

SPRINT 4

Project Deliverables (Flask Code & Deployment)

Team ID	PNT2022TMID21875
Project Name	Efficient Water Quality Analysis & Prediction using Machine Learning

App.py:

```
app.py x Water_quality.ipynb home.html 2 water_potability.csv
app.py > Python > hello
1 from flask import Flask, request, render_template
2 import pickle
3 import pandas as pd
4 import numpy as np
5 import joblib
6 scaler = joblib.load("my_scaler.save")
7
8
9 app = Flask(__name__)
10 model = pickle.load(open('model.pkl', 'rb'))
11
12 @app.route("/home")
13 @app.route("/")
14 def hello():
15     return render_template("home.html")
16
17 @app.route("/predict", methods = ["GET", "POST"])
18 def predict():
19     if request.method == "POST":
20         input_features = [float(x) for x in request.form.values()]
21         features_value = [np.array(input_features)]
22
23         feature_names = ["ph", "Hardness", "Solids", "Chloramines", "Sulfate",
24                         "Conductivity", "Organic_carbon", "Trihalomethanes", "Turbidity"]
25
26         df = pd.DataFrame(features_value, columns = feature_names)
27         df = scaler.transform(df)
28         output = model.predict(df)
29
30         if output[0] == 1:
31             prediction = "safe"
32         else:
33             prediction = "not safe"
```

The flask file (app.py) which we have used as a framework which will present (home.html) file to user and model.pkl file to use the trained model to predict whether *the water is safe for consumption or not*

```
@app.route("/predict", methods = ["GET", "POST"])
def predict():
    if request.method == "POST":
        input_features = [float(x) for x in request.form.values()]
        features_value = np.array(input_features)

        feature_names = ["ph", "Hardness", "Solids", "Chloramines", "Sulfate",
                          "Conductivity", "Organic_carbon", "Trihalomethanes", "Turbidity"]

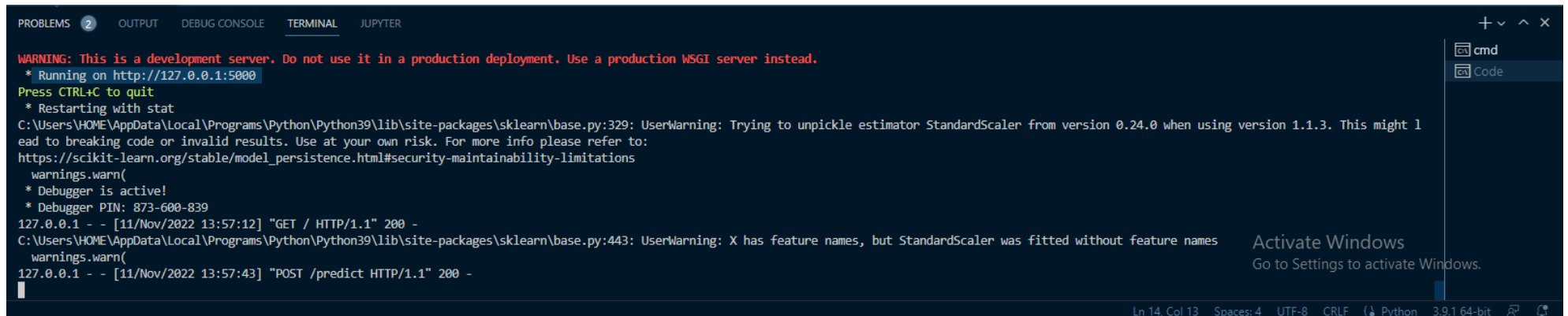
        df = pd.DataFrame(features_value, columns = feature_names)
        df = scaler.transform(df)
        output = model.predict(df)

        if output[0] == 1:
            prediction = "safe"
        else:
            prediction = "not safe"

        return render_template('home.html', prediction_text= "water is {} for human consumption ".format(prediction))

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

To run our ML model, we have to run **app.py** model where it gives a port number in terminal. We have to copy and paste that link in our browser to use the prediction model



```
PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
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\HOME\AppData\Local\Programs\Python\Python39\lib\site-packages\sklearn\base.py:329: UserWarning: Trying to unpickle estimator StandardScaler from version 0.24.0 when using version 1.1.3. This might lead to breaking code or invalid 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: 873-600-839
127.0.0.1 - - [11/Nov/2022 13:57:12] "GET / HTTP/1.1" 200 -
C:\Users\HOME\AppData\Local\Programs\Python\Python39\lib\site-packages\sklearn\base.py:443: UserWarning: X has feature names, but StandardScaler was fitted without feature names
warnings.warn(
127.0.0.1 - - [11/Nov/2022 13:57:43] "POST /predict HTTP/1.1" 200 -
```

In our case, it is running on <http://127.0.0.1:5000> (the default port number for flask is 5000)

OUTPUT:

IBM-Project-12969-1659503743 x IBM-Project-34997-1660280431 x IBM-Project-18872-1659690963 x Water Quality x IBM x Project Deliverables Submission x notebook078b9b7ff6 | Kaggle x +

127.0.0.1:5000/predict

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Water Quality_prediction

By [PNT2022TMID21875](#)

Enter values

pH value : Hardness : Solids :

Chloramines : Sulfate : Conductivity :

Organic_carbon : Trihalomethanes : Turbidity :

Water quality Test

water is safe for human consumption

Team Members: Arvind P(142219205009) - Gowtham P(142219205025) - Leonard M(142219205053) - Arunprasath S (142219205008)
for any queries contact gowthamponraj@gmail.com
[Github link](#)

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Test case 1 : (water is safe for human consumption)

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127.0.0.1:5000/predict

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Water Quality_prediction

By [PNT2022TMID21875](#)

Enter values

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Chloramines : Sulfate : Conductivity :

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Test case 2: (water is not safe for human consumption)

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Water Quality_prediction

By PNT2022TMID21875

Enter values

pH value : Hardness : Solids :

Chloramines : Sulfate : Conductivity :

Organic_carbon : Trihalomethanes : Turbidity :

Water quality Test

water is not safe for human consumption

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