

INDIA AIR QUALITY ANALYTICS REPORT

By
S VIJAYALAKSHMI

AGENDA

INTRODUCTION

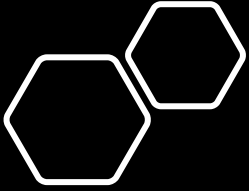
SYSTEM CONFIGURATION

SYSTEM ANALYSIS

DFD

FORMS AND REPORTS

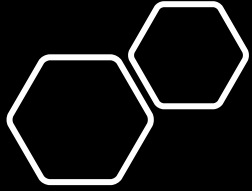
BIBLIOGRAPHY



INTRODUCTION

Today air pollution has been one of the significant problems to deal with for any nation. In South Asia, it is ranked as the sixth most dangerous killer. One does not realize the harmful effects of a problem if he/she has not experienced it in the first place. We all have experienced what it feels like inhaling in the 'deadly' smog that remained for about a week, after Diwali. Citizens were advised not to leave their homes and were asked to wear masks whenever going outside. Looking outside the window makes us feel like living in a gas chamber. Low visibility, a high number of deaths, etc. were the effects of pollution.

The data used in this project is a cleaner version of the Historical Daily Ambient Air Quality Data released by the Ministry of Environment and Forests and Central Pollution Control Board of India under the National Data Sharing and Accessibility Policy (NDSAP). From the analysis, we can see that the majorly affected states in India by air pollution, states which are heavily polluted and require immediate action. From the data analysis approach, we can conclude that data analysis is a crucial aspect of a better future. The approach is purely data-driven, however, is backed by real-life instances(news articles).



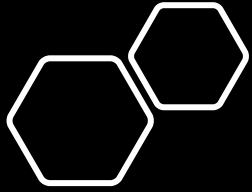
SYSTEM CONFIGURATION

HARDWARE SPECIFICATION

Processor	:	Pentium R @ 3.20 GHz
Hard disk	:	40 GB
RAM	:	2 GB
Monitor type	:	Micromesh 14" color monitor
Mouse type	:	Logitech scroll mouse
Keyboard	:	Samsung 104 keys

SOFTWARE SPECIFICATION

Operating System	:	Windows 7 Desktop PC
Front End	:	Angular 11.0.7
Back End	:	Django 3.1.6 (Python 3.7.3)
Database	:	MY-SQL 5.6.44



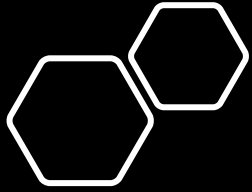
SYSTEM ANALYSIS

EXISTING SYSTEM

In the existing system, all one and a half million records are seen in a file, it is a time-consuming process and all these data is difficult to be analyzed manually.

DRAWBACKS OF EXISTING SYSTEM

- Less visibility with information available
- Time-consuming process
- Forecasting the future with historic records is very hard
- Cannot find key indicators to get an overview
- Real-time analytics is not possible



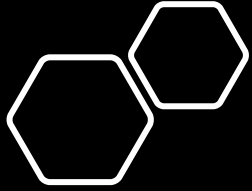
SYSTEM ANALYSIS

PROPOSED SYSTEM

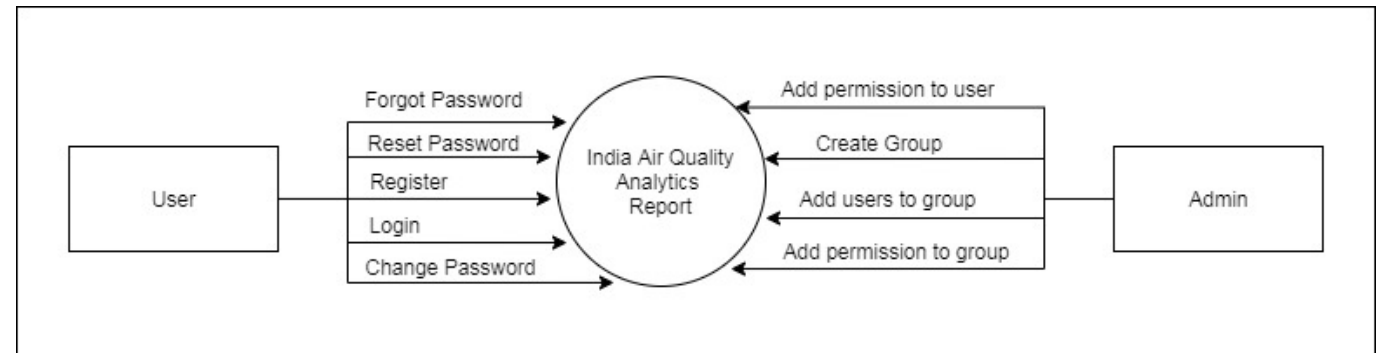
A dashboard uses data visualisation technology to analyse and display information visually in a practical and useful way. It can be used across a multitude of functional areas within an organisation. A business intelligence dashboard manages information by tracking important data points. The dashboard gives you a consolidated view of all data on custom dashboards that deliver valuable insights. A dashboard is an easy-to-understand, visualised summary of data analysis that provides an at-a-glance overview of multiple areas.

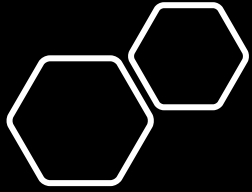
ADVANTAGES OF PROPOSED SYSTEM

- Provides greater visibility with information available
- Better forecasting and better decisions can be made
- With an overview of key indicators can analyse key data quickly and meticulously
- Real-time vision and accurate insight using detailed historic data
- Visualised interactivity serves to deliver overwhelming amounts of data in a way that is easy to understand

