Instructor:

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Python History?

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Why Python?

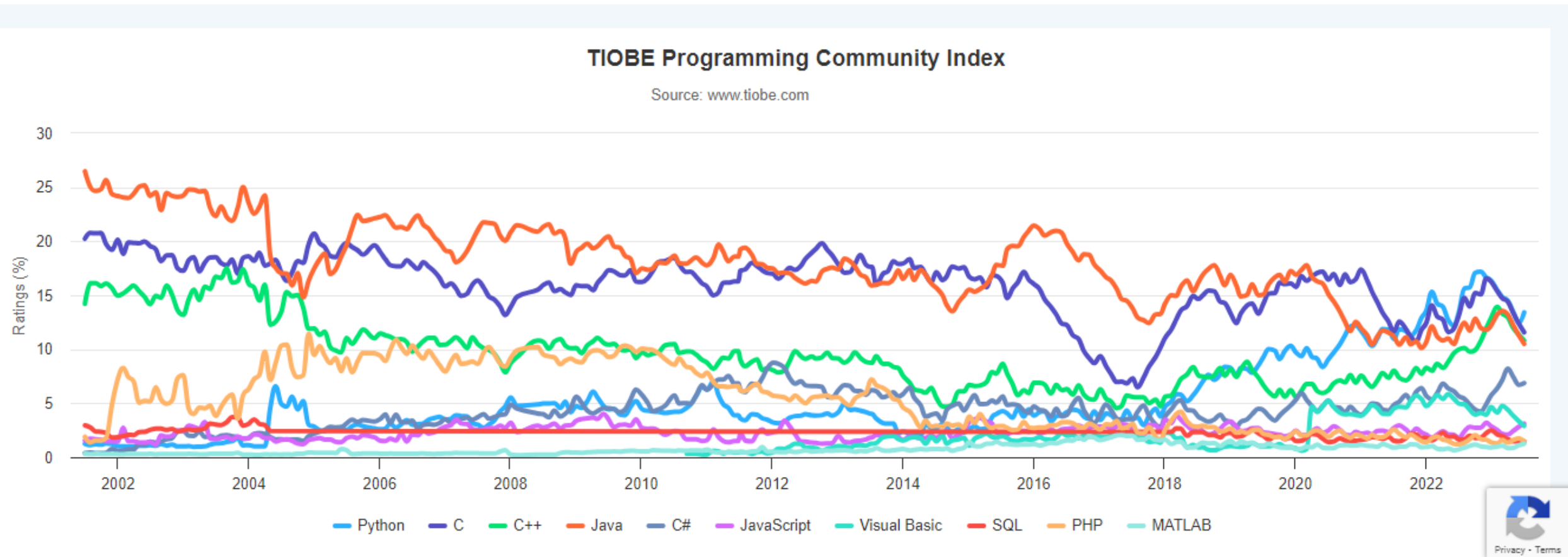*Fatemeh Makhloughi*

Popularity and Community

TIOBE Index for Python
Source: www.tiobe.com

Wednesday, Feb 1, 2023
