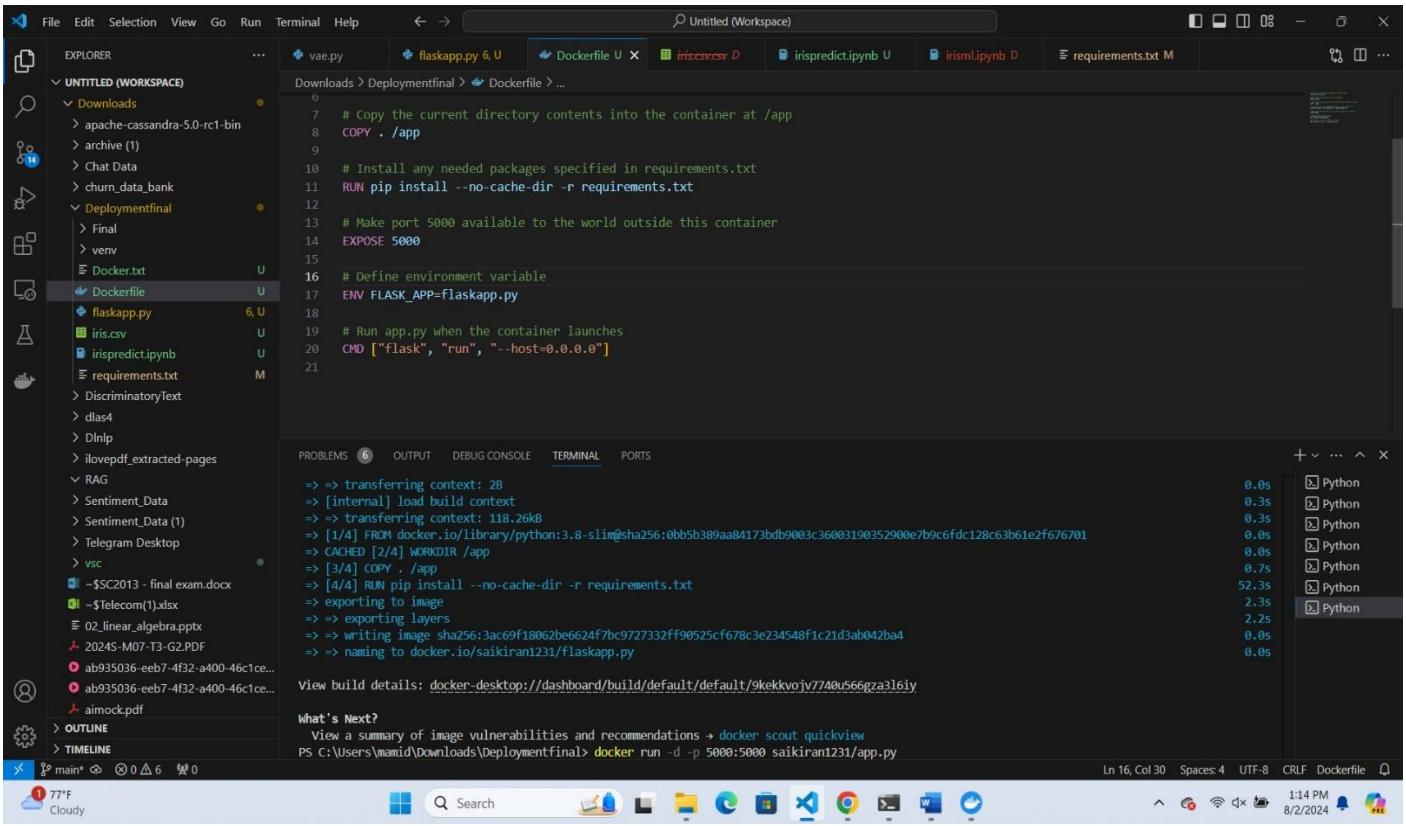
Github url: https://github.com/MSK-hash/Final.git

