Introduction to Python

2020-PY-101

Reddy Prasad
Machine Learning Researcher at ClientoClarify.ai

Technology on Demand to Learning From

Clientoclarify.ai

Our Team

Technology & Development

Yusuf

Founder and CEO

Mushtaq

Co-Founder & Business Advisor

Reddy Prasad

CTO & Machine Learning Researcher

About Me

- CTO & Machine Learning Researcher at ClientoClarify.ai
- Co-Developer of Keras and Automl
- One of top Instructor in IBM Ai Lab
- I have 3+ Years of Experience on Software Industry in the Field of AI, DL, ML, Data Science, AWS, GCP.
- I Work For the Companies like TMTS, Clientoclarify.ai

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About Me

Reddy Prasad

CTO & Machine Learning Researcher

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Background

Overview of the Training

- Learning By Doing
- Upgrade Your Skill For Your Feature
- Practical Exposure Towards IT
- Earn a Global certificate Professional
- Expert instruction Find the right instructor for you
- Hands-on Labs
- Use Cases
- Cloud-enabled learning environment

Our Plan

01

Day 01

Introduction to Python
Installation of Python In Window 10
Variables
Data Types
Type Casting
String
Indexing, Slice, Extended Slice

02

Day 02

Operators
Arithmetic operators
Assignment operators
Comparison operators
Logical operators
Special operators
Identity operators
Membership operators
Bitwise operators

03

Day 03

Data Structure
- List
- Tuple
- Set
- Dictionary

- Looping Statement
  - For Loop
  - While Loop

04

Day 04

Funcation
Working with Files
Error & exception Handling
Module’s and package

05

Day 05

Class and OPPS
Image Selection Processing
Pattern Program

How you will learn

- Day-1
  - Introduction to Python
  - Installation of Python In Window 10
  - Variables
  - Data Types
  - Type Casting
  - String
  - Indexing, Slice, Extended Slice
- Day-2
  - Operators
    - Arithmetic operators
    - Assignment operators
    - Comparison operators
    - Logical operators
    - Special operators
      - Identity operators
      - Membership operators
    - Bitwise operators

How you will learn

- Day-3
  - Data Structure
    - List
    - Tuple
    - Set
    - Dictionary
  - Looping Statement
    - For Loop
    - While Loop

- Day-4
  - Funcation
  - Working with Files
  - Error & exception Handling
  - Module’s and package

- Day-5
  - Class and OPPS
  - Image Selection Processing
  - Pattern Program

include <stdio.h>

Introduction

Day 01

Python

- Python is an interpreted.
- Python high-level and general-purpose programming language.
- Created by Guido van Rossum and first released in 1991.
- Python is dynamically typed and garbage-collected.
- Python packages, also for data science, Machine Learning, Deep Learning, Quantum Computing.
  - Many applications and held
- Download and install Version 3.x - **https:/ www.python.org/downloads/**
- Developer Survey Results https://insights.stackoverflow.com/survey/2019