● Python: 15.49%

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Popularity and Community

TIOBE Programming Community Index
Source: www.tiobe.com

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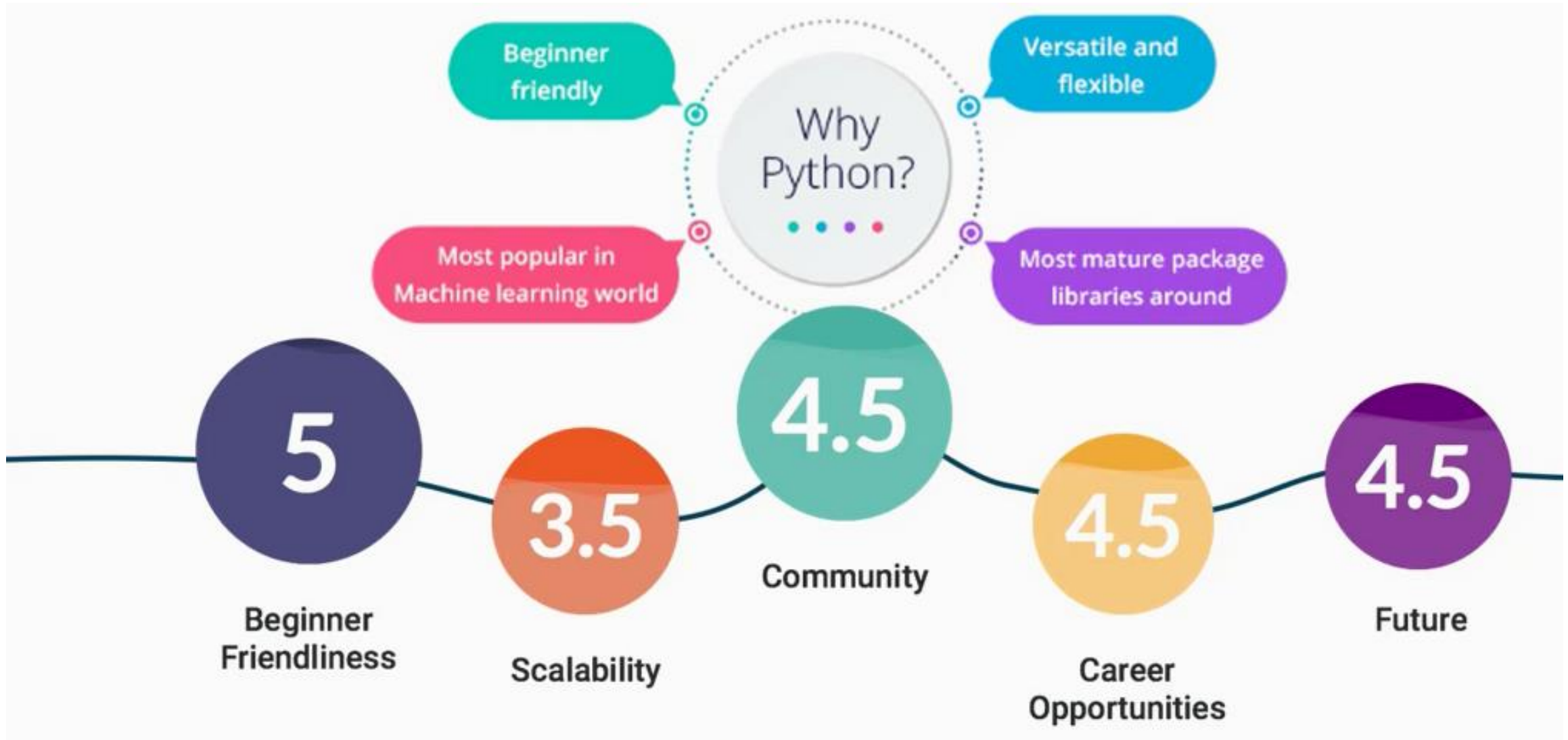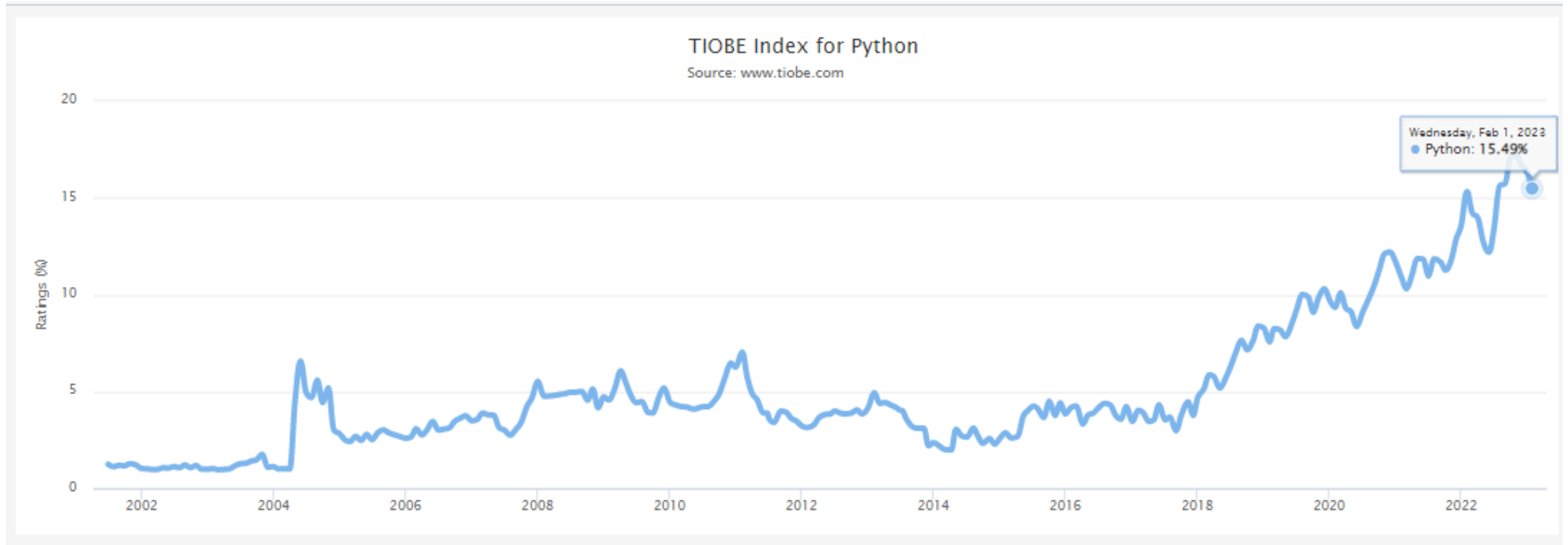
Top 3