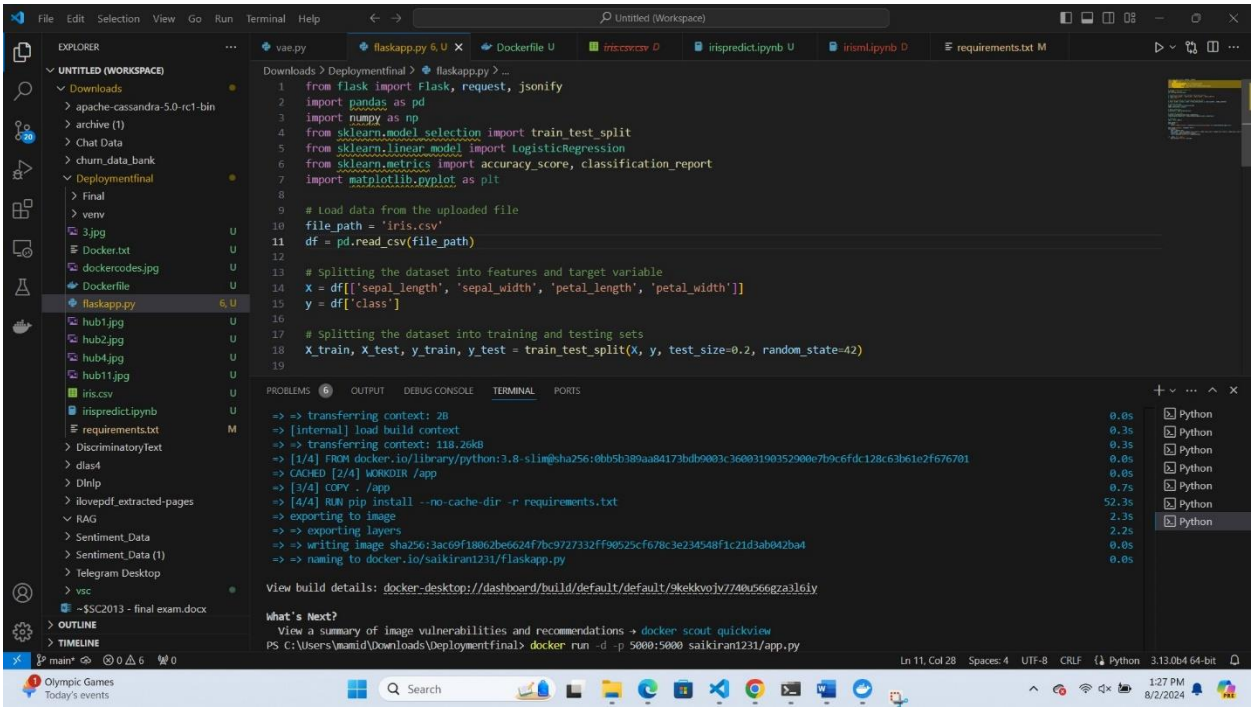
Saikiran_Mamidala-500209412

Provide the Docker commands used along with screenshots:

docker build -t saikiran1231/app.py .

docker run -d -p 5000:5000 saikiran1231/app.py





This Python script is a Flask web application that loads a machine learning model to classify iris flowers based on their features. The application provides two main functionalities:

1. Displaying the model's accuracy and classification report.
2. Predicting the class of an iris flower based on user-provided features.