Feature of Python

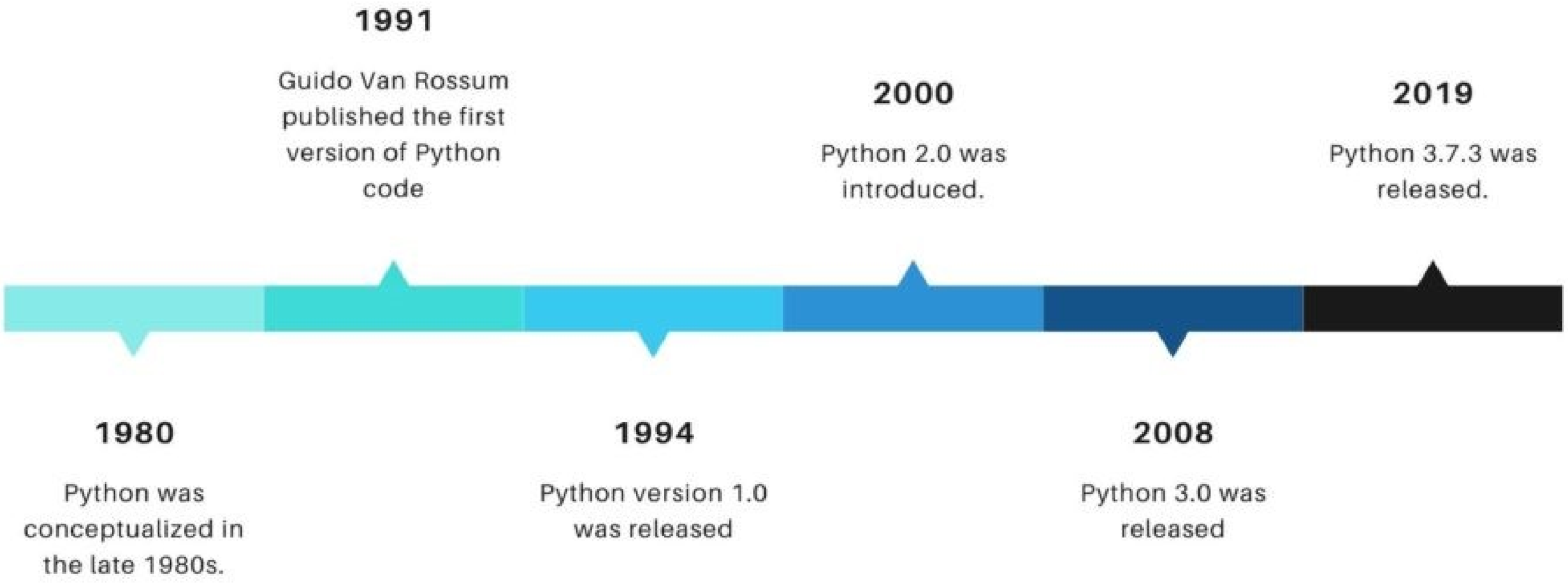
- Easy to Learn and Use
- Expressive Language
- Interpreted Language
- Cross-platform Language
- Free and Open Source
- Object-Oriented Language
- Extensible (jython, cython, ironython)
- Large Standard Library
- GUI Programming Support
- Integrated
- Embeddable
- Dynamic Memory Allocation

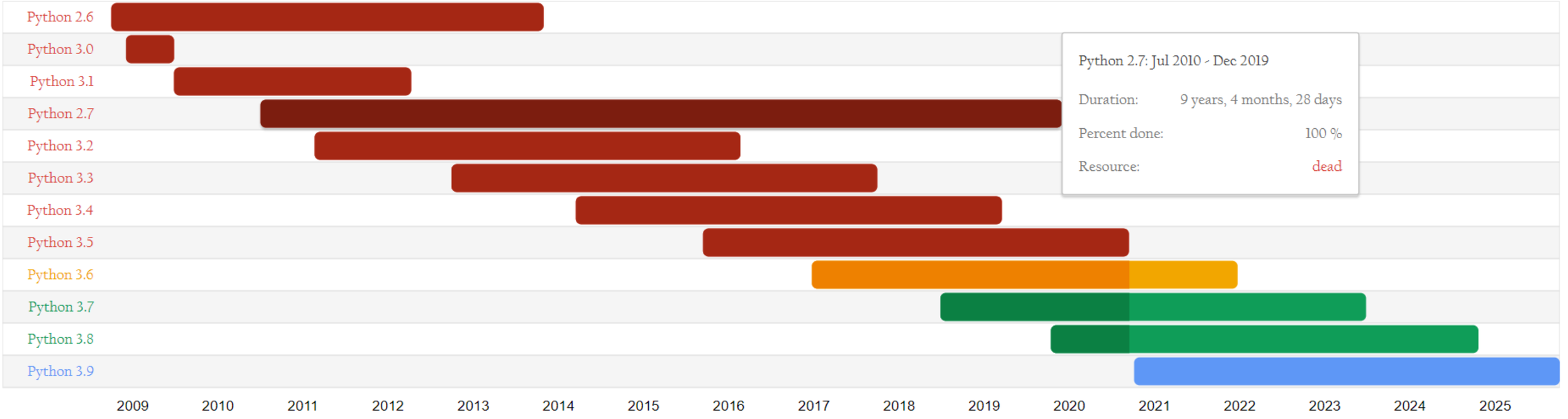
History of Python

- **Python** was conceived in the late 1980s by Guido van Rossum.
- ABC language (itself inspired by SETL), capable of exception handling and interfacing with the Amoeba operating system.

