Environment Setup for Operating Systems and Computer Architecture

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Download Docker

Mac:
https://hub.docker.com/editions/community/docker-ce-desktop-mac

Windows:
https://hub.docker.com/editions/community/docker-ce-desktop-windows

Ubuntu:
`sudo apt-get install docker`

Create a Docker Hub Account

1.) Create an account at: https://hub.docker.com
2.) Confirm your email address
3.) Sign-in! For macs, you will have a docker icon on the upper-left side of your menu bar.

Docker Icon > Sign In

Pull the Docker Image

1.) On your terminal, enter the following command:

`docker pull nikkokun/computer-architecture:latest`

Run the example application

1.) Get the source code from SFC SFS

2.) Unzip the folder

The directory structure should look like this:

/matmul
/pmatmul
/quantum_sim
/test
getting-started.pdf

3.) Check if all the directories exist!

4.) Run the following command:

```
cd computer-architecture2019

docker run -it -v $PWD:/root/computer-architecture/ --privileged nikkokun/computer-architecture:latest /bin/bash
```

This will provide you an Ubuntu 18.04 bash shell. To exit the shell, enter: ctrl+d

5.) Double-check if all the directories exist!

```
ls -a
```

It should print out:

/matmul
/pmatmul
/quantum_sim
/test
getting-started.pdf

Any changes you make while you are in the Ubuntu shell will reflected on disk! Meaning any changes you make on the files will persist, even if you log out of the shell. This also goes for any changes you make on your host environment.

6.) Go to the test directory and see what's inside

```
cd /test
ls -a
```

You should have the following file:

main.cpp

7.) Compile and run!

```
g++ main.cpp -o main -fopenmp
```

8.) Run it:

```
./main
```