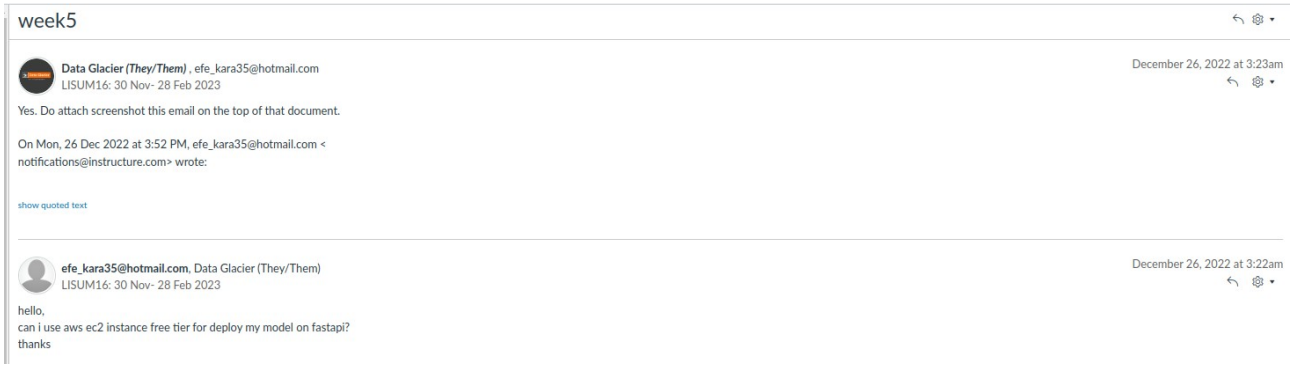

WEEK 5 Cloud and API deployment

1. **Dataset Source:** https://www.kaggle.com/datasets/ashydv/advertising-dataset

2. **Save the model:**

```
 import os
import joblib
import pathlib
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import r2_score

def read_and_train():
    # read data
    df = pd.read_csv("/home/efe/Documents/Advertising.csv")
    print(df.head())

    # Feature matrix
    X = df.iloc[:, 1:-1].values
    print(X.shape)
    print(X[:3])

    # Output variable
    y = df.iloc[:, -1]
    print(y.shape)
    print(y[:6])
```

```
    # split test train
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33,
random_state=42)

    # train model
    estimator = RandomForestRegressor(n_estimators=200)
    estimator.fit(X_train, y_train)

    # Test model
    y_pred = estimator.predict(X_test)
    r2 = r2_score(y_true=y_test, y_pred=y_pred)
    print(f"R2: {r2}")

    # Save Model
    current_dir = pathlib.Path(__name__).parent.resolve()
    print(f"current_dir: {current_dir}")
    dirname = os.path.join(current_dir, 'Documents')
    print(dirname)

    joblib.dump(estimator,
os.path.join(dirname,"randomforest_with_advertising.pkl"))

    # make predictions
    # Read models
    estimator_loaded =
joblib.load(os.path.join(dirname,"randomforest_with_advertising.pkl"))

    # Prediction set
    X_manual_test = [[230.1, 37.8, 69.2]]
    print("X_manual_test", X_manual_test)

    prediction = estimator_loaded.predict(X_manual_test)
    print("prediction", prediction)
```

3.Built top of AWS ec2 t2.micro instance with 8 gb storage
AWS AMI has been used linux distribution as OS. Network vpc is default route table has been configured. Subnet added for connection. Elastic ip has been used fpr access. All shown addresses and private info is terminated.

FastAPI 0.1.0 OAS3

/openapi.json

default

POST /prediction/advertising Predict Iris

Parameters | Cancel | Reset

No parameters

Request body required | application/json

```
{
  "TV": 250.9,
  "Radio": 22.1,
  "Newspaper": 34.2
}
```

Execute | Clear

Responses

Curl

```
curl -X 'POST' \
  'http://176.34.79.85:8000/prediction/advertising' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
  "TV": 250.9,
  "Radio": 22.1,
  "Newspaper": 34.2
}'
```

Request URL

```
http://176.34.79.85:8000/prediction/advertising
```

Server response

Code | Details

200

Response body

```
{
  "result": 17.503499999999963
}
```

Download

default

POST /prediction/advertising Predict Iris

Parameters | Cancel | Reset

No parameters

Request body required | application/json

```
{
  "TV": 120.3,
  "Radio": 43.1,
  "Newspaper": 55.2
}
```

Execute | Clear

Responses

Curl

```
curl -X 'POST' \
  'http://176.34.79.85:8000/prediction/advertising' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
  "TV": 120.3,
  "Radio": 43.1,
  "Newspaper": 55.2
}'
```

Request URL

```
http://176.34.79.85:8000/prediction/advertising
```

Server response

Code | Details

200

Response body

```
{
  "result": 16.495499999999982
}
```

Download

Response headers

```
content-length: 29
content-type: application/json
date: Mon,26 Dec 2022 12:45:29 GMT
server: uvicorn
```

Responses

Code | Description | Links

4.Name:Efe KARA
Batch code: LISUM16
Submission date: 26/12/2022
Submitted to:Data Glacier