Setting up Your System with IllumiDesk and Anaconda

Ensuring you have the right tool for each project

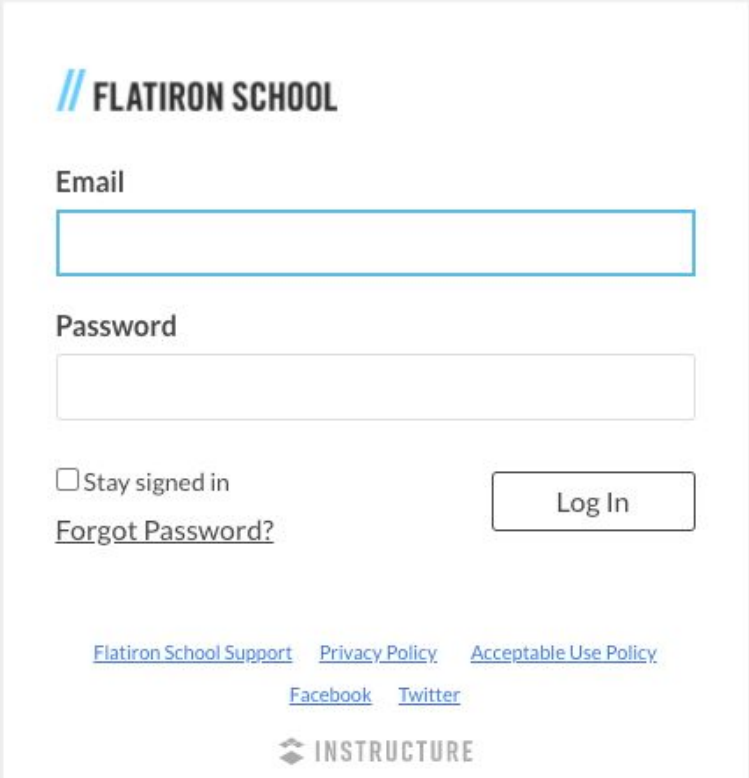
// FLATIRON SCHOOL

Agenda

Students will be able to...

1. **Navigate to IllumiDesk from Canvas**
2. **Navigate within IllumiDesk**
3. **Decide when to work in IllumiDesk vs locally on your machine**
4. **Access lessons and solutions in GitHub**
5. **Describe Python, Anaconda, and Jupyter**
6. **Use an editor such as Visual Studio Code or PyCharm?**
7. **Explain the concepts behind git / GitHub**

CANVAS


FLATIRON SCHOOL
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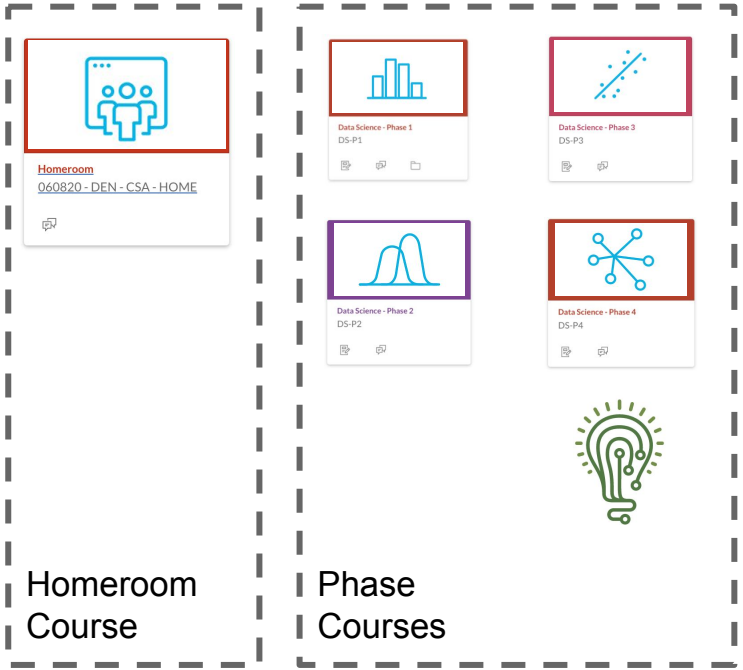
INSTRUCTURE

