# Next Steps

## Computational Text Analysis Week

## A Reproducible Research Workshop

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# You made it!

🎖️ Three days of intense Python taming and Text Analysis are behind you!

🧭 Where to go from here?

# Code local!

🎓 Dartmouth's JupyterHub is a great place to teach, but:

- Computational resources and storage space are limited
- Working with datasets can get tedious (uploading and managing files)
- The Hub gets regularly reset to "factory settings" at the end of a term

💻 For your own projects, we recommend working on your own computer

👍 The following slides will walk you through our *recommended setup*™

# Steps

1. The Python interpreter and standard libraries
2. A code editor: Visual Studio Code
3. Support for Jupyter notebooks
4. A well-organized project folder
5. ???
6. Success!

# Python interpreter and standard library

🐍 Python is available in many distributions

🎁 Anaconda, for example, bundles many third-party data science libraries and some additional tools with the official basic Python

👎 To get started, we recommend against using such bundles:

- They can contain a lot of unnecessary features (“bloat”)
- They can make it more difficult to understand your programming environment

# Python interpreter and standard library

- Download the official Python distribution for your system:
  - https://www.python.org/downloads/
  - Consider using one version older than the most recent one
    - For example, use 3.11 instead of 3.12 (as of December 2023)
    - Not all third-party libraries may have already been made compatible with a brand-new version of Python
- Install as normal for your system

# A code editor: Visual Studio Code

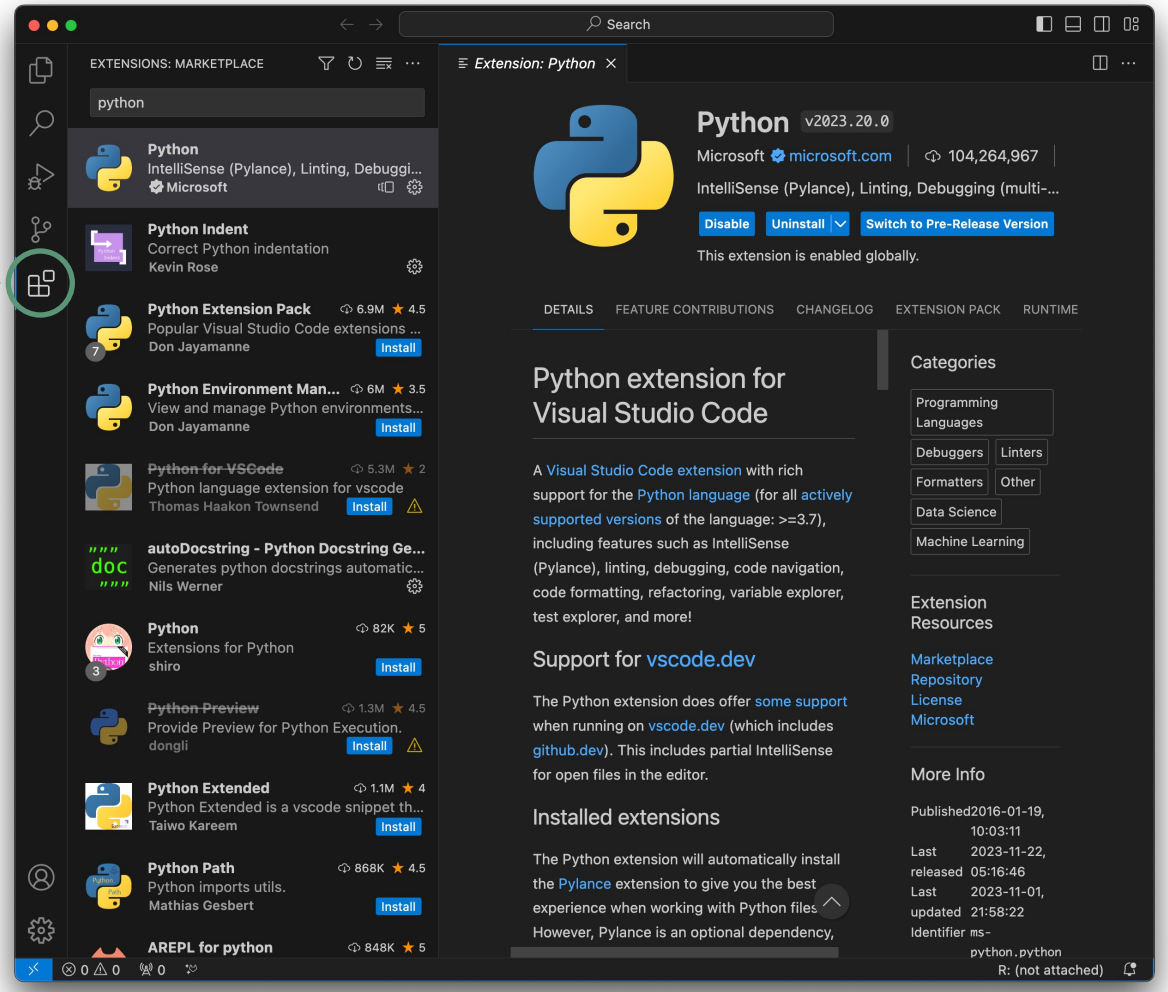
- 🦸 A code editor is a text editor with coding-related superpowers
- 🤔 Many such editors are available for Python (Spyder, PyCharm, …)
- 🫶 Our recommendation: Visual Studio Code
  - ❤️ Free, open-source
  - 🌎 Huge user base
  - 🧩 Modular design using extensions (“There is an extension for that!”)
  - 🧰 Simple to use, yet many powerful (but entirely optional) features

