Week4: Deployment on Flask

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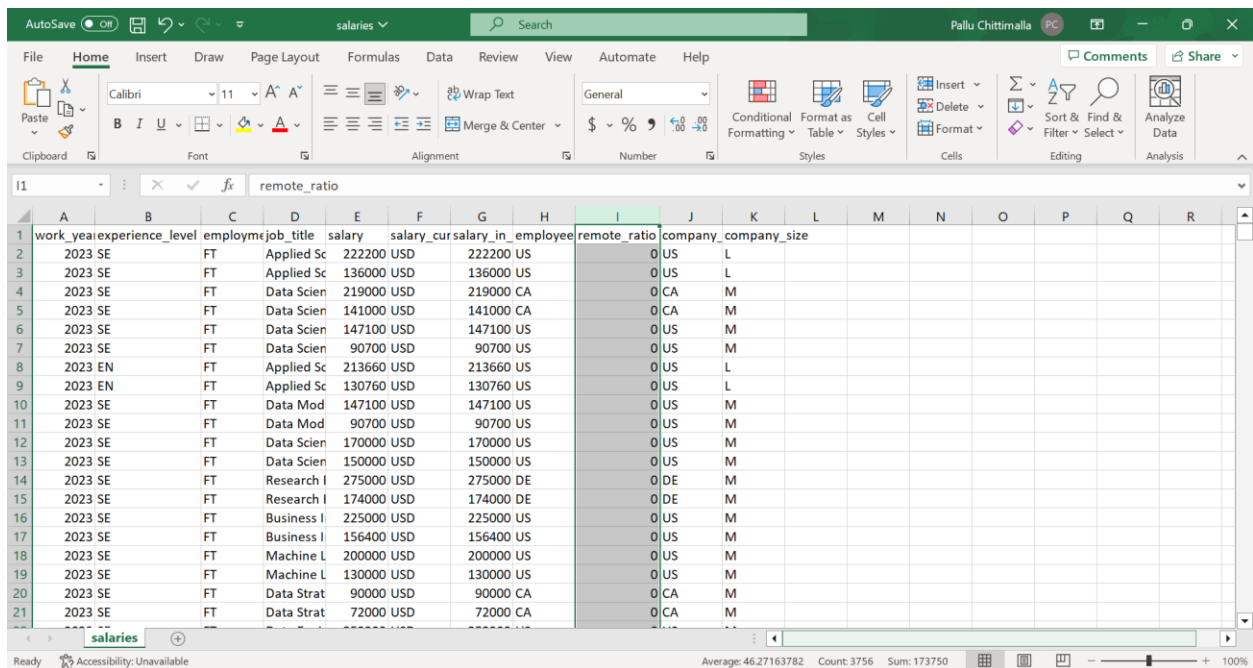
Batch : LISUM22(30 May, 2023 to 30 August, 2023)

Submission date : July 2, 2023

Submitted to :

Steps for deployment

1. Data used for modeling.

2. Done the modeling in python jupyter Notebook(ipynb)
3. Save the model in pickle

jupyter Salary_Regression Last Checkpoint: Last Wednesday at 6:18 PM (unsaved changes)

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Trusted | Python 3 (ipykernel)

```
         Model          MAE              MSE          RMSE   R2 Score
1  Gradient Boosting  44123.797954  3234642936.282585  56873.921408  0.252771
0      Random Forest  44600.846703  3306069085.341588  57498.426808  0.236271
3      Decision Tree  44790.385398  3397714296.68983   58289.915909   0.2151
2                KNN  49674.538445  3921814064.956081  62624.388739  0.094029
```

In [26]:
```python
mymodel = DecisionTreeRegressor()
mymodel.fit(X_train, y_train)
```

Out[26]: DecisionTreeRegressor()

In [27]:
```python
import pickle

# Assuming the model is stored in the 'model' variable
with open('mymodel.pkl', 'wb') as f:
    pickle.dump(mymodel, f)
```

In [ ]:

In [29]:
```python
mymodel.predict([['2021', '3', '55', '350']])
```

```
C:\Users\pallu\anaconda3\lib\site-packages\sklearn\base.py:450: UserWarning: X does not have valid feature names, but DecisionT
reeRegressor was fitted with feature names
  warnings.warn(
```

Out[29]: array([94544.81818182])

