

## Homework-1: Environment Setup and GitHub Skill Review

In this homework, you are expected to run and connect all the local applications that are required for this class. In addition, you will get familiar with GitHub which will constitute the foundation for submitting future homework assignments.

Your homework submission should be uploaded to Gradescope as a PDF by **January 22, 11:59PM ET (8:59PM PT)**. This PDF file should contain the screenshots requested below.

If you are a waitlisted student, we will share a Google Form so you can upload your submission by the deadline.

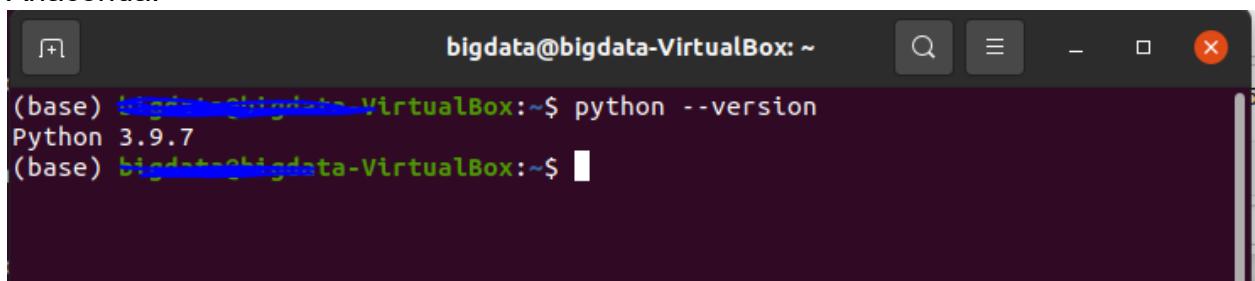
### Part-I (70%): Complete Environment Setup

In this part, you are expected to install and run several applications, and make sure they work correctly. You are asked to submit a screenshot for every application to show that it's working properly.

- Each screenshot must clearly show that it was taken on your own machine (for example, include your username, computer information, or your name typed in a Notepad file within the screenshot).
- Sample screenshots are attached below.
- You can install these applications/binaries on any operating system.

You need to get the following applications to run:

1. Anaconda Python 3.x. Provide a screenshot showing the version (username was omitted to avoid reusability). If you have Python 3.x already, you don't need to install Anaconda.

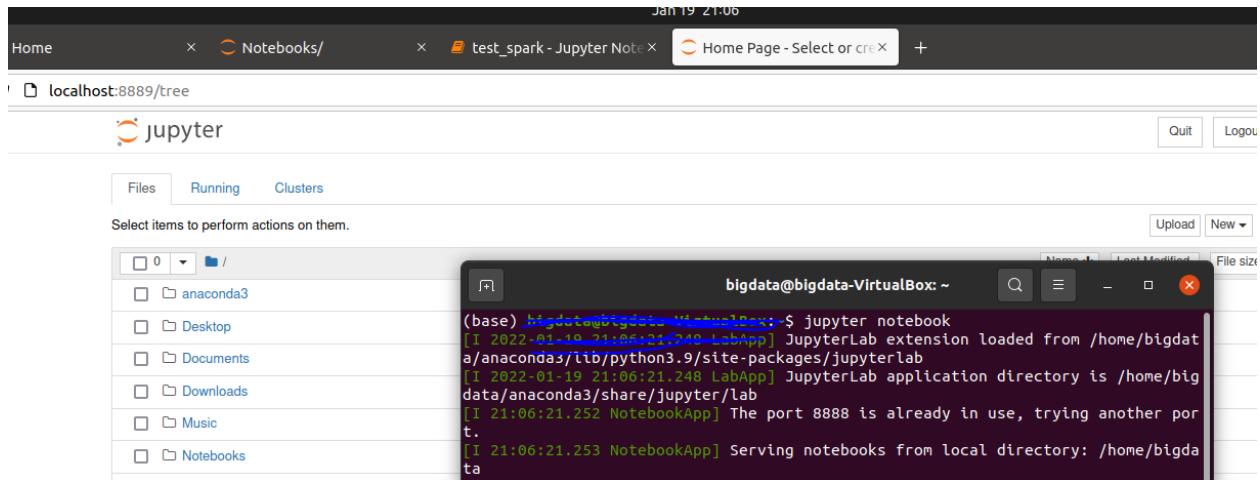


A screenshot of a terminal window titled "bigdata@bigdata-VirtualBox: ~". The window shows the command "python --version" being run, with the output "Python 3.9.7" displayed. The terminal has a dark background and light-colored text. The window title bar includes icons for minimize, maximize, and close.

```
bigdata@bigdata-VirtualBox:~$ python --version
Python 3.9.7
(base) bigdata@bigdata-VirtualBox:~$
```