Two groups of Canvas courses

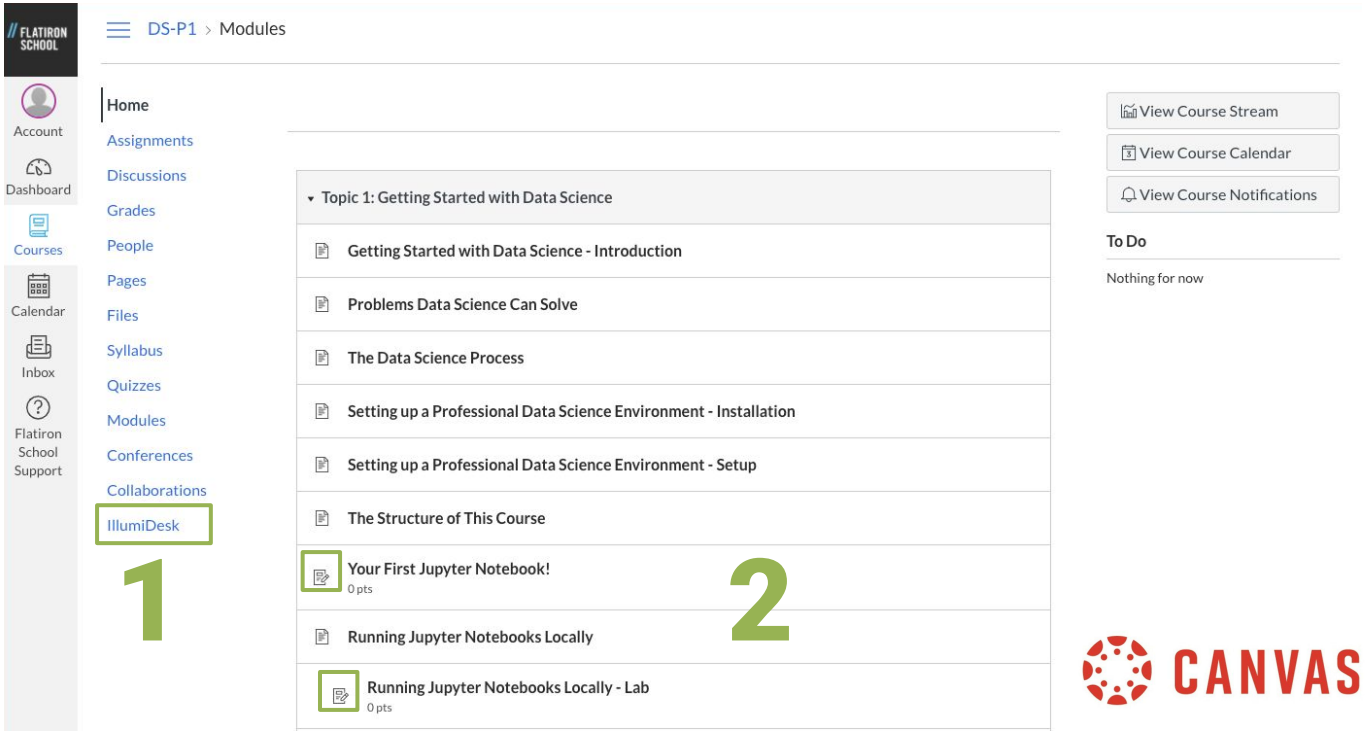
illumiDesk

Is used in the Phase courses

CANVAS



Two ways to access



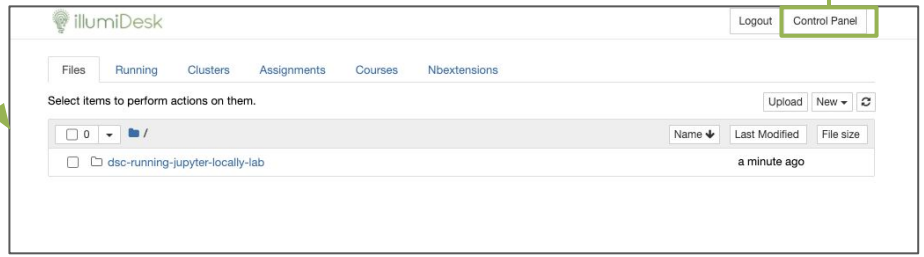
IllumiDesk through the IllumiDesk link

First time you access IllumiDesk in a Canvas session, the you will need to start your server at the Control Panel

