

Deployment on Flask

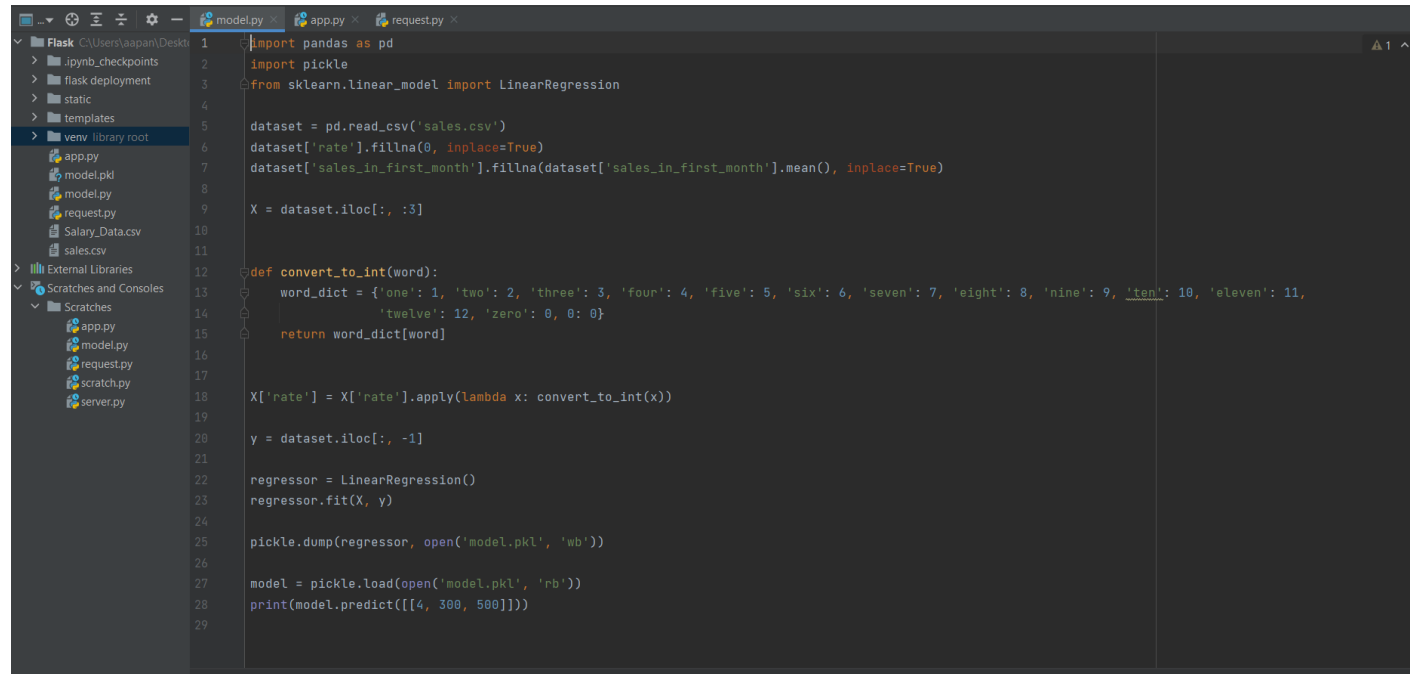
Name: **Anastasiia Apanasiuk**

Batch code: **LISUM11:30**

Submission date: **27/07/2022**

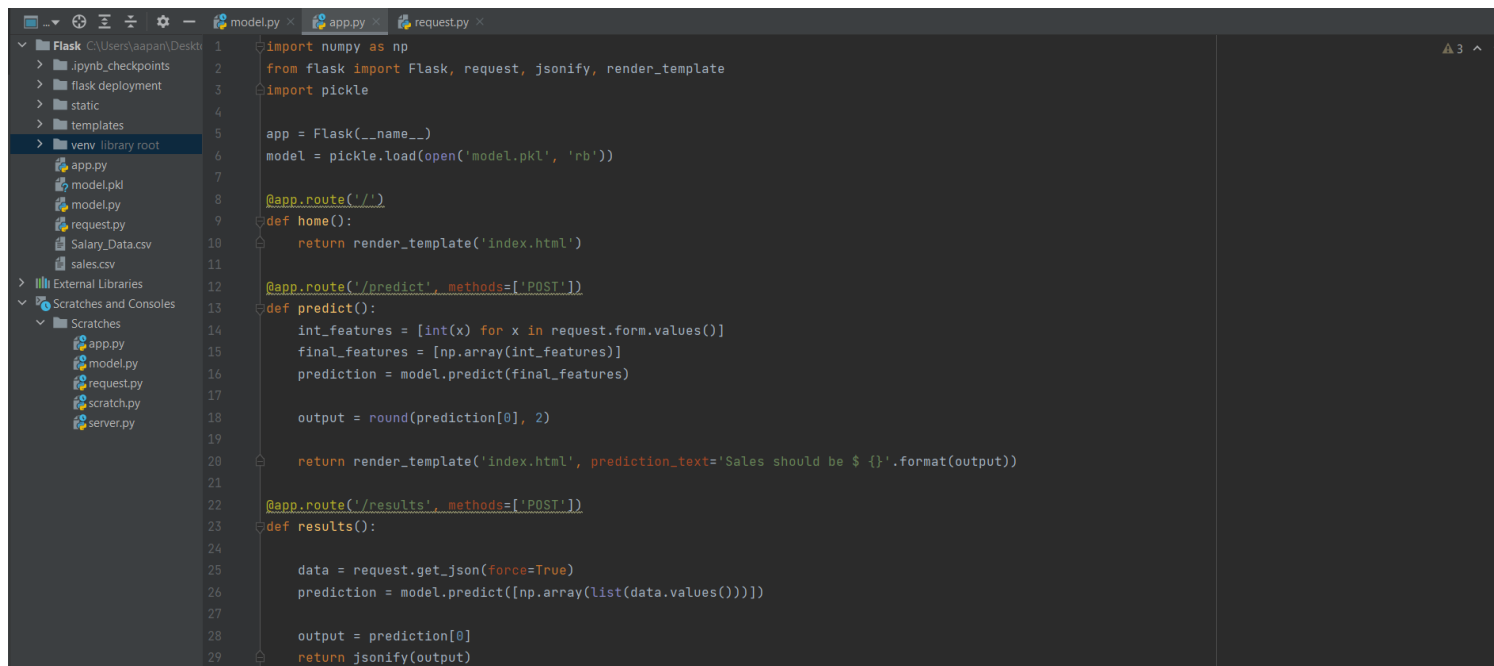
Submitted to: **NA**

1. Developing a model with a simple data in PyCharm. Saving the file as model.py.



```
1 import pandas as pd
2 import pickle
3 from sklearn.linear_model import LinearRegression
4
5 dataset = pd.read_csv('sales.csv')
6 dataset['rate'].fillna(0, inplace=True)
7 dataset['sales_in_first_month'].fillna(dataset['sales_in_first_month'].mean(), inplace=True)
8
9 X = dataset.iloc[:, :3]
10
11
12 def convert_to_int(word):
13     word_dict = {'one': 1, 'two': 2, 'three': 3, 'four': 4, 'five': 5, 'six': 6, 'seven': 7, 'eight': 8, 'nine': 9, 'ten': 10, 'eleven': 11,
14                 'twelve': 12, 'zero': 0, 0: 0}
15     return word_dict[word]
16
17
18 X['rate'] = X['rate'].apply(lambda x: convert_to_int(x))
19
20 y = dataset.iloc[:, -1]
21
22 regressor = LinearRegression()
23 regressor.fit(X, y)
24
25 pickle.dump(regressor, open('model.pkl', 'wb'))
26
27 model = pickle.load(open('model.pkl', 'rb'))
28 print(model.predict([[4, 300, 500]]))
29
```