Top 3 Programming Languages

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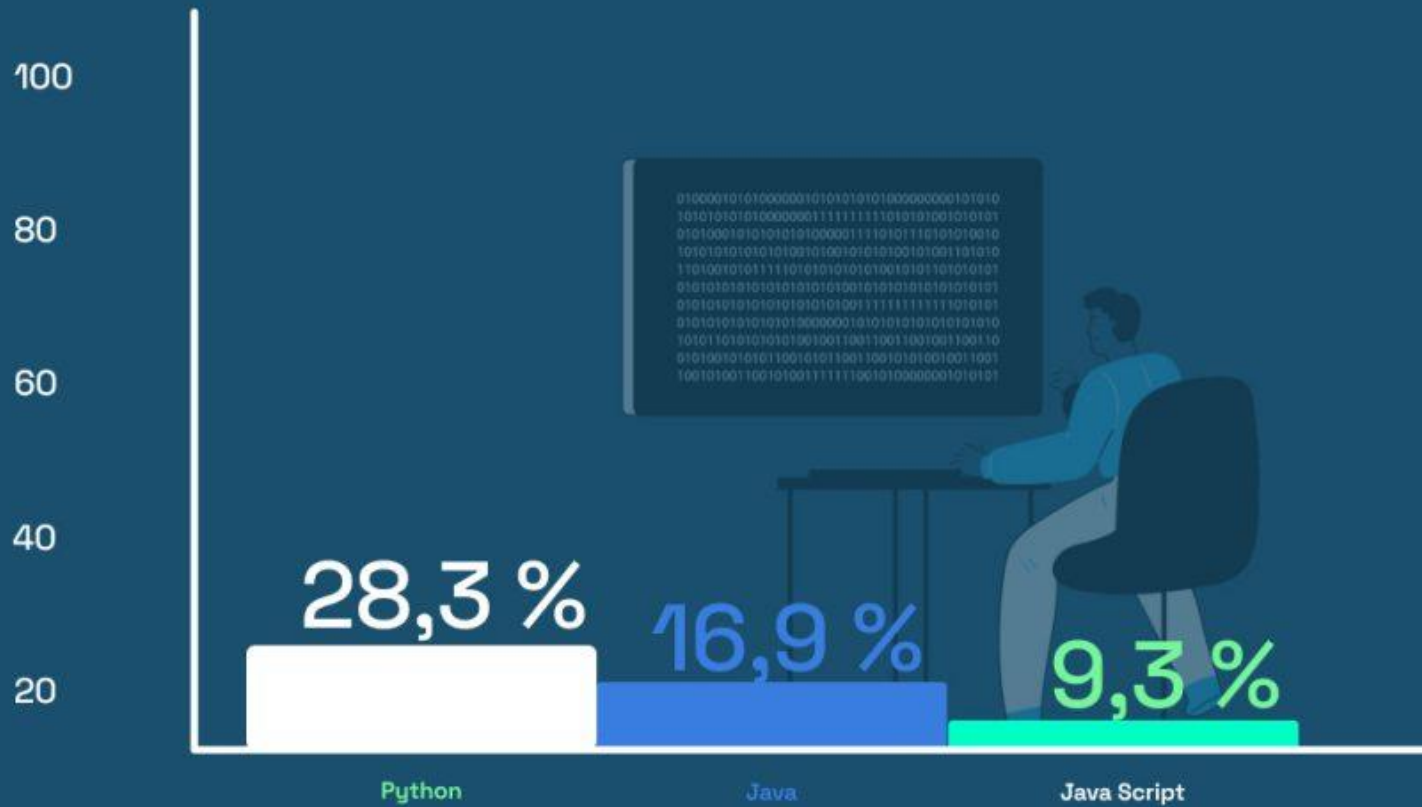
Highest Paid

Top Highest Paid Programming Languages
As reported by LinkedIn, the average annual pay of software developers depends on the programming languages they use. Here are a few examples:

The average annual pay of a Ruby developer is 117,868 USD.
The average annual pay of a JavaScript developer is 107,384 USD.
The average annual pay of a Python developer is 107,311 USD.
The average annual pay of a Go developer is 105,078 USD.
The average annual pay of a PHP developer is 102,717 USD.
The average annual pay of a C++ developer is 96,371 USD.
The average annual pay of a Java developer is 94,502 USD.
The average annual pay of a C developer is 86,296 USD.

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Top programming languages employers want in job candidates

Based on the analysis, here are the top 10 programming languages for 2023 along with the number of open full-time jobs and each language's ranking on Coding Dojo's list for 2022:

