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L0 ITAI 1378 Colab and other Tools Practice Run

GitHub Repository Link: https://github.com/Cocotutu2/jupyter-exploration

a. Introduction

This reflection journal focuses on my lab experience with GitHub version control and working with Jupyter Notebooks. The purpose is to explore the skills I developed in managing a public GitHub repository, working with Jupyter Notebooks in Google Colab, and mastering the process of documenting and sharing code.

b. What You Did:

During the lab session, the first step was to create a GitHub account and familiarize myself with the GitHub website. I learned about repositories, issues, pull requests, and the overall GitHub interface. I created a new public repository named "jupyter-exploration" and added it with a README file. I put a description to README that explains the purpose of the lab session.

For the Jupyter notebook, I chose to use Google Colab as my online Jupyter environment, since I am most comfortable using. I created a new notebook, inserted a Markdown cell ("My first markdown cell in Jupyter"), and included a Python code cell print ("Hello, World"). Furthermore, I included an additional Markdown Cell with a simple Python program for fun. I executed each cell and saved the notebook, then downloaded it as a .ipynb file.

Next, to upload the notebook to GitHub, I downloaded and installed GitHub Desktop on my Windows laptop. My laptop hadn't been updated since May, which made installing GitHub Desktop take nearly an hour because of the system updates. Initially, I made the mistake of copying the notebook file into local GitHub folder before cloning the repository, resulting in duplicate files and prevented the changes from being visible in GitHub Desktop. After deleting the incorrectly copied files, I accurately cloned the repository, added the notebook file inside the cloned folder, then committed and pushed the changes to GitHub successfully. Throughout the lab, I learned various steps in version control, managing repositories, and working interactively with Jupyter Notebooks (Google Colab), completing a workflow from creating content to sharing it on GitHub.

c. What You Learned:

Before this lab, my experience with GitHub was limited. I only created repositories and invited collaborators for machine learning projects and wrote short README files. However, I had never actually uploaded code or notebooks to GitHub before. This assignment gave me a comprehensive and practical understanding of how to use GitHub.

Using Jupyter Notebooks was familiar, as I had worked on projects in Google Colab before. The online environment still feels most natural to me. This time, I learned how to add and format Markdown cells properly; until now, I thought Markdown was just a way to create titles, not general text. For my first notebook, instead of simply typing a generic phrase, I wrote extra Python code and made my own fun little program, so the assignment felt more creative and less repetitive.

This experience allowed me to understand the technical details of version control workflows including how to use the "commit-pull-push" workflow, which involves saving changes locally (commit), updating local files with the latest changes from the remote repository (pull), and uploading changes to the remote repository (push). I can see in repositories see the updates real-time. This process is fundamental to keeping code consistency among users and maintaining a history of project versions.

The biggest challenge was installing GitHub Desktop on my laptop due to pending Windows updates, making the installation process took significantly longer than expected. On top of this, I faced an issue with file management in the local repository that caused confusion, but after troubleshooting, I learned the correct steps to clone the repository before adding files. Then I figured out the proper steps to commit and push changes.

d. Questions or Comments

This lab was very beneficial in grounding theoretical concepts into practical experience. I would be interested in learning more about handling collaborations on GitHub, merging pull requests, and ways to manage conflicts effectively, especially with notebooks. Additionally, learning automation tools and CI/CD pipelines in GitHub would be great for future labs.

e. Conclusion

In conclusion, this lab greatly improved my understanding of GitHub and Jupyter Notebooks, providing me with essential skills for version control and interactive programming. Overcoming initial technical challenges made the experience valuable and rewarding. These tools form a strong foundation for future collaborative projects.