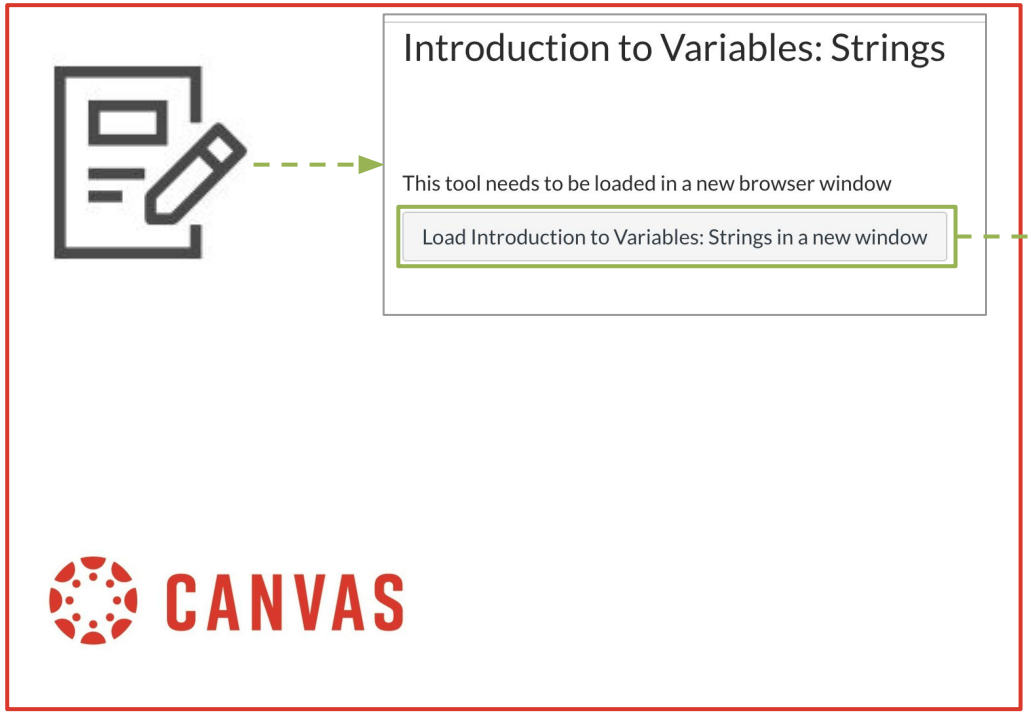
After starting the server the Control Panel has multiple options

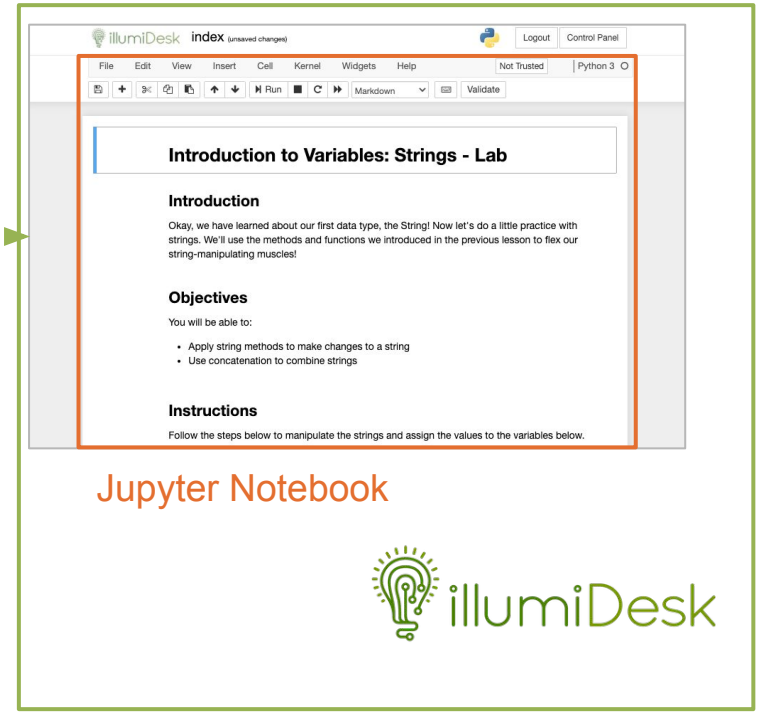
Either blue button will direct you to your Jupyter environment

The Control Panel button navigates back to the Control Panel, also known as “Home”



