Name: **Yomna Eisa**
Batch code: **LISUM23: 30**
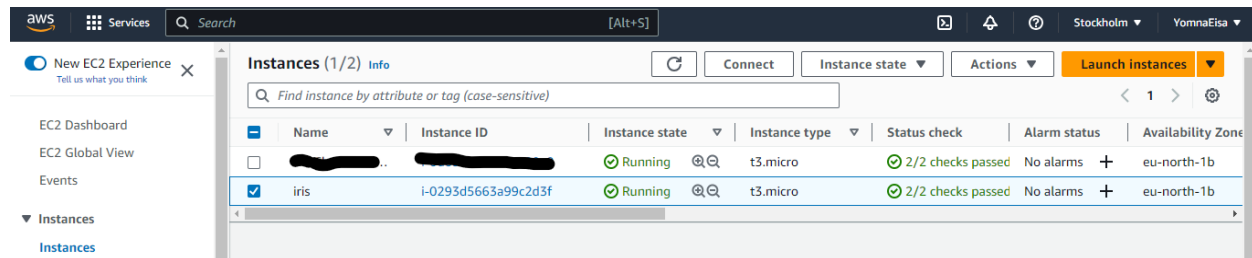Submission date: **04/08/2023**
Submitted to: **Data Glacier LISUM23: 30 week 5 assignment on Canvas**
GitHub Link for the code:
https://github.com/YomnaEisa/Data-Glacier-Projects-YomnaEisa/tree/main/week5

Creating an instance in AWS EC2

Connecting to the instance via CMD using SSH

Transferring the files from local machine to the cloud

Downloading all the requirements for the flask app to run

Python 3:


```
ubuntu@ip-172-31-35-140: ~/week4
ubuntu@ip-172-31-35-140:~$ sudo apt-get -y install python3-pip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fonts-dejavu-core g++ g++-11 gcc gcc-11
  gcc-11-base gcc-12-base javascript-common libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasan6 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libdeflate0 libdpkg-perl
  libexpat1-dev libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev libgcc-s1 libgd3 libgomp1 libisl23
  libitm1 libjbig0 libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev
  libpython3-dev libpython3.10 libpython3.10-dev libpython3.10-minimal libpython3.10-stdlib libquadmath0
  libstdc++-11-dev libstdc++6 libtiff5 libtirpc-dev libtsan0 libubsan1 libwebp7 libxpm4 linux-libc-dev
  lto-disabled-list make manpages-dev python3-dev python3-wheel python3.10 python3.10-dev python3.10-minimal
  rpcsvc-proto zlib1g-dev
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib autoconf
  automake libtool flex bison gdb gcc-doc gcc-11-multilib apache2 | lighttpd | httpd glibc-doc bzr libgd-tools
  libstdc++-11-doc make-doc python3.10-venv python3.10-doc binfmt-support
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fonts-dejavu-core g++ g++-11 gcc gcc-11
  gcc-11-base javascript-common libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6
  libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libdeflate0 libdpkg-perl libexpat1-dev
  libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev libgd3 libgomp1 libisl23 libitm1 libjbig0
  libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev libpython3-dev
  libpython3.10-dev libquadmath0 libstdc++-11-dev libtiff5 libtirpc-dev libtsan0 libubsan1 libwebp7 libxpm4
  linux-libc-dev lto-disabled-list make manpages-dev python3-dev python3-pip python3-wheel python3.10-dev rpcsvc-proto
  zlib1g-dev
The following packages will be upgraded:
  gcc-12-base libgcc-s1 libpython3.10 libpython3.10-minimal libpython3.10-stdlib libstdc++6 python3.10
  python3.10-minimal
```