HISTORY OF PYTHON.

Python Tricks




Python 2.6
Python 3.0
Python 3.1
Python 2.7
Python 3.2
Python 3.3
Python 3.4
Python 3.5
Python 3.6
Python 3.7
Python 3.8
Python 3.9
Python 2.7: Jul 2010 - Dec 2019
Duration: 9 years, 4 months, 28 days
Percent done: 100 %
Resource: dead
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025

Who-Use-Python

Where we Use Python

Use Python for...

>>> More

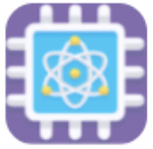
Web Development: Django, Pyramid, Bottle, Tornado, Flask, web2py

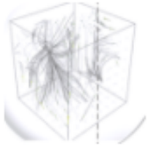
GUI Development: tkInter, PyGObject, PyQt, PySide, Kivy, wxPython

Scientific and Numeric: SciPy, Pandas, IPython

Software Development: Buildbot, Trac, Roundup

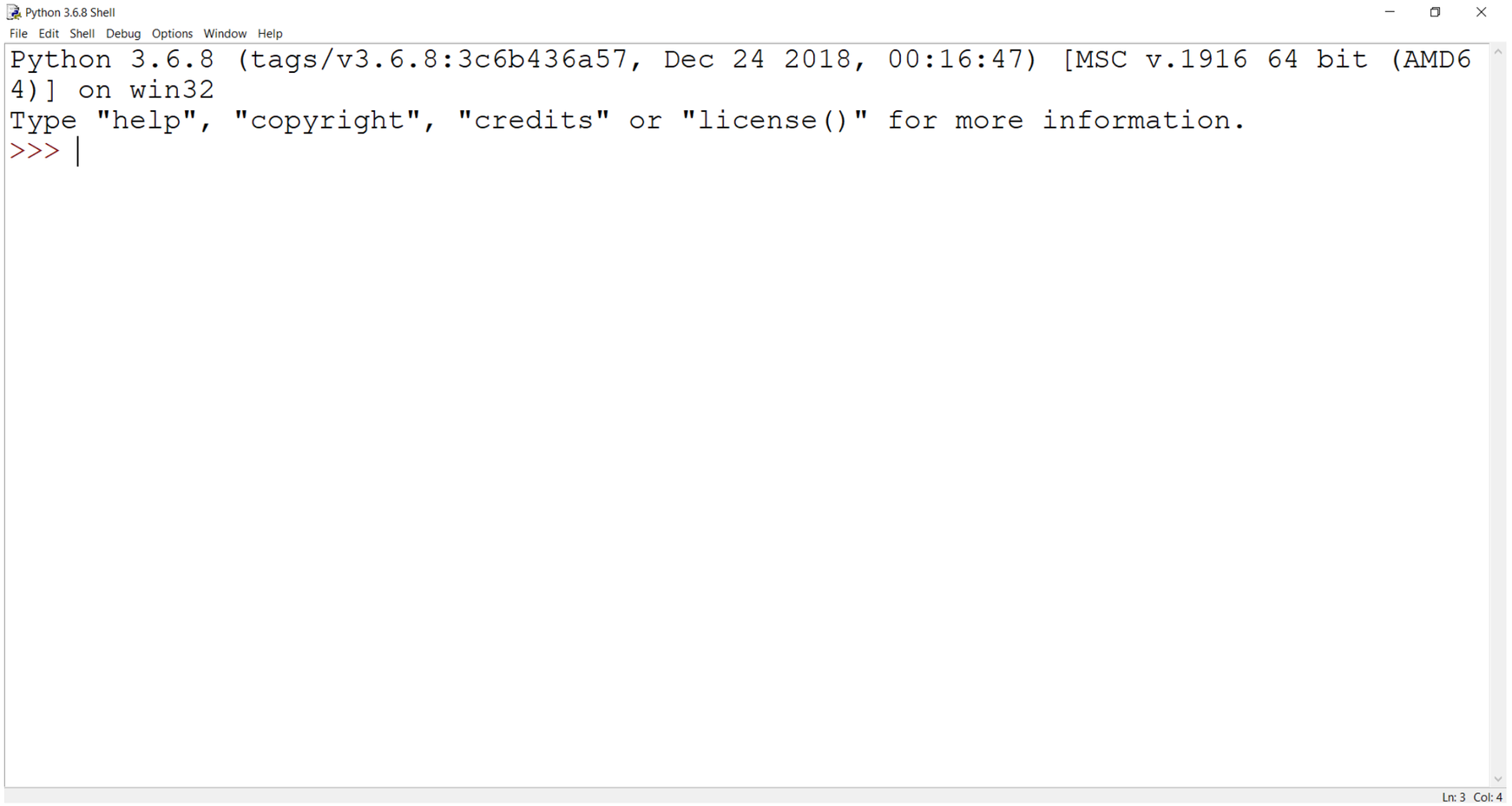
System Administration: Ansible, Salt, OpenStack