# A code editor: Visual Studio Code

- Download the version for your system from the official website:
  - https://code.visualstudio.com/
- Install as normal for your system
- Open VS Code from your applications menu (or desktop shortcut)

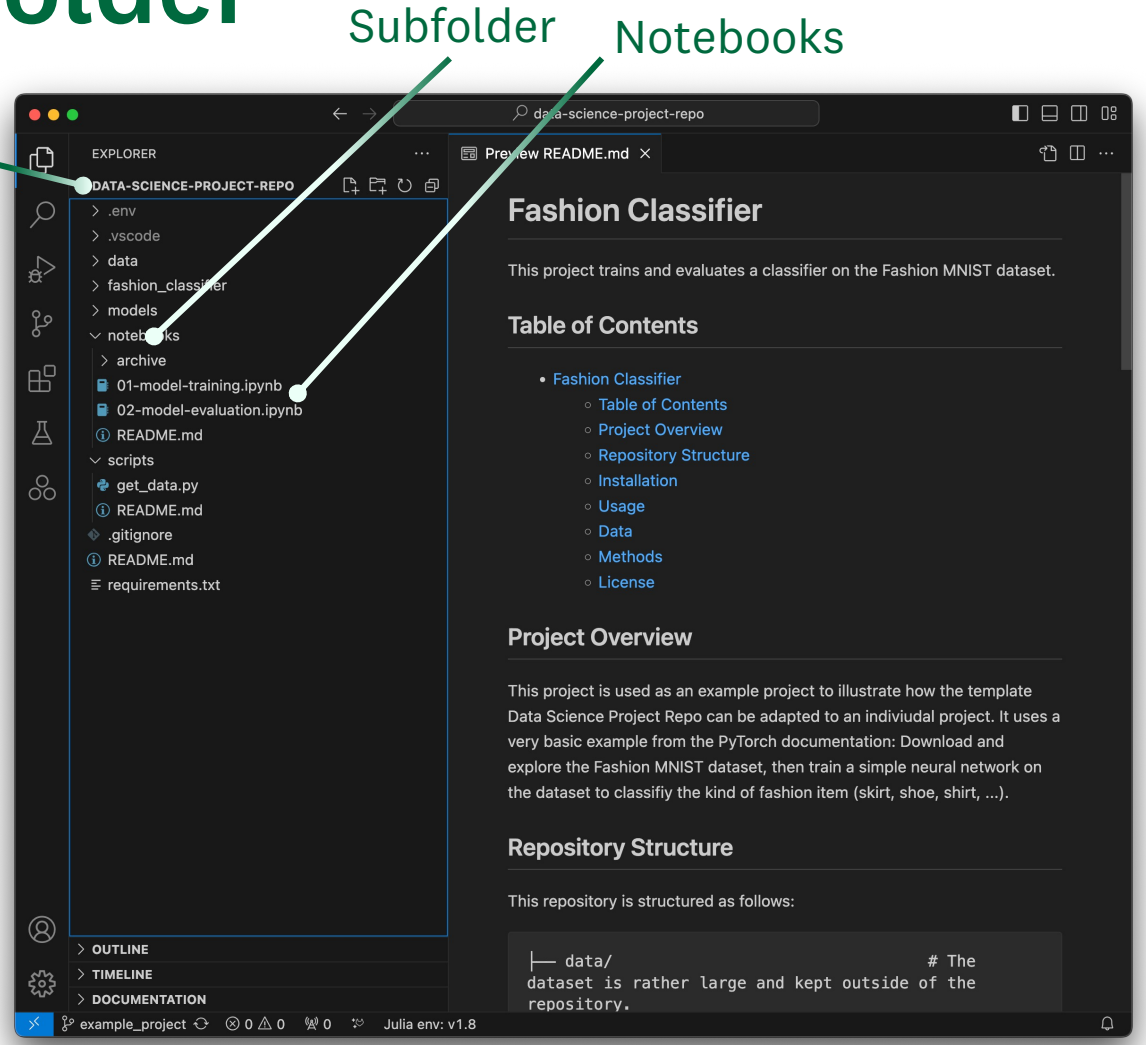
# Support for Python and Jupyter notebooks