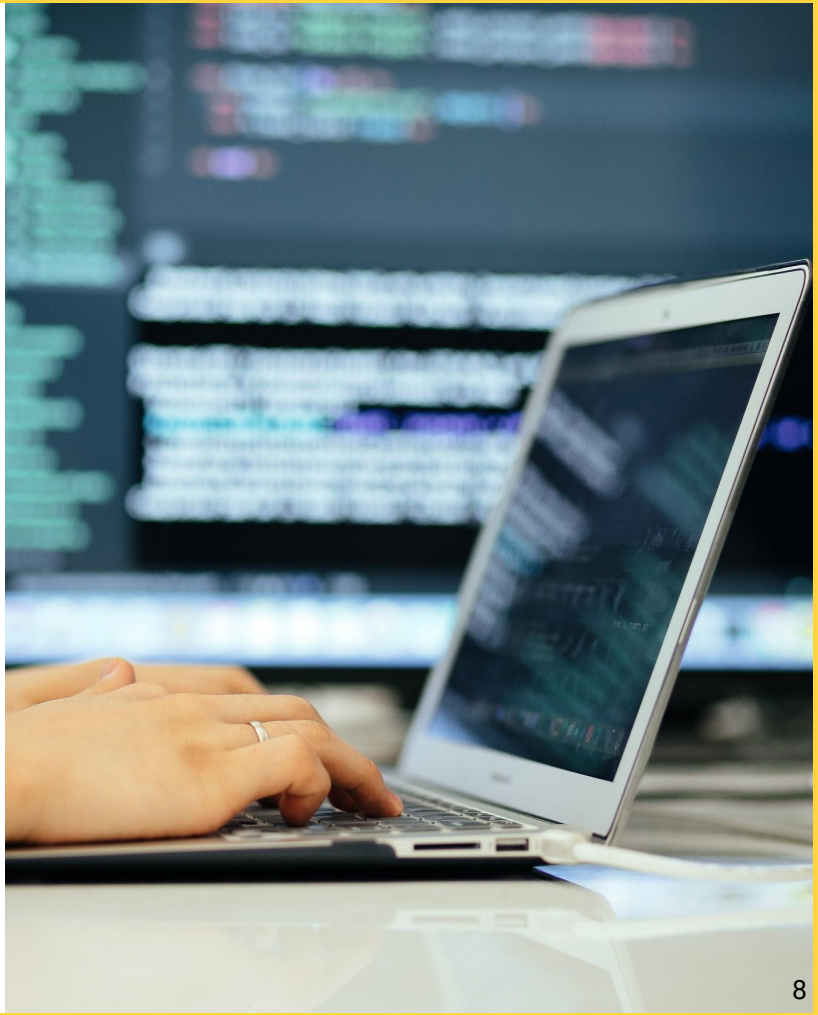
IllumiDesk through Assignment links



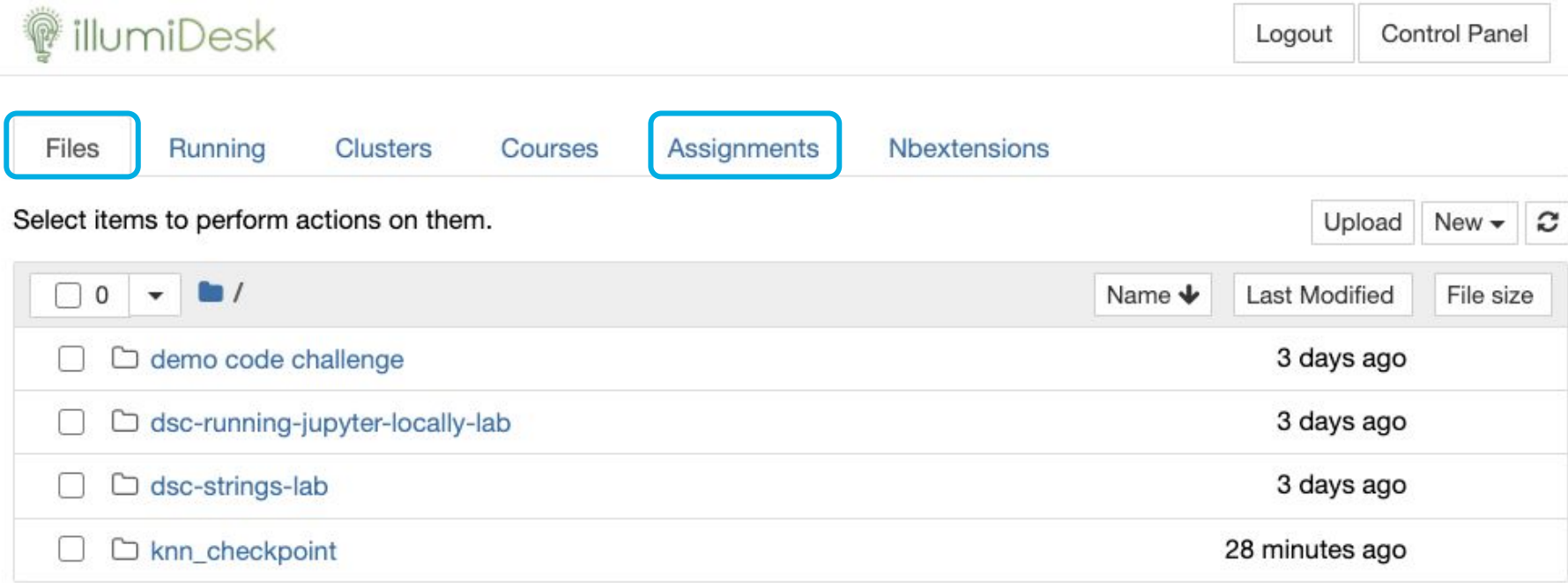


IllumiDesk Structure

Every Jupyter Notebook opened through an assignment link lives in your Files tab, and will save your work.



Only two tabs matter for now



Wait - should we do labs in IllumiDesk or clone them to a local environment?

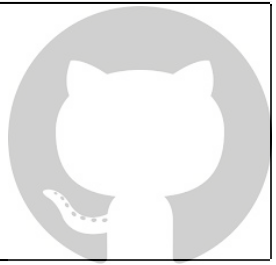
Advantages of GitHub

Employers look for comfort using git
