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Batch code: LISUM39

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Submitted to: Data Glacier (VI Team)

Snapshot of each step of deployment

1. Loading and Preparing the Dataset

```
import pandas as pd

# Load your toy dataset
dataset = pd.read_csv('toy.csv')

# Display the first few rows of the dataset
print(dataset.head())
```

| | Age | Salary | Experience | Gender | Target |
|---|-----|--------|------------|--------|--------|
| 0 | 56 | 38392 | 30 | 1 | 1 |
| 1 | 46 | 60535 | 35 | 0 | 1 |
| 2 | 32 | 82256 | 7 | 1 | 1 |
| 3 | 25 | 65222 | 16 | 0 | 1 |
| 4 | 38 | 93335 | 26 | 1 | 0 |

2. Splitting Data and

```
# Features and target
X = dataset.drop('Target', axis=1) # Independent variables
y = dataset['Target'] # Dependent variable (output)

print("Features:")
print(X.head())
print("\nTarget:")
print(y.head())
```

| Features: | | | | |
|-----------|-----|--------|------------|--------|
| | Age | Salary | Experience | Gender |
| 0 | 56 | 38392 | 30 | 1 |
| 1 | 46 | 60535 | 35 | 0 |
| 2 | 32 | 82256 | 7 | 1 |
| 3 | 25 | 65222 | 16 | 0 |
| 4 | 38 | 93335 | 26 | 1 |

| Target: | |
|---------|--------|
| | Target |
| 0 | 1 |
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 0 |

Name: Target, dtype: int64

3. Training the Model

```
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
import joblib

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

# Train the Random Forest model
model = RandomForestClassifier(random_state=42)
model.fit(X_train, y_train)
```

4. Saving the Trained Model

```
# Save the trained model
joblib.dump(model, 'toy_model.pkl')
print("Model saved as 'toy_model.pkl'")
```

➤ Model saved as 'toy_model.pkl'

5. Creating the Flask App

```
from flask import Flask, request, jsonify
from pyngrok import ngrok
import joblib
import pandas as pd

app = Flask(__name__)

# Load the saved model
model = joblib.load('toy_model.pkl')

@app.route('/')
def home():
    return "Welcome to the Toy Dataset Prediction API!"

@app.route('/predict', methods=['POST'])
def predict():
    # Receive JSON data
    data = request.get_json()
    features = pd.DataFrame(data, index=[0]) # Convert JSON to DataFrame
    prediction = model.predict(features) # Predict
    return jsonify({'prediction': int(prediction[0])})
```

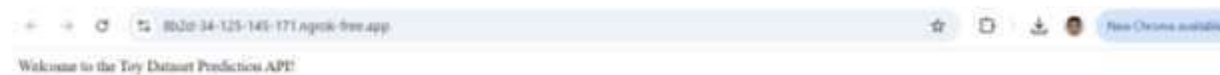
6. Running the Flask App

```
# Expose the app using ngrok
public_url = ngrok.connect(5000)
print(f"Public URL: {public_url}")
app.run(port=5000)
```

