

Python programming and data visualization for beginners

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Week 2

Imports, the standard library, and third-party libraries

- Python's `import` statement
- The standard library
 - Useful / common libraries
 - `random`, `os`, `glob`, `datetime`, `sys`, `re`, `math`, `statistics`, `csv`, `json`
- Third-party libraries
 - PyPI – The Python Package Index
 - `numpy`, `matplotlib`, `pandas`

Importing libraries

import

- Python code is organized into modules
- To access functionality from another module, we must import the module using the `import` statement
- By convention, imports happen at the top of a script
- *Right:* different ways of using the `import` statement

```
# Import module(s) into global namespace
import <name>, ...

# Import module and assign alternative name
import <name> as <alternative_name>

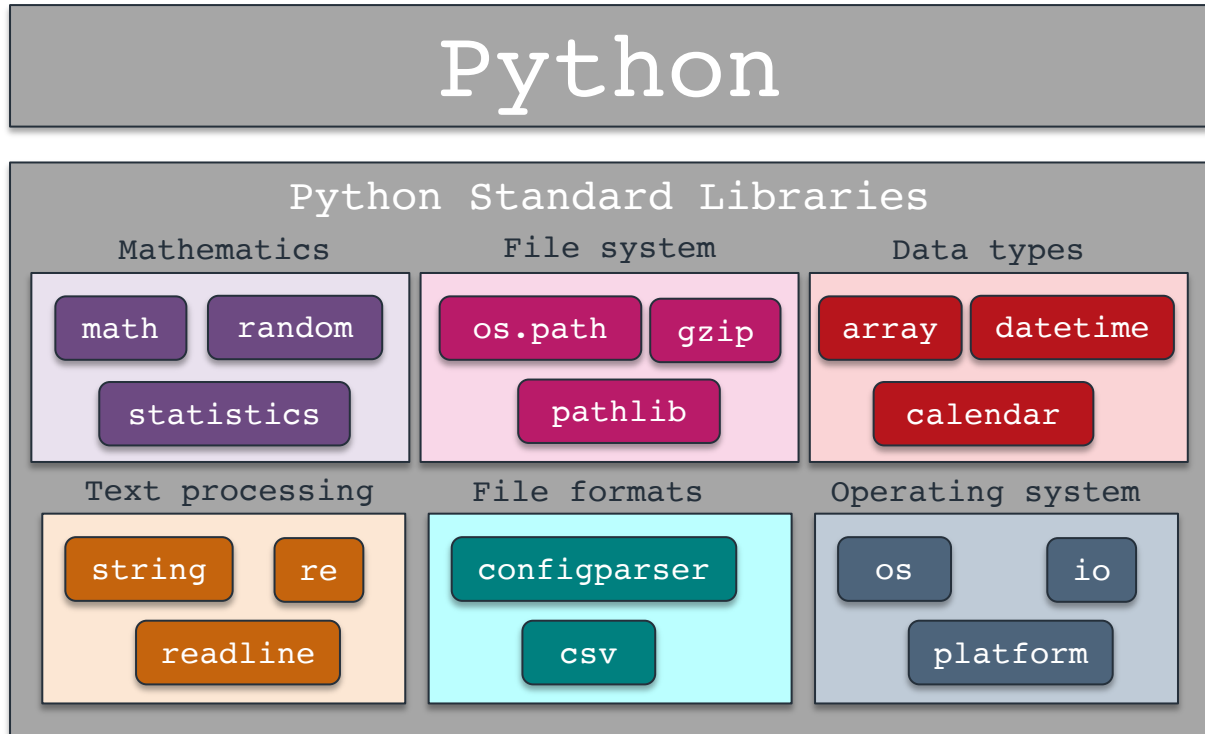
# Import object(s) from module into global namespace
from <name> import <name>, ...

# Import object from module and assign alternative name
from <name> import <name> as <alternative_name>

# Import everything from module into local namespace
# (best avoided)
from <name> import *
```

The Standard Library

- Python ships with 200+ libraries designed to help with tasks in many different problem domains
- Some examples are shown to the right



Third-party libraries

PyPI – The Python Package Index

- Home to over 400k projects from the wider Python community
- Many problems have already been solved – check PyPI before reinventing the wheel
- Install packages using the `pip` packaging tool
- Or an alternative package manager such as `conda`



Third-party libraries

numpy, matplotlib, pandas

- Core libraries for scientific Python ecosystem
- Install with Anaconda Navigator
- Fluency with these libraries is a skill within a skill
- These are very powerful tools for working with data



NumPy