A “green” robust github commit history
Content accessible after the program
It is what you will be using in the real world
Built for collaboration

Advantages of IllumiDesk

Ease of use
No environment issues
Fully integrated into Canvas

You will use both

GitHub	IllumiDesk
Projects 	Code Challenges, Labs, & Code Lessons 

Every lesson with code is stored on GitHub

Introduction to Variables: Strings

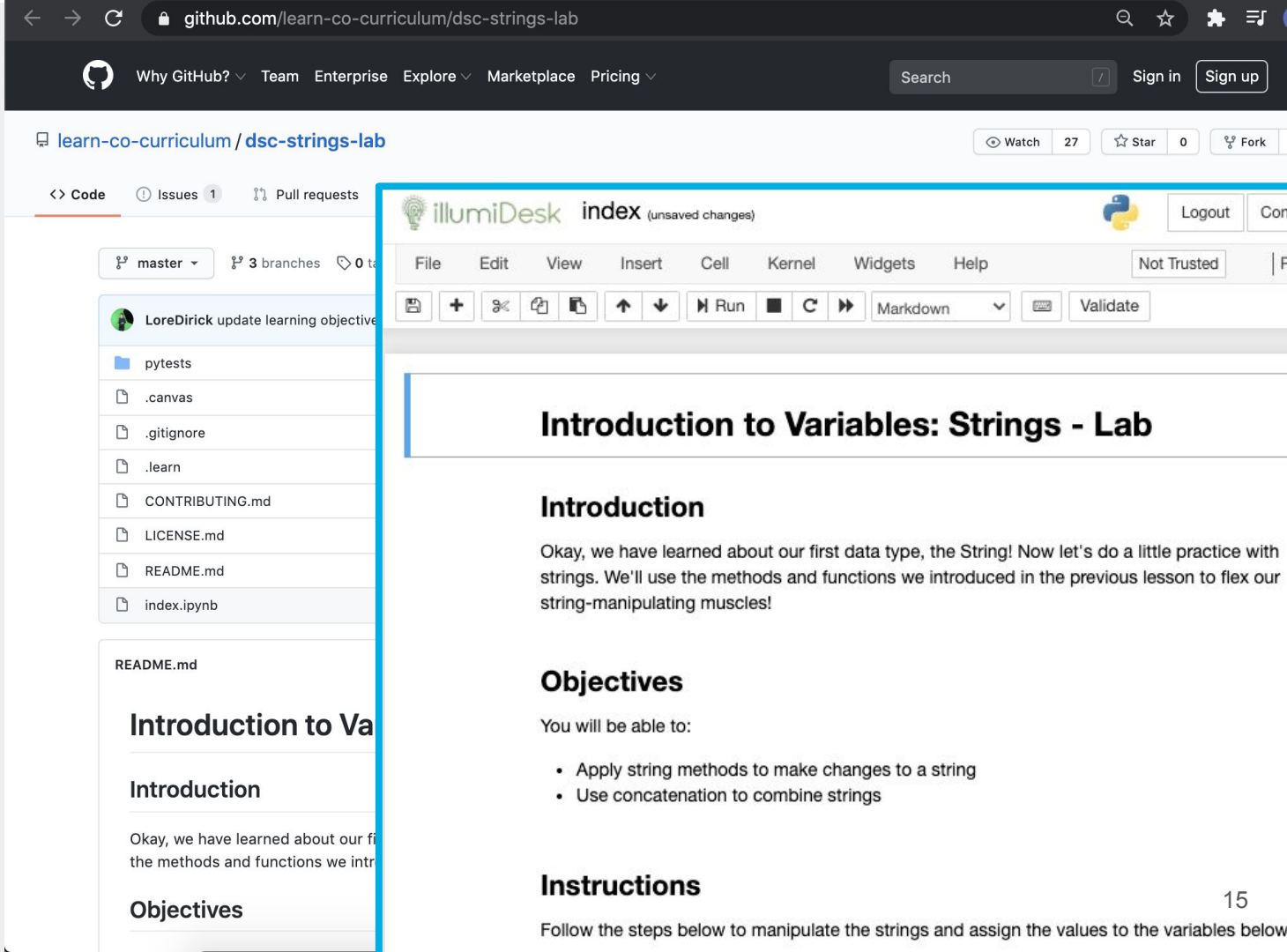
This tool needs to be loaded in a new browser window

