**Docker Instruction Outline**

1. Learn more about containerizing application
   1. [https://www.cengn.ca/what-is-containerization-a-quick-tutorial-and-history/](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cengn.ca%2Fwhat-is-containerization-a-quick-tutorial-and-history%2F&data=04%7C01%7Camakanju%40nyit.edu%7Cd45688892e744956423f08d95ec626f5%7C1a561373a3a14beda7c281410491a214%7C0%7C0%7C637645027429920924%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=22rpspa%2F2%2FyrmJff2FYja%2FkxrQEAOLXF8dGymUz1UVc%3D&reserved=0)
   2. [https://www.bmc.com/blogs/what-is-a-container-containerization-explained/](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.bmc.com%2Fblogs%2Fwhat-is-a-container-containerization-explained%2F&data=04%7C01%7Camakanju%40nyit.edu%7Cd45688892e744956423f08d95ec626f5%7C1a561373a3a14beda7c281410491a214%7C0%7C0%7C637645027429930877%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=I5OKhBVMl%2BppC2J3STTdQi%2FbQCUuMLJwQBfGJUPYYoc%3D&reserved=0)
2. Learn more about containers and the docker tool
   1. <https://docker-curriculum.com/>
3. Learn more about how to create docker files
   1. **Python**: [https://www.wintellect.com/containerize-python-app-5-minutes/](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.wintellect.com%2Fcontainerize-python-app-5-minutes%2F&data=04%7C01%7Camakanju%40nyit.edu%7Cd45688892e744956423f08d95ec626f5%7C1a561373a3a14beda7c281410491a214%7C0%7C0%7C637645027429891046%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=1YwbHIoRGaqv%2FauB6d%2BcOyvxxiP68D3LgSZ786PitVc%3D&reserved=0)
   2. **Java**: [https://www.javatpoint.com/docker-java-example](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.javatpoint.com%2Fdocker-java-example&data=04%7C01%7Camakanju%40nyit.edu%7Cd45688892e744956423f08d95ec626f5%7C1a561373a3a14beda7c281410491a214%7C0%7C0%7C637645027429901016%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=KSqYZOmQbMpBMH%2B7%2BqMi4N04Q4%2BN8bRFYuBdJ%2F853SI%3D&reserved=0)
   3. **C++** : <https://devblogs.microsoft.com/cppblog/c-development-with-docker-containers-in-visual-studio-code/>

**How to install Docker:**

**Windows:** to install docker for windows you can get the docker engine installer from the link below. Run the installer to install the docker engine on your windows machine. Then you can test your docker file in CMD and run your application.

<https://docs.docker.com/desktop/windows/install/>

**Linux (ubuntu):** to install docker engine on your Linux machine you can use the commands below:

sudo apt-get update

sudo apt-get install docker-ce docker-ce-cli containerd.io

Also, you can see the link below for further description about the docker engine on an Ubuntu machine

<https://docs.docker.com/engine/install/ubuntu/>

**Mac**: to install docker engine on mac you can use the link below:

<https://docs.docker.com/desktop/mac/install/>

**How to submit your project**

1. First write your code in your preferred language
2. When you have your executable file ready you can use the template below to create your docker file based on your coding language
   1. If you are using python, use the template below for your docker file. Please do not change the words in the template written in Red

FROM python:3

ADD Your\_file\_Name.py /

CMD [ "python", "./{your \_file\_name.py}" ]

* 1. If you are using C++, use the template below for your docker file. Please do not change the words in the template written in Red

# Get the GCC preinstalled image from Docker Hub

FROM gcc:4.9

# Copy the current folder which contains C++ source code to the Docker image under /usr/src

COPY . /usr/src/dockertest1

# Specify the working directory

WORKDIR /usr/src/dockertest1

# Use GCC to compile the Test.cpp source file

RUN g++ -o Your\_file\_Name Your\_file\_Name.cpp

# Run the program output from the previous step

CMD ["./Your\_file\_Name"]

* 1. If you are using Java, use the template below for your docker file. Please do not change the words in the template written in Red

FROM java:8

COPY . /var/www/java

WORKDIR /var/www/java

RUN javac Your\_file\_Name.java

CMD ["java", "Your\_file\_Name"]

To test your docker file and run your application in Linux (x64 bit) you can use

docker build -t java-app .

docker run java-app

**Note**: if you are using Linux to run the docker for test use ***sudo*** before each of the commands above.

**Note**: When you start your virtual machine, you can start your Docker service with the command below:

sudo service docker start

**Files to Submit:**

To submit your assignment, you need to prepare two files, your executable file and the docker file, which you have created based on above instructions. Please test your docker file and run the code before submitting.

The files you need to submit:

1: Your executable file (Your\_file.py , your\_file.java ,...)

2: Docker file