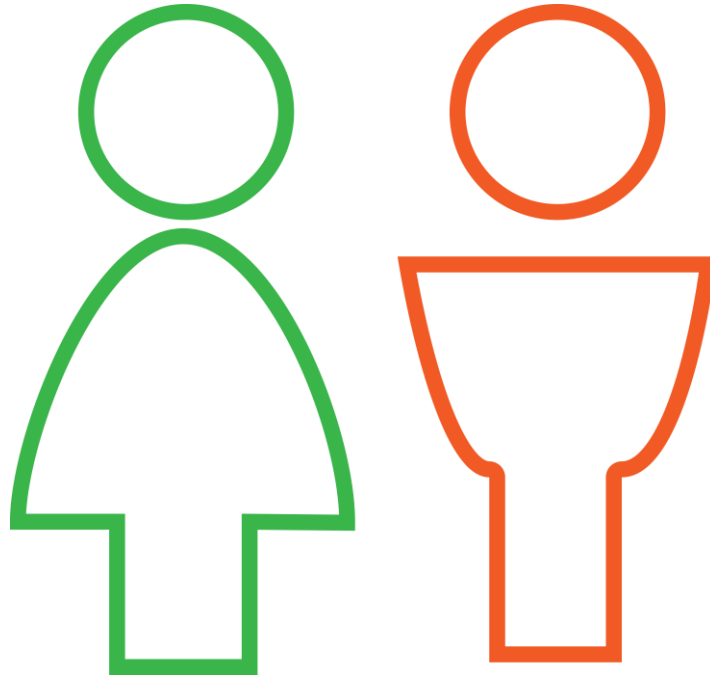# Introduction to Matplotlib
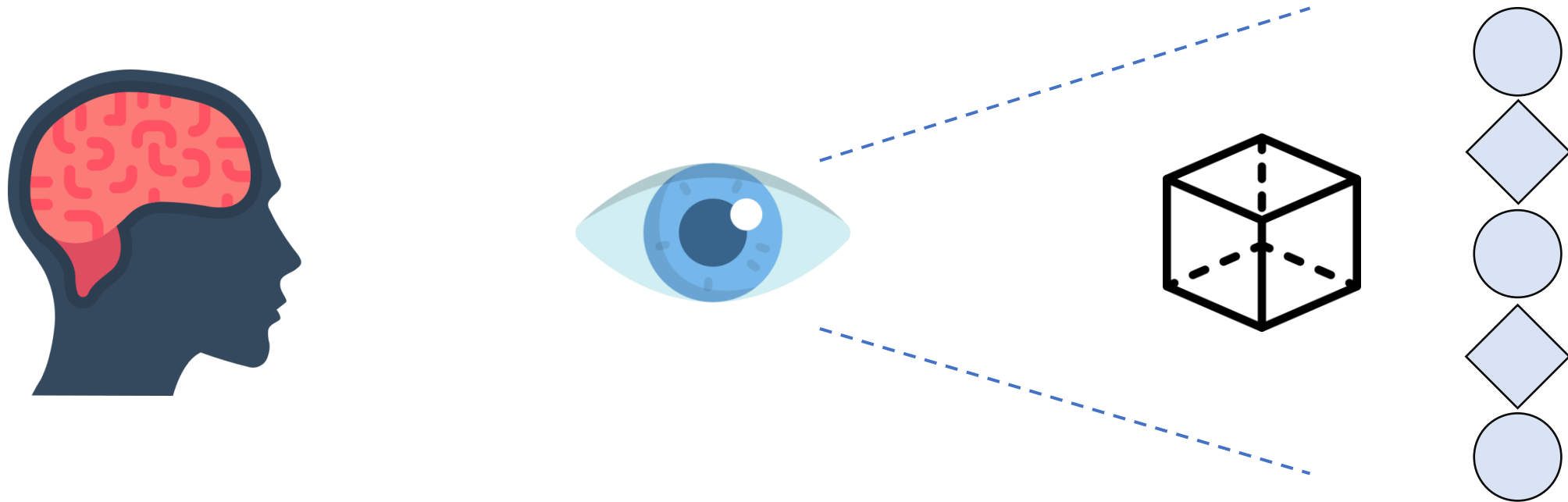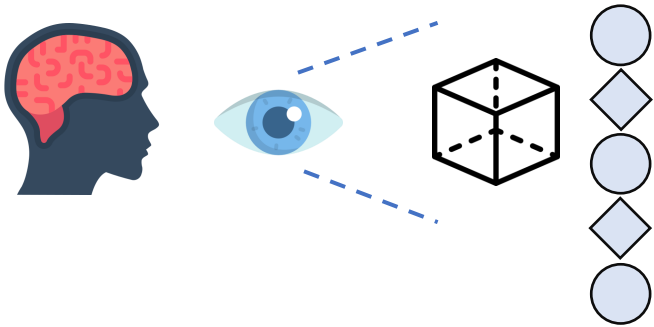
Visualization