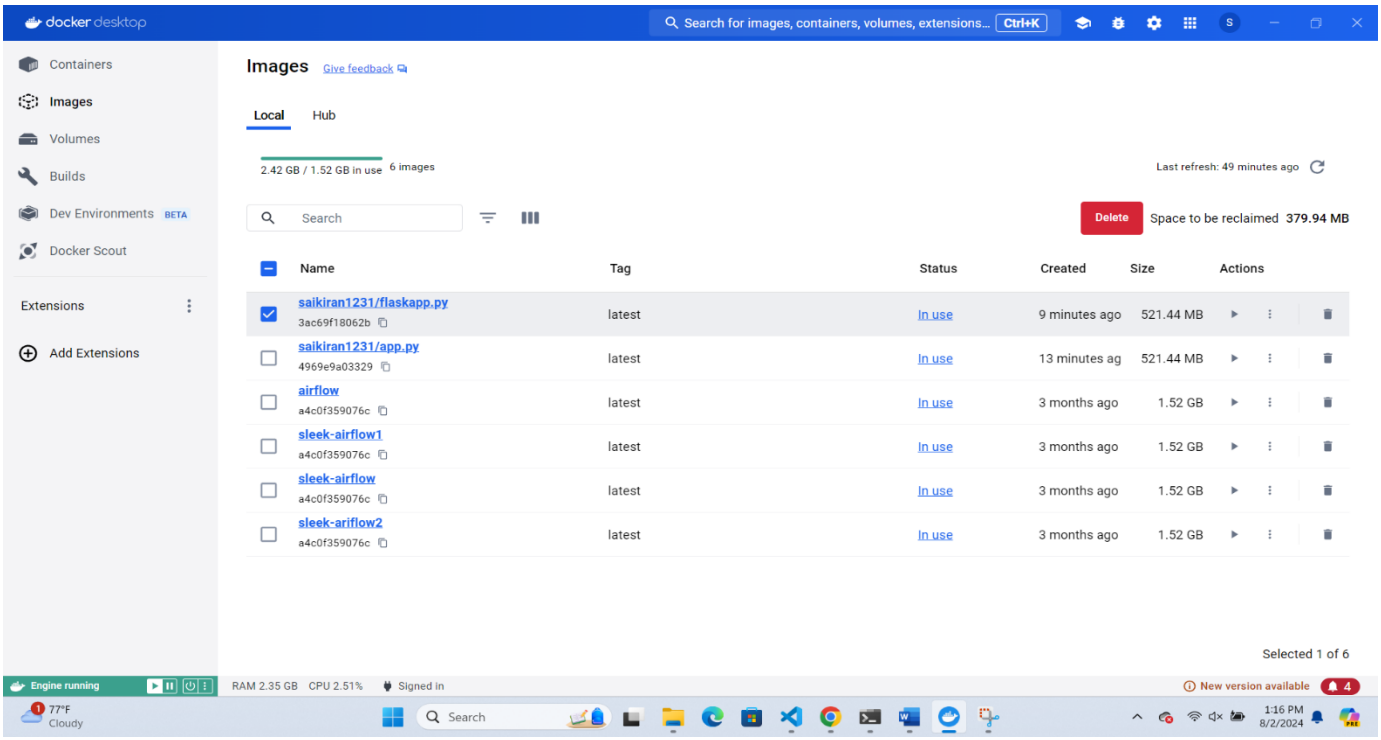
Detailed Explanation

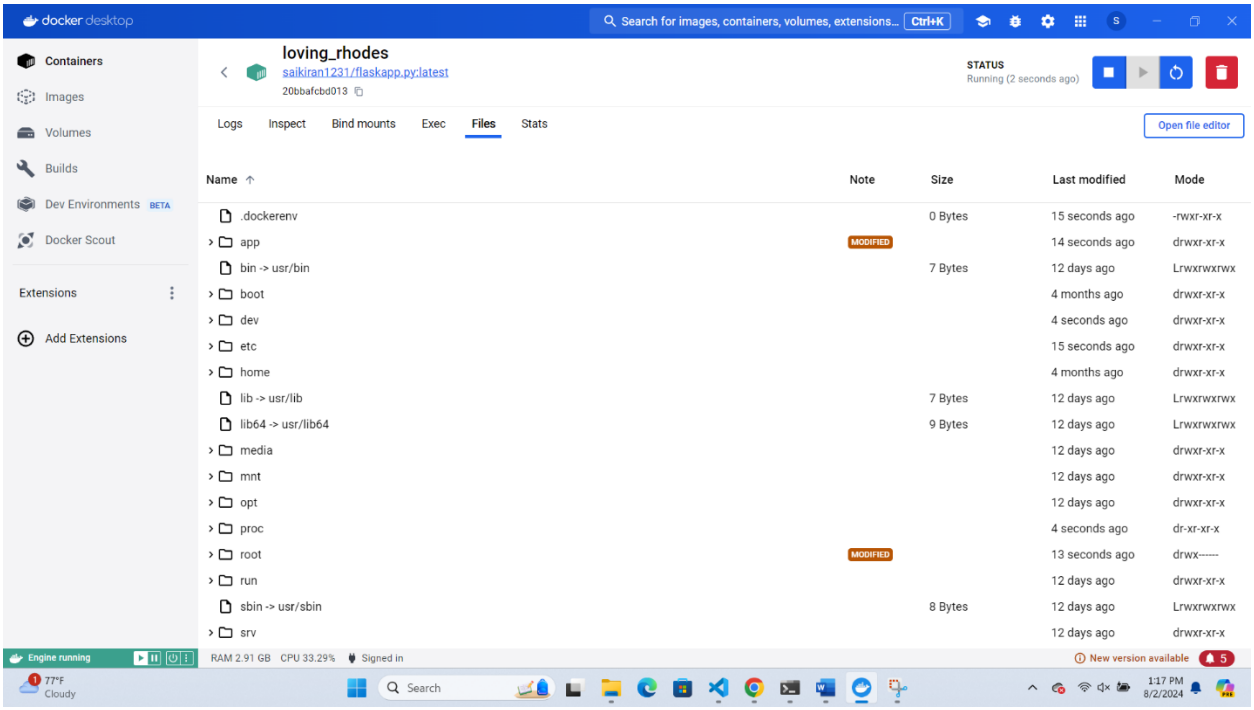
1. **Import Libraries**:
    - The script imports necessary libraries for data manipulation (pandas), numerical operations (numpy), machine learning (sklearn), visualization (matplotlib), and web development (flask).
2. **Load Dataset**:
    - The Iris dataset is loaded from a file named iris.csv using pandas.
3. **Data Preparation**:
    - The dataset is split into features (X) and the target variable (y).
    - The features include sepal_length, sepal_width, petal_length, and petal_width.
    - The target variable is the class of the iris flower.
4. **Split Data**:

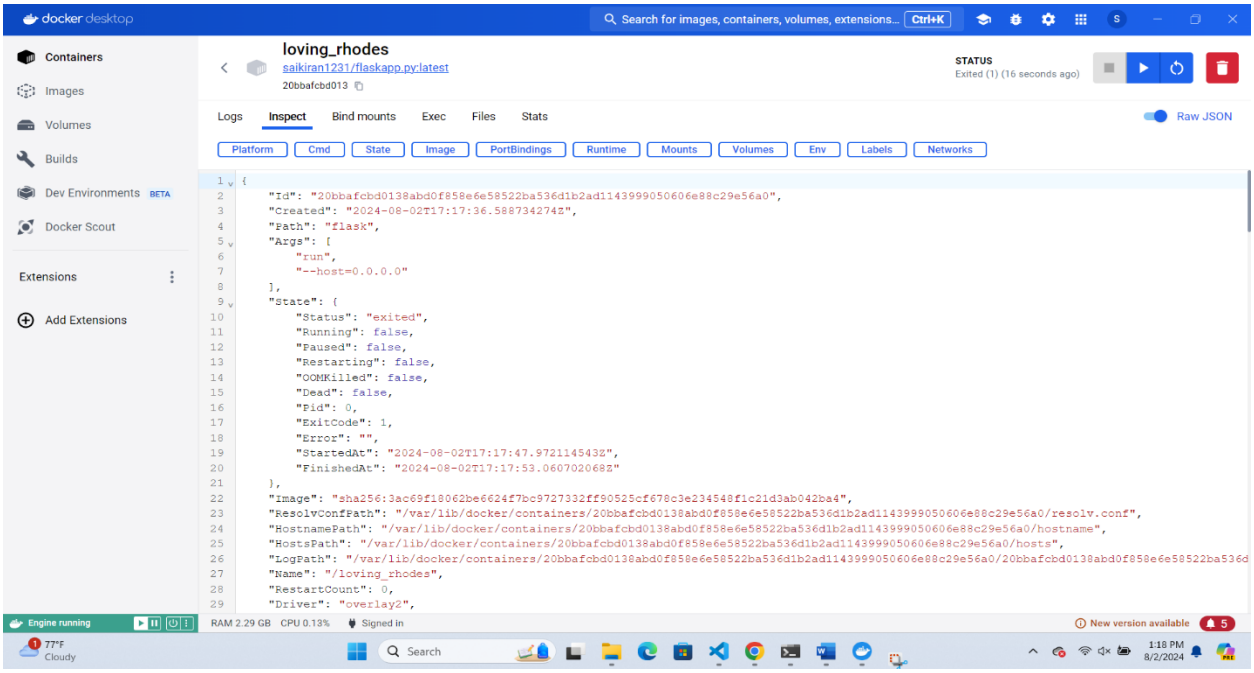
- The dataset is divided into training and testing sets using train_test_split from sklearn. This ensures that the model can be trained and evaluated on separate data.

