  
Using docstring as a comment.  
This code divides 2 numbers  
"""  
  
x=8  
y=4  
z=x/y  
print(z)
```

OUTPUT - 2

Data Types

Ordered, can be changed. Duplicate entries are present.

Ordered, cannot be changed. Duplicate entries are present.

NUMBERS

LIST

TUPLE

1

2

3

4

5

6

STRING

Unordered, can be changed. NO Duplicate entries are present.

DICTIONARY

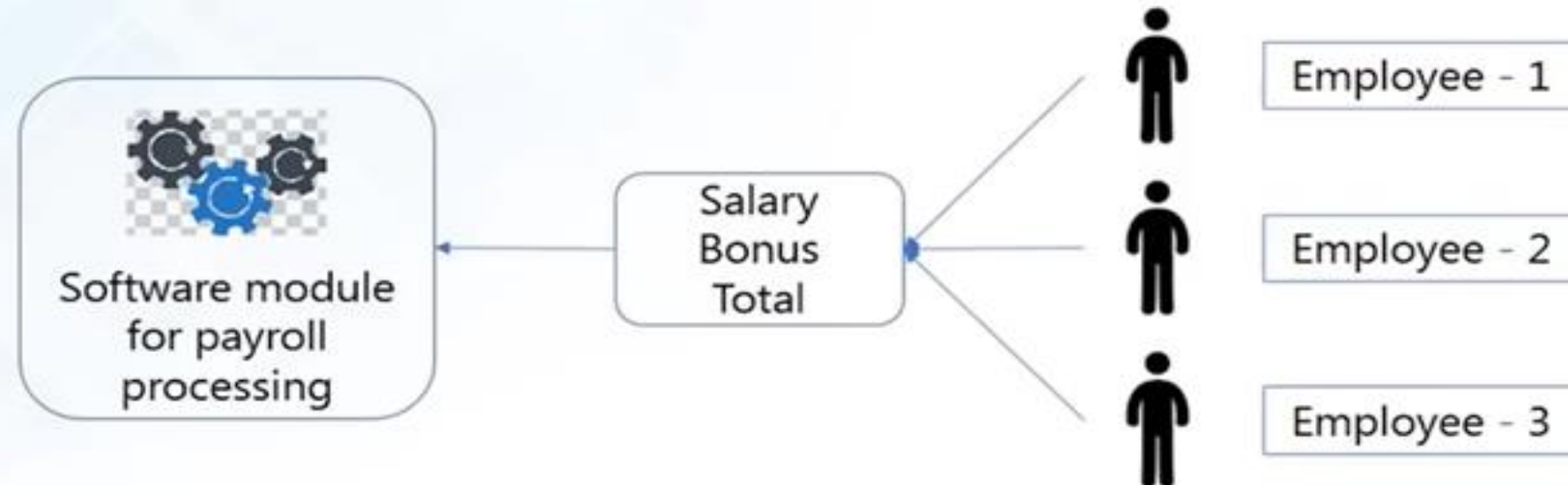
Unordered, No Duplicate entries are present.

