Environment Setting

we provide a Dockerfile, and you must run it by following the instructions below.

0. Install Docker (if not already installed)

If Docker is not installed on your local machine, you must

install it first: Install Docker Desktop

Verify the installation with:

```
docker --version
```

1. Build the docker image

The Dockerfile defines the base environment for computing and running your program.

Dockerfile:

```
FROM ubuntu@sha256:9cbed754112939e914291337b5e554b07ad7c392491dba6daf25eef1332a22e8

WORKDIR /workspace

RUN apt-get update && apt-get install -y \
    build-essential \
    gcc \
    make \
    telnet

CMD ["/bin/bash"]
```

Build a Docker image proxy-env using the provided Dockerfile.

```
# Move to the directory where the Dockerfile is located
cd <path_to_Dockerfile>

#For Mac
Docker buildx build -platform=linux/amd64 -t proxy-env .

#For Windows
Docker build -t proxy-env .
```

2. Create the proxy container

```
# For Mac
docker run --platform=linux/amd64 -it \
-p 5678:5678
--name proxy \
-v "$(pwd)":/workspace \
proxy-env

# For Windows
docker run -it \
-p 5678:5678
--name proxy \
-v %cd%:/workspace \
proxy-env
```

We don't need to create additional client containers in this assignment. Client will be run on the proxy container.

3. Run your program

Finally, build and execute your program.
Your code must be implemented so that it can be built and run with these commands:

```
#in proxy container
make
./proxy 5678


#client test
#in container
doker exec -it <proxy_container> /bin/bash
telnet localhost 5678


#outside the container, you can either use telnet as shown above or use:
curl --proxy http://localhost:5678 --http1.0 http://www.google.com/
```