Load Introduction to Variables: Strings in a new window

The GitHub logo in Canvas will navigate to the lesson's GitHub repository

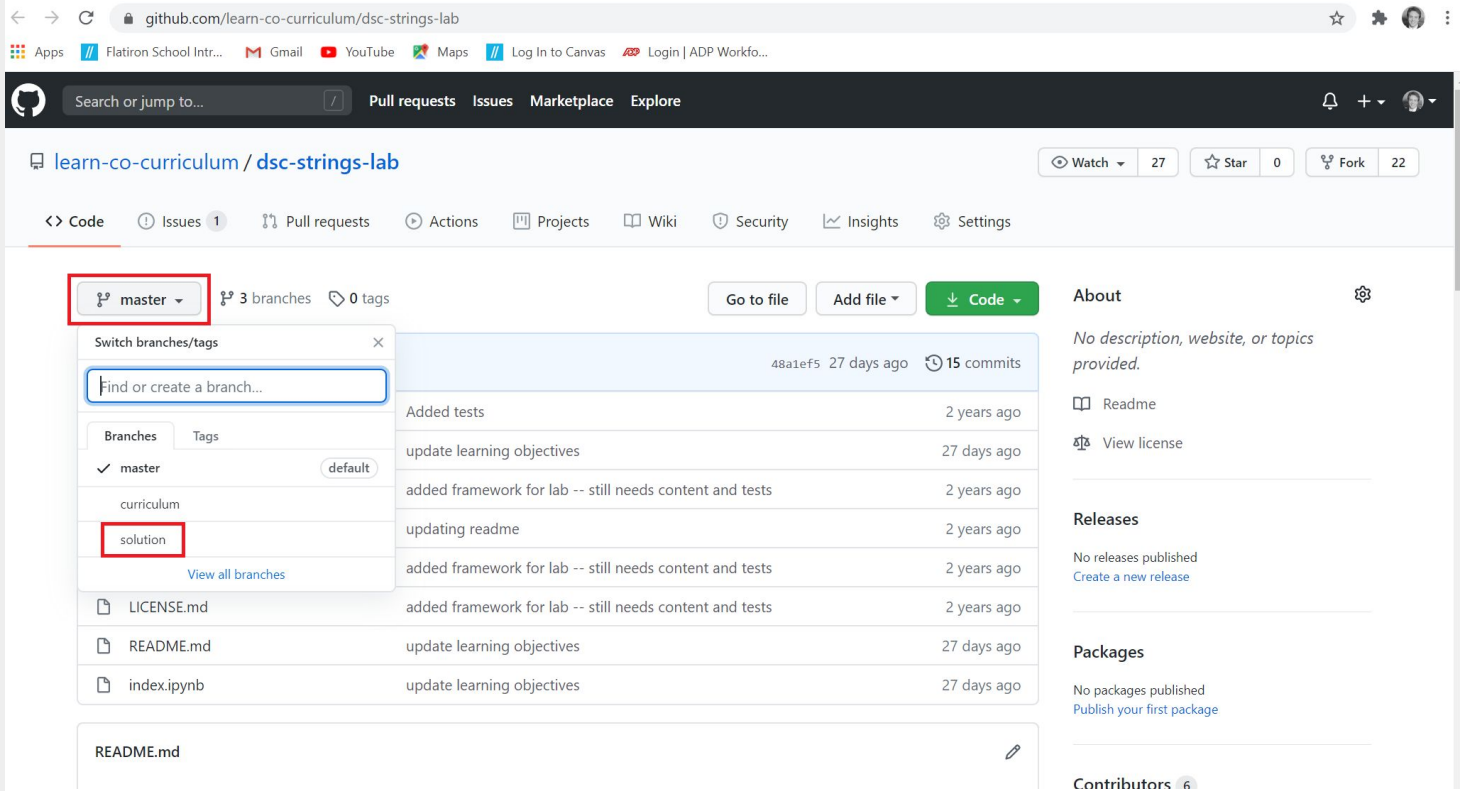
You fork and clone the source material from GitHub to your own machine.

