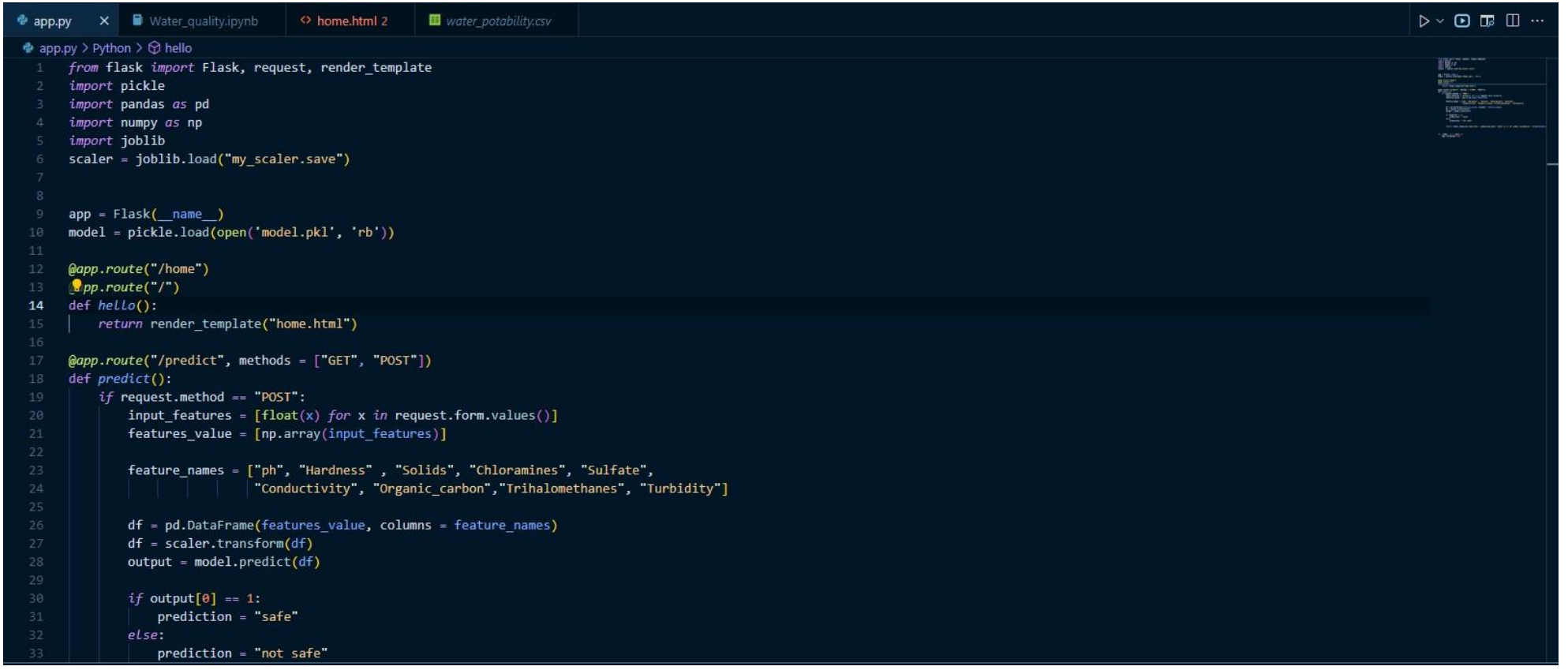
SPRINT 4

Project Deliverables (Flask Code & Deployment)

Team ID	PNT2022TMID35159
Project Name	Efficient Water Quality Analysis & Prediction using Machine Learning

App.py:

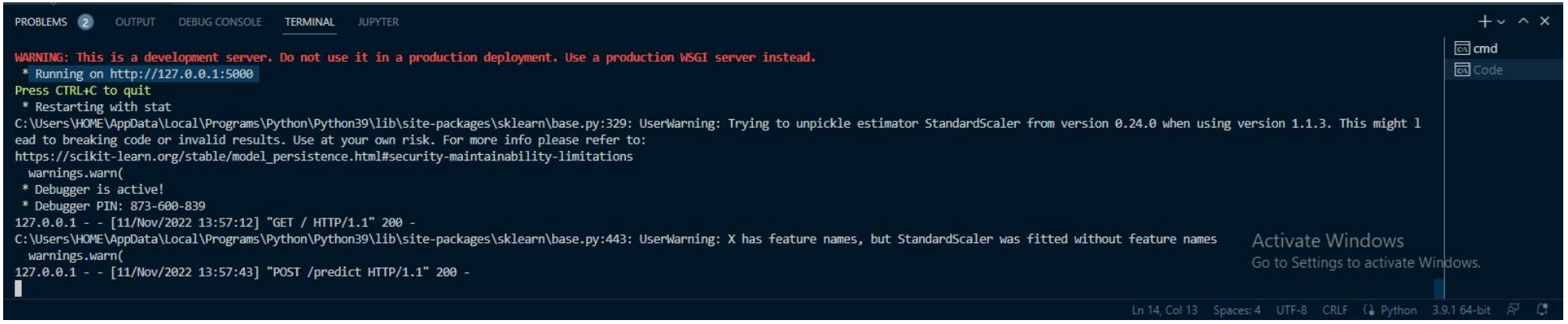


```python
from flask import Flask, request, render_template
import pickle
import pandas as pd
import numpy as np
import joblib
scaler = joblib.load("my_scaler.save")


app = Flask(__name__)
model = pickle.load(open('model.pkl', 'rb'))

@app.route("/home")
@app.route("/")
def hello():
    return render_template("home.html")

@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"
```

