ASSIGNMENT – 14
EXPLAIN THE GIVEN 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"]
```

- ◆ **FROM nvidia/cuda:11.4.2-runtime-ubuntu20.04**

This is the base image which includes the **cuda** runtime environment. this image is build to run on **nvidia GPUs** and includes the necessary drivers and libraries for **cuda** accelerated application

- ◆ **RUN apt-get update && apt-get install**

apt-get update is run to update the package list and **apt-get install** is run to install any required packages or dependencies.
The **update** command is necessary to ensure that the package list is uptodate before installing any new packages. The **install** command installs any specified packages and thier dependencies

- ◆ **RUN apt-get install unzip**

It executes the command **apt-get install unzip** and run to install the **unzip** package. Its a utility for extracting files from **zip** archives.its

required for software installation, and extrating large files that have been compressed.

- ◆ **RUN apt-get -y install python3**

    It execute the command inside the container during the build process and it run to install python3.

- ◆ **RUN apt-get -y install python3-pip**

    It run to install the package installer for python.

- ◆ **WORKDIR /var/app**

    It sets the working directory to **/var/app** its a directory where the application code and other files are located.

- ◆ **COPY . .**

    COPY command copies file and directories from local machine to the container when we execute docker build.
    Here **. .** Is used to copy all files and directories in the current directory on the local machine to the current working directory in the container.

- ◆ **RUN pip3 install**

    It executes commands inside the container during the build process. **Pip3 install** is run to install any necessary python dependencies or packages required by the application

- ◆ **RUN python3 downloade_HF_Question_Generation_Summarization.py**

    After installing the required python packages using **pip3** and it downloades a python script **downloade_HF_Question_Generation_Summarization.py** by using the python3 command.

- **ENV LC_ALL=C.UFT-8**
  ENV LANG=.UTF-8
  EXPOSE 80

  The **ENV** command sets the local to **UFT-8** which is the recommended setting for most use cases. The **EXPOSE** command exposes port 80 which will be access the application

- **CMD ["gunicorn", "-b", "0.0.0:80", "app:app"]**

  The **CMD** command specifies that the application should be started using **gunicorn** with the **app** module, and listening on port **80**
  This above Dockerfile sets ups a container with the necesary dependencies to run a python based application for **question generation and summarization.**