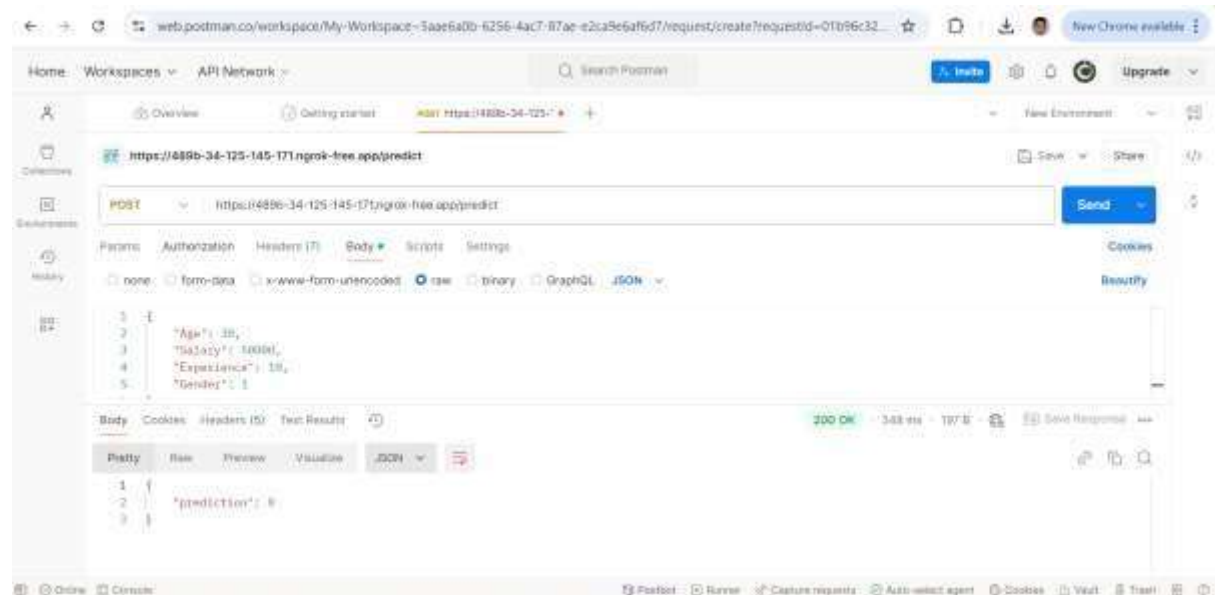
```
Public URL: NgrokTunnel: "https://8b2d-34-125-145-171.ngrok-free.app" -> "http://localhost:5000"
* Serving Flask app '__main__'
* Debug mode: off
```

7. Testing the Flask App

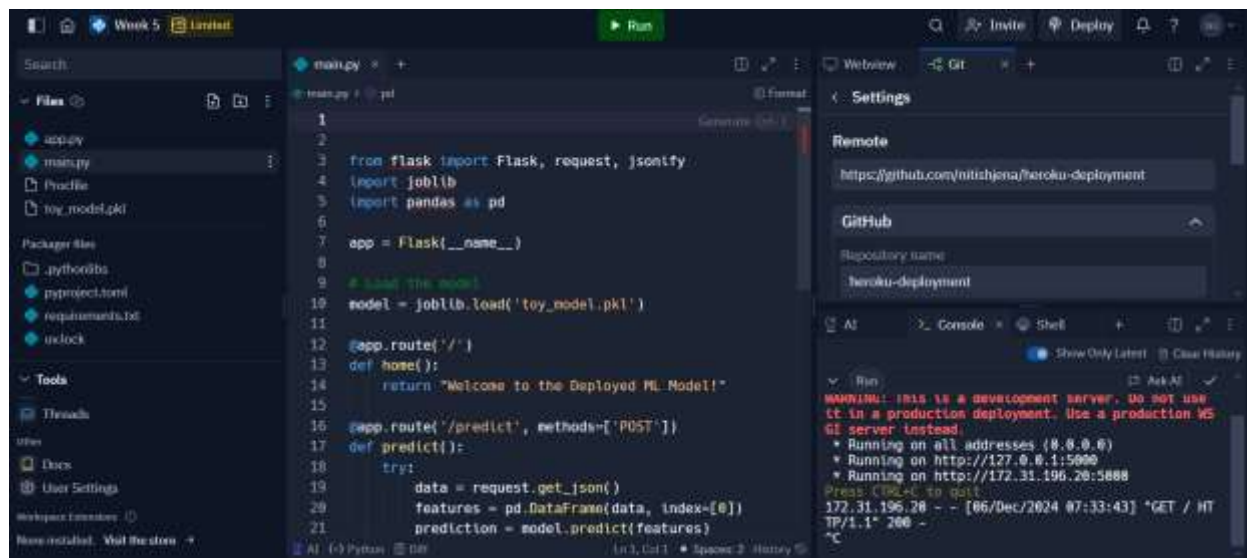
(Testing / Route)



