

# air-quality-dashboard

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Air quality monitoring dashboard for term project of Web Application Programming lecture.

## webpage

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<https://minchocoin.github.io/air-quality-dashboard/>

## How to run?

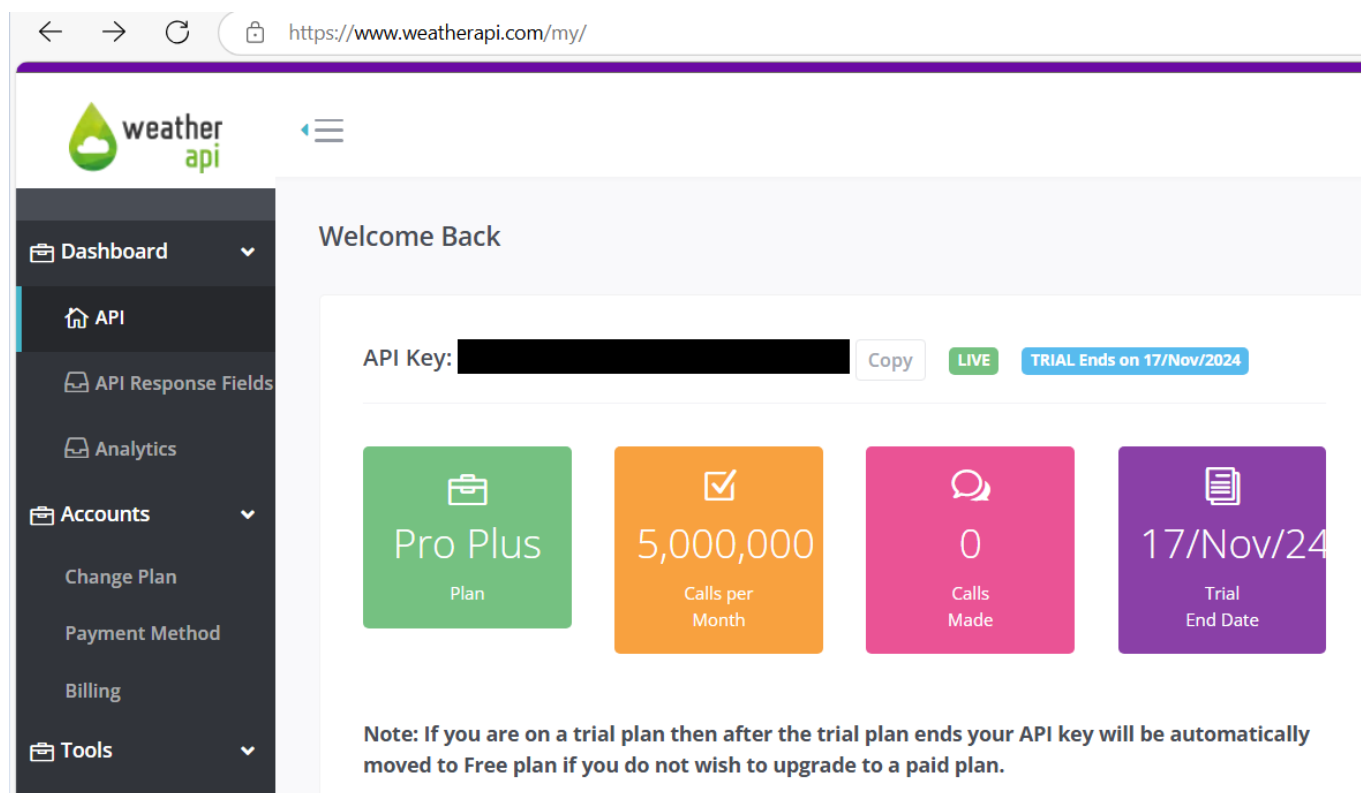
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download this code

```
git clone https://github.com/minchoCoin/air-quality-dashboard.git
```

## generate API key

you can generate api key on <https://www.weatherapi.com/>. after sign up and login, you can check the your api key on weatherapi mypage.



generate key.js in js folder.

generate key.js in js folder. the content of the key.js is:

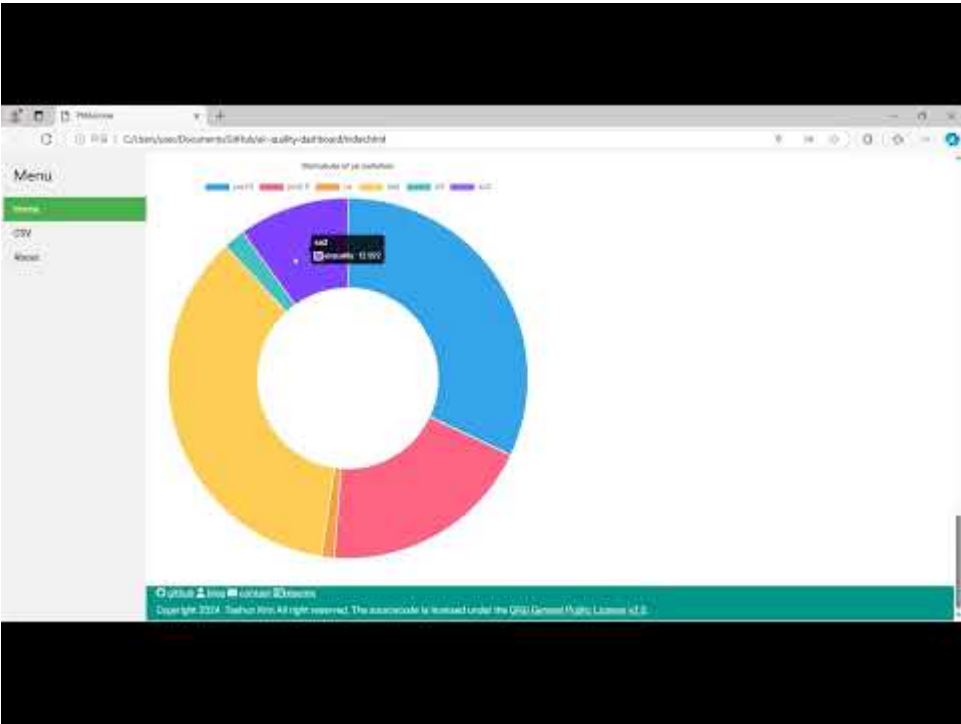
```
const config = {
  apikey: 'enter your api key'
}
```