SET

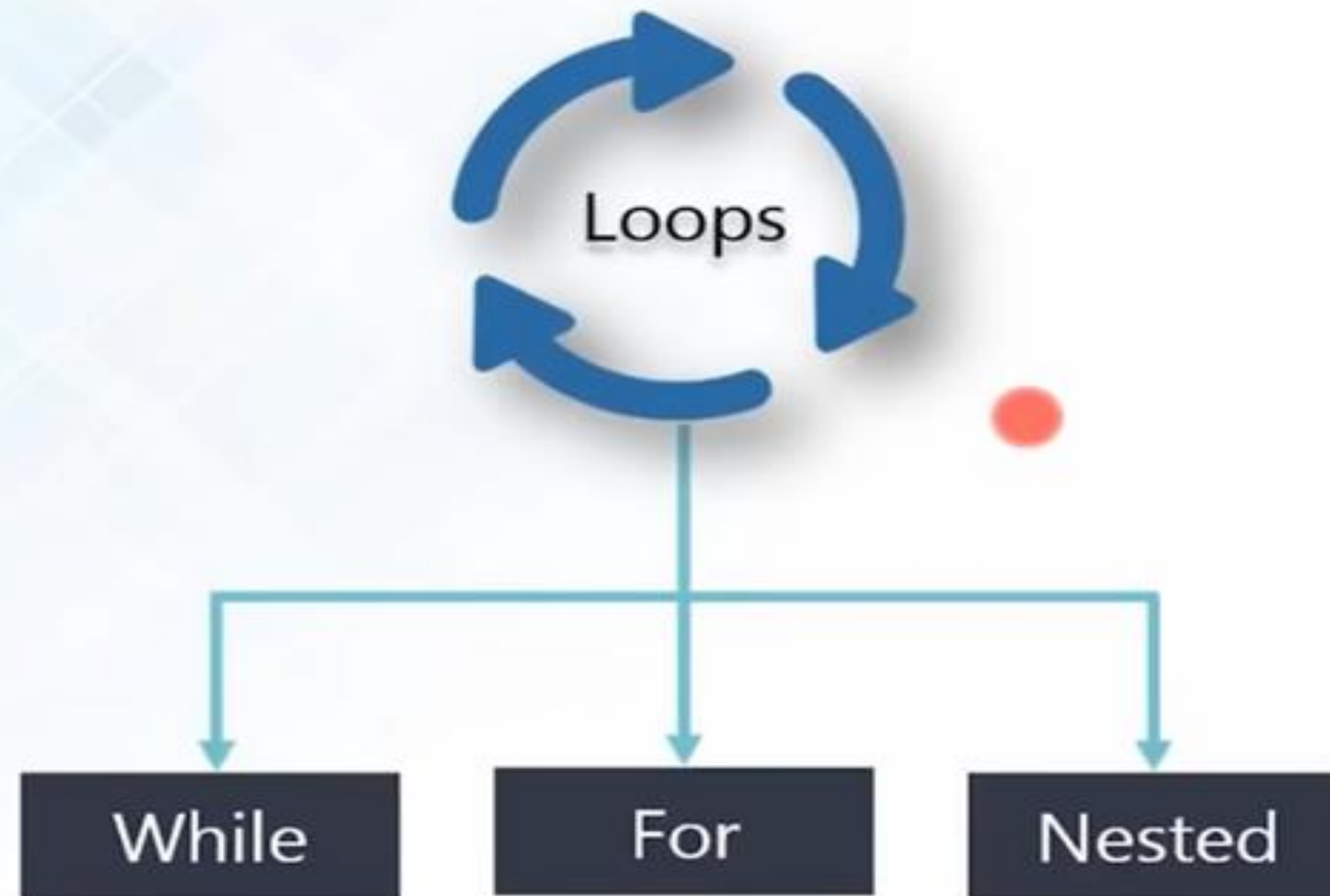
Why To Use Loops



If a software developer develops a software module for payroll processing that needs to compute the salaries and the bonus of all the employees.



Loops In Python



What is an Array?

An array is basically a ***data structure*** which can hold more than one value at a time. It is a collection or ordered series of elements of the same type.

