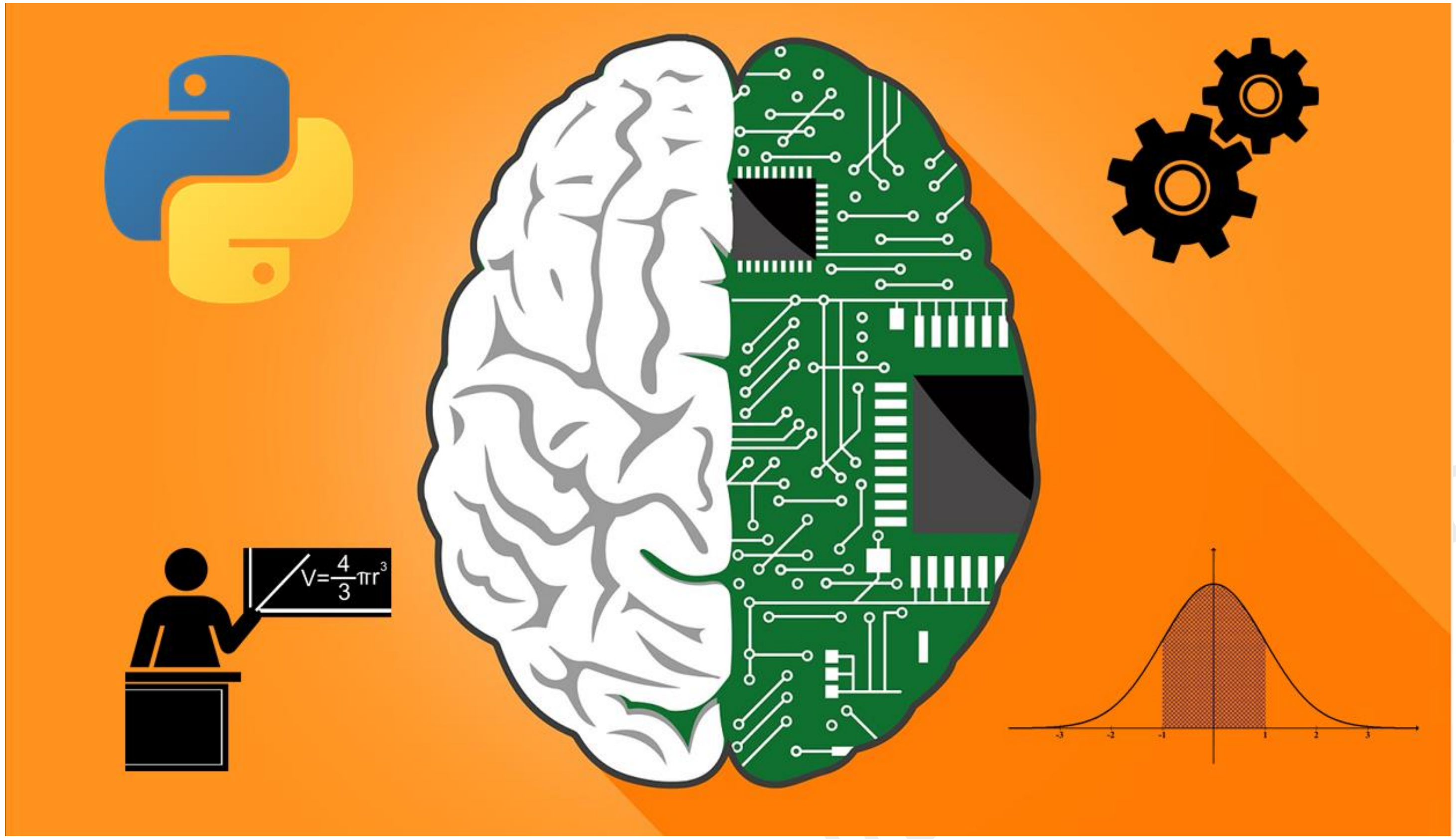


Complete Data Science and Machine Learning Using Python

By
Jitesh Khurkhuriya

Install Anaconda and Spyder

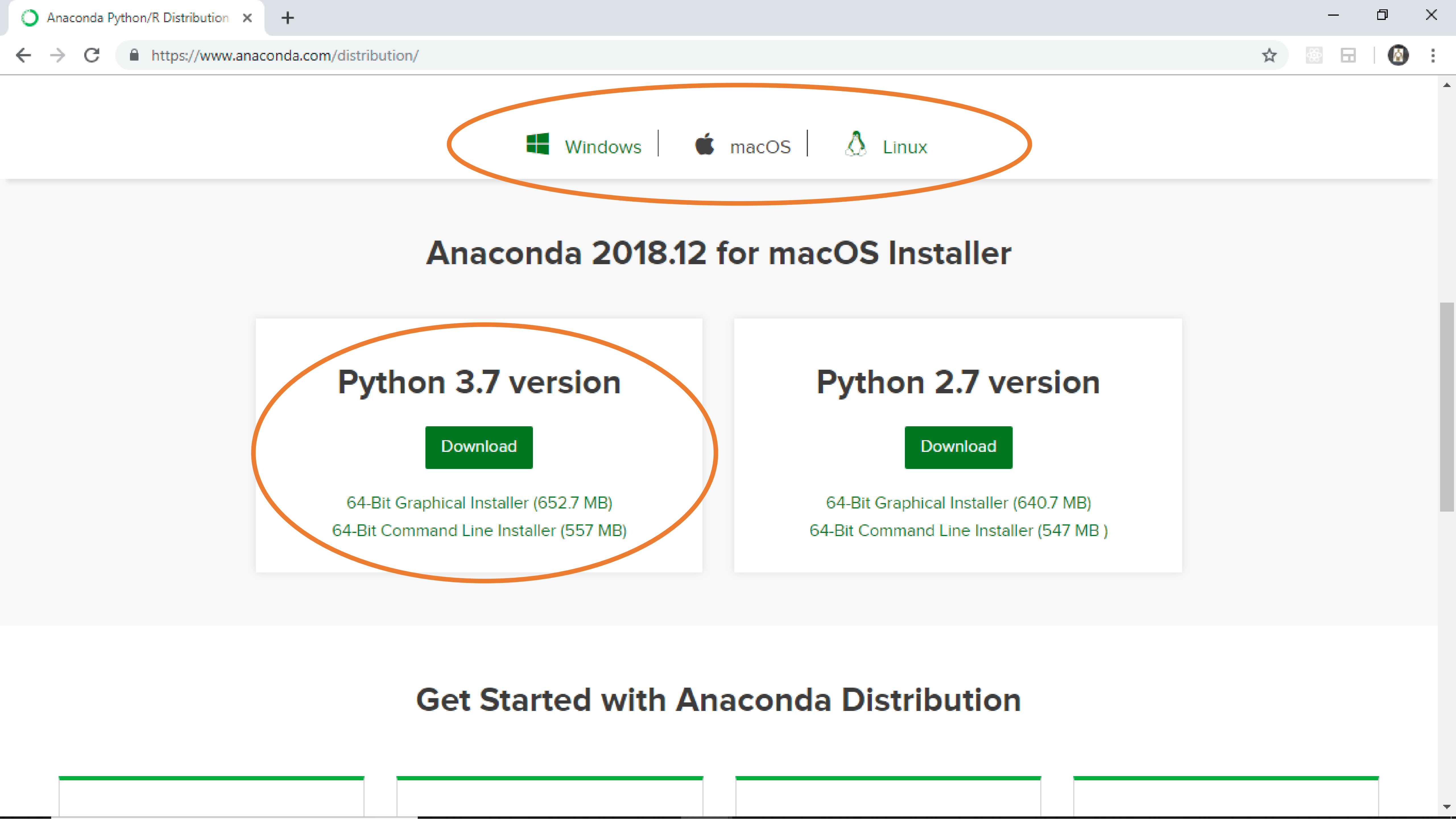
What is Anaconda?

- Free and open-source distribution of the python and R
- Predominantly used for Data Science, Machine Learning and large scale data processing
- Over 12 million user
- 1400 packages..

ANACONDA®

System Requirements

- Operating system: Windows 7 or newer, 64-bit macOS 10.10+, or Linux, including Ubuntu, RedHat, CentOS 6+, and others.
- Older versions of Anaconda are available in archive
- System architecture: Windows- 64-bit x86, 32-bit x86; MacOS- 64-bit x86; Linux- 64-bit x86, 64-bit Power8/Power9.
- Minimum 5 GB disk space to download and install.


Anaconda Python/R Distribution
https://www.anaconda.com/distribution/
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macOS
Linux
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Anaconda 2018.12 for macOS Installer