(instructions to come)



Lab solutions are on the “solution” branch of each repository.

(we will teach you what that means soon)



Saving IllumiDesk Work

https://github.com/learn-co-curriculum/dsc-saving-illumidesk-work-to-github

What is ***Python?***

- A coding language used extensively by data science

Easter Egg

```
In [1]:  1  import this
```

```
The Zen of Python, by Tim Peters

Beautiful is better than ugly.
Explicit is better than implicit.
Simple is better than complex.
Complex is better than complicated.
Flat is better than nested.
Sparse is better than dense.
Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
Unless explicitly silenced.
In the face of ambiguity, refuse the temptation to guess.
There should be one-- and preferably only one --obvious way to do it.
Although that way may not be obvious at first unless you're Dutch.
Now is better than never.
Although never is often better than *right* now.
If the implementation is hard to explain, it's a bad idea.
If the implementation is easy to explain, it may be a good idea.
Namespaces are one honking great idea -- let's do more of those!
```

PEP 8

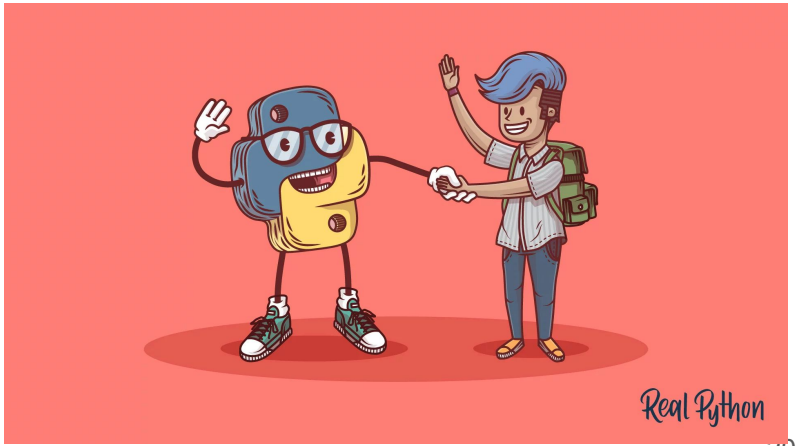
Python

“Python, named after the British comedy group Monty Python, is an interpreted, interactive, object-oriented programming language.

Its flexibility allows it to do many things, both big and small.

Python can be used to write simple programs, but it also possesses the full power required to create complex, large-scale enterprise solutions.” - Derrick Kearney

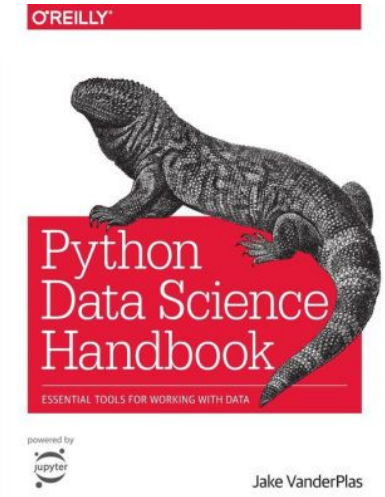
Python is an Object Oriented Programming language, however, unlike Java...