8. Testing /predict Endpoint using POSTMAN



9. Setting Up Heroku.



The screenshot shows a VS Code editor with a Python file named `main.py`. The code is a Flask application that loads a model and provides a prediction endpoint. The right sidebar shows the Heroku deployment settings, including the remote URL and the repository name.

```
1 from flask import Flask, request, jsonify
2
3 import joblib
4 import pandas as pd
5
6 app = Flask(__name__)
7
8 # Load the model
9 model = joblib.load('toy_model.pkl')
10
11
12 app.route('/')
13 def home():
14     return "Welcome to the Deployed ML Model!"
15
16 app.route('/predict', methods=['POST'])
17 def predict():
18     try:
19         data = request.get_json()
20         features = pd.DataFrame(data, index=[0])
21         prediction = model.predict(features)
```

Settings

Remote

https://github.com/nitishjena/heroku-deployment

GitHub

Repository name

heroku-deployment

Run

WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.

- Running on all addresses (0.0.0.0)
- Running on http://127.0.0.1:5000
- Running on http://172.31.196.20:5000

Press CTRL+C to quit

172.31.196.20 - - [06/Dec/2024 07:33:43] "GET / HTTP/1.1" 200 -

heroku login
heroku create your-app-name
git push heroku main



Latest activity

[All Activity](#) 



nitishkumar.jena.2023@student.ism.de: Deployed `d2ef0c0b`

Today at 8:53 AM · v3



nitishkumar.jena.2023@student.ism.de: Build succeeded

Today at 8:52 AM · [View build log](#)






nitishkumar.jena.2023@student.ism.de: Enable Logplex

Today at 8:49 AM · v2



nitishkumar.jena.2023@student.ism.de: Initial release

Today at 8:49 AM · v1

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Personal > my-flask-deployment

GitHub nitishkumar.jena/heroku-deployment

Overview Resources Deploy Metrics Activity Access Settings

Application Logs

ALL PROCESSES

```
2024-12-06T07:51:12.195989+00:00 app[web.1]: [2024-12-06 07:51:12 +0000] [2] [ERROR] Shutting down: Master
2024-12-06T07:51:12.196032+00:00 app[web.1]: [2024-12-06 07:51:12 +0000] [2] [ERROR] Reason: App failed to load,
2024-12-06T07:51:12.196795+00:00 heroku[web.1]: Process exited with status 4
2024-12-06T07:51:12.180018+00:00 heroku[web.1]: State changed from starting to crashed
2024-12-06T07:51:22.099888+00:00 app[mq.1]: Build succeeded
2024-12-06T07:51:36.996288+00:00 heroku[router]: at=error code=008 desc="App crashed" method=GET path="/" host=my-flask-deployment-c34f7ef7d77.herokuapp.com
request_id=205e89b9-578a-4405-8500-7c628d6b8b28 fwd="95.114.188.182" dyno=connect service=status=503 bytes= protocol=https
2024-12-06T07:51:36.937431+00:00 heroku[router]: at=error code=008 desc="App crashed" method=GET path="/favicon.ico" host=my-flask-deployment-c34f7ef7d77.herokuapp.com
request_id=3153f4b8-4b76-4f07-95b6-b4842196ac3c fwd="95.114.188.182" dyno=connect service=status=503 bytes= protocol=https
2024-12-06T07:51:39.610016+00:00 heroku[router]: at=error code=008 desc="App crashed" method=GET path="/" host=my-flask-deployment-c34f7ef7d77.herokuapp.com
request_id=550881ae-3ba6-461b-a310-f6450f6c2f8a fwd="95.114.188.182" dyno=connect service=status=503 bytes= protocol=https
2024-12-06T07:54:10.864975+00:00 heroku[router]: at=error code=008 desc="App crashed" method=GET path="/favicon.ico" host=my-flask-deployment-c34f7ef7d77.herokuapp.com
request_id=43e3269a-3f2a-4e14-9242-4491bde3f4d1 fwd="95.114.188.182" dyno=connect service=status=503 bytes= protocol=https
```

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