5. **Train Model**:
    - A Logistic Regression model is instantiated and trained on the training data (X_train, y_train).
6. **Make Predictions**:
    - The trained model is used to make predictions on the test data (X_test).
7. **Evaluate Model**:
    - The accuracy of the model is calculated using accuracy_score.
    - A detailed classification report is generated using classification_report.
8. **Flask Web Application**:
    - The Flask app is initialized and configured to run on host 0.0.0.0 and port 80.
9. **Home Route (/)**:
    - The home route (/) returns the model's accuracy and classification report in HTML format.
10. **Prediction Route (/predict)**:
    - The prediction route (/predict) accepts POST requests with JSON data containing the features of an iris flower.
    - It extracts the features from the JSON data, reshapes them into the required format, and uses the trained model to predict the class of the iris flower.
    - The predicted class is returned as a JSON response.

Screenshots of your application running in the container:






docker desktop
Search for images, containers, volumes, extensions... Ctrl+K
Containers
Images
Volumes
Builds
Dev Environments BETA
Docker Scout
Extensions
Add Extensions
loving_rhodes
saikiran1231/flaskapp.py:latest
20bbafcbd013
STATUS
Exited (1) (16 seconds ago)
Logs
Inspect
Bind mounts
Exec
Files
Stats
Raw JSON
Platform
Cmd
State
Image
PortBindings
Runtime
Mounts
Volumes
Env
Labels
Networks
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"--host=0.0.0.0"
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"State": {
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"Paused": false,
"Restarting": false,
"OOMKilled": false,
"Dead": false,
"Pid": 0,
"ExitCode": 1,
"Error": "",
"StartedAt": "2024-08-02T17:17:47.972114543Z",
"FinishedAt": "2024-08-02T17:17:53.060702068Z"
},
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"HostsPath": "/var/lib/docker/containers/20bbafcbd0138abd0f858e6e58522ba536d1b2ad1143999050606e88c29e56a0/hosts",
"LogPath": "/var/lib/docker/containers/20bbafcbd0138abd0f858e6e58522ba536d1b2ad1143999050606e88c29e56a0/20bbafcbd0138abd0f858e6e58522ba536d
"Name": "/loving_rhodes",
"RestartCount": 0,
"Driver": "overlay2",
Engine running
RAM 2.29 GB CPU 0.13%
Signed in
New version available
5
77°F
Cloudy
Search
1:18 PM
8/2/2024

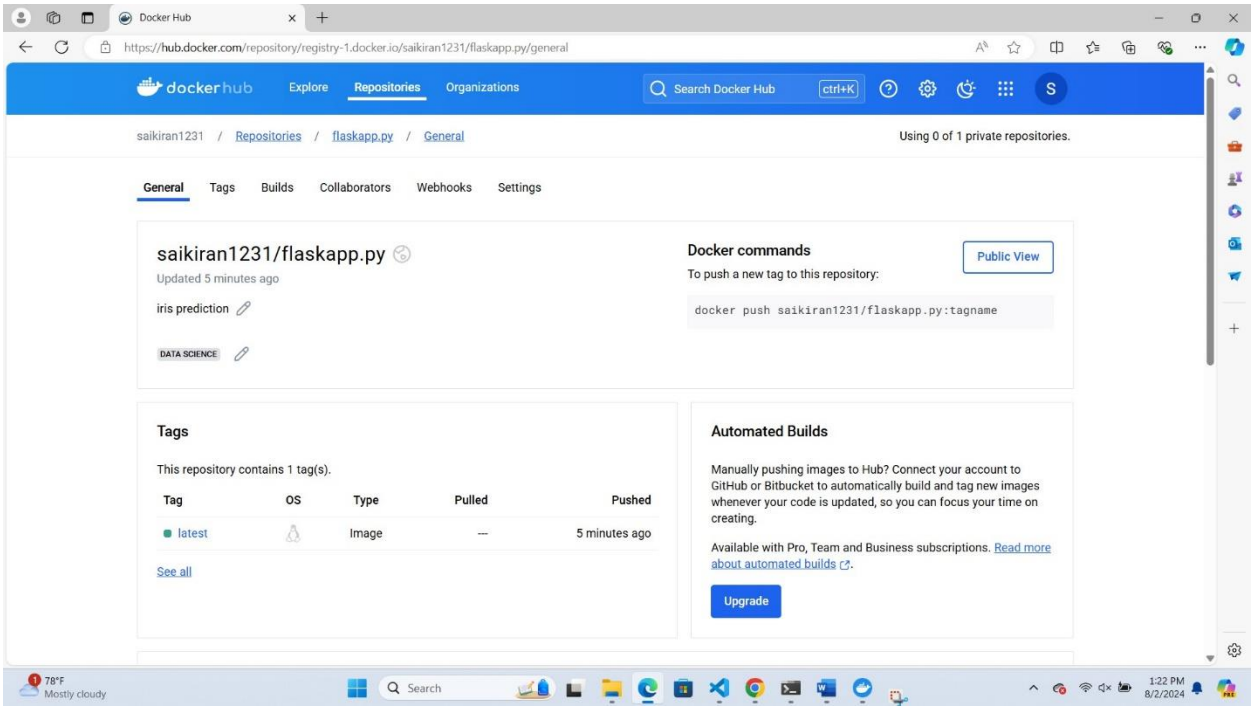
Docker in Hub:

Pull the Docker Image from Docker Hub

First, ensure that you have Docker installed on your machine. Then, pull your Docker image from Docker Hub

Run the Docker Container

Run a container from the pulled Docker image



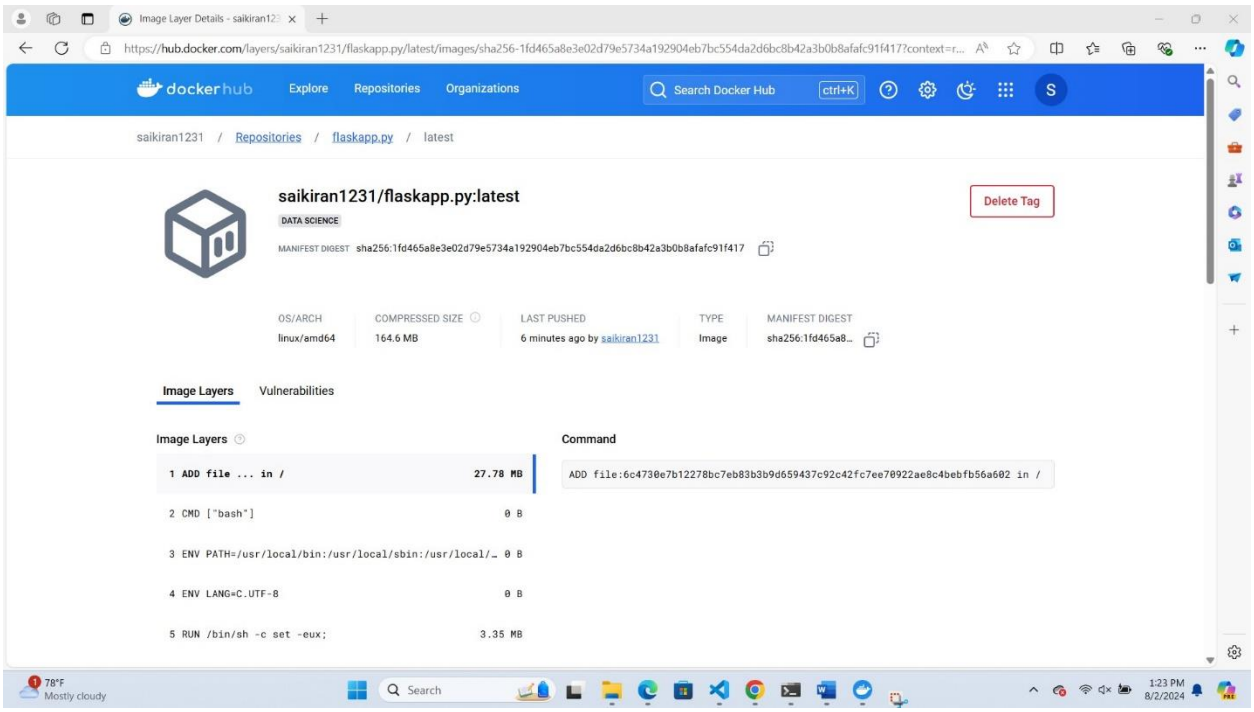
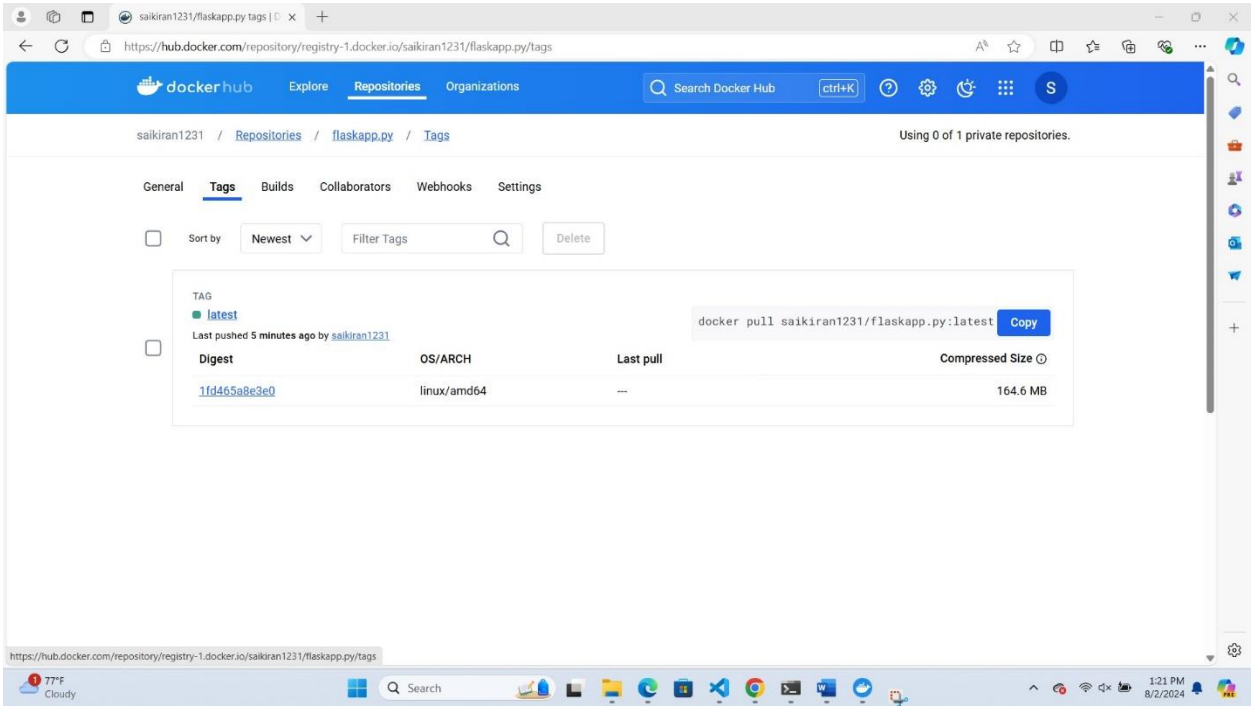