1. **Python:** 68,534 jobs (No. 2 in 2022)
2. **SQL:** 57,971 jobs (No. 3)
3. **Java:** 57,236 jobs (No. 1)
4. **JavaScript:** 48,041 jobs (No. 4)
5. **C:** 35,702 jobs (No. 7)
6. **C++:** 35,281 jobs (No. 5)
7. **Go:** 32,503 jobs (No. 8)
8. **C#:** 29,084 jobs (No. 6)
9. **Assembly:** 14,866 jobs (No. 10)
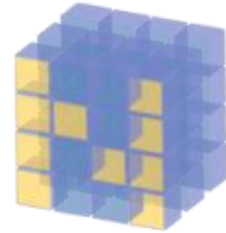10. **MATLAB:** 8,504 jobs (previously unranked)
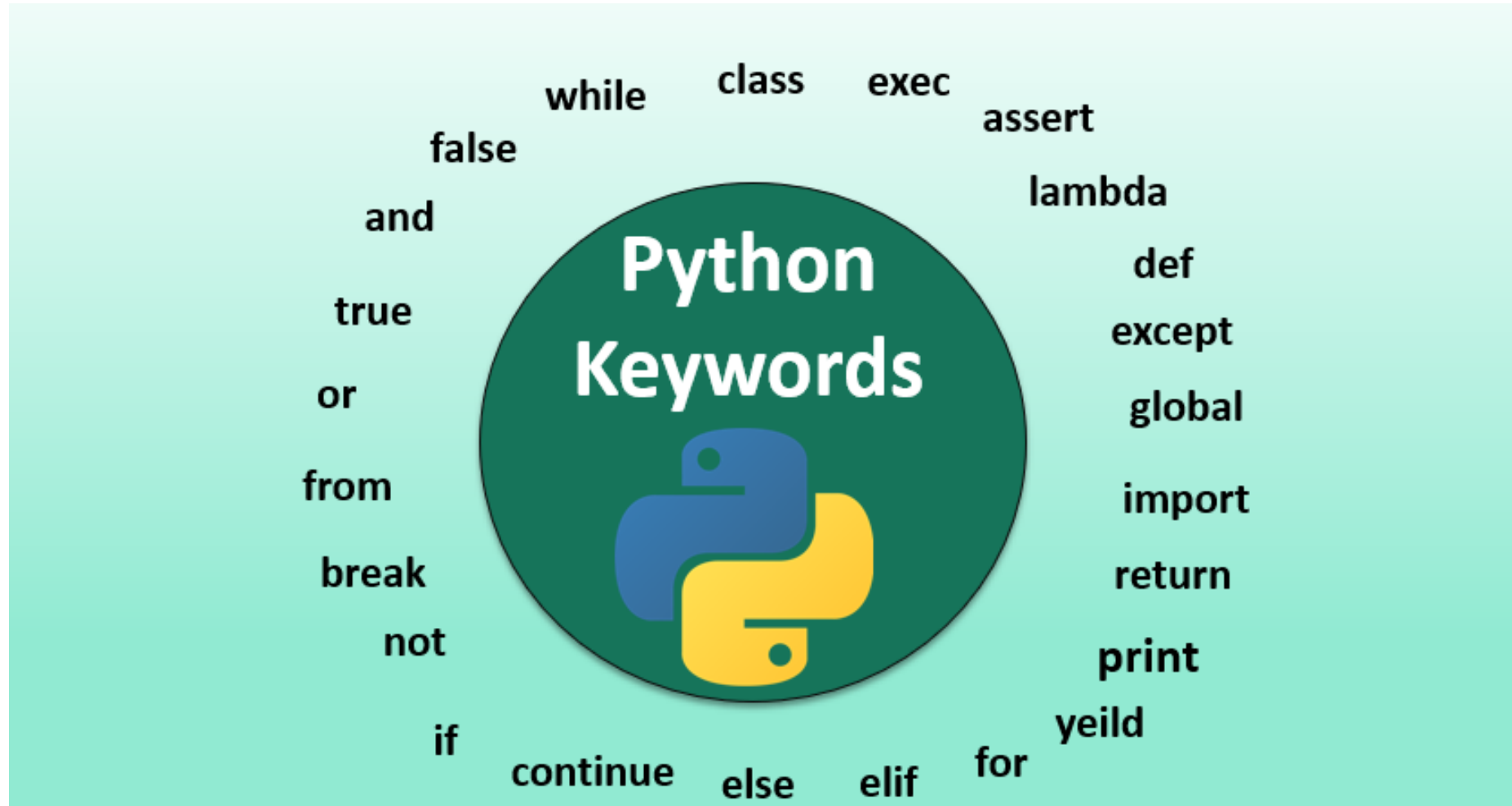
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User friendly

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# Python Packages

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Python Applications

Getting started in game development with Python

The Python ecosystem offers gaming libraries for everyone from complete novices to experienced Pythonistas, including:

- **Pygame** is a popular choice for building relatively simple 2D games.

- **Pygame Zero** provides a tutorial for migrating games built in Scratch, making it ideal for complete beginners, including children.

- **Pyglet** is a powerful cross-platform windowing and multimedia library for building games and other graphically rich applications.

- **Panda3D** was originally developed by Disney to build Toontown Online and is now an open-source framework for building games and 3D-rendered graphics with Python. Under the hood, Panda3D uses C++, and you can create games using C++.

- **Ursina Engine** was built on Panda3D and simplified certain aspects of that library.

- **Kivy** is a framework for developing Python apps for multiple platforms, including Android, iOS, and Raspberry Pi. You'll find serval tutorials showing you how to start building games for mobile with Kivy.