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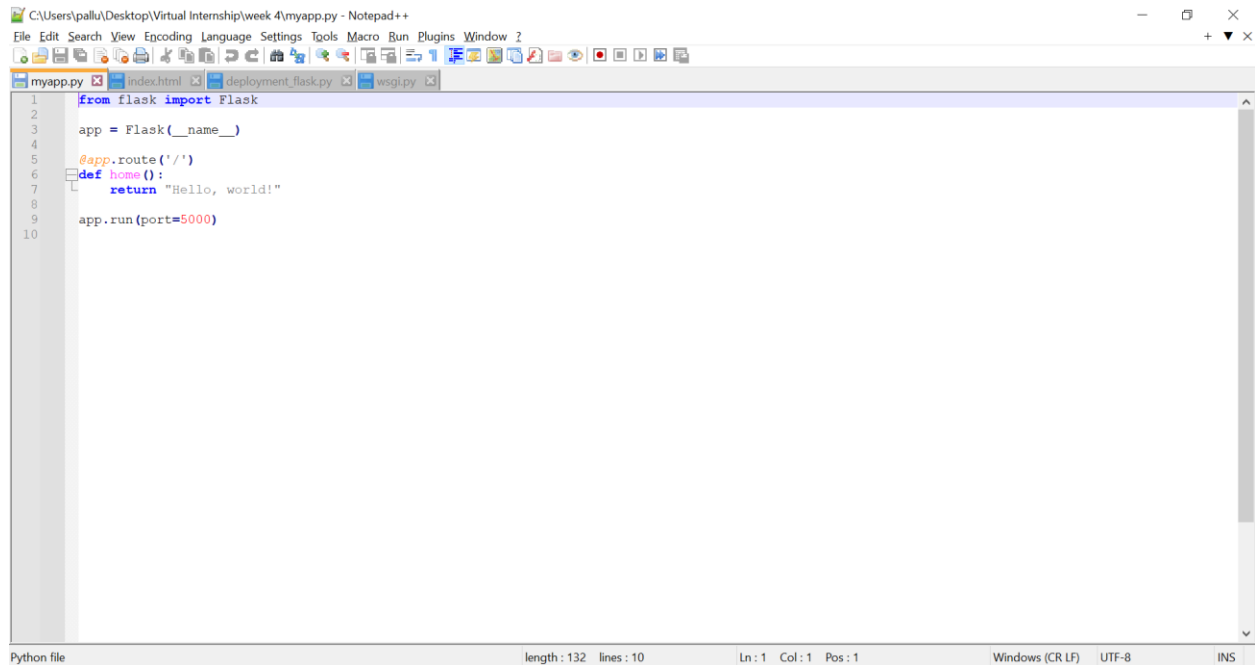
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Data Intake Report_SriPallavi	Data Intake Report_SriPallavi	Exam1	G2M_insight_for_cab_investment_firm	get-pip	mymodel.pkl	pip	'pip'	README.md

39 items | 1 item selected 15.3 KB
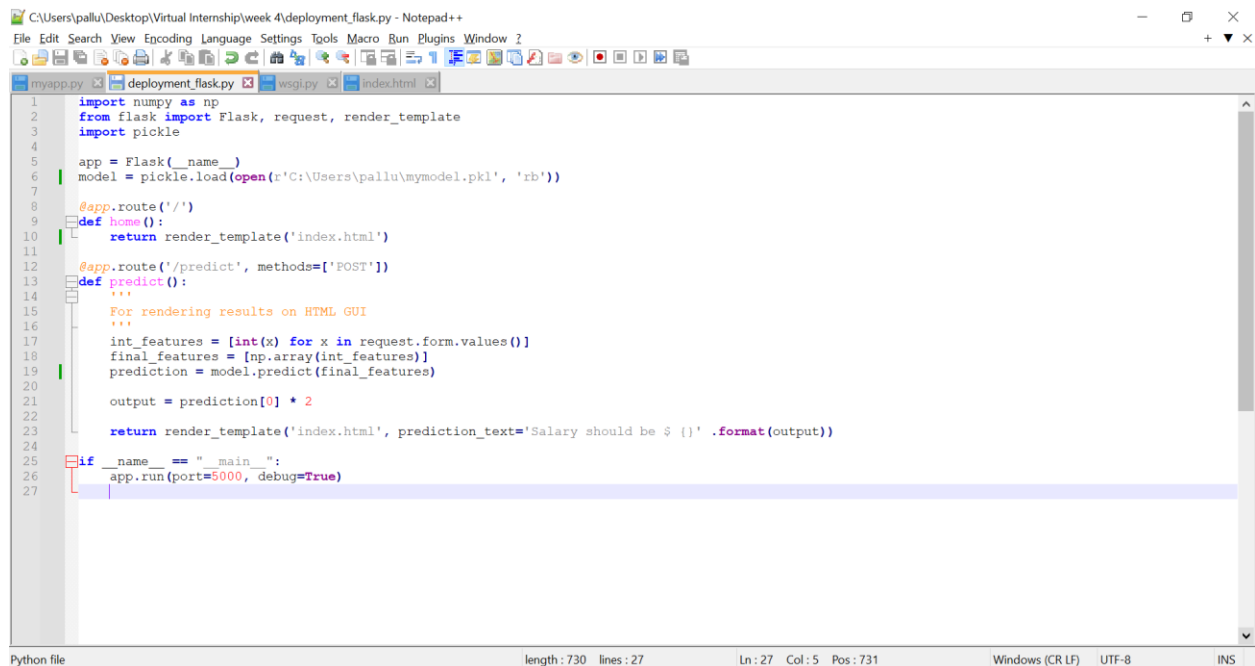
4. App is for example

```python
from flask import Flask

app = Flask(__name__)

@app.route('/')
def home():
    return "Hello, world!"

app.run(port=5000)
```