Quantum Computing	Statistical Computing	Signal Processing	Image Processing	3-D Visualization	Symbolic Computing	Astronomy Processes	Cognitive Psychology
							
QuTiP PyQuil Qiskit	Pandas statsmodels Seaborn	SciPy PyWavelets	Scikit-image OpenCV	Mayavi Napari	SymPy	AstroPy SunPy SpacePy	PsychoPy

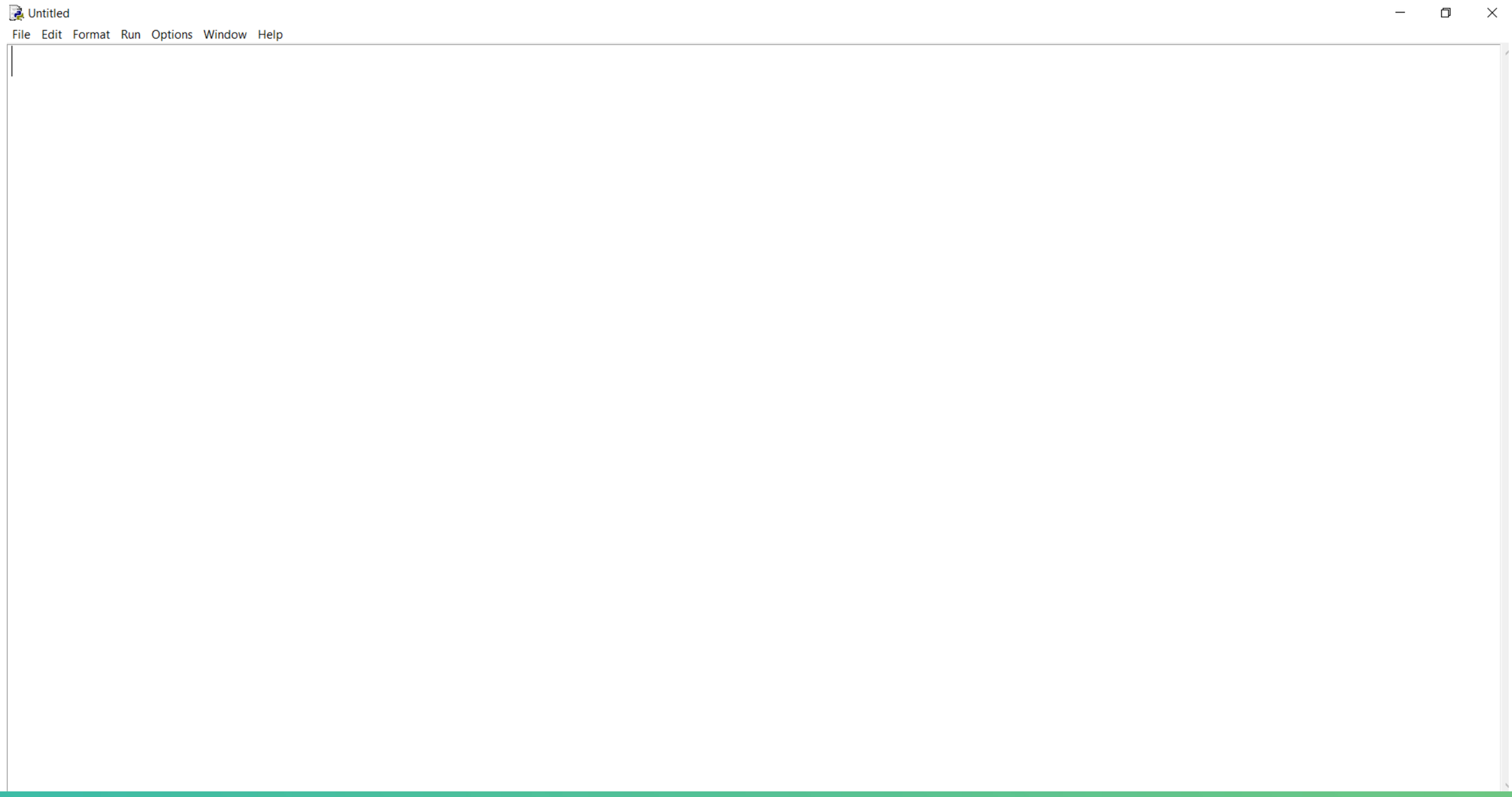
Bioinformatics	Bayesian Inference	Mathematical Analysis	Simulation Modeling	Multi-variate Analysis	Geographic Processing	Interactive Computing
						