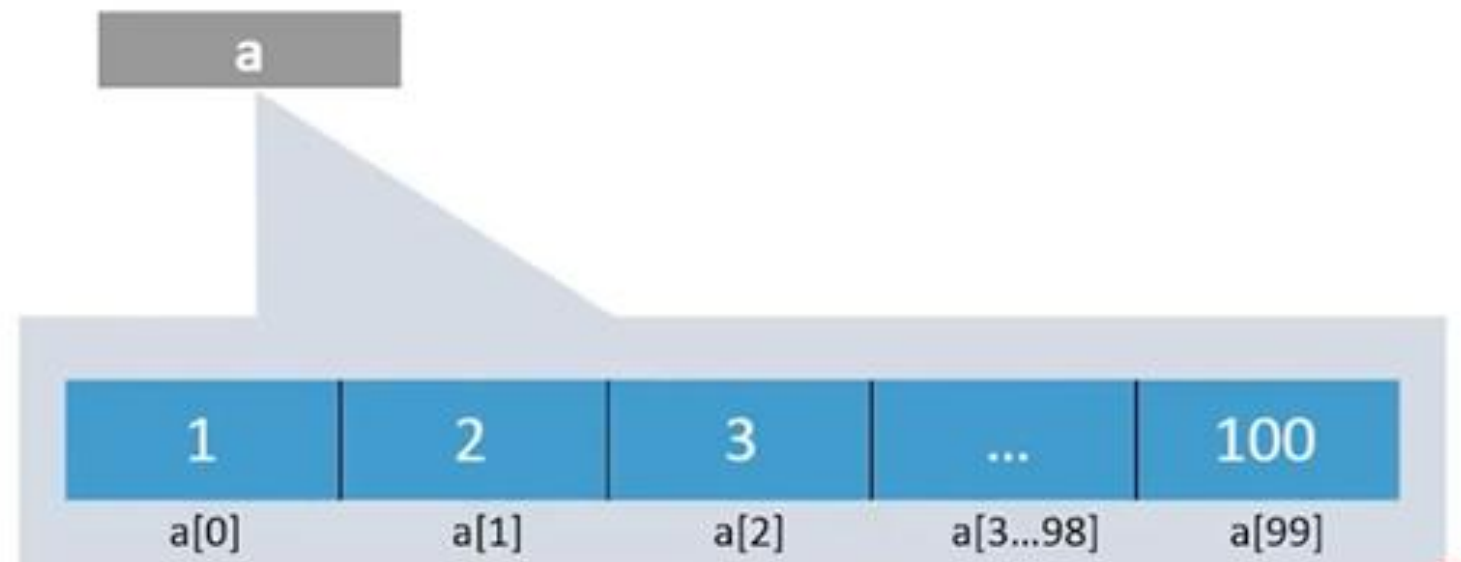
Basic structure of an Array:

Var_Name →

a

Values →

Index →



How to create Arrays in Python?

Arrays in Python can be created after importing the **array** module.

1

WITHOUT ALIAS

→ `import array`

2

USING ALIAS

→ `import array as arr`

3

USING *

→ `from array import *`

Introduction to OOPs

Object-Oriented Programming is a programming paradigm where you can use a real world entity which is called an **Object**.

