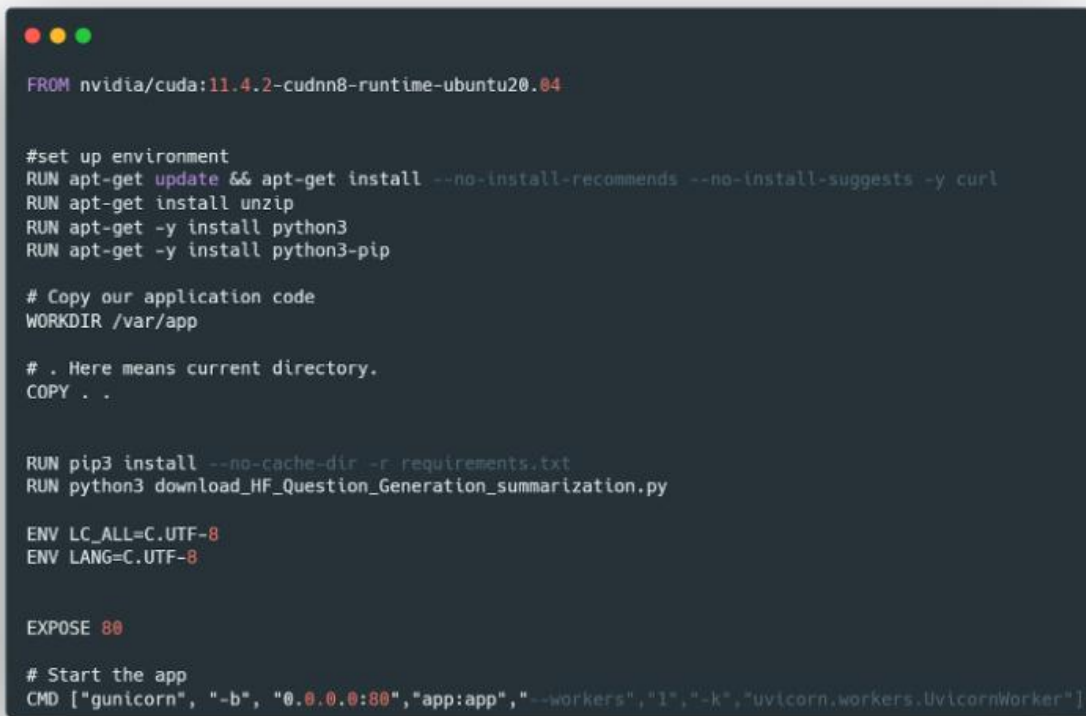# Assignment14

Ques 1 : Explain the below DockerFile

```
FROM nvidia/cuda:11.4.2-cudnn8-runtime-ubuntu20.04

#set up environment
RUN apt-get update && apt-get install --no-install-recommends --no-install-suggests -y curl
RUN apt-get install unzip
RUN apt-get -y install python3
RUN apt-get -y install python3-pip

# Copy our application code
WORKDIR /var/app

# . Here means current directory.
COPY . .

RUN pip3 install --no-cache-dir -r requirements.txt
RUN python3 download_HF_Question_Generation_summarization.py

ENV LC_ALL=C.UTF-8
ENV LANG=C.UTF-8

EXPOSE 80

# Start the app
CMD ["gunicorn", "-b", "0.0.0.0:80","app:app","--workers","1","-k","uvicorn.workers.UvicornWorker"]
```

This Dockerfile installs and sets up a Python application that utilizes NVIDIA CUDA and cuDNN to perform deep learning tasks such as question generation and summarization.

Here are the steps it takes:

1. The base image used is nvidia/cuda:11.4.2-cudnn8-runtime-ubuntu20.04, which includes the necessary CUDA and cuDNN libraries.

2. **The apt-get update command updates the package list, and the apt-get install command installs the curl utility.**
3. **The apt-get install unzip command installs the unzip utility.**
4. **The apt-get -y install python3 command installs Python 3.**
5. **The apt-get -y install python3-pip command installs pip, the Python package manager.**
6. **The COPY . . command copies the application code into the /var/app directory.**
7. **The pip3 install command installs the Python packages listed in the requirements.txt file.**
8. **The python3 download_HF_Question_Generation_summarization.py command downloads pre-trained models for question generation and summarization.**
9. **The ENV LC_ALL=C.UTF-8 and ENV LANG=C.UTF-8 commands set the locale to UTF-8.**
10. **The EXPOSE 80 command exposes port 80.**
11. **The CMD ["gunicorn","-b","0.0.0.0:80","app:app","--workers","1","-k","uvicorn.workers.UvicornWorker"] command starts the app using the Gunicorn web server, with one worker and the Uvicorn worker class. The app is bound to port 80, which was exposed in step 10.**