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*

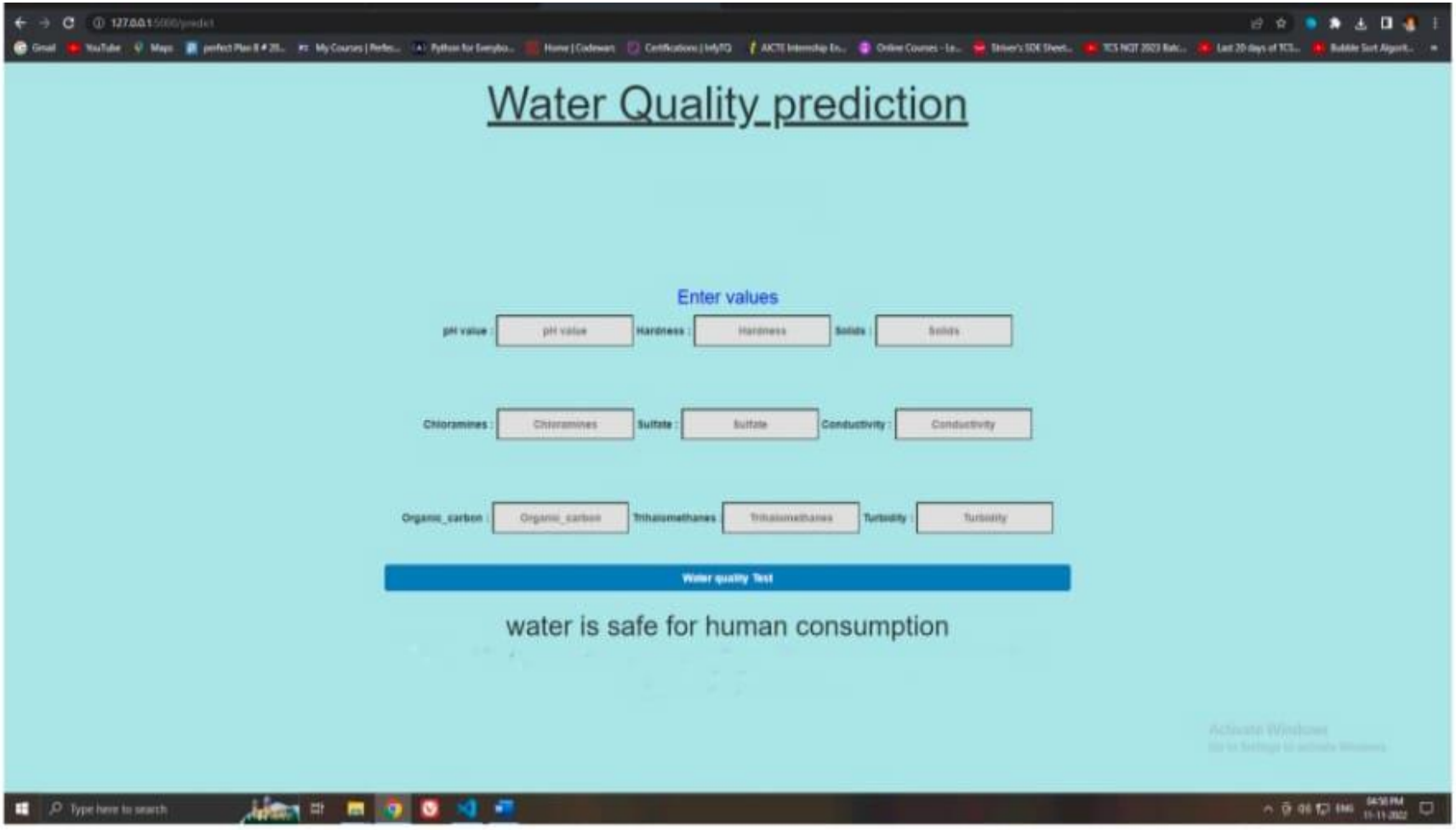
```python
@app.route("/predict", methods = ["GET", "POST"])
def predict():
    if request.method == "POST":
        input_features = [float(x) for x in request.form.values()]
        features_value = [np.array(input_features)]

        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

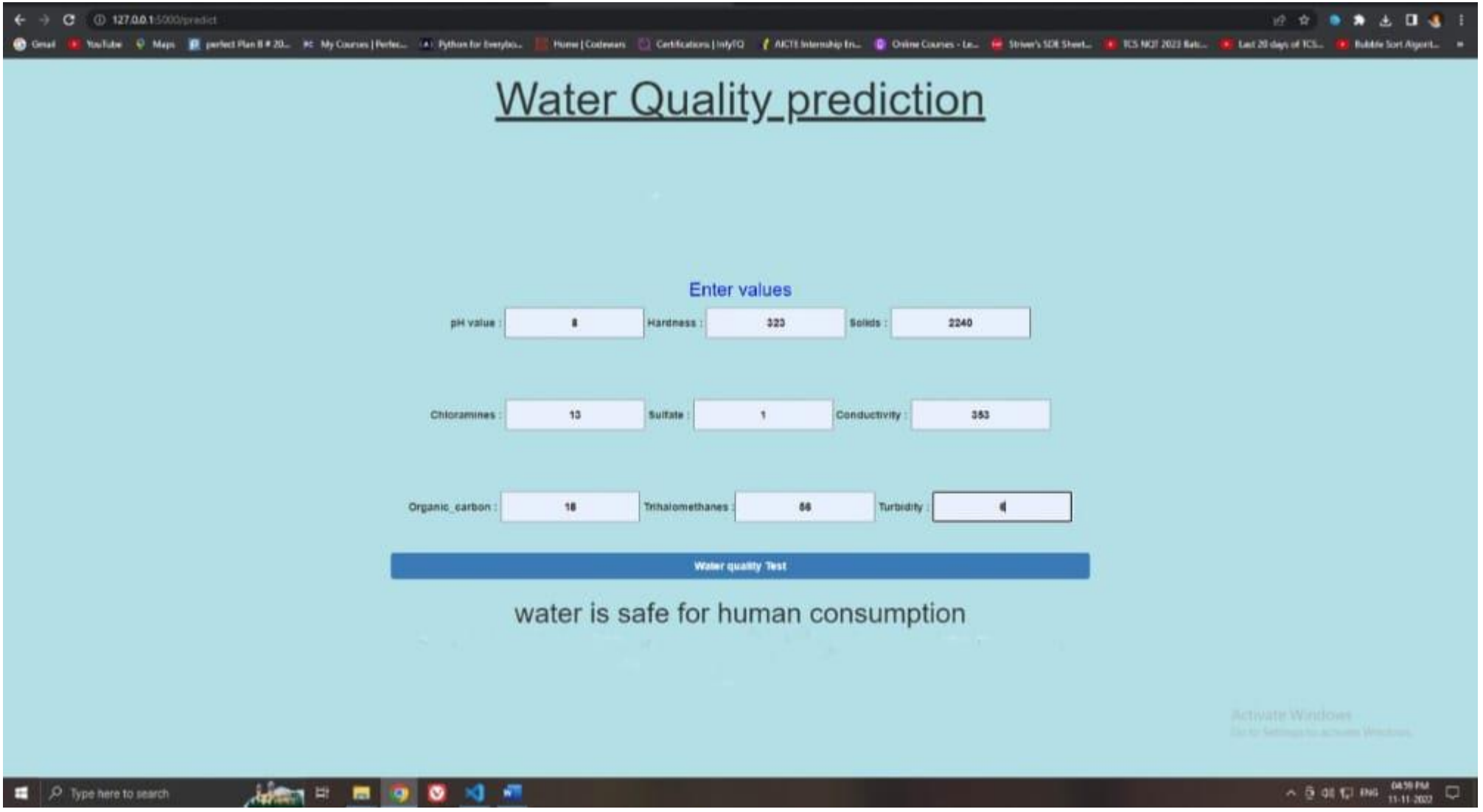


In our case, it is running on http://127.0.0.1:5000 (the default port number for flask is 5000)

OUTPUT:


Water Quality prediction
Enter values
pH value :
pH value
Hardness :
Hardness
Solids :
Solids
Chloramines :
Chloramines
Sulfate :
Sulfate
Conductivity :
Conductivity
Organic_carbon :
Organic_carbon
Trihalomethanes :
Trihalomethanes
Turbidity :
Turbidity
Water quality Test
water is safe for human consumption

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



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