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Python Applications
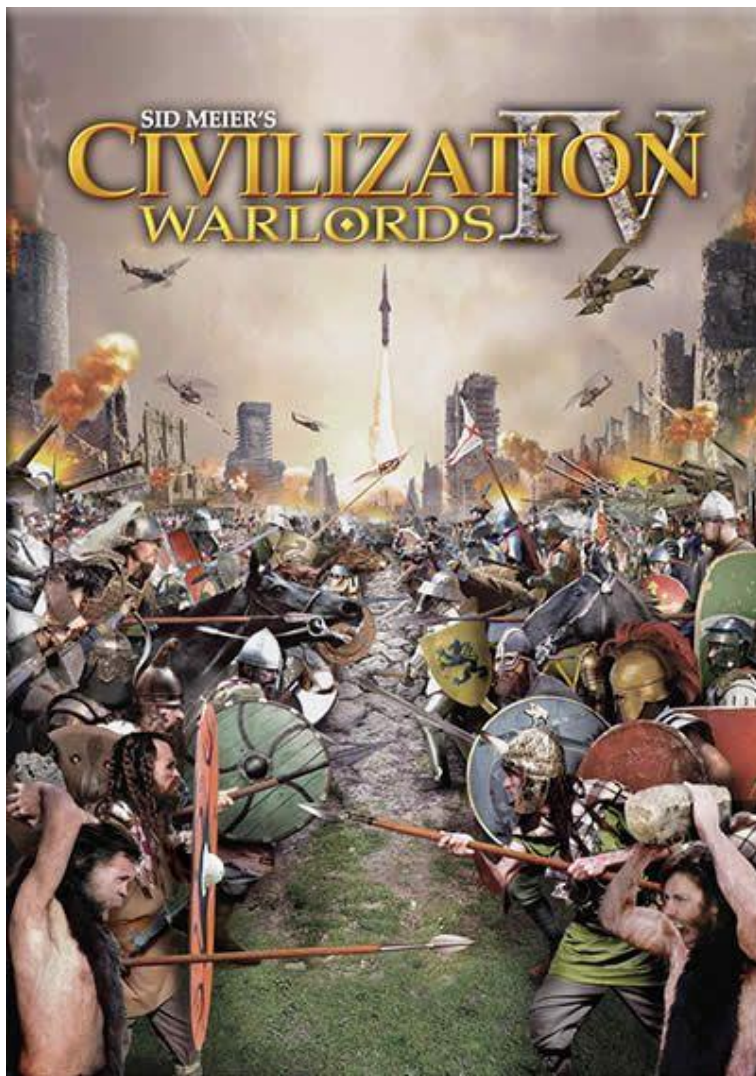
- **Mount & Blade**
- **World of Tanks**
- **EVE Online**
- **Vampires: The Masquerade Bloodline**
- **Doki Doki Literature Club**
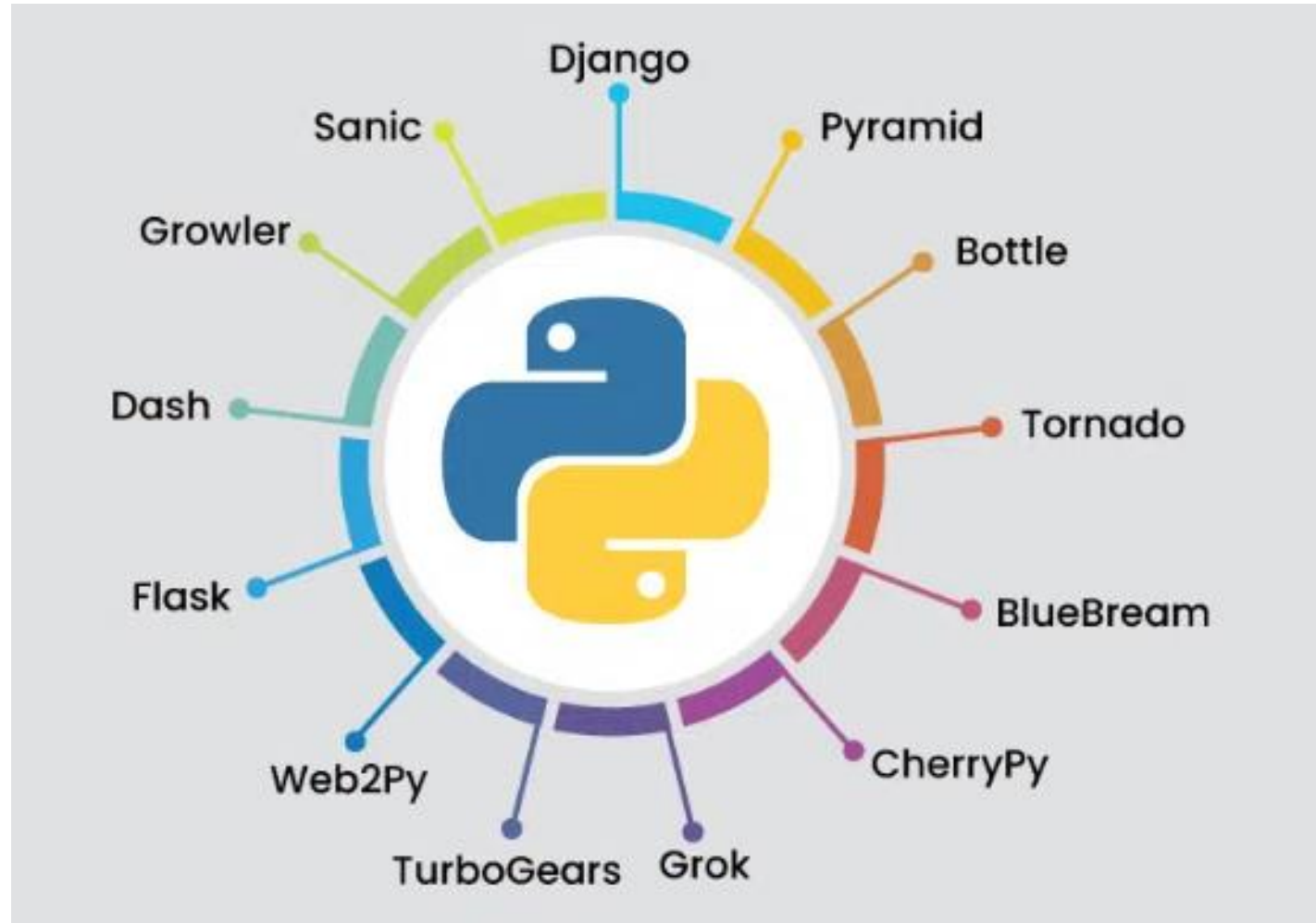
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Python Applications