Python for Data Science

“The usefulness of Python for data science stems primarily from the large and active ecosystem of third-party packages:

- *NumPy* for manipulation of homogeneous array-based data;
- *Pandas* for manipulation of heterogeneous and labeled data;
- *SciPy* for common scientific computing tasks;
- *Matplotlib* for publication-quality visualizations;
- *[Jupyter]* for interactive execution and sharing of code;
- *Scikit-Learn* for machine learning, and many more tools...”
  - Jake VanderPlas



What is ***Anaconda?***

“The open-source Anaconda Distribution is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X. With over 15 million users worldwide, it is the industry standard for...enabling individual data scientists to:

- *Quickly download 1,500+ Python/R data science packages*
- *Manage libraries, dependencies, and environments with Conda”*

– *Anaconda Distribution*
- Package List

- Conda is an open source package management system and environment management system that runs on Windows, macOS and Linux.
- Conda quickly installs, runs and updates packages and their dependencies.
- Conda easily creates, saves, loads and switches between environments on your local computer.
- You'll create conda environments to share, collaborate on, and reproduce projects with specific versions of particular packages.
- Source: Conda Documentation + Managing Environments Documentation + conda cheat sheet

What is ***Jupyter?***

Jupyter

- Project Jupyter exists to develop open-source software, open-standards, and services for interactive computing across dozens of programming languages.

- Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text.
  - Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

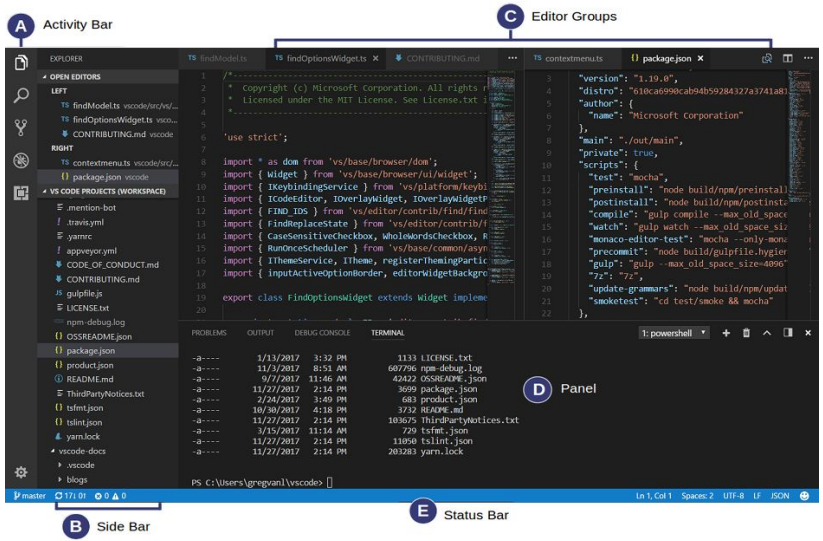
- JupyterLab is a next-generation web-based user interface

- Share notebooks using nbviewer

What is ***Visual Studio Code***?

Visual Studio (VS) Code

- Visual Studio Code is an open-source text editor created by Microsoft
- Navigate directory structure, make/remove files, and direct access to the Terminal/Command Line
- Allows you to write text files (`.py`, `README.md`, etc.) and recently, [VS Code allows you to edit Jupyter Notebooks directly]
- Easy to switch between conda environments and lint code



Pycharm: An alternative to VS Code

- Open source IDE (Integrated Development Environment) developed specifically for Python
- Powerful but heavy. Long load time and memory consumption
- Community edition is free
- Specialized features like support for django

Choose the tools that work for you:

What is ***Git***?

Git

- Git is a version control system.
- It’s a way of keeping track of all the changes made across your project.
- Think of it like “track changes” in Word - but with the ability to track changes across multiple documents.

What is ***GitHub***?

GitHub

- GitHub is a free software platform that hosts over 40 million developers code
- You'll primarily use GitHub to collaborate with others, document your projects, and build your portfolio to showcase your abilities as a data scientist
- You can also use GitHub for any of the following tasks:
  - Code hosting
  - Code review
  - Project management
  - Team management
  - Documentation

Putting it All Together

Go to the “Topic 1: Getting Started with Data Science” Module in the Phase 1 course on Canvas and work through the “Setting up a Professional Data Science Environment” lessons that are appropriate for your OS!