Let us consider an example

- ❑ **Attribute:** Name, Age, Color
- ❑ **Behaviour:** Singing, Dancing



Parrot

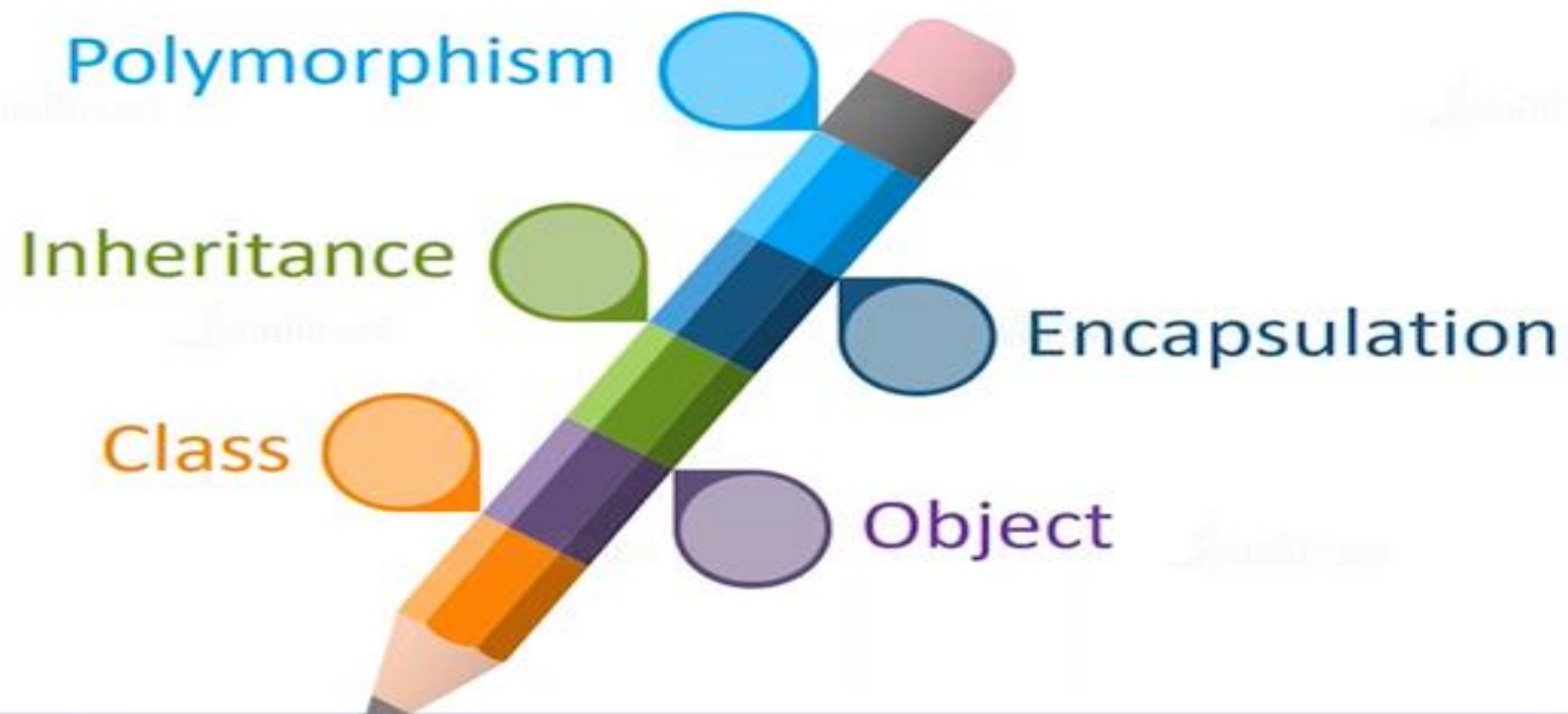
OOPs – Classes and Objects

What are Objects and Classes?

- 01** Object is the basic unit of object-oriented programming
- 02** An object represents a particular instance of a class
- 03** There can be more than one instance of an object