- Go to the Extensions tab
- Search for “python”
- Install the Python extension (by Microsoft)
- Search for “jupyter”
- Install the Jupyter extension



# A well-organized project folder

- VS Code works best if you use a dedicated project folder:
  - Create a folder for your project
  - Open the folder in VS Code
    - File -> Open Folder
  - Create subfolders and code files as required




Example:
https://git.dartmouth.edu/lib-digital-strategies/RDS/workshops/computational-tools/data-science-project-repo

# More next steps

- 📦 Setting up a virtual environment for your project
- 🐛 Debugging Python in VS Code
- 🪄 Automatically format your code (and flag potential problems)
- 👉 More on our Research Guide

# About the Reproducible Research Group

- Joint venture of **Research Computing @ ITC** and **Research Data Services @ Library**
- Consult with **experts** on
  - research data management,
  - data visualization,
  - biomedical research support,
  - spatial data and GIS,
  - high performance and research computing,
  - statistical analysis,
  - economics and social sciences data
- **Meet** the people on campus that support your reproducible research lifecycle
- **Engage** in community discussions to learn from other researchers on campus
- Attend a workshop to **learn** practical tools and tips

# About Research Data Services

**Research Data Management**

Data Management Plans (DMPs) for sponsored projects

Finding and using 3rd party data

Collection and cleaning of data

Organization and documentation

Publishing and Repositories

**Data Analysis/Visualization**

Textual, numeric, spatial data

Reproducible research workflows

Scripting in R: tidyverse core package (i.e. ggplot, dplyr, tydr, tibble, etc.)

Scripting in Python: NumPy, SciPy, Pandas, Scikit-learn, Matplotlib, Seaborn, (OpenCV, PyTorch, TensorFlow, Tesseract, NLTK, etc.)

**Computational Scholarship**

Computational project planning

Collections as Data

Storytelling with data and visualizations

Text and data mining

Digital Humanities support

Computational Pedagogy

# Work with us

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# Thank you!

https://www.library.dartmouth.edu/research-data-services