Visualization are the easiest way to absorb information

Visualization

Visualization are the easiest way to absorb information

Visualization in Data Science

Important step in data exploration

Helps developing an intuition for relationship in data

Precursor to higher level data analysis using ML techniques

Matplotlib

Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms.

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Matplotlib Ecosystem

Matplotlib
(Package)

Pandas
(Package)

NumPy
(Package)

PyData
(Stack)

...

Matplotlib Ecosystem

Tightly integrates with
PyData stack

Matplotlib
(Package)

Pandas
(Package)

NumPy
(Package)

PyData
(Stack)

Matplotlib Ecosystem

Inter-operates with
Pandas, NumPy...

Matplotlib
(Package)

Pandas
(Package)

NumPy
(Package)

PyData
(Stack)

Matplotlib Ecosystem

Matplotlib is a complex
package that includes
multiple modules

Matplotlib (Package)

Matplotlib. pyplot (Module)	Pylab (Module)

Object level APIs
("Matplotlib APIs")

Pandas
(Package)

NumPy
(Package)

PyData
(Stack)

Matplotlib Ecosystem

Includes granular low-level APIs
to control each object in a plot

Matplotlib (Package)

Matplotlib. pyplot (Module)

Pylab (Module)

Object level APIs ("Matplotlib APIs")

Pandas (Package)

NumPy (Package)

PyData (Stack)

Matplotlib Ecosystem

Also includes a higher level API
that controls the "state-machine"

Matplotlib
(Package)

Matplotlib.
pyplot
(Module)

Pylab
(Module)

Object level APIs
("Matplotlib APIs")

Pandas
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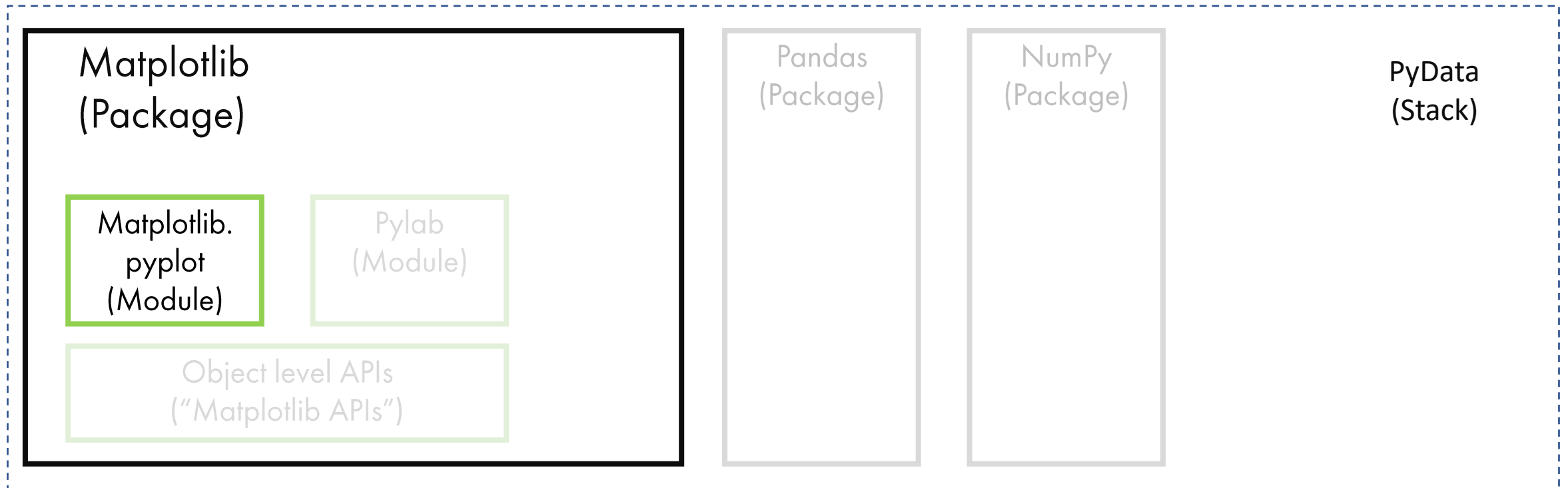
Matplotlib Ecosystem