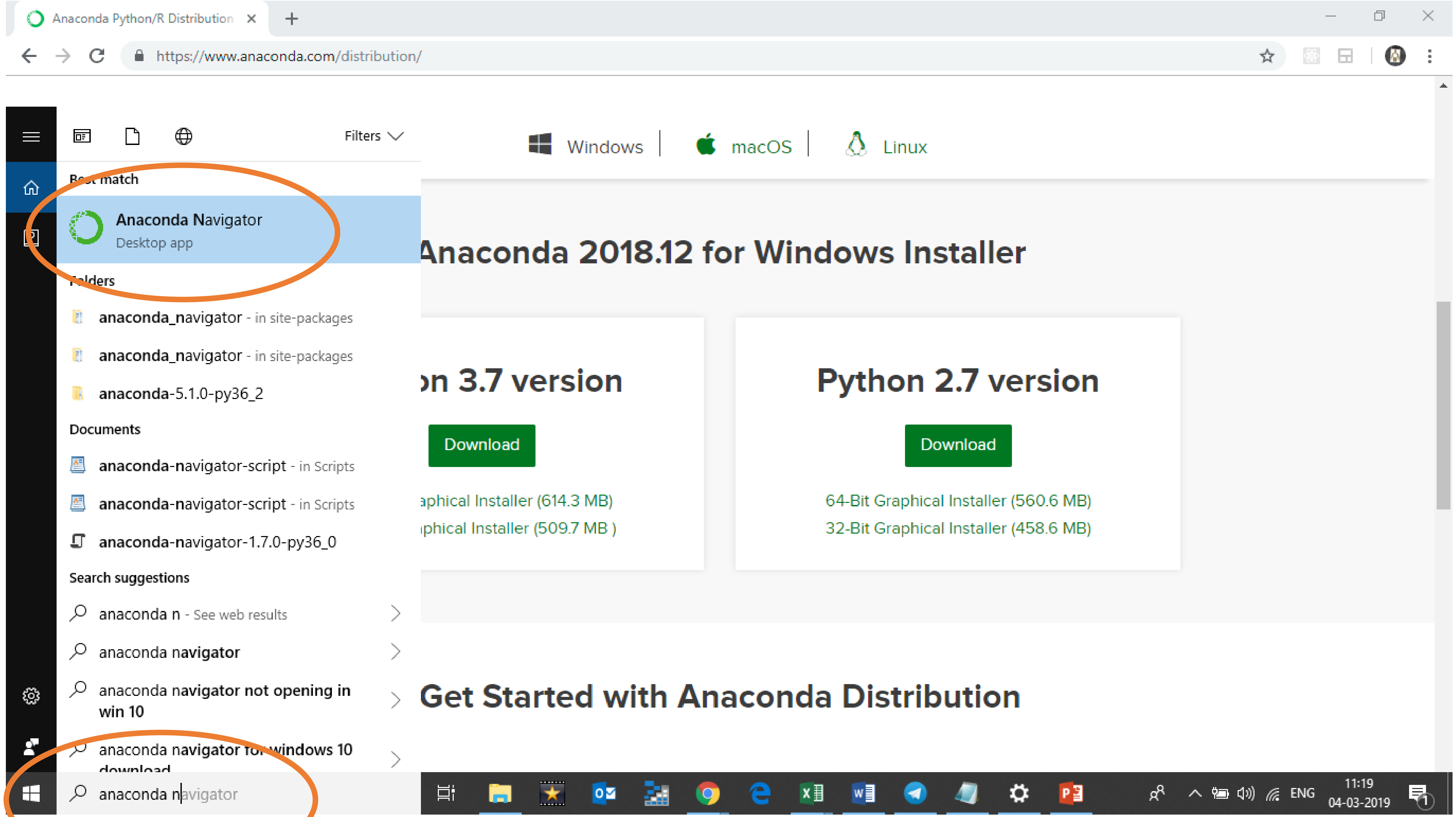
Python 3.7 version

64-Bit Graphical Installer (652.7 MB)
64-Bit Command Line Installer (557 MB)

Python 2.7 version

64-Bit Graphical Installer (640.7 MB)
64-Bit Command Line Installer (547 MB)

Get Started with Anaconda Distribution



Anaconda Python/R Distribution

https://www.anaconda.com/distribution/

Filters

Best match

Anaconda Navigator
Desktop app

Folders

anaconda_navigator - in site-packages

anaconda_navigator - in site-packages

anaconda-5.1.0-py36_2

Documents

anaconda-navigator-script - in Scripts

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anaconda-navigator-1.7.0-py36_0

Search suggestions

anaconda n - See web results

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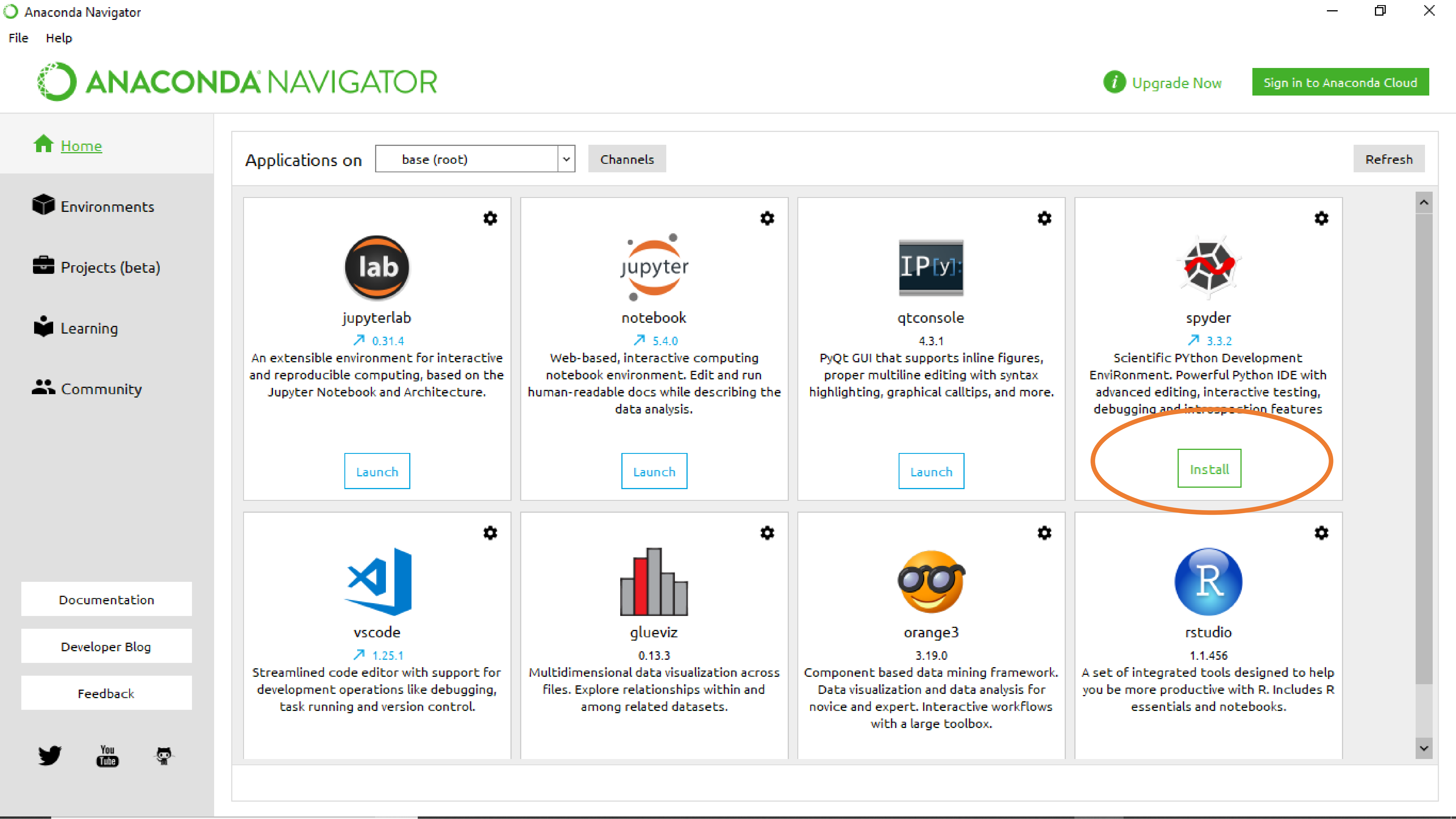
Get Started with Anaconda Distribution



