Air-Quality-Prediction

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About

Air Quality Prediction using Machine Learning

#flask #aws #numpy #pandas-dataframe #sklearn #machine-learning-algorithms

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Air-Quality-Prediction

Table of Content

Linkdin Profile

For any queries regarding about this project contact me

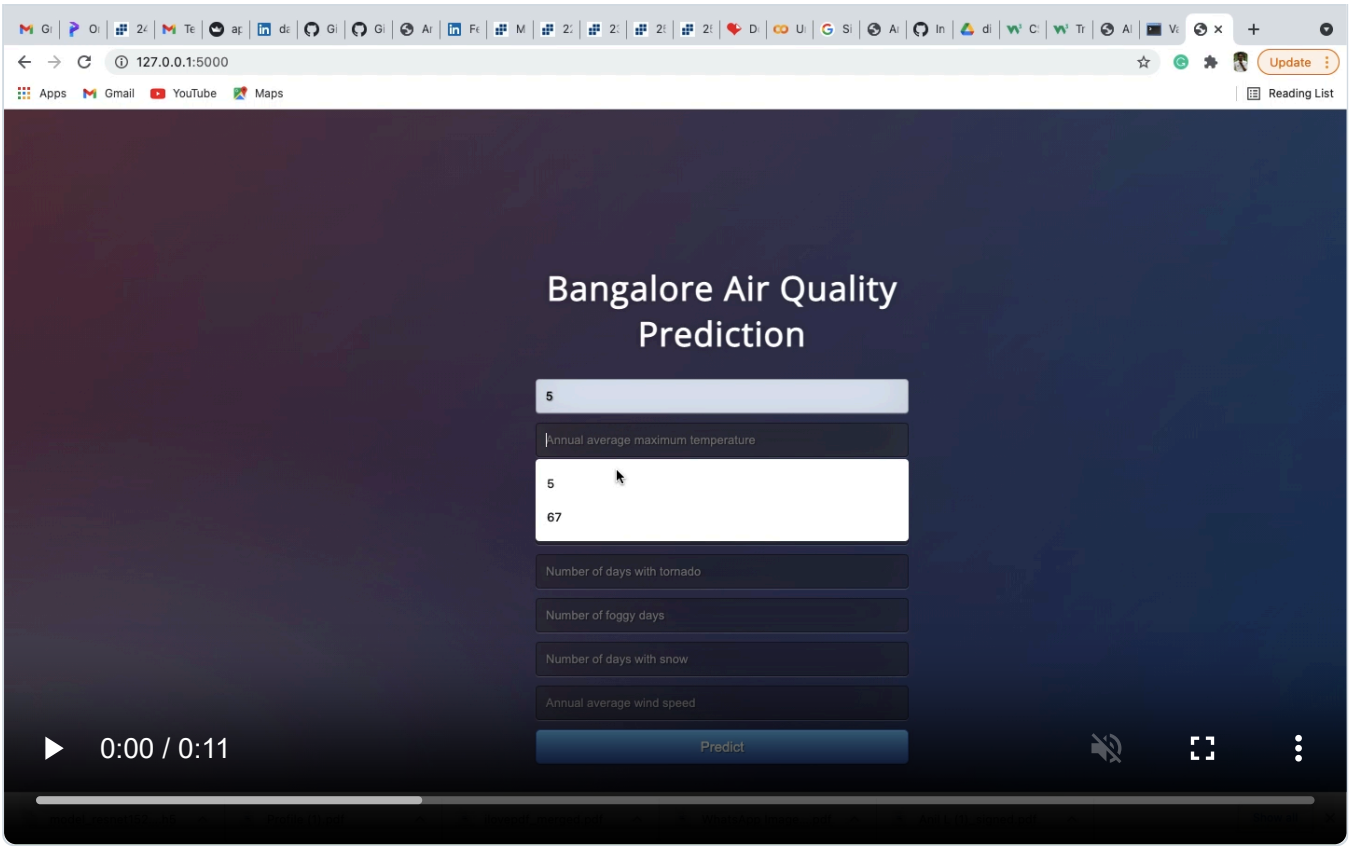
Link : https://www.linkedin.com/in/anil-l-b023631b6/