double click index.html and check air quality

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## demo video

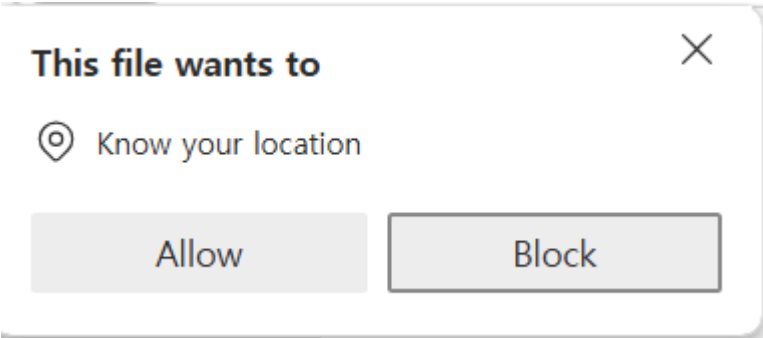
---



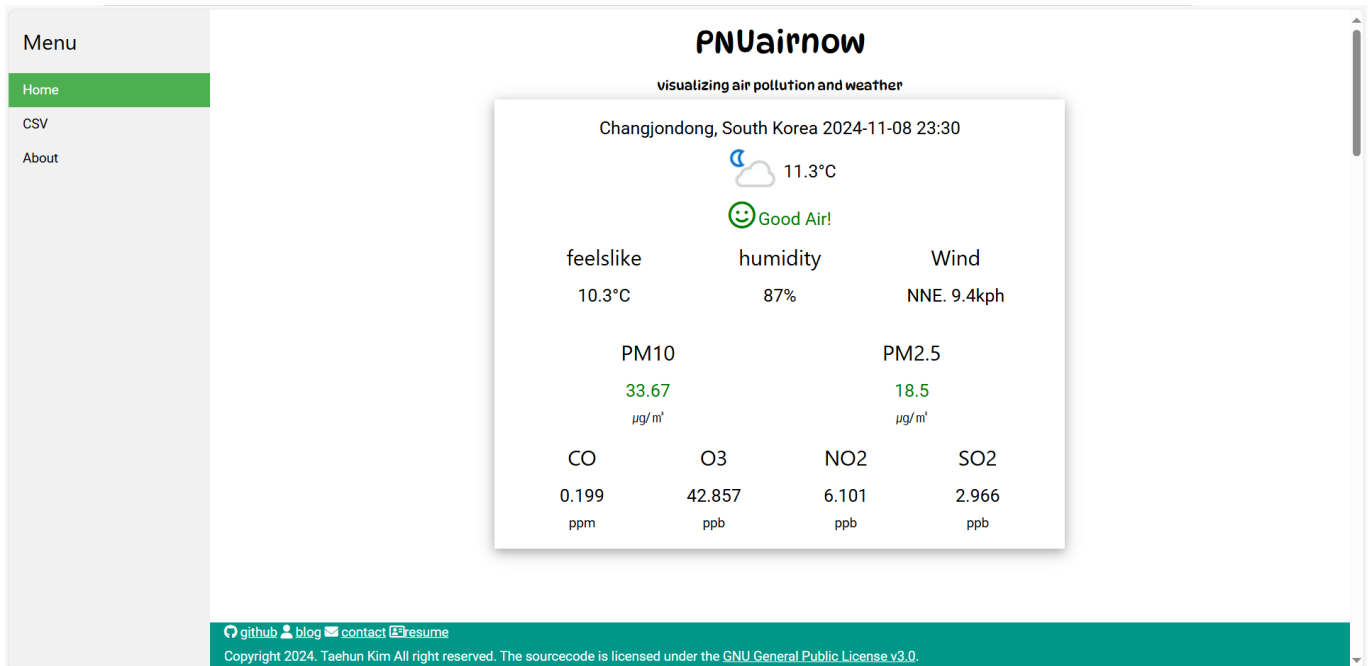
## features

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real-time air quality monitoring



If you click on index.html, your browser will ask if you allow it to access your location. if you clicked 'Allow', you can view real-time air quality data like this:





you can check information

1. your location(city, country)
2. last-updated time
3. weather image
4. temperature
5. current total air quality level(good, moderate, unhealthy, dangerous)
6. feelslike temperature
7. humidity
8. wind(direction and speed)
9. various air quality data
  - pm10( $\mu\text{g}/\text{m}^3$ )
  - pm2.5( $\mu\text{g}/\text{m}^3$ )
  - CO(ppm)
  - O3(ppb)
  - NO2(ppb)
  - SO2(ppb)

current total air quality level

current total air quality level is one of good(green), moderate(orange), unhealthy(red), and dangerous(purple). this level come from gb\_defra\_index: good air for 1-3 gb\_defra\_index, moderate air for 4-6 and bad for 7-9, very bad for 10.