jupyterlab
0.31.4
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.

notebook
5.4.0
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.

qtconsole
4.3.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.

spyder
3.3.2
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features

vscode
1.25.1
Streamlined code editor with support for development operations like debugging, task running and version control.

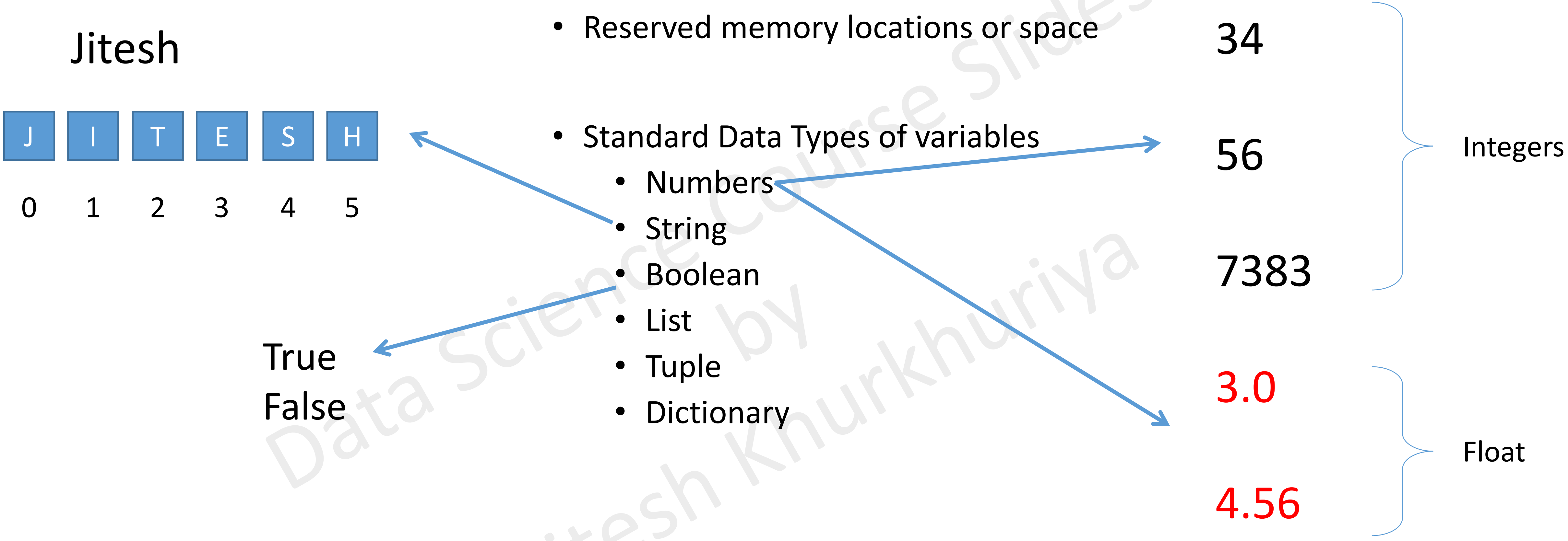
glueviz
0.13.3
Multidimensional data visualization across files. Explore relationships within and among related datasets.

orange3
3.19.0
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.

rstudio
1.1.456
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.

