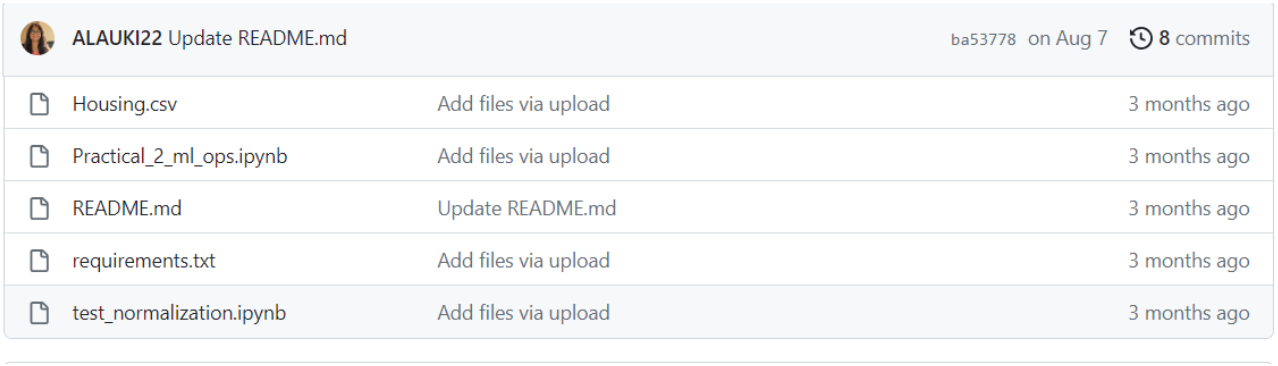
Practical-3

Generation of Reproducible and Interactive Machine Learning Project using BinderHub

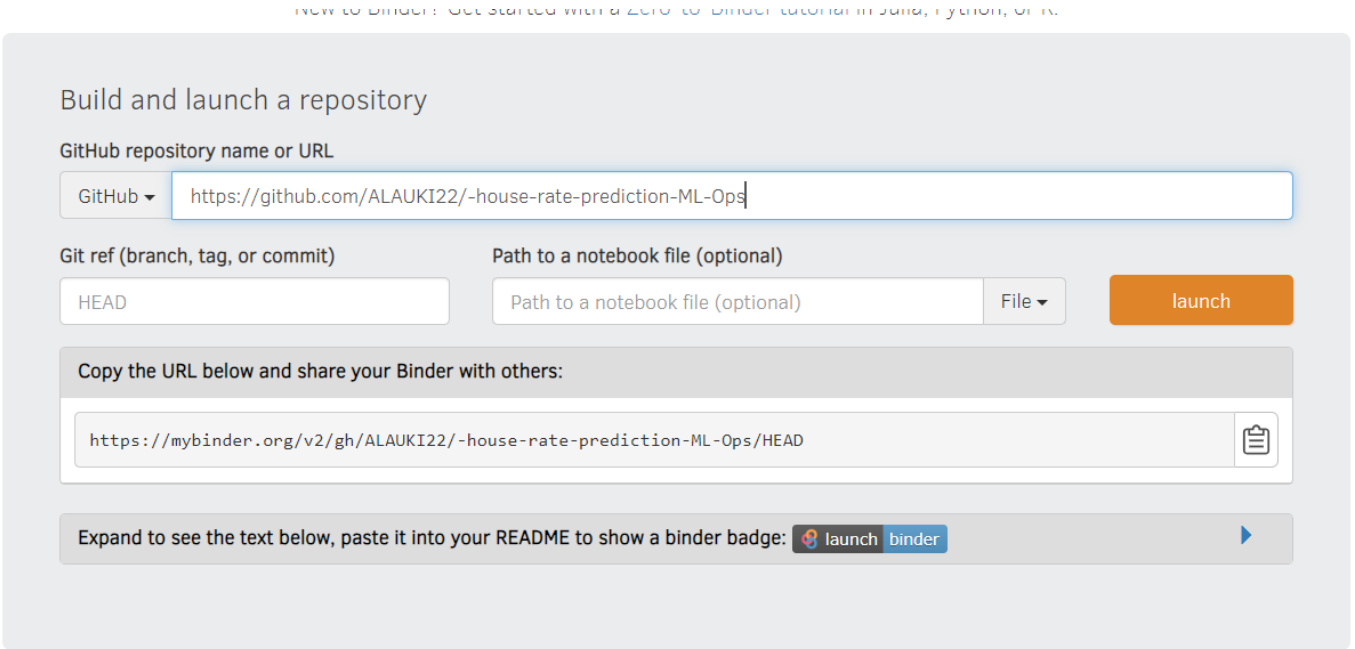
Task 1:

Create the Github repository for the house rate prediction project created in practical 2.