 Good Air!     Moderate

 Unhealthy     Dangerous

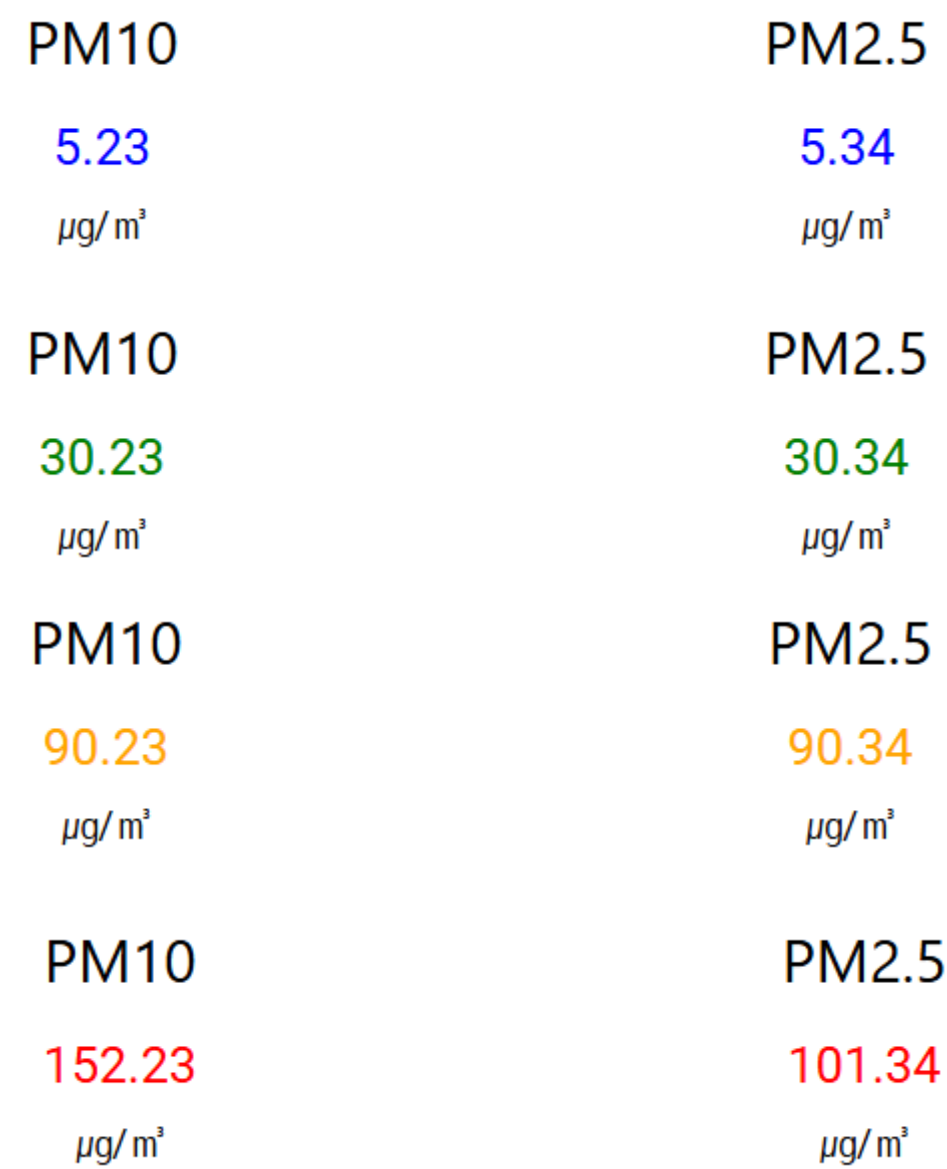
text color of pm10 and pm2.5

<https://www.airgwangsan.kr/page/?site=airmap&mn=854>

text color of pm10 and pm2.5 represent the level of the fine dust level.

|       | good | moderate | bad    | very bad |
|-------|------|----------|--------|----------|
| pm10  | 0-30 | 31-80    | 81-150 | 151-     |
| pm2.5 | 0-15 | 16-50    | 51-100 | 101-     |

