LESSON 6

main.py

```
$ python3 -m venv .venv
$ pip install requests
```

Py

import · pip · venv

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PYTHON SCRIPTING & OOP

LESSON 6

Modules, Packages and pip

import, the standard library, your own modules, pip and virtual environments

Importing Modules

imports.py

```
import math
from datetime import date
import random as rnd

print(math.sqrt(144))                # 12.0
print(date.today())                  # 2026-10-24
print(rnd.choice(["Kabul", "Herat"]))
```

- A module is a Python file with useful code. import math gives you math dot sqrt, and from ...
- Use as to give a shorter name, like import pandas as pd. Put imports at the top of the file.

01

Batteries Included

Module	Use it for
`pathlib · os · shutil`	files and folders
`json · csv`	reading and writing data
`datetime · time`	dates and time
`subprocess`	running commands
`re · random · math`	regex, random, math

- Python comes with a huge standard library. os and pathlib work with files, json and csv ...
- Before you install anything, check whether the standard library already has it.

02

Your Own Modules

tools.py

```
def celsius_to_f(c):
    return c * 9 / 5 + 32

if __name__ == "__main__":        # only when run directly
    print(celsius_to_f(30))

# main.py:  from tools import celsius_to_f
```

- Any dot py file is a module. Put helper functions in tools dot py and import them from …
- The if name equals main check lets a file work both as a script and as an importable module.

03

pip and PyPI

terminal

```
$ pip install requests rich
$ pip list
$ pip freeze > requirements.txt
$ pip install -r requirements.txt
```

- PyPI, the Python Package Index, has over half a million packages. pip installs them: pip …
- Save your project's packages in requirements dot txt with pip freeze, so anyone can install …

04

Virtual Environments

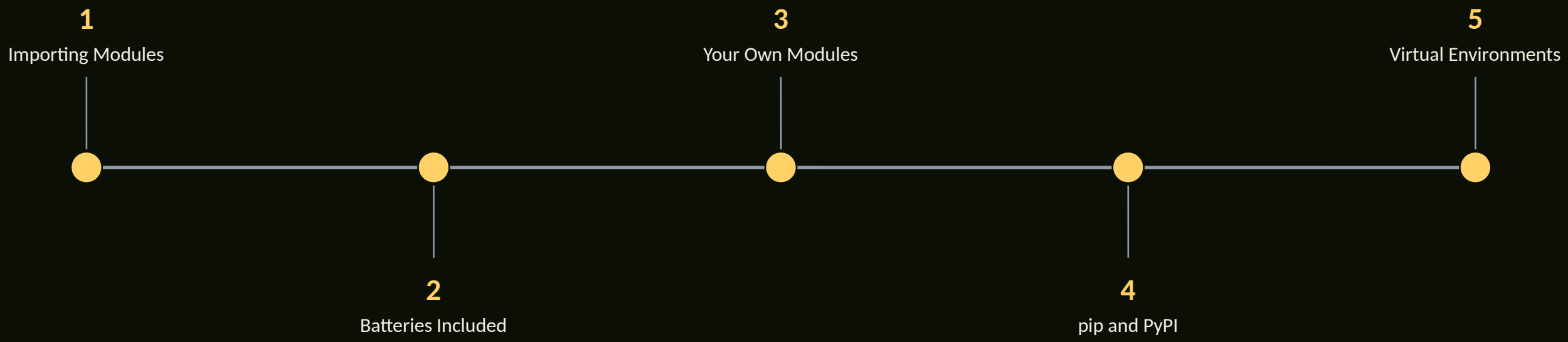
terminal

```
$ python3 -m venv .venv
$ source .venv/bin/activate        # Linux / macOS
PS> .venv\Scripts\Activate.ps1      # Windows
(.venv) $ pip install requests
(.venv) $ deactivate
```

- A virtual environment gives each project its own private set of packages, so projects never …
- Create one with python3 dash m venv dot venv, activate it, then pip install inside it. …

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Lesson Map


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Importing Modules
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Batteries Included
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Your Own Modules
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pip and PyPI
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Virtual Environments

Sources and Further Reading

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from datetime import date
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tools.py

```python
def celsius_to_f(c):
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if __name__ == "__main__":        # only when run directly
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# main.py:  from tools import celsius_to_f
```

Thank you for watching

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