Flask:


```
ubuntu@ip-172-31-35-140: ~/week4
ubuntu@ip-172-31-35-140:~$ pip3 install flask
Defaulting to user installation because normal site-packages is not writeable
Collecting flask
  Downloading Flask-2.3.2-py3-none-any.whl (96 kB)
                                          96.9/96.9 KB 3.5 MB/s eta 0:00:00
Collecting itsdangerous>=2.1.2
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting blinker>=1.6.2
  Downloading blinker-1.6.2-py3-none-any.whl (13 kB)
Collecting Jinja2>=3.1.2
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
                                          133.1/133.1 KB 9.2 MB/s eta 0:00:00
Collecting Werkzeug>=2.3.3
  Downloading Werkzeug-2.3.6-py3-none-any.whl (242 kB)
                                          242.5/242.5 KB 14.6 MB/s eta 0:00:00
Collecting click>=8.1.3
  Downloading click-8.1.6-py3-none-any.whl (97 kB)
                                          97.9/97.9 KB 21.6 MB/s eta 0:00:00
Requirement already satisfied: MarkupSafe>=2.0 in /usr/lib/python3/dist-packages (from Jinja2>=3.1.2->flask) (2.0.1)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.3-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (25 kB)
Installing collected packages: MarkupSafe, itsdangerous, click, blinker, Werkzeug, Jinja2, flask
  WARNING: The script flask is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.3 Werkzeug-2.3.6 blinker-1.6.2 click-8.1.6 flask-2.3.2 itsdangerous-2
.1.2
ubuntu@ip-172-31-35-140:~$ pip3 install scikit-learn
Defaulting to user installation because normal site-packages is not writeable
Collecting scikit-learn
  Downloading scikit_learn-1.3.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (10.8 MB)
```

scikit-learn:

```
ubuntu@ip-172-31-35-140: ~/week4
ubuntu@ip-172-31-35-140:~$ pip3 install scikit-learn
Defaulting to user installation because normal site-packages is not writeable
Collecting scikit-learn
  Downloading scikit_learn-1.3.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (10.8 MB)
                                                    10.8/10.8 MB 48.0 MB/s eta 0:00:00
Requirement already satisfied: numpy>=1.17.3 in ./.local/lib/python3.10/site-packages (from scikit-learn) (1.25.2)
Requirement already satisfied: scipy>=1.5.0 in ./.local/lib/python3.10/site-packages (from scikit-learn) (1.11.1)
Collecting joblib>1.1.1
  Downloading joblib-1.3.1-py3-none-any.whl (301 kB)
                                                    302.0/302.0 KB 28.8 MB/s eta 0:00:00
Collecting threadpoolctl>=2.0.0
  Downloading threadpoolctl-3.2.0-py3-none-any.whl (15 kB)
Installing collected packages: threadpoolctl, joblib, scikit-learn
Successfully installed joblib-1.3.1 scikit-learn-1.3.0 threadpoolctl-3.2.0
ubuntu@ip-172-31-35-140:~$ pip3 install gunicorn
Defaulting to user installation because normal site-packages is not writeable
Collecting gunicorn
  Downloading gunicorn-21.2.0-py3-none-any.whl (80 kB)
                                                    80.2/80.2 KB 2.7 MB/s eta 0:00:00
Requirement already satisfied: packaging in ./.local/lib/python3.10/site-packages (from gunicorn) (23.1)
Installing collected packages: gunicorn
  WARNING: The script gunicorn is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed gunicorn-21.2.0
ubuntu@ip-172-31-35-140:~$ pip3 install itsdangerous
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: itsdangerous in ./.local/lib/python3.10/site-packages (2.1.2)
ubuntu@ip-172-31-35-140:~$ pip3 install Jinja2
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: Jinja2 in ./.local/lib/python3.10/site-packages (3.1.2)
```