- 04** Each instance of an object can hold its own relevant data
- 05** Objects with similar properties and methods are grouped together to form a Class

Introduction to OOPs

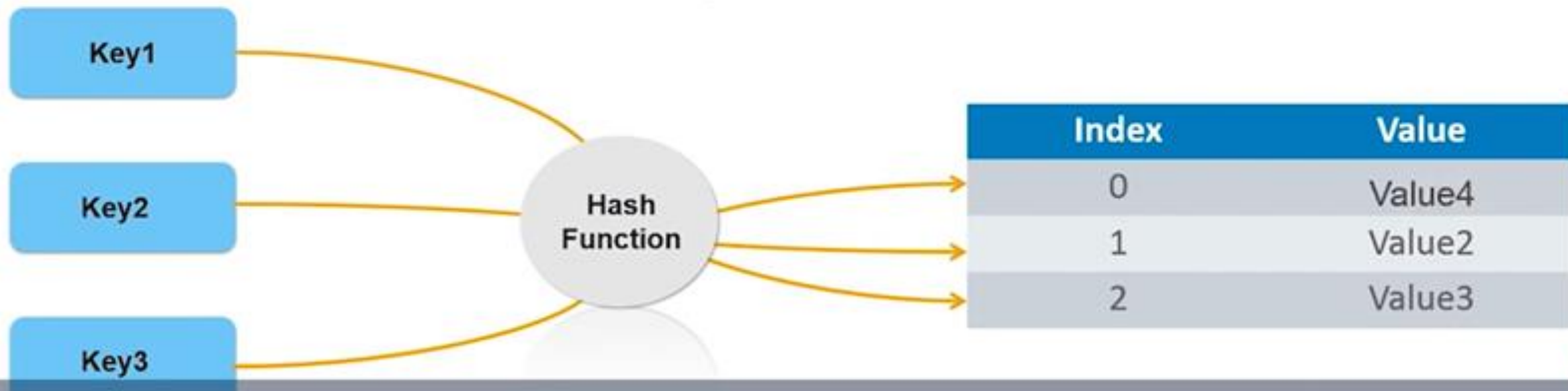
Basic Principle of OOPS

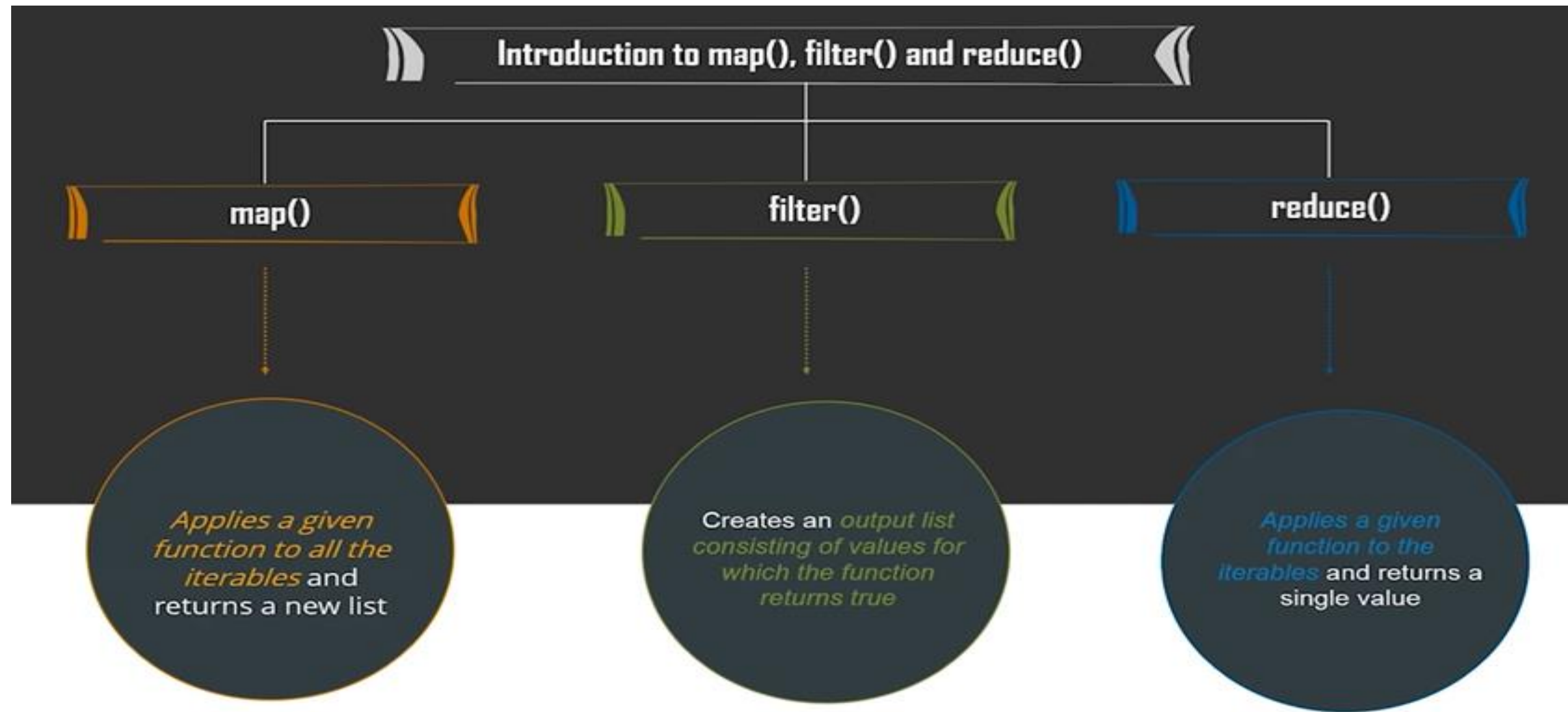


Performing Operations on Hash Tables

Updating Values

Dictionaries are *mutable* data types and you can *update* them as and when required.