Image Layer Details - saikiran123
https://hub.docker.com/layers/saikiran1231/flaskapp.py/latest/images/sha256-1fd465a8e3e02d79e5734a192904eb7bc554da2d6bc8b42a3b0b8afafc91f417?context=r...
docker hub
Explore
Repositories
Organizations
Search Docker Hub
ctrl+K
S
saikiran1231 / Repositories / flaskapp.py / latest
saikiran1231/flaskapp.py:latest
DATA SCIENCE
Delete Tag
MANIFEST DIGEST sha256:1fd465a8e3e02d79e5734a192904eb7bc554da2d6bc8b42a3b0b8afafc91f417
OS/ARCH
linux/amd64
COMPRESSED SIZE
164.6 MB
LAST PUSHED
6 minutes ago by saikiran1231
TYPE
Image
MANIFEST DIGEST
sha256:1fd465a8...
Image Layers
Vulnerabilities
Image Layers
1 ADD file ... in / 27.78 MB
2 CMD ["bash"] 0 B
3 ENV PATH=/usr/local/bin:/usr/local/sbin:/usr/local/… 0 B
4 ENV LANG=C.UTF-8 0 B
5 RUN /bin/sh -c set -eux; 3.35 MB
Command
ADD file:6c4730e7b12278bc7eb83b3b9d659437c92c42fc7ee70922ae8c4bebfb56a602 in /
78°F
Mostly cloudy
Search
1:23 PM
8/2/2024


saikiran1231/flaskapp.py tags
https://hub.docker.com/repository/registry-1.docker.io/saikiran1231/flaskapp.py/tags
docker hub
Explore
Repositories
Organizations
Search Docker Hub
ctrl+K
saikiran1231 / Repositories / flaskapp.py / Tags
Using 0 of 1 private repositories.
General
Tags
Builds
Collaborators
Webhooks
Settings
Sort by
Newest
Filter Tags
Delete
TAG
latest
Last pushed 5 minutes ago by saikiran1231
docker pull saikiran1231/flaskapp.py:latest
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Digest
OS/ARCH
Last pull
Compressed Size
1fd465a8e3e0
linux/amd64