Gunicorn, itsdangerous, jinja2, MarkupSafe, Werkzeug, numpy, scipy and matplotlib:

```
ubuntu@ip-172-31-35-140: ~/week4
ubuntu@ip-172-31-35-140:~$ pip3 install gunicorn
Defaulting to user installation because normal site-packages is not writeable
Collecting gunicorn
  Downloading gunicorn-21.2.0-py3-none-any.whl (80 kB)
                                                    80.2/80.2 KB 2.7 MB/s eta 0:00:00
Requirement already satisfied: packaging in ./.local/lib/python3.10/site-packages (from gunicorn) (23.1)
Installing collected packages: gunicorn
  WARNING: The script gunicorn is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed gunicorn-21.2.0
ubuntu@ip-172-31-35-140:~$ pip3 install itsdangerous
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: itsdangerous in ./.local/lib/python3.10/site-packages (2.1.2)
ubuntu@ip-172-31-35-140:~$ pip3 install Jinja2
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: Jinja2 in ./.local/lib/python3.10/site-packages (3.1.2)
Requirement already satisfied: MarkupSafe>=2.0 in ./.local/lib/python3.10/site-packages (from Jinja2) (2.1.3)
ubuntu@ip-172-31-35-140:~/week4$
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: MarkupSafe in ./.local/lib/python3.10/site-packages (2.1.3)
ubuntu@ip-172-31-35-140:~$ pip3 install Werkzeug
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: Werkzeug in ./.local/lib/python3.10/site-packages (2.3.6)
Requirement already satisfied: MarkupSafe>=2.1.1 in ./.local/lib/python3.10/site-packages (from Werkzeug) (2.1.3)
ubuntu@ip-172-31-35-140:~$ pip3 install numpy
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: numpy in ./.local/lib/python3.10/site-packages (1.25.2)
ubuntu@ip-172-31-35-140:~$ pip3 install scipy
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: scipy in ./.local/lib/python3.10/site-packages (1.11.1)
Requirement already satisfied: numpy<1.28.0,>=1.21.6 in ./.local/lib/python3.10/site-packages (from scipy) (1.25.2)
ubuntu@ip-172-31-35-140:~$ pip3 install matplotlib
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: matplotlib in ./.local/lib/python3.10/site-packages (3.7.2)
Requirement already satisfied: packaging>=20.0 in ./.local/lib/python3.10/site-packages (from matplotlib) (23.1)
Requirement already satisfied: pillow>=6.2.0 in ./.local/lib/python3.10/site-packages (from matplotlib) (10.0.0)
Requirement already satisfied: numpy>=1.20 in ./.local/lib/python3.10/site-packages (from matplotlib) (1.25.2)
Requirement already satisfied: contourpy>=1.0.1 in ./.local/lib/python3.10/site-packages (from matplotlib) (1.1.0)
Requirement already satisfied: fonttools>=4.22.0 in ./.local/lib/python3.10/site-packages (from matplotlib) (4.42.0)
Requirement already satisfied: python-dateutil>=2.7 in ./.local/lib/python3.10/site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: kiwisolver>=1.0.1 in ./.local/lib/python3.10/site-packages (from matplotlib) (1.4.4)
Requirement already satisfied: cycler>=0.10 in ./.local/lib/python3.10/site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: pyparsing<3.1,>=2.3.1 in /usr/lib/python3/dist-packages (from matplotlib) (2.4.7)
```

Pandas:

```
ubuntu@ip-172-31-35-140:~$ pip3 install pandas
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pandas in ./.local/lib/python3.10/site-packages (2.0.3)
Requirement already satisfied: python-dateutil>=2.8.2 in ./.local/lib/python3.10/site-packages (from pandas) (2.8.2)
Requirement already satisfied: tzdata>=2022.1 in ./.local/lib/python3.10/site-packages (from pandas) (2023.3)
Requirement already satisfied: numpy>=1.21.0 in ./.local/lib/python3.10/site-packages (from pandas) (1.25.2)
Requirement already satisfied: pytz>=2020.1 in /usr/lib/python3/dist-packages (from pandas) (2022.1)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)
```

Running the code

```
ubuntu@ip-172-31-35-140: ~/week4
ubuntu@ip-172-31-35-140:~/week4$ python3 app.py
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 549-166-252
```

Output

ML API - Iris Flower Classifing

ec2-16-171-176-108.eu-north-1.compute.amazonaws.com:5000

Iris Flower Classifing using ML

Enter Sepal Length

Enter Sepal Width

Enter Petal Length

Enter Petal Width

Predict