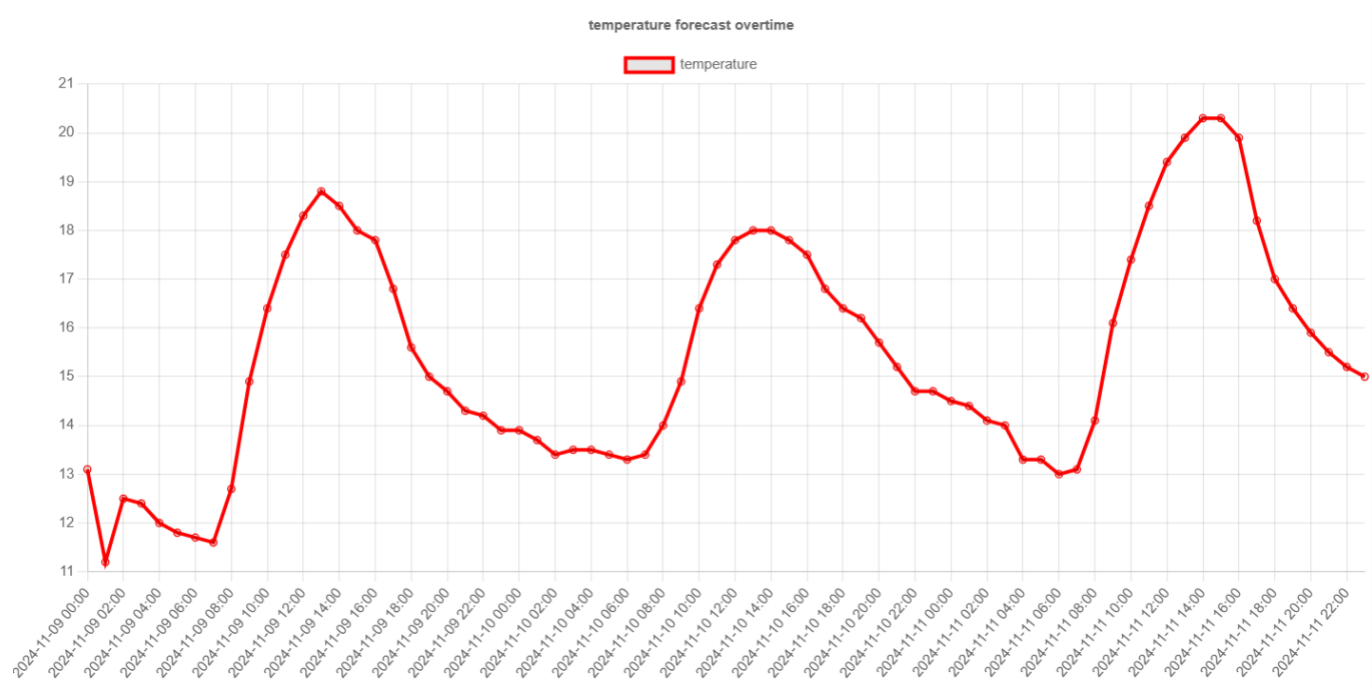
the text color of 'good' is blue, 'moderate' is green, 'bad' is orange, 'very bad' is red.



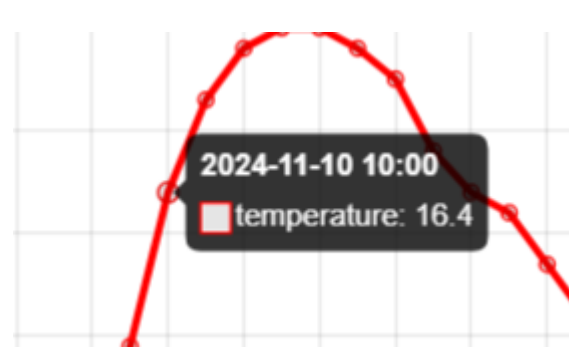
chart

temperature chart

you can check temperature change from today to 3 days later forecast by the hour.