Variable Types

Variables



Jitesh

J	I	T	E	S	H
0	1	2	3	4	5

- Reserved memory locations or space
- Standard Data Types of variables
  - Numbers
  - String
  - Boolean
  - List
  - Tuple
  - Dictionary

True
False

34
56
7383

Integers

3.0
4.56

Float

List

- Sequence of elements
- Similar to array in other programming languages
- Elements are indexed

```
List1 = [ “Jitesh”, “John”, “Alia”,  “Lise”]

            0         1       2        3
```

Tuple

- Sequence of elements
- Similar to array in other programming languages
- Elements are indexed
- Tuples are immutable
- Faster to process

tuple1 = (“Jitesh”, “John”, “Alia”, “Lise”)

0 1 2 3

Dictionary

- Collection of key-value pairs
- Values can be accessed using the Key
- Used for JSON format conversion

Address

Key	Value
Street	180 Adams Street
City	Chicago
State	IL
Country	USA

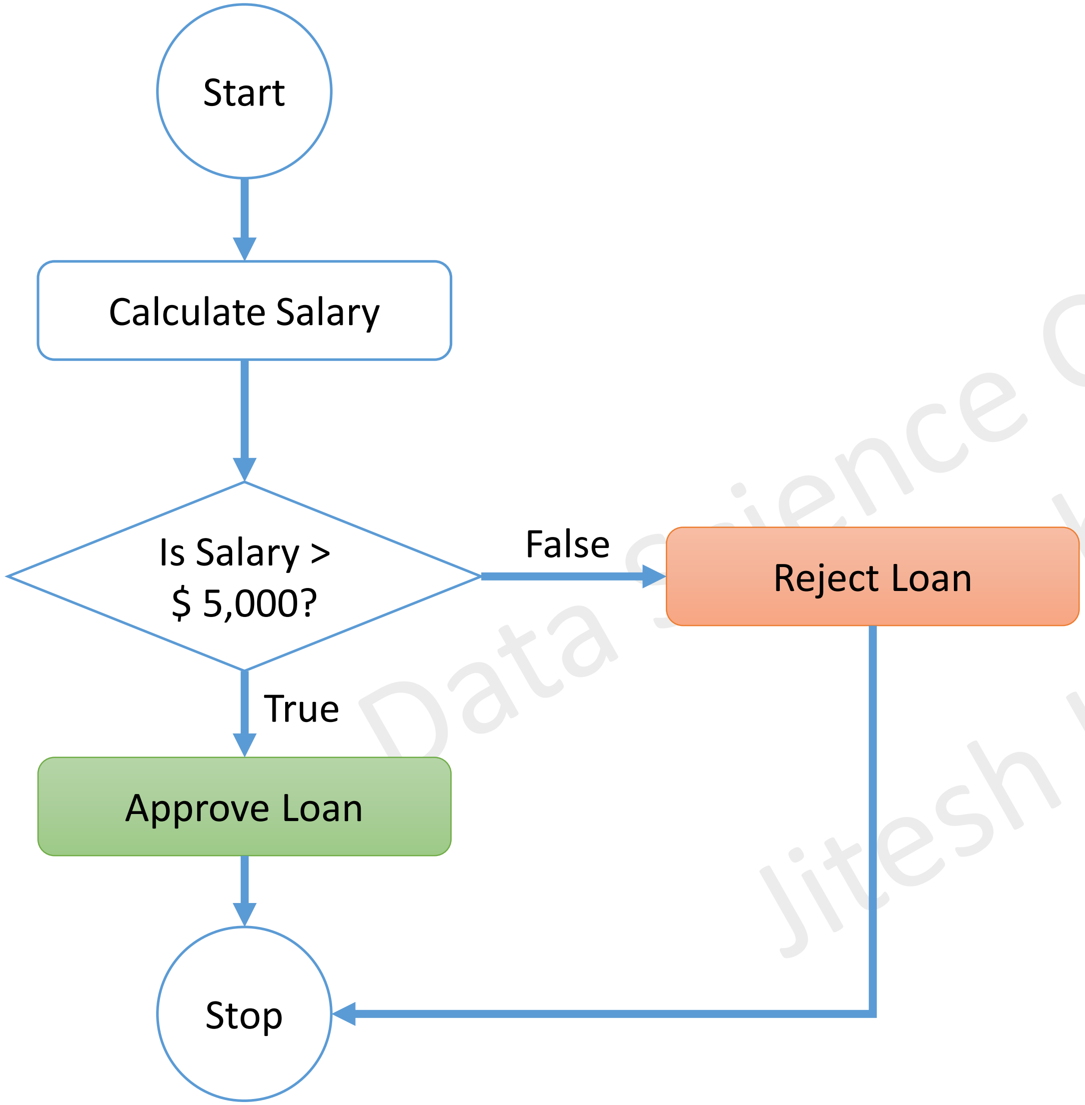
```
Address = { 'Street': '180 Adams Street', 'City': 'Chicago', 'State' : 'IL', 'Country': 'USA'}
```