164.6 MB
77°F
Cloudy
Search
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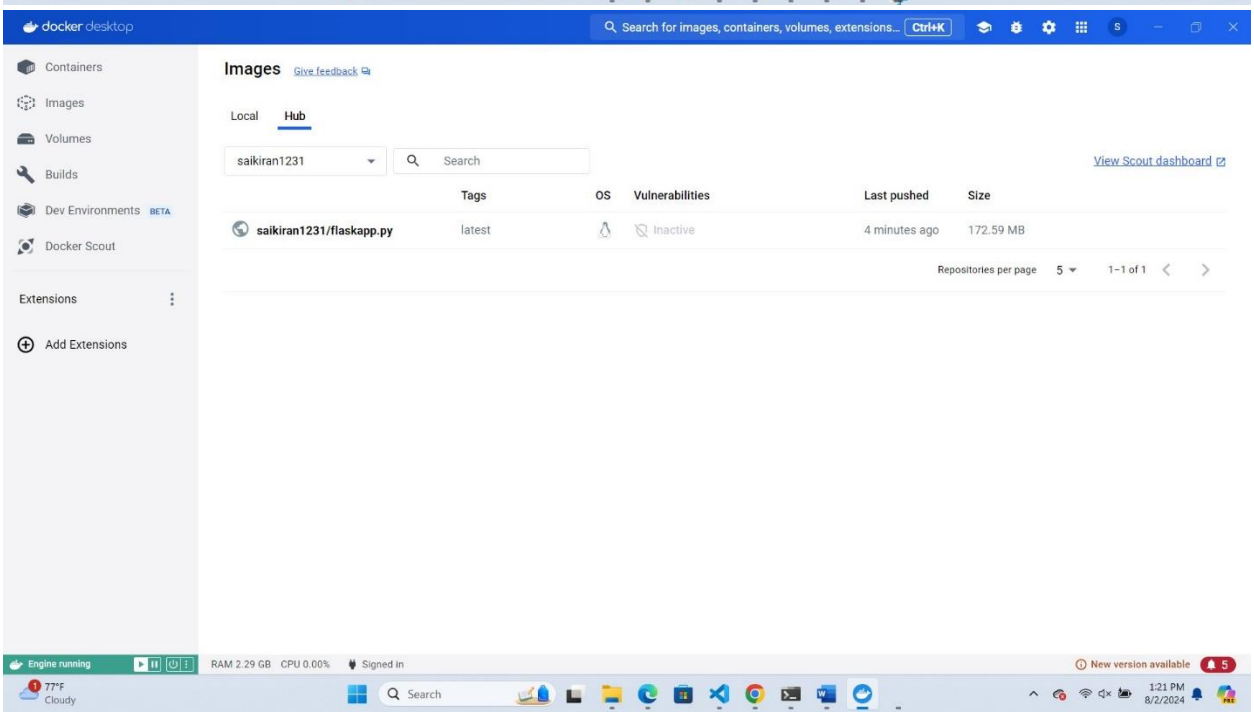
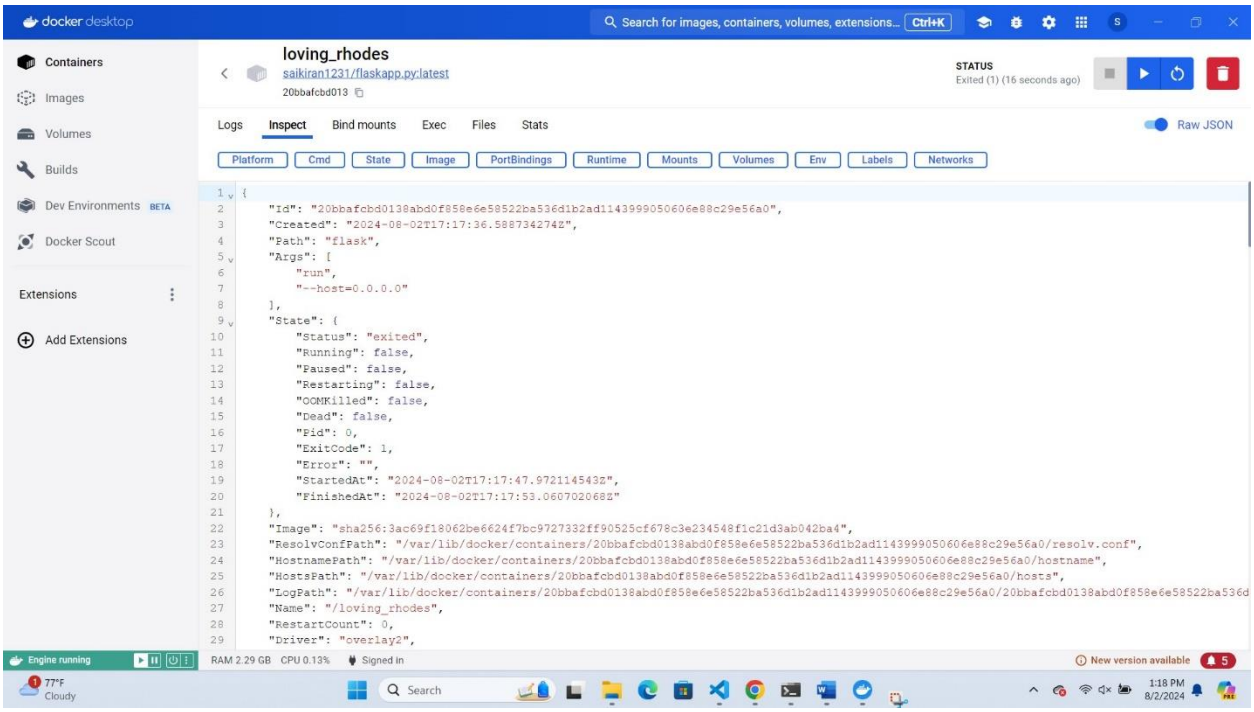
8/2/2024