## 2. Jupyter. Make sure you can open and run jupyter notebooks.

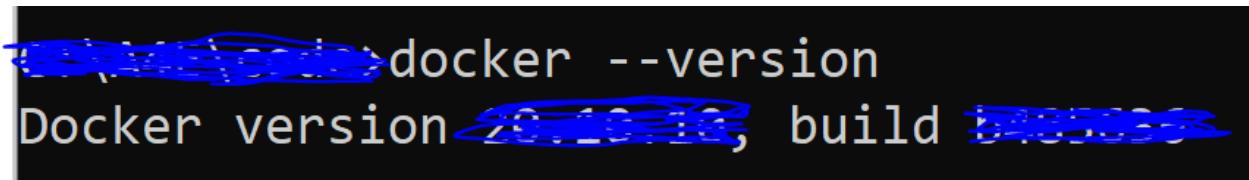
Note: In my screenshot, I launched Jupyter Notebook from the terminal. Your method may be different. Be sure to clearly show and explain how you are launching Jupyter Notebook in your own screenshot. You are welcome to use more than one screenshot if needed.



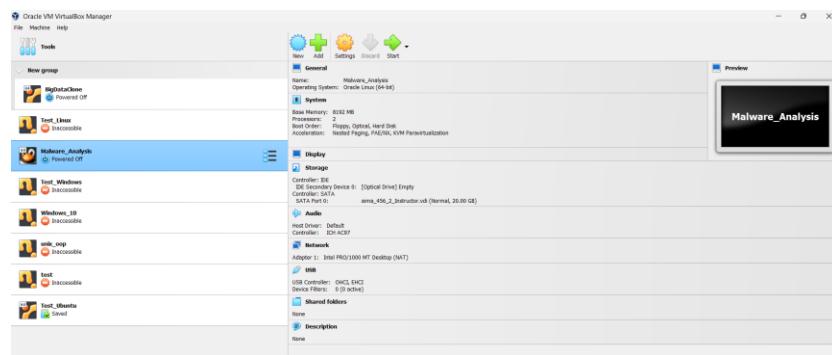
The screenshot shows a terminal window with the following output:

```
(base) bigdata@bigdata-VirtualBox: ~ $ jupyter notebook
[I 2022-01-19 21:06:21.248] JupyterLab extension loaded from /home/bigdata/anaconda3/lib/python3.9/site-packages/jupyterlab
[I 2022-01-19 21:06:21.248] JupyterLab application directory is /home/bigdata/anaconda3/share/jupyter/lab
[I 21:06:21.252 NotebookApp] The port 8888 is already in use, trying another port.
[I 21:06:21.253 NotebookApp] Serving notebooks from local directory: /home/bigdata/
```

## 3. Docker. We will use Docker for containerizing applications. Submit a screenshot that reflects the version of your docker.



## 4. VirtualBox, VMWare, or UTM installation. We will use virtualization software to demonstrate the difference between running a virtual machine and a container. Submit a screenshot that shows the user interface for your virtualization software. A sample screenshot is shown below. Note: you don't need to have VMs created in your screenshot.



## Part-II (30%): Get familiar with GitHub

- I. Submit screenshots for the completion of ALL the following GitHub labs:

1. <https://github.com/skills/introduction-to-github>
2. <https://github.com/skills/communicate-using-markdown>

Your screenshots should reflect successful completion of the above labs.

- II. Also, complete the following task:

- Create a public GitHub repository named “Test-Toolchains”.
- Include a README file when creating the repository.
- Commit and push the PDF of the first lecture to the repository.
- In a separate commit, delete the first lecture PDF and push the change.
- Commit and push a different PDF file to the repository. Submit the following:
  - a) A screenshot of your GitHub repository history

The screenshot shows the GitHub repository history for a repository named "Test-Toolchains". It displays four commits made on Jan 21, 2023:

- Pushing second PDF (commit 8408f4f, 4 minutes ago)
- Deleted the PDF (commit 99e5ede, 4 minutes ago)
- First PDF (commit fd9c206, 5 minutes ago)
- Initial commit (commit 7ee8555, 6 minutes ago)

- b) A screenshot of the current view of your repository

The screenshot shows the current view of the GitHub repository "Test-Toolchains". It displays the following commits:

- Pushing second PDF (commit 8408f4f, 6 minutes ago)
- Lecture\_2\_Introduction\_to\_the\_Cloud... (commit 99e5ede, 6 minutes ago)
- README.md (commit fd9c206, 8 minutes ago)

- c) The URL of your public repository

- If you haven't used version control systems before, you can watch the following videos:
  - Version Control Systems Overview: <https://www.youtube.com/embed/ils1aeHi3VU>
  - Git and GitHub: <https://www.youtube.com/embed/91ZZv002etU>