Video Demo

Screen.Recording.2021-10-09.at.8.28.43.PM.mov

Languages

HTML 61.6% Jupyter Notebook 38.3%
Python 0.1%



Overview

Air pollution forecasting is the application of science and technology to predict the composition of the air pollution in the atmosphere for a given location and time. Mainstream pollution prediction algorithms tend to utilize air quality index or PM2. 5 concentration to indicate pollution level.

The forecast may give the pollutant's concentration or the air quality index.

Countries and cities are given forecasts by state and local government organizations, as well as private companies like Airly, AirVisual, Aerostate, BreezoMeter, PlumeLabs, and DRAXIS that provide air pollution forecasts. Air pollution forecasting can be done by coupling weather forecasting systems with chemical transport model and atmospheric dispersion modeling.

Motivation

What to do when you are at home due to this pandemic situation? I started to learn Machine Learning and Deep Learning model to get most out of it. I came to know mathematics behind all supervised models,unspurervised models,CNN,ANN and RNN. Finally it is important to work on application (real world application) to actually make a difference. To get a experience you have to work thats the reason to perform my favourable work done.

Data Collection

I just took the Bangalore city Air Quality data with help of web scraping and you can find through online which City data you want

Random Forest

Recent studies have incorporated machine learning techniques such as neural networks, regressions, and random forests to achieve high accuracy but I tried the random forest and it gives the good result

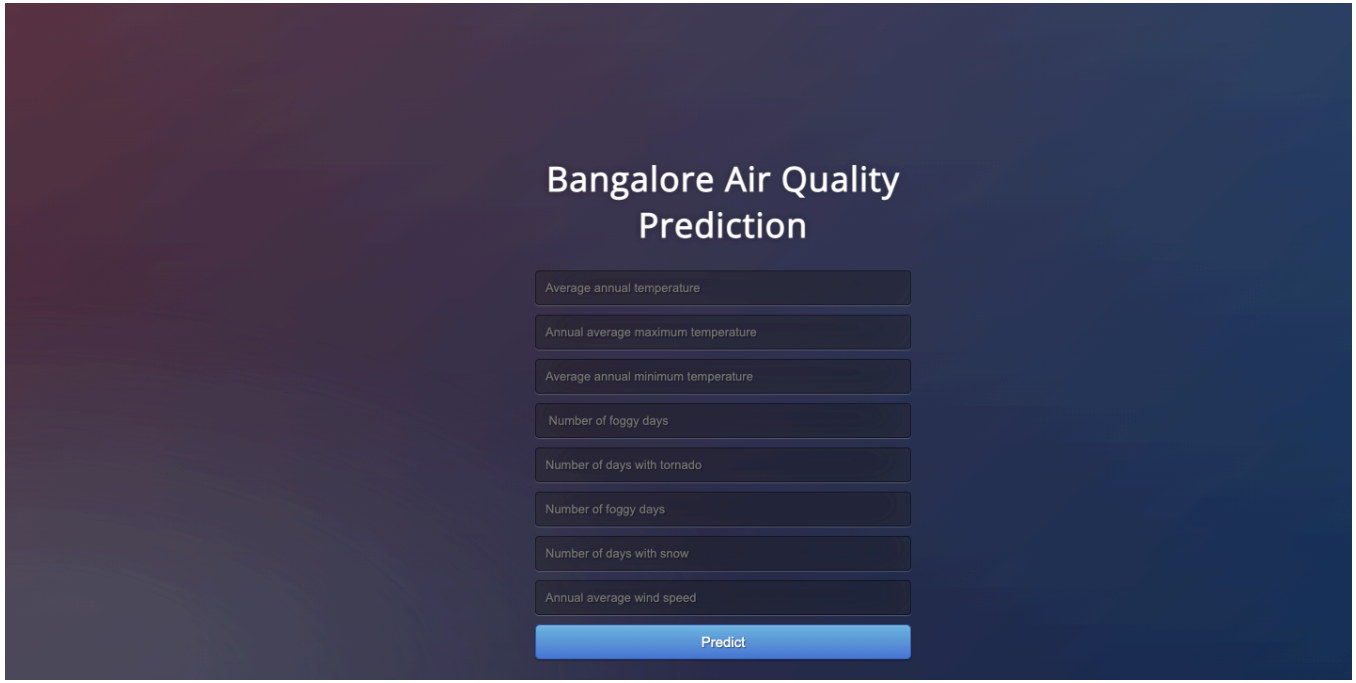
```
In [42]: from sklearn import metrics
         print('MAE:', metrics.mean_absolute_error(y_test, predictions))
         print('MSE:', metrics.mean_squared_error(y_test, predictions))
         print('RMSE:', np.sqrt(metrics.mean_squared_error(y_test, predictions)))

         MAE: 34.62934889724129
         MSE: 2361.8363840357106
         RMSE: 48.598728214179744
```