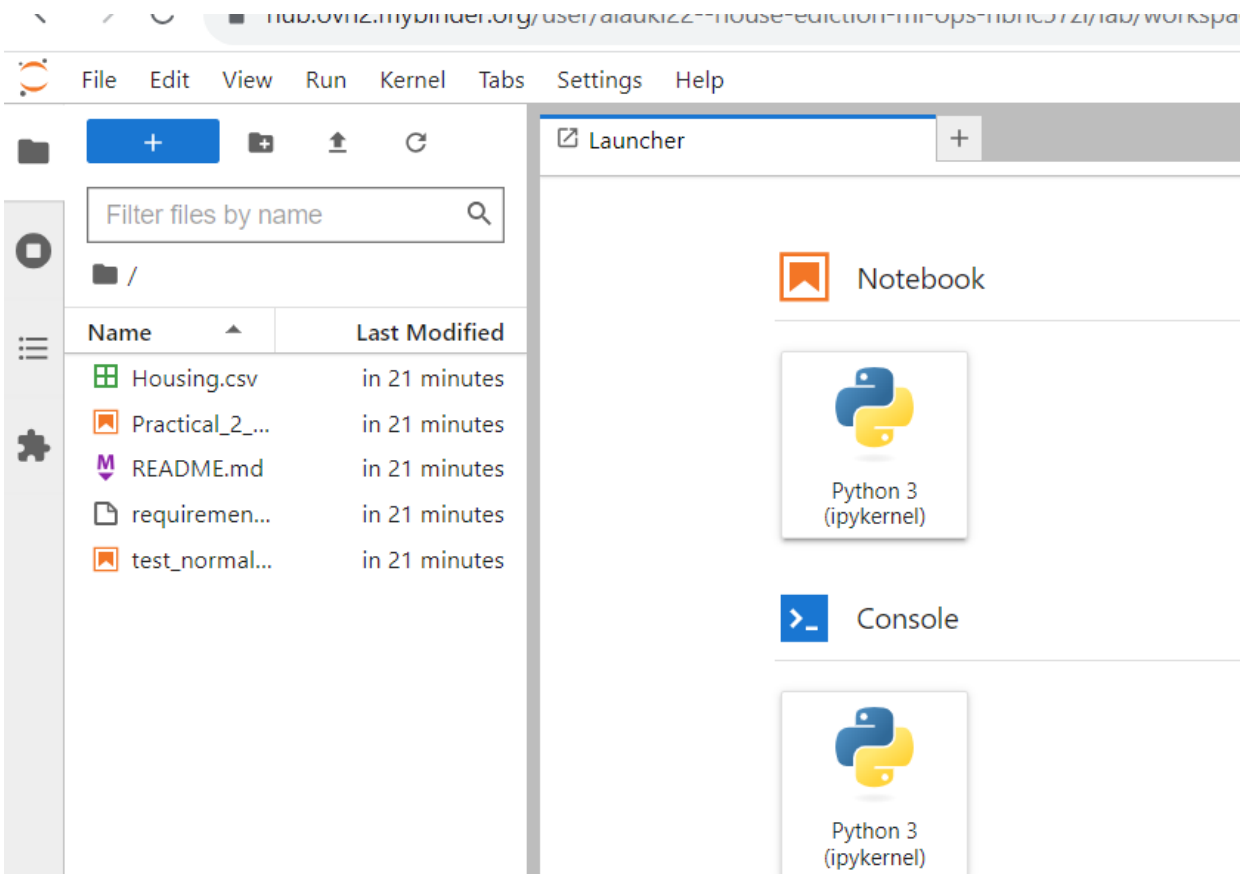


Task 2:

Integrate your repository with the binder to make your project interactive. (Hint: refer to the following link for the steps: https://mybinder.org/)




ALAUKI22 Update README.md
Preview
Code
Blame
5 lines (3 loc) · 189 Bytes
Code 55% faster with GitHub Copilot
-house-rate-prediction-ML-Ops
CLICK ON THIS TO RUN THE CODE
launch
binder


File
Edit
View
Run
Kernel
Tabs
Settings
Help
Launcher
Filter files by name
/
Name
Last Modified
Housing.csv
in 21 minutes
Practical_2_...
in 21 minutes
README.md
in 21 minutes
requiremen...
in 21 minutes
test_normal...
in 21 minutes
Notebook
Python 3
(ipykernel)
Console
Python 3
(ipykernel)

Introduction to BinderHub

BinderHub is an open-source platform designed to facilitate the creation, deployment, and sharing of interactive, reproducible computing environments, often used in educational and research settings, including lab manuals. Here's a brief description of BinderHub:

1. Interactive Computing Environments:

BinderHub allows you to create interactive computing environments using Jupyter notebooks. These environments can include code, text, visualizations, and other media, making it ideal for lab manuals where students or researchers need to perform computational tasks, simulations, or data analysis.

2. Reproducibility:

BinderHub promotes reproducibility by ensuring that users can easily recreate the same computing environment, including software dependencies, libraries, and data, as described in the lab manual. This is critical for maintaining the integrity and reliability of experiments and analyses.

3. Cloud-Based Deployment:

BinderHub facilitates the deployment of these interactive environments in the cloud. Users can access the lab manual and its associated computing environment through a web browser without needing to install any software locally. This makes it accessible to a wider audience and reduces setup complexity.

4. Version Control:

BinderHub integrates with version control systems like Git and GitHub, allowing lab manual authors to track changes to their content and computing environments. This ensures that the lab manual can evolve over time while maintaining a record of its history.

5. Shareability:

Lab manuals created with BinderHub can be easily shared with others using a URL. This means that educators, researchers, or collaborators can distribute lab materials to students or colleagues without the need for complex setup instructions.

6. Customization:

BinderHub is highly customizable, allowing lab manual authors to specify the computing environment's configuration, software dependencies, and resources like CPU and memory. This ensures that the environment matches the specific needs of the lab manual.

7. BinderHub Architecture:

BinderHub consists of several components, including a web interface for launching environments, a scheduler for resource management, and underlying containerization technology (e.g., Docker) to encapsulate the environment. These components work together to provide a seamless interactive
experience.

8. Open Source Community:

BinderHub is an open-source project with an active community of contributors and users. This means that it is continuously evolving, and users can benefit from improvements, bug fixes, and new features.

In summary, BinderHub is a powerful tool for creating interactive and reproducible lab manuals in a cloud-based environment. It simplifies the process of sharing and deploying computing environments, making it easier for educators and researchers to provide handson, reproducible learning experiences.