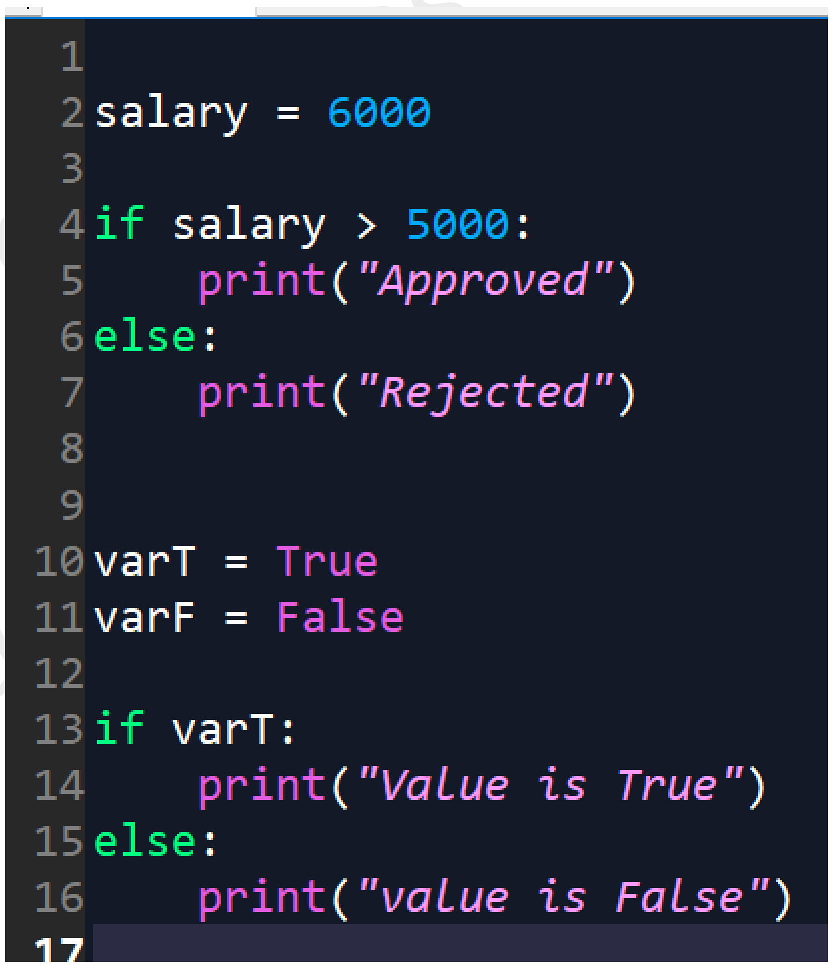
Address['Street'] → ‘180 Adams Street’

Address['State'] → ‘IL’

Conditional Statement

Conditional Statement

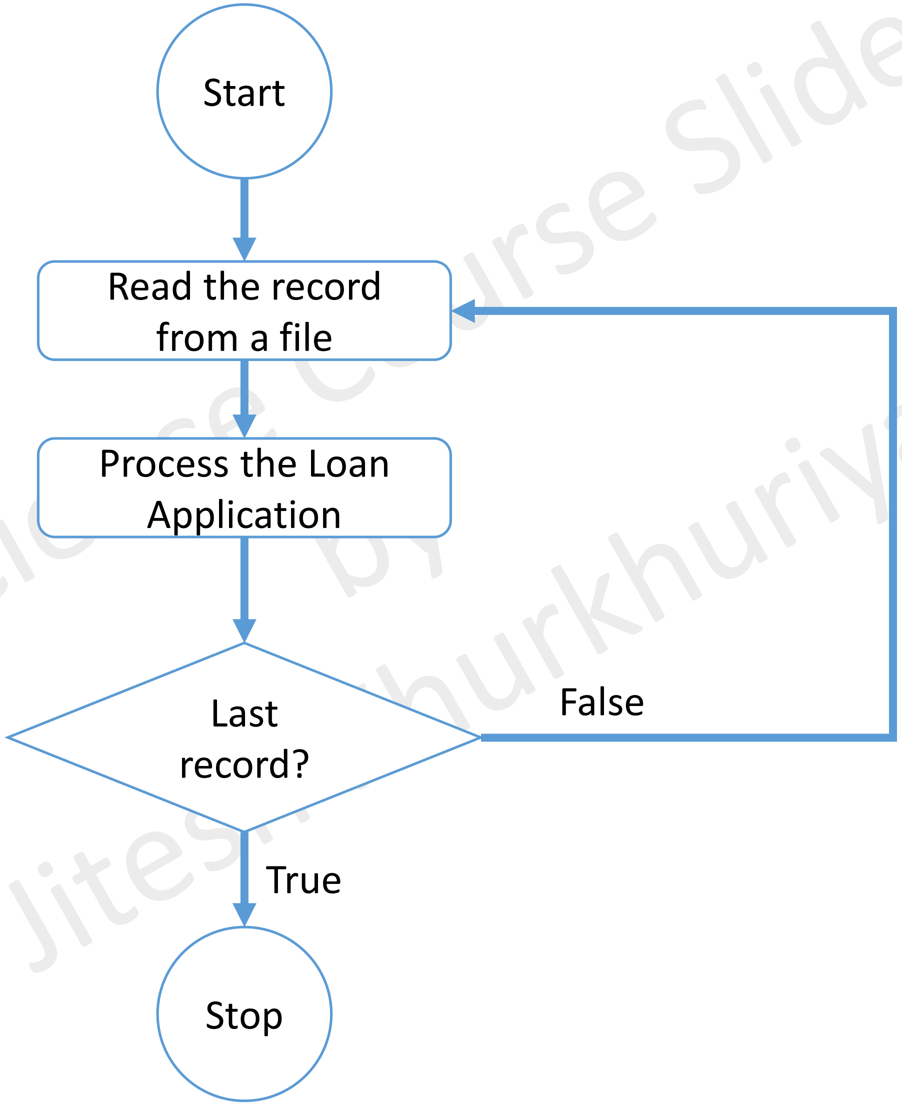




```
salary = 6000

if salary > 5000:
    print("Approved")
else:
    print("Rejected")


varT = True
varF = False

if varT:
    print("Value is True")
else:
    print("value is False")
```