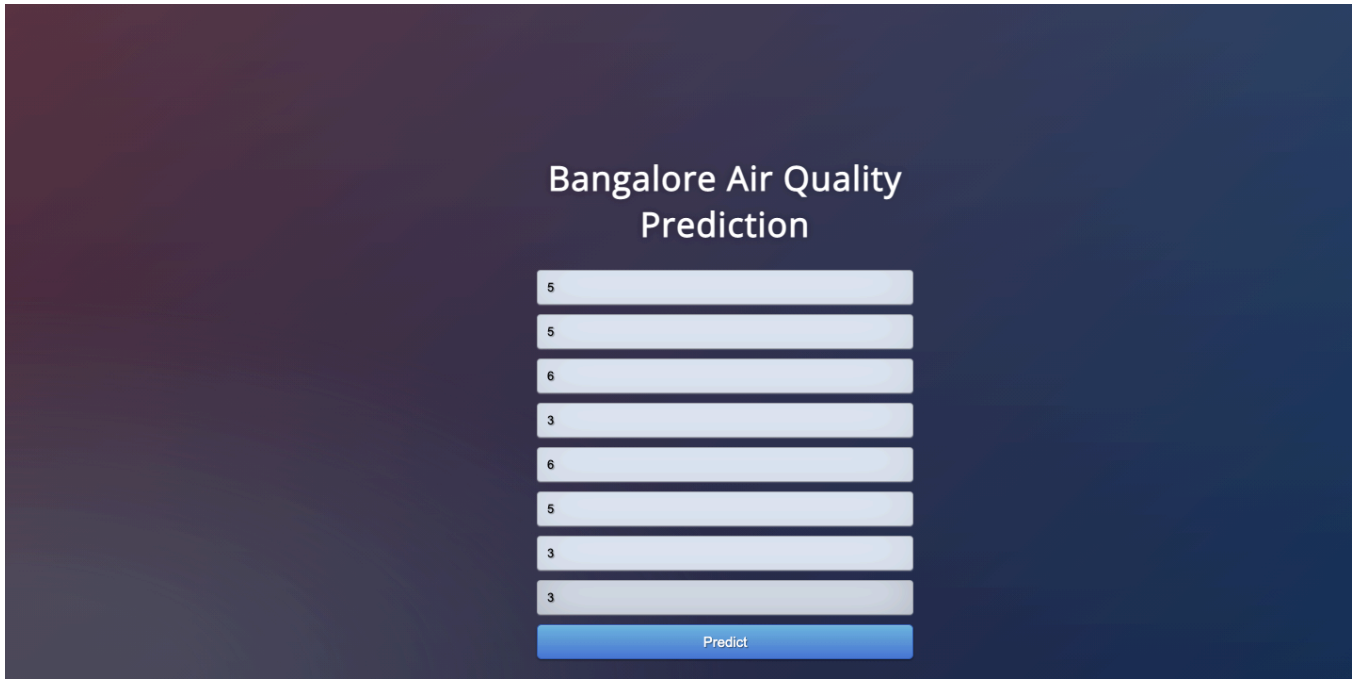
Flask Framework

Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. ... Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.