Getting started in <u>web development</u> with Python

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Python Applications

Getting started in <u>web development</u> with Python

Top Companies Using Python

- Google
- Instagram
- Facebook
- Quora
- Spotify
- Netflix
- Reddit
- Dropbox
- NASA
- IBM

NETFLIX · JPMorganChase · NASA · YouTube · pandora · Bitbucket · shutterstock · PayPal · Prezi · Vine · yelp · facebook · Bank of America · UBER · Google · asana · Udemy · redhat · freelancer · twilio · Quora · Instagram · IBM · mailgun · mozilla · amazon · Expedia · Spotify · DISQUS · SurveyMonkey · glassdoor · reddit · hike · YAHOO! · 9GAG · MIT Massachusetts Institute of Technology · NOKIA · SendGrid · redis · the ONION · trivago

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Python Applications

Machine learning and deep learning

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Python Applications

Machine learning and deep learning

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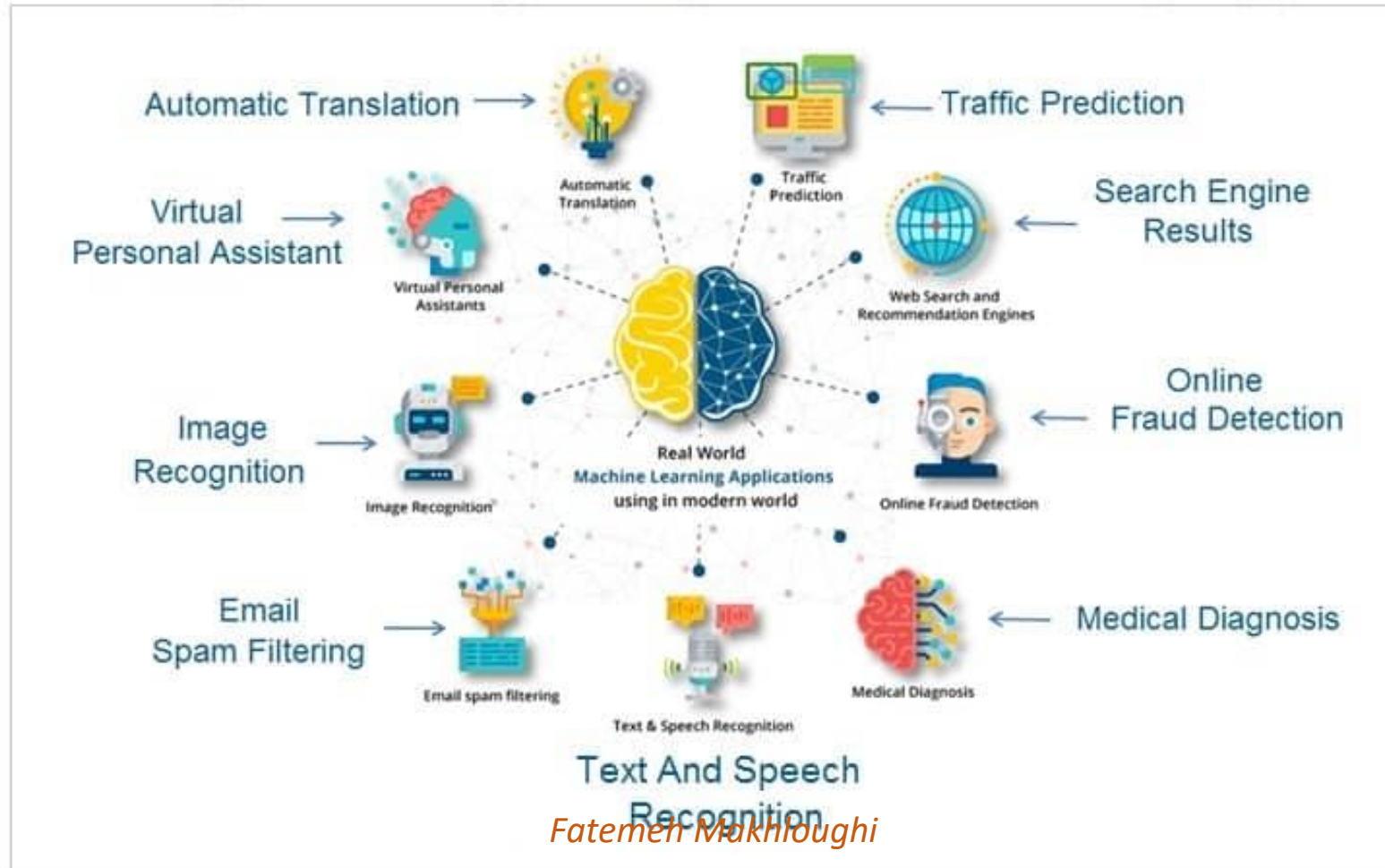
Machine learning and deep learning