BioPython Scikit-Bio PyEnsembl	PyStan PyMC3	SciPy SymPy cvxpy FEniCS	PyDSTool	PyChem	Shapely GeoPandas Folium	Jupyter IPython Binder

Shell

Execute Python commands



Editor



Python Script

- Demo- .py
- List of Python commands
- Similar to typing in IPython Shell (Colab, Azure Note book, jupyter)

Top Python IDLE

PyCharm

Visual Studio Code

Sublime Text

Vim

GNU Emacs

IDLE

Python's Integrated Development and Learning Environment

Atom

Spyder

JuPyter

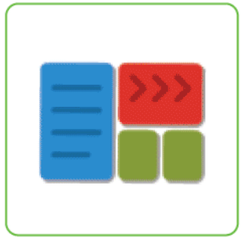
Eclipse

Eric Python

Wing

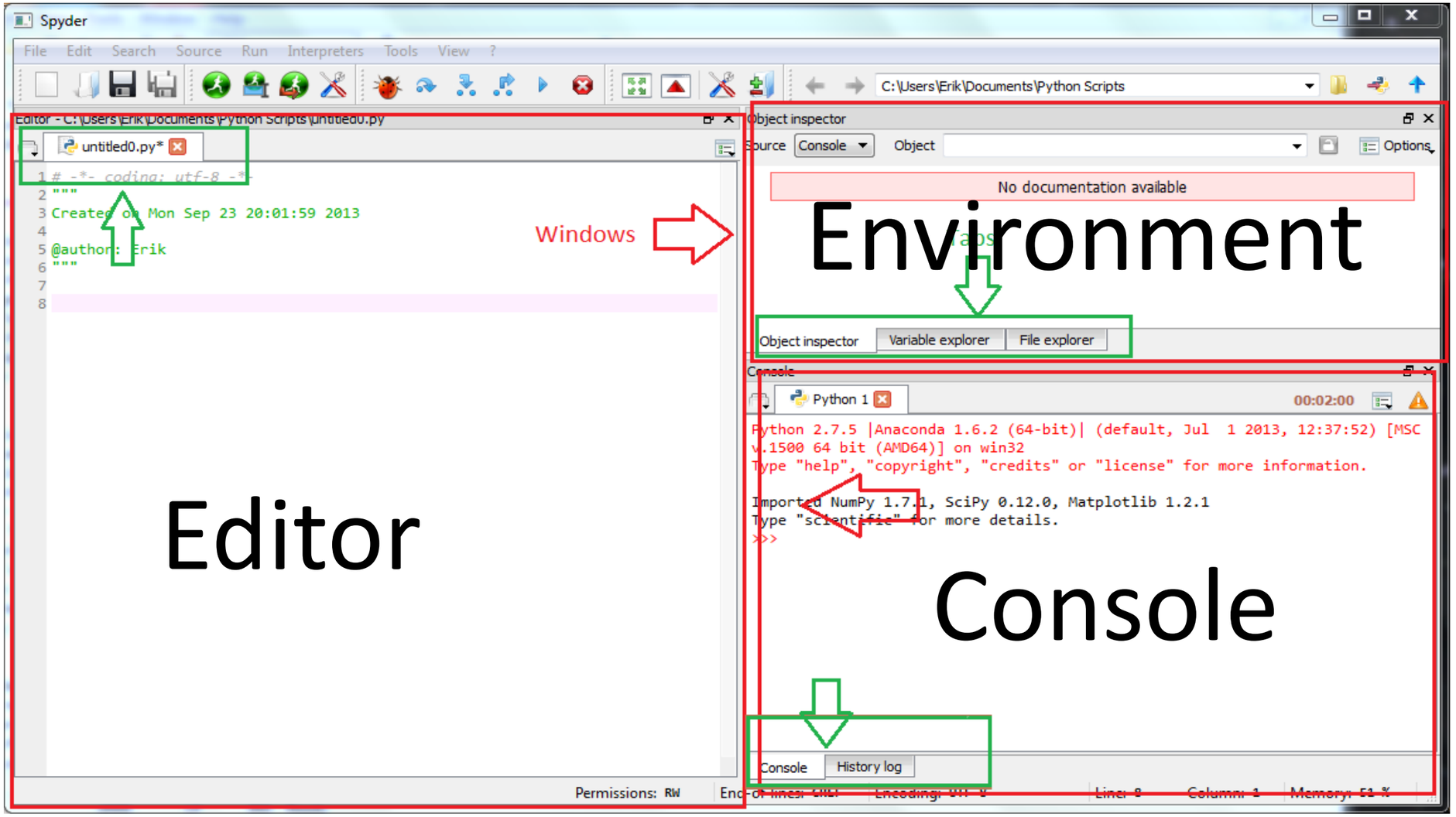
PyScripter

Pyzo



Thonny

Python Script Spyder



Use `print()` to generate output from script

Let's practice!

INTRODUCTION TO PYTHON

Variables and Types

INTRODUCTION TO PYTHON

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Machine Learning Researcher at ClientoClarify.ai

Variable

- Varable Which can Store a Data in it
  Specific, case-sensitive name
- Call up value through variable name
- 1.79 m - 68.7 kg

```
height = 1.79
weight = 68.7

height
```

```
1.79
```

Calculate BMI

```
height = 1.79
weight = 68.7

height
```

```
1.79
```

$$\text{BMI} = \frac{\text{weight}}{\text{height}^2}$$

```
68.7 / 1.79 ** 2
```

```
21.4413
```

```
weight / height ** 2
```

```
21.4413
```

```
bmi = weight / height ** 2
bmi
```

```
21.4413
```

Reproducibility

```
height = 1.79
weight = 68.7
bmi = weight / height ** 2
print(bmi)
```

```
21.4413
```

Reproducibility

```
height = 1.79
weight = 74.2 # <-
bmi = weight / height ** 2
print(bmi)
```

```
23.1578
```

Python Types

```
type(bmi)
```

```
float
```

```
day_of_week = 5
type(day_of_week)
```

```
int
```

Python Types(2)

```
x = "body mass index"
y = 'this works too'

type(y)
```

```
str
```

```
z = True
type(z)
```

```
bool
```

Python Types(3)

```
2 + 3
```

```
5
```

```
'ab' + 'cd'
```

```
'abcd'
```

- Different type = different behavior!

Let's practice!

INTRODUCTION TO PYTHON

Contributions

Suggestions and Feedback

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