Pylab is a convenience module imports portions of Matplotlib and NumPy to give users a Matlab-like access to functions

Matplotlib (Package)

Matplotlib. pyplot (Module)

Pylab (Module)

Object level APIs ("Matplotlib APIs")

Pandas (Package)

NumPy (Package)

PyData (Stack)
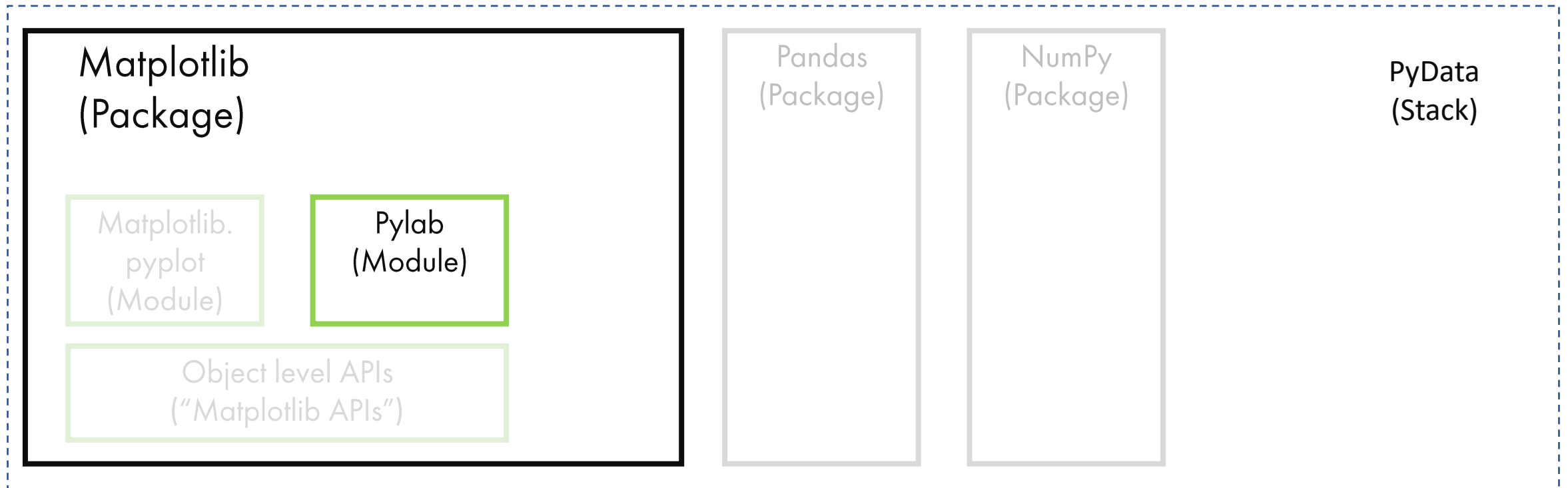
History

Matlab

Excels at making nice looking plots easy but:

- Not free
- Difficult to scale
- Limited as a programming language

History

Matlab

Matplotlib

Emulates MATLAB's plotting capabilities

Matplotlib

Matlab

Python plotting library

Easy to create plots

Embeddable GUI for application development

Can be used across platform