Top Real-World Examples of Machine Learning

Python Applications

Image Processing with Python

OpenCV	SciPy	NumPy
Python Imaging Library	PyTorch	Scikit-image
Keras	Matplotlib	Theano
Scikit-learn	Pandas	SimpleITK
ImageMagick	Insight Segmentation an...	wxPython

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Python Applications

Image Processing with Python

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Python Applications

Image Processing with Python

Final inventory and checkout

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Python IDES

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Compiler vs Interpreter

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Compiler vs Interpreter

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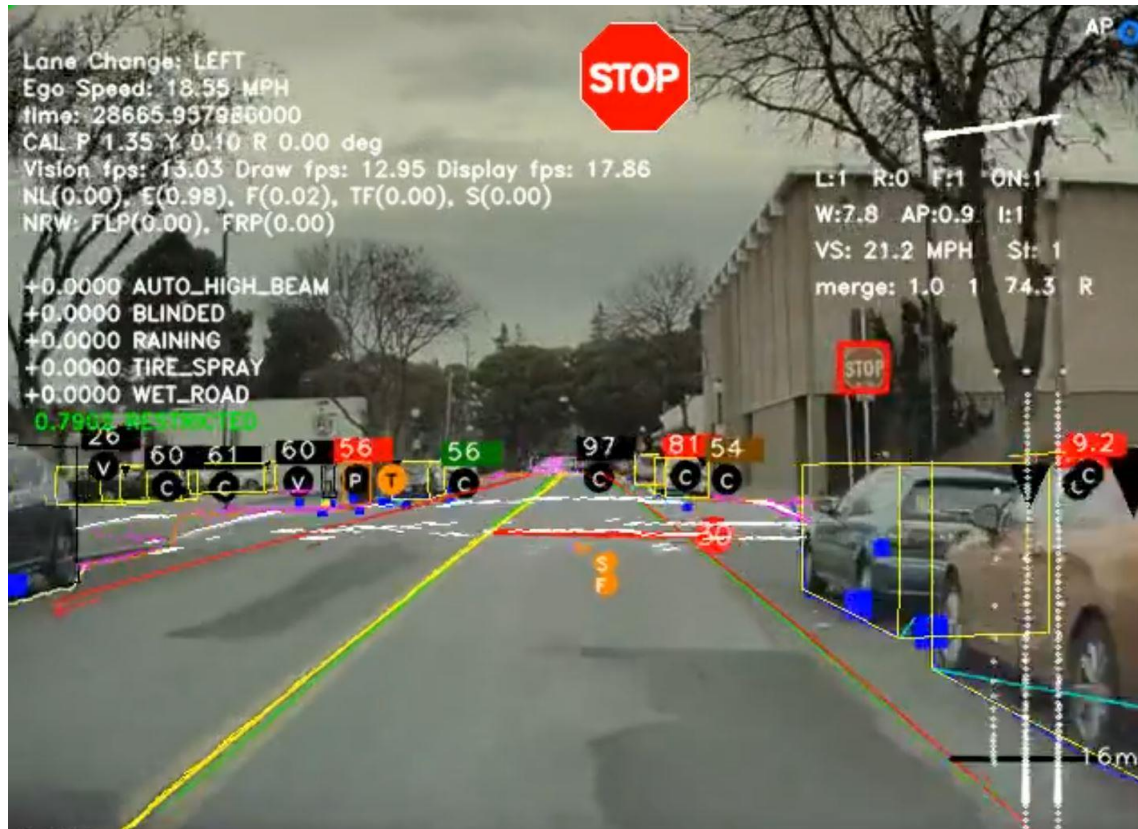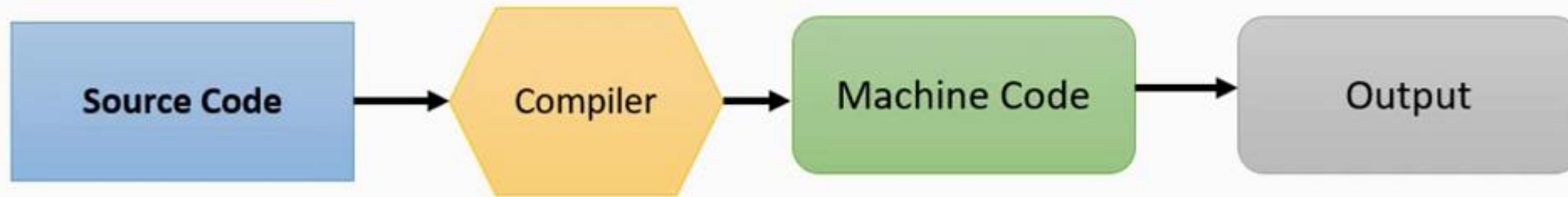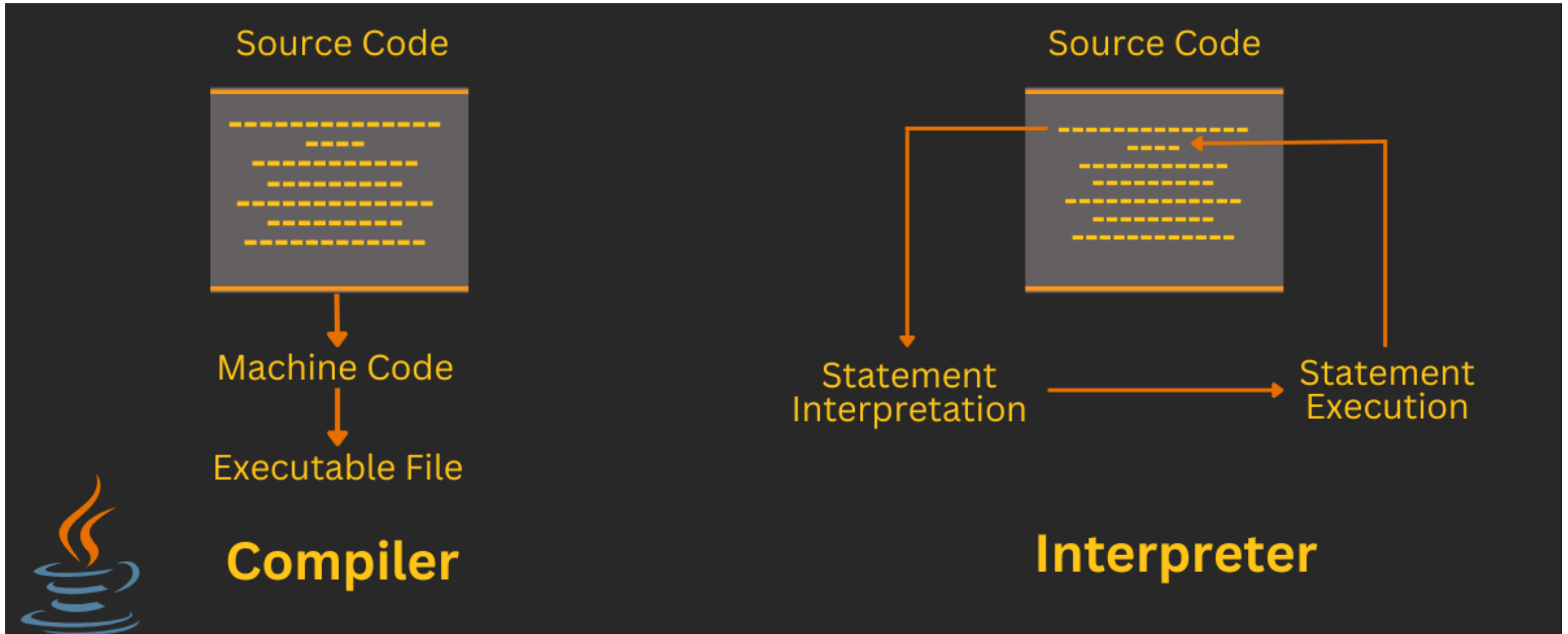
Course Content

Setting up python
Python versions
python on Windows

Using the python Interpreter
Invoking the Interpreter
The interpreter and its environment
An Introduction to python

Variables
Naming and using variables
Strings
Numbers, integers and floats
underscores in numbers
multiple assignment

More control flow tools
if statements
if-else
using Multiple elif blocks
testing multiple conditions
for statements
defining functions
generator
passing arguments
return values
passing a list
styling functions
coding styles

Data Structures
Lists
Tuples and sequences
sets
dictionaries
Nesting, Copying, and sorting
Tuples and lists
indexing and slicing

Modules
standard modules
packages

Input and output
Working with file paths in python
common files system operations
fancier output formatting
reading and writing files

Errors and Exceptions
syntax errors
exceptions
handling exceptions
user- defined exceptions
predefined clean-up actions

Standard library
string pattern matching
mathematics
data compression
performance measurement

packages
managing and installing
packages using pip
work with these packages:
numpy package
math package
MatPlotlib package
sns
pandas

Course Content

Object- Oriented programming (OOP)
Define a class
Instantiate and object
inherit from other classes
abstract methods
polymorphism
encapsulation
class method and static method
property decorator

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