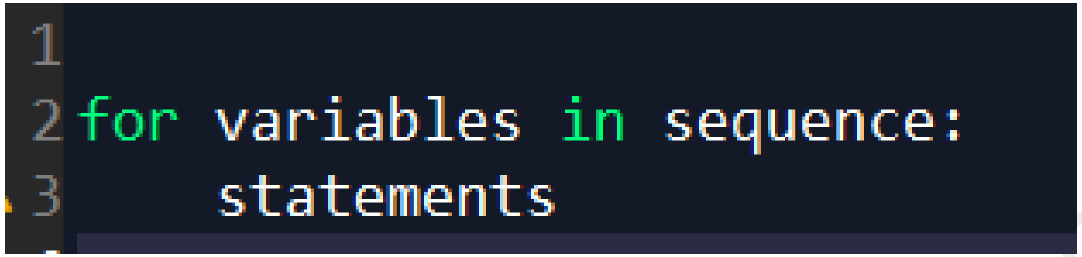
Loops or Iterative Statements

Loops



Start
Read the record from a file
Process the Loan Application
Last record?
False
True
Stop

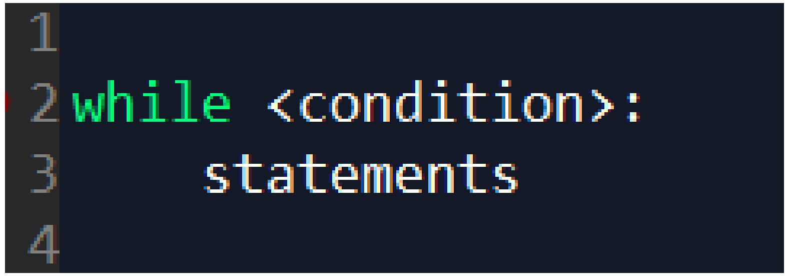
For Loop



```

for variables in sequence:
    statements
```

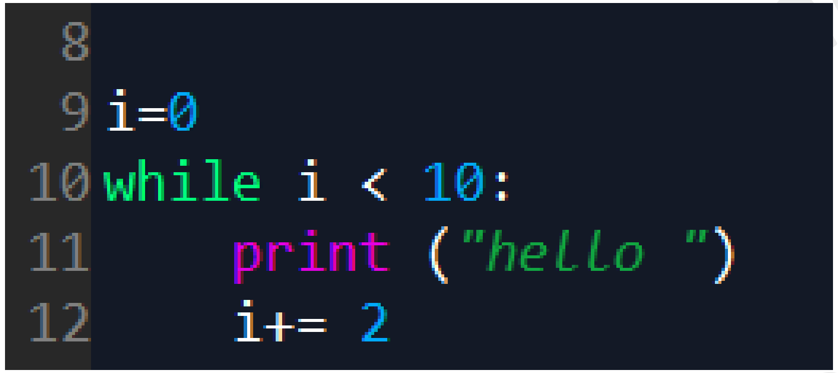
Execute the block as long as there is value in the sequence.