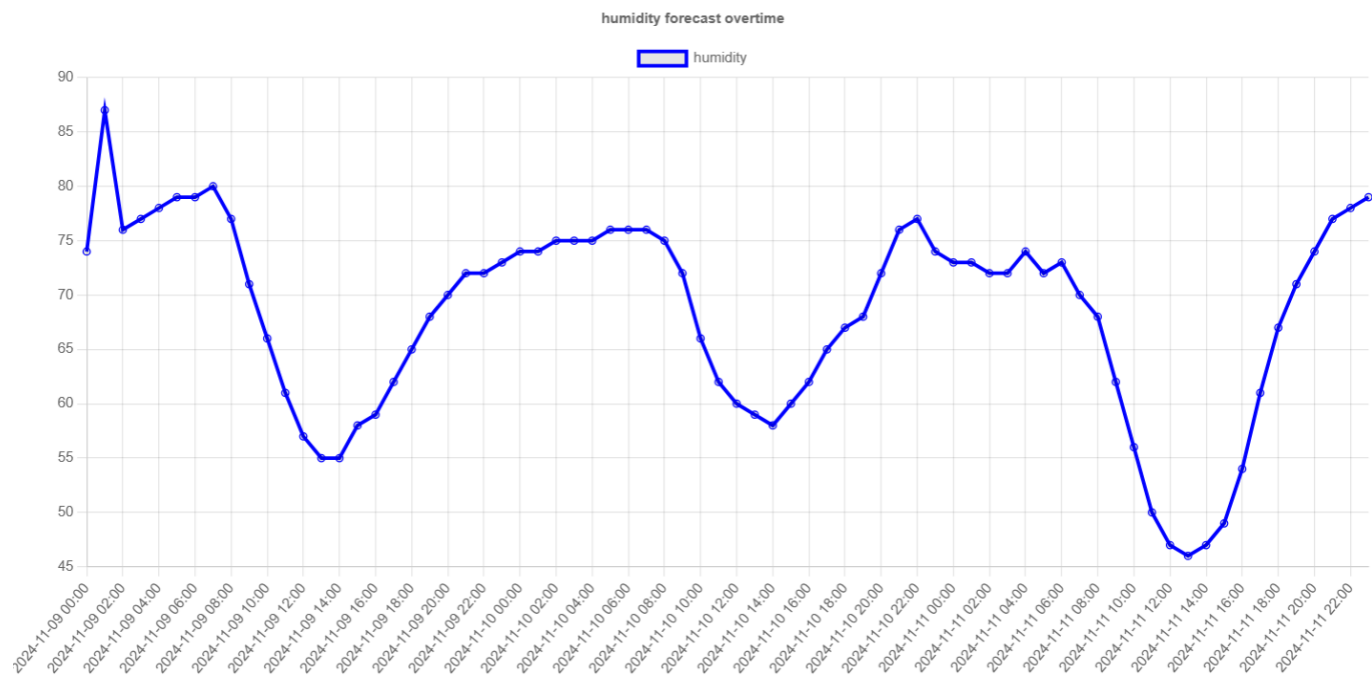


you can check values of the chart.



humidity chart

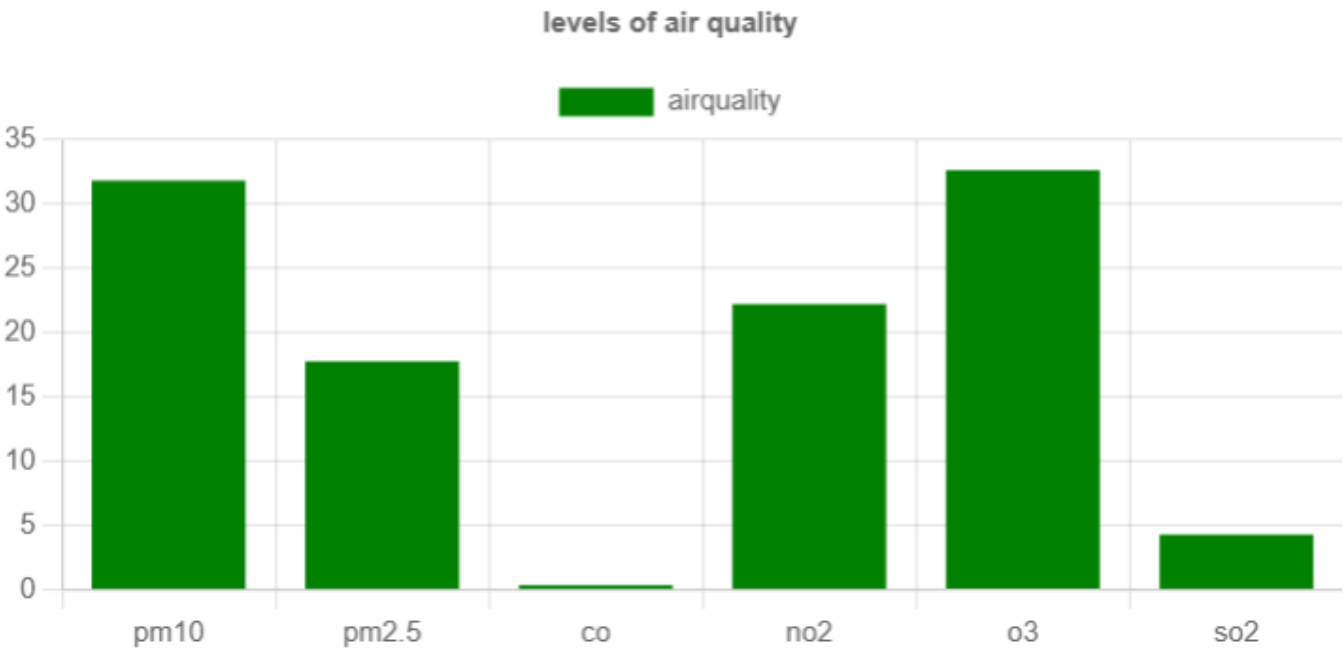
you can check humidity change from today to 3 days later forecast by the hour.



you can check values of the chart.

