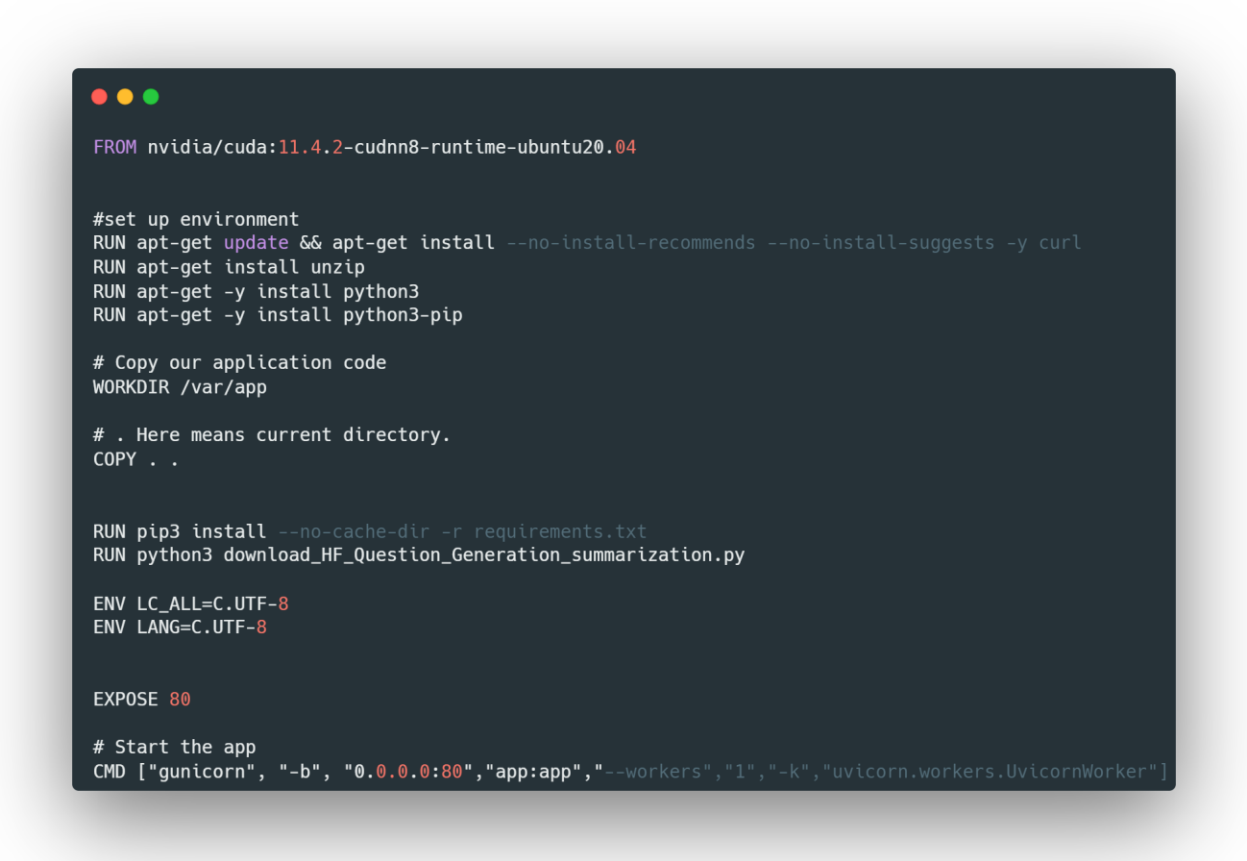
Ques 1 : Explain the below DockerFile



```
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"]
```

SOLUTION:

- FROM:
  - This command will act as base images on which we will be creating our custom image
  - It is using **nvidia/cuda:11.4.2-cudan8-runtime-ubuntu20.04** image on which we will executing several commands
- RUN:
  - This command is use to execute the Commands.
  - **apt-get update** command will fetch the latest version of the package from the repository but will not actually download or install any of those updates that's why **apt-get install** is use it will install those packages.
  - **apt-get install unzip** will install the unzip package which is required to extracts files from archives of the zip format
  - **apt-get install -y python3** this command is used to install the python package.
  - **apt-get install -y python3-pip** It is a specialized package manager that only deals with python packages
- WORKDIR:
  - This command is use to set the working directory for the current command which will be executing to create an image.
  - Here we are setting /var/app as the working directory.

- COPY:
  - This command is use to copy the files or folder from the local host to the image.
  - Here it is copying the files or folder from the local host to the image on /var/app location.
- RUN:
  - **RUN pip3 install --no-cache-dir -r - requirements.txt** command is use so that once a package is installed, it does not need to be re-installed and the Docker cache can be leveraged instead. Since the pip cache makes the images larger and is not needed, it's better to disable it. And requirements.txt is used to define the specific package versions for the required packages of python. So it can be cached on rebuild if the requirements.txt file hasn't changed
  - **RUN python3** is use to execute the py script
- ENV:
  - It is use to set the environment variable in the image
  - Here it is setting the Environment value that can be use from building the docker image to running the docker container
- EXPOSE:
  - It is use to expose a container port so it can be mapped to localhost port then it can be accessible from localhost
  - Exposing the port 80
- CMD:
  - CMD is use to keep the docker container alive. If process is alive then docker container is alive
  - Here in CMD we are passing the parameter which is required to run the python application