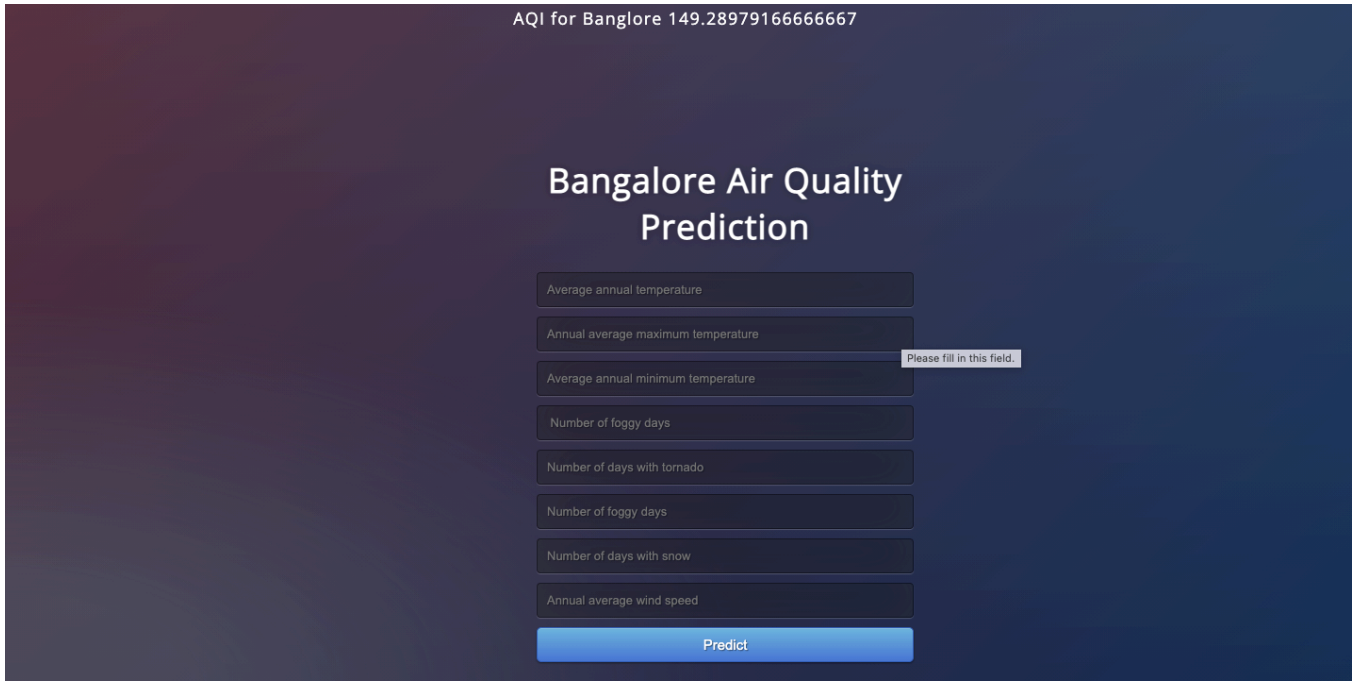
Flask Tutorial : [https://www.tutorialspoint.com/flask/index.htm]

Screenshots of Project





README



Installation and Run

The Code is written in Python 3.9 If you don't have Python installed you can find it here. If you are using a lower version of Python you can upgrade using the pip package, ensuring you have the latest version of pip. To install the required packages and libraries, run this command in the project directory after cloning the repository:

Install Required Libraries

```
Step 1: pip install -r requirements.txt
```

Running Project

```
Step 2: Python app.py
```

Technologies Used