docker desktop
Search for images, containers, volumes, extensions...
Ctrl+K
Containers
Images
Volumes
Builds
Dev Environments
BETA
Docker Scout
Extensions
Add Extensions
Images
Give feedback
Local
Hub
saikiran1231
Search
View Scout dashboard
Tags
OS
Vulnerabilities
Last pushed
Size
saikiran1231/flaskapp.py
latest
Inactive
4 minutes ago
172.59 MB
Repositories per page
5
1–1 of 1
Engine running
RAM 2.29 GB
CPU 0.00%
Signed in
New version available
5
77°F
Cloudy
Search
1:21 PM
8/2/2024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{
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"--host=0.0.0.0"
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"Paused": false,
"Restarting": false,
"OOMKilled": false,
"Dead": false,
"Pid": 0,
"ExitCode": 1,
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"StartedAt": "2024-08-02T17:17:47.972114543Z",
"FinishedAt": "2024-08-02T17:17:53.060702068Z"
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"LogPath": "/var/lib/docker/containers/20bbafcbd0138abd0f858e6e58522ba536d1b2ad1143999050606e88c29e56a0/20bbafcbd0138abd0f858e6e58522ba536d
"Name": "/loving_rhodes",
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1:18 PM
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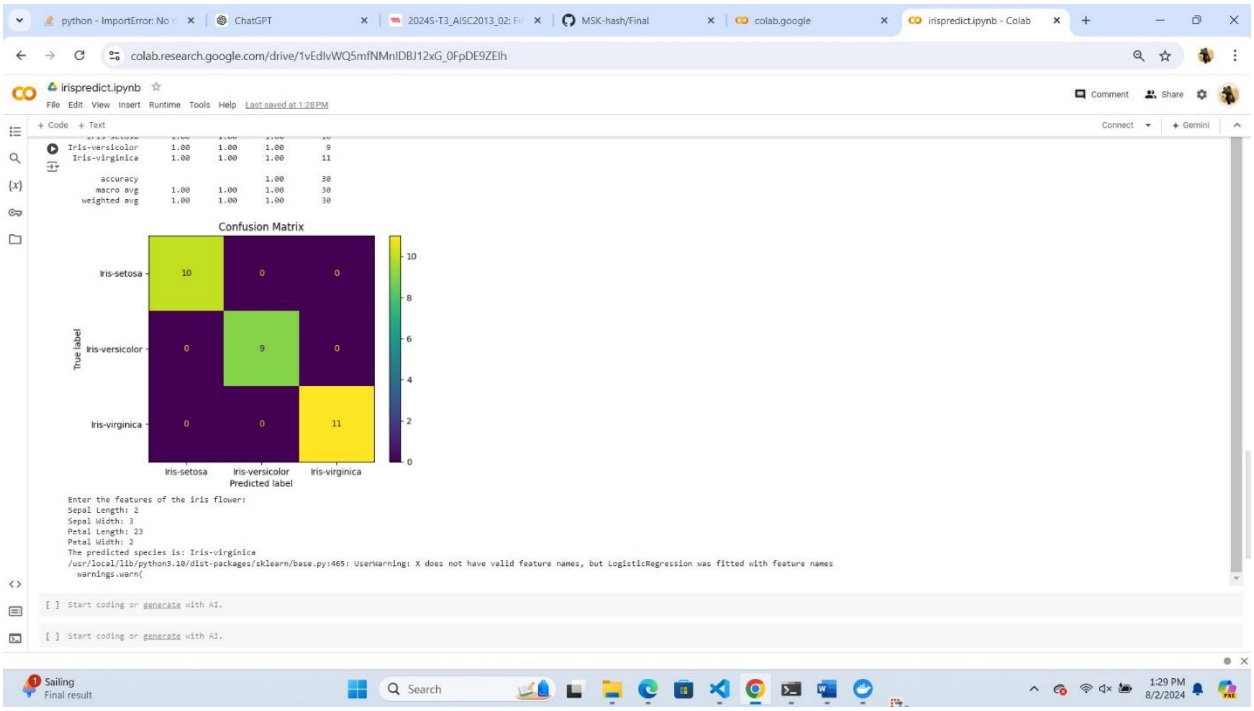
irispredict.ipynb - Colab
colab.research.google.com/drive/1vEdIvWQ5mfNMnIDBJ12xG_0FpDE9ZEIh
irispredict.ipynb
File Edit View Insert Runtime Tools Help Last saved at 1:28 PM
Comment
Share
Connect
Gemini
Iris-versicolor 1.00 1.00 1.00 9
Iris-virginica 1.00 1.00 1.00 11
accuracy 1.00 30
macro avg 1.00 1.00 1.00 30
weighted avg 1.00 1.00 1.00 30
Confusion Matrix
Iris-setosa
Iris-versicolor
Iris-virginica
True label
Predicted label
10
0
0
0
9
0
0
0
11
Enter the features of the iris flower:
Sepal Length: 2
Sepal Width: 3
Petal Length: 23
Petal Width: 2
The predicted species is: Iris-virginica
/usr/local/lib/python3.10/dist-packages/sklearn/base.py:465: UserWarning: X does not have valid feature names, but LogisticRegression was fitted with feature names
warnings.warn(
[ ] Start coding or generate with AI.
[ ] Start coding or generate with AI.
Sailing
Final result
Search
1:29 PM
8/2/2024