2. Developing an app which will deploy the model on Flask. Saving the file as app.py



```
1 import numpy as np
2 from flask import Flask, request, jsonify, render_template
3 import pickle
4
5 app = Flask(__name__)
6 model = pickle.load(open('model.pkl', 'rb'))
7
8 @app.route('/')
9 def home():
10     return render_template('index.html')
11
12 @app.route('/predict', methods=['POST'])
13 def predict():
14     int_features = [int(x) for x in request.form.values()]
15     final_features = [np.array(int_features)]
16     prediction = model.predict(final_features)
17
18     output = round(prediction[0], 2)
19
20     return render_template('index.html', prediction_text='Sales should be $ {}'.format(output))
21
22 @app.route('/results', methods=['POST'])
23 def results():
24
25     data = request.get_json(force=True)
26     prediction = model.predict([np.array(list(data.values()))])
27
28     output = prediction[0]
29     return jsonify(output)
```

3. Requesting module to call APIs defined in app.py

The screenshot shows a code editor with a project named 'Flask' located at 'C:\Users\aaan\Desktop'. The project structure includes folders for '.ipynb_checkpoints', 'flask deployment', 'static', 'templates', and a 'venv' library root. Files in the project include 'app.py', 'model.pkl', 'model.py', 'request.py', 'Salary_Data.csv', and 'sales.csv'. The 'request.py' file is currently open and contains the following code:

```
1 import requests
2
3 url = 'http://localhost:5000/results'
4 r = requests.post(url, json={'rate': 5, 'sales_in_first_month': 200, 'sales_in_second_month': 400})
5
6 print(r.json())
7
8
```

The editor also shows a 'Scratches and Consoles' panel with files 'app.py', 'model.py', 'request.py', 'scratch.py', and 'server.py'.

4. Calling model.py to get model.pkl created. The pickle operation is used to serialize machine learning algorithms and save the serialized format to a file. After we call app.py to get HTML link to access the model.

```
Anaconda Prompt (anaconda3) - python app.py

(base) C:\Users\aaan> python model.py
python: can't open file 'C:\Users\aaan\model.py': [Errno 2] No such file or directory

(base) C:\Users\aaan> cd C:\Users\aaan\Desktop\Intershops\Data Glacier\Flask

(base) C:\Users\aaan\Desktop\Intershops\Data Glacier\Flask> python model.py
[143.3072588]

(base) C:\Users\aaan\Desktop\Intershops\Data Glacier\Flask> python app.py
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
* Restarting with watchdog (windowsapi)
* Debugger is active!
* Debugger PIN: 372-783-732
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py', reloading
* Detected change in 'C:\Users\aaan\anaconda3\Lib\site-packages\flask\_compat.py', reloading
* Detected change in 'C:\Users\aaan\anaconda3\Lib\site-packages\flask\templating.py', reloading
* Detected change in 'C:\Users\aaan\anaconda3\Lib\site-packages\jinja2\environment.py', reloading
* Detected change in 'C:\Users\aaan\anaconda3\Lib\site-packages\jinja2\loaders.py', reloading
127.0.0.1 - - [26/Jul/2022 13:09:01] "GET / HTTP/1.1" 500 -
Traceback (most recent call last):
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 2464, in __call__
    return self.wsgi_app(environ, start_response)
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 2450, in wsgi_app
    response = self.handle_exception(e)
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 1867, in handle_exception
    reraise(exc_type, exc_value, tb)
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\_compat.py", line 39, in reraise
    raise value
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 2447, in wsgi_app
    response = self.full_dispatch_request()
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 1952, in full_dispatch_request
    rv = self.handle_user_exception(e)
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 1821, in handle_user_exception
    reraise(exc_type, exc_value, tb)
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\_compat.py", line 39, in reraise
    raise value
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 1950, in full_dispatch_request
    rv = self.dispatch_request()
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\app.py", line 1936, in dispatch_request
    return self.view_functions[rule.endpoint](**req.view_args)
  File "C:\Users\aaan\Desktop\Intershops\Data Glacier\Flask\app.py", line 10, in home
    return render_template('index.html')
  File "C:\Users\aaan\anaconda3\Lib\site-packages\flask\templating.py", line 138, in render_template
    ctx.app.jinja_env.get_or_select_template(template_name_or_list),
```

5. Sales forecasting is accessible on a website.

Sales Forecasting

rate

sales in first month

sales in second month

Predict sales in third month

Sales should be \$ 451.53