5. Flask

```python
import numpy as np
from flask import Flask, request, render_template
import pickle

app = Flask(__name__)
model = pickle.load(open(r'C:\Users\pallu\mymodel.pkl', 'rb'))

@app.route('/')
def home():
    return render_template('index.html')

@app.route('/predict', methods=['POST'])
def predict():
    '''
    For rendering results on HTML GUI
    '''
    int_features = [int(x) for x in request.form.values()]
    final_features = [np.array(int_features)]
    prediction = model.predict(final_features)

    output = prediction[0] * 2

    return render_template('index.html', prediction_text='Salary should be $ {}' .format(output))

if __name__ == "__main__":
    app.run(port=5000, debug=True)
```

6. HTML file

```html
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <title>ML API</title>
</head>
<body>
  <div class = "login">
    <h1>Predict Salary</h1>
    <form action="{{ url_for('predict')}}" method="post">

        <input type="text" name="work_year" placeholder="Work Year" required="required" />
        <input type="text" name="experience_level" placeholder="Experience Level" required="required" />
        <input type="text" name="remote_ratio" placeholder="Remote ratio" required="required" />
        <input type="text" name="company_size" placeholder="Company Size" required="required" />

        <button type="submit" class="btn btn-primary btn-block btn-large value="Submit">Predict</button>
    </form>

  <br>
  <br>
  {{ prediction_text }}

  </div>

</body>
</html>
```

7. Run through bash

```
MINGW64:/c/Users/pallu/Desktop/Virtual Internship/week 4

C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn\base.py
:318: UserWarning: Trying to unpickle estimator DecisionTreeRegressor from version 1.0.2
 when using version 1.2.2. This might lead to breaking code or invalid results. Use at y
our own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitati
ons
  warnings.warn(
 * Debugger is active!
 * Debugger PIN: 130-784-231
C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn\base.py
:439: UserWarning: X does not have valid feature names, but DecisionTreeRegressor was fi
tted with feature names
  warnings.warn(
127.0.0.1 - - [29/Jun/2023 17:54:08] "POST /predict HTTP/1.1" 200 -
C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn\base.py
:439: UserWarning: X does not have valid feature names, but DecisionTreeRegressor was fi
tted with feature names
  warnings.warn(
127.0.0.1 - - [29/Jun/2023 17:54:16] "POST /predict HTTP/1.1" 200 -
127.0.0.1 - - [29/Jun/2023 17:54:47] "GET / HTTP/1.1" 200 -
C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn\base.py
:439: UserWarning: X does not have valid feature names, but DecisionTreeRegressor was fi
tted with feature names
  warnings.warn(
127.0.0.1 - - [29/Jun/2023 17:55:01] "POST /predict HTTP/1.1" 200 -
```

```
MINGW64:/c/Users/pallu/Desktop/Virtual Internship/week 4         —    □    ✕
 * Serving Flask app 'deployment_flask'
 * 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
C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn
\base.py:318: UserWarning: Trying to unpickle estimator DecisionTreeRegressor fr
om version 1.0.2 when using version 1.2.2. This might lead to breaking code or i
nvalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-
limitations
  warnings.warn(
 * Debugger is active!
 * Debugger PIN: 130-784-231
127.0.0.1 - - [03/Jul/2023 14:30:46] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [03/Jul/2023 14:30:47] "GET /favicon.ico HTTP/1.1" 404 -
C:\Users\pallu\AppData\Local\Programs\Python\Python311\Lib\site-packages\sklearn
\base.py:439: UserWarning: X does not have valid feature names, but DecisionTree
Regressor was fitted with feature names
  warnings.warn(
127.0.0.1 - - [03/Jul/2023 14:31:04] "POST /predict HTTP/1.1" 200 -
```

8. Web page

Predict Salary

| Work Year | Experience Level | Remote ratio | Company Size | Predict |

{{ prediction_text }}

9. Output with Predicted Salary

Predict Salary

| 2021 | 3 | 65 | 500 | Predict |

Salary should be $ 189089.63636363635