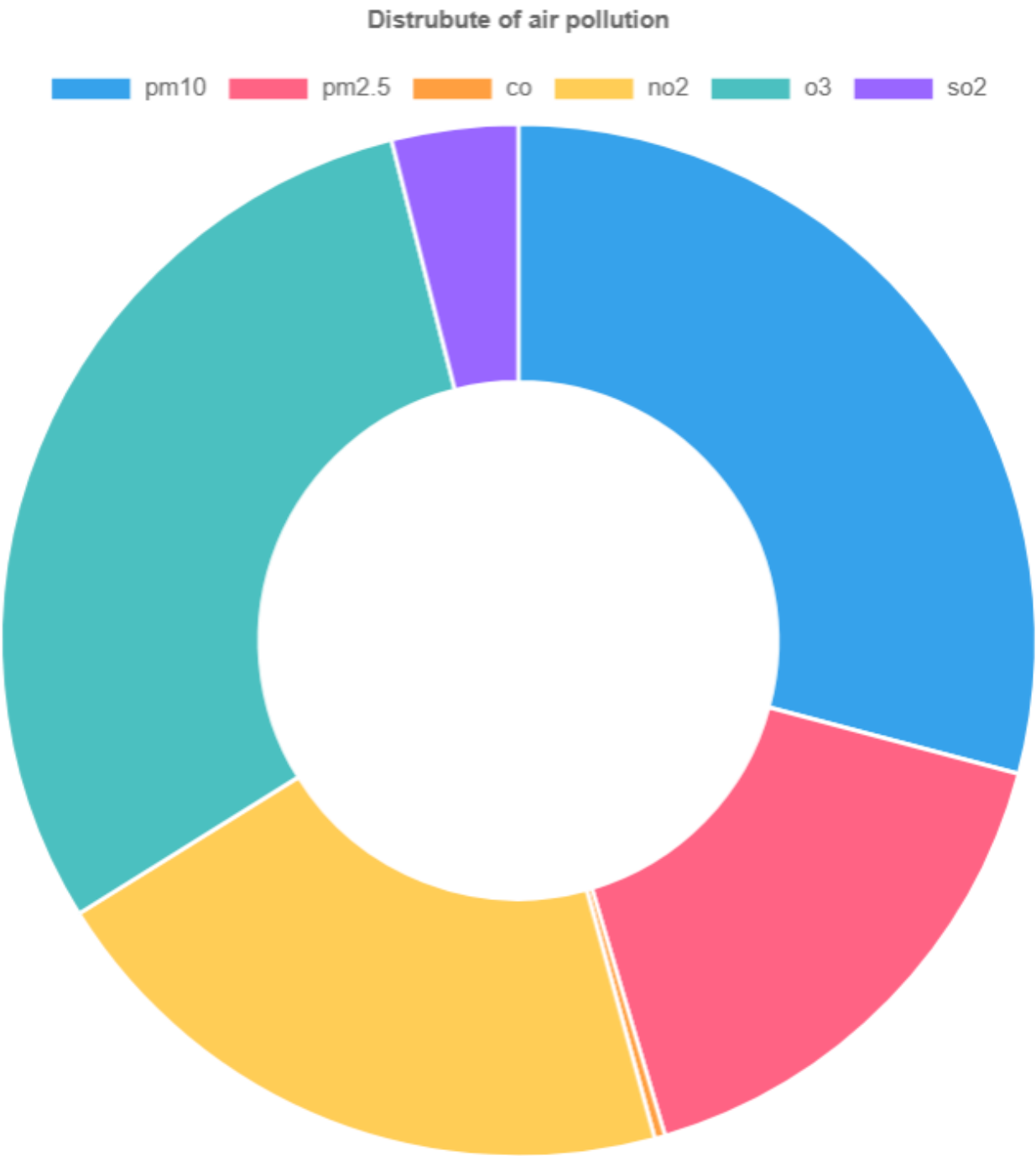
**air pollutions bar chart**

you can check the levels of PM10, PM2.5, CO, NO2, SO2 and O3. the color of the bar chart is the color of total air quality level.