While Loop



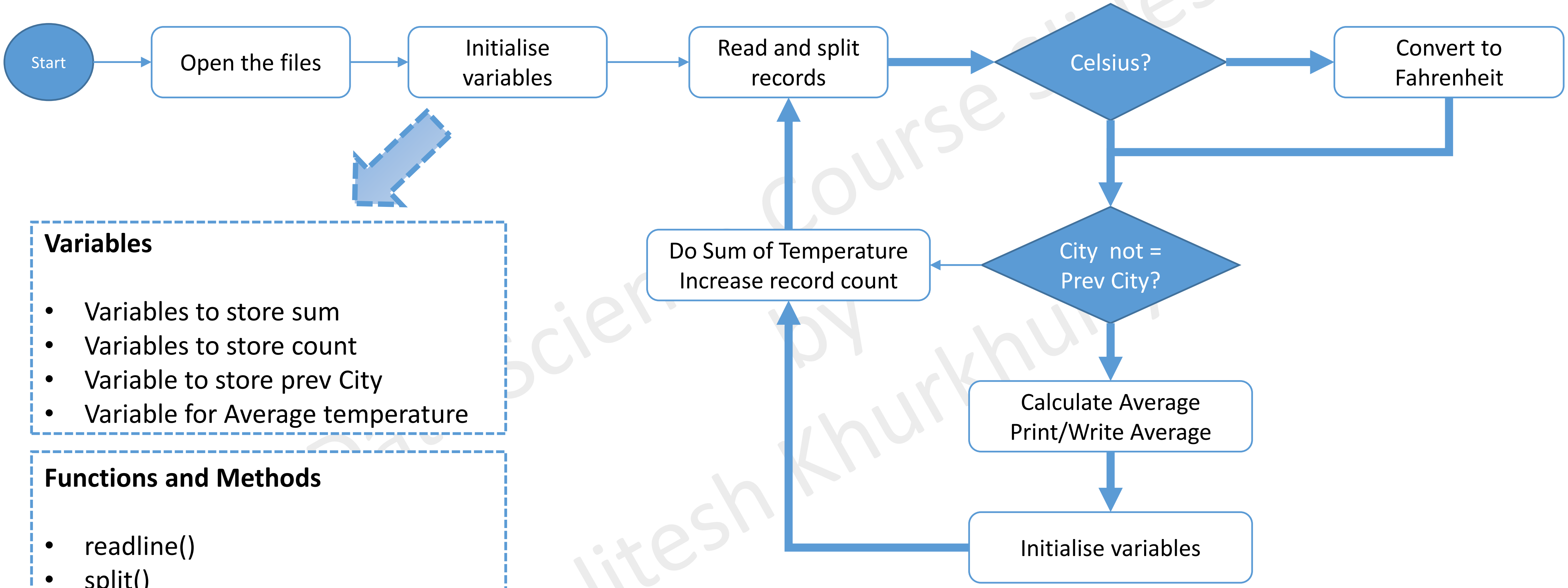
```
while <condition>:
    statements
```

Execute statements “while” the condition is true



```
i=0
while i < 10:
    print ("hello ")
    i+= 2
```

File Processing Exercise Basic Flowchart



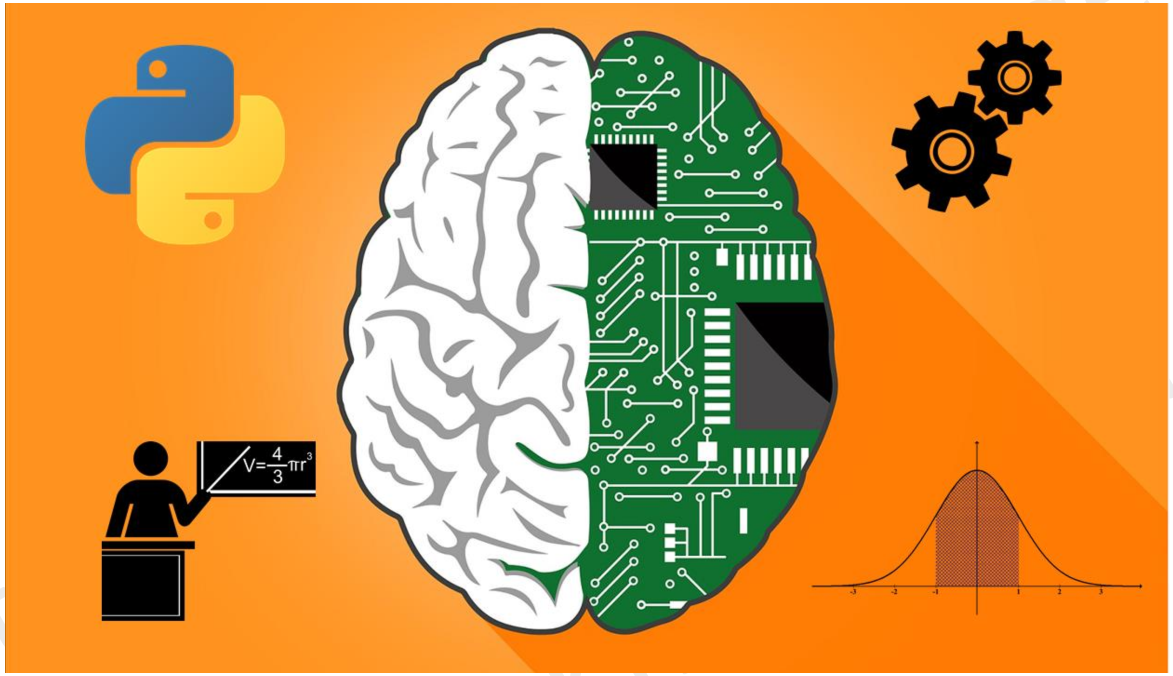
Variables

- Variables to store sum
- Variables to store count
- Variable to store prev City
- Variable for Average temperature

Functions and Methods

- readline()
- split()
- seek()
- rstrip()
- float for string to float conversion
- str for float to string conversion

Complete Data Science and Machine Learning Using Python



Thank You!