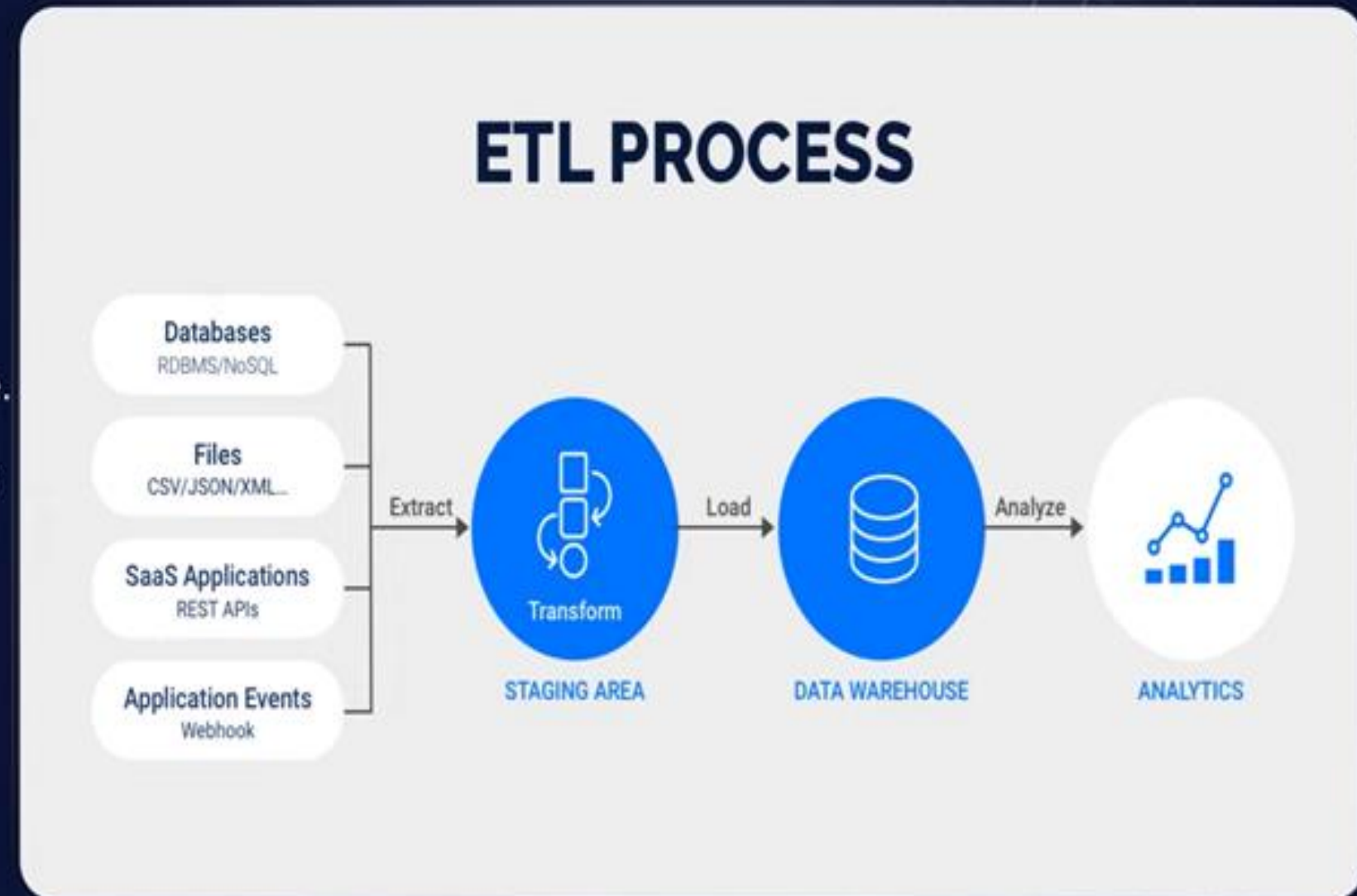


Flask

- Microframework
- Built-in development server
- Fast debugger
- RESTful request dispatching
- Jinja2 Templating
- Unicode based
- HTTP request handling
- Ability to plug any ORM

EXTRACT, TRANSFORM AND LOAD

- **Extract** — get data from a source.
- **Transform** — structure, format, or clean the data
- **Load** — write the data to an external destination



AUTOMATE ETL PIPELINES WITH APACHE AIRFLOW

Apache Airflow is a widely used open-source workflow management system.



An intuitive platform to author, schedule, monitor, and maintain complex data pipelines.



Manage your data pipelines by authoring workflows as Directed Acyclic Graphs (DAGs) of tasks.



Create and manage scripted data pipelines as Python code



Visualize your data pipelines' dependencies, progress, logs, code via User Interface

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