**air pollutions doughnut chart**

you can check the distribution of PM10, PM2.5, CO, NO2, SO2 and O3.



CSV

if you clicked 'CSV' on the menu bar, you can page like this

Menu

Home

CSV

About

PNUairnow

visualizing air pollution and weather


Upload a CSV file

파일 선택

선택된 파일 없음

Upload

Pusan, South Korea 2024-11-03 14:30



test air!

feelslike

humidity

Wind

PM10

$\mu\text{g}/\text{m}^3$

PM2.5

$\mu\text{g}/\text{m}^3$

CO2

ppm

NH3

ppb

NOx

ppb

SO2

ppb

VOC

ppb

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you can upload CSV file, and the page parsing the csv and shows the weather and air quality. parsing library is papaparse.

csv file format is:

```
time,cityname,country,current,temperature,humidity,feelslike,wind_dir,wind_kph,pm10,pm2_5,co2,Nox,NH3,SO2,VOC,gb_defra_index
2024-11-06 0:00,Pusan,South Korea,,9.8,62,,,,,,,,,
2024-11-06 1:00,,,,9.2,62,,,,,,,,,
2024-11-06 2:00,,,,8.7,55,,,,,,,,,
2024-11-06 3:00,,,,8.48,,,,,,,,,
2024-11-06 4:00,,,,7.7,46,,,,,,,,,
2024-11-06 5:00,,,,7.4,48,,,,,,,,,
2024-11-06 6:00,,,,7.4,50,,,,,,,,,
2024-11-06 7:00,,,,7.52,,,,,,,,,
2024-11-06 8:00,,,,8.3,34,,,,,,,,,
2024-11-06 9:00,,,,10.1,47,,,,,,,,,
2024-11-06
10:00,,,0,11.5,43,8.3,W,2.3,152.23,101.34,0.458,26.231,15.241,18.756,31.215,5
2024-11-06 11:00,,,,12.5,40,,,,,,,,,
2024-11-06 12:00,,,,13.1,37,,,,,,,,,
2024-11-06 13:00,,,,13.5,37,,,,,,,,,
...
```



time, temperature, humidity columns is required for all rows. cityname and country columns is required for first row. feelslike,wind\_dir, wind\_kph, pm10, pm2\_5, co2, Nox, NH3, SO2, VOC, gb\_defra\_index is required for rows that the content of 'current' column is 'O'

Other features is same as 'real-time air quality monitor' page except air pollutions are PM10, PM2.5, CO2, NOx, NH3, SO2, VOC.

about

you can check the information of air pollutions.

Menu

Home

CSV

About

PNUairnow

visualizing air pollution and weather

What's in the air you breathe? - Amy H.

FRESH AIR

VS

POLLUTION

다음에서 보기: YouTube

you can download source code of this webpage on this link

Real time weather and air pollution data is received from Free Weather API

Air Quality

Particulate Matter(PM<sub>10</sub>,PM<sub>2.5</sub>)

Particulate Matter is classified into PM10 and PM2.5 depending on their diameters, PM10 is a dust less than 10/1000mm and PM2.5 is a dust less than 2.5/1000mm which are smaller than 1/20~1/30 of the hair diameter(about 60μm). Particulate Matter is a mixture of airborne solid particles and liquid droplets. These particles take various shapes and sizes as they are emitted not only from natural sources, but also from various fixed or mobile sources. PM2.5 is either directly emitted from such sources or indirectly generated from gases such as SOx and NOx. They aggravate respiratory diseases like asthma and weaken the functions of the lungs. Furthermore, they reduce visibility, disturb the metabolism of plants after remaining on the leaf, and particularly cause the corrosion of historic relics or statues.

github blog contact resume

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css bootstrap

- w3 css
- font awesome 6.6.0

js library

- jquery 3.7.1
- chart.js 4.4.1
- papaparse 5.4.1

fonts

- Dynapuff: title and logo
- Roboto: other contents except title

references

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- [WeatherAPI docs](#)
- [css tutorial](#)
- [w3 css docs](#)
- [font awesome docs](#)
- [jQuery API docs](#)
- [Chart.js docs](#)
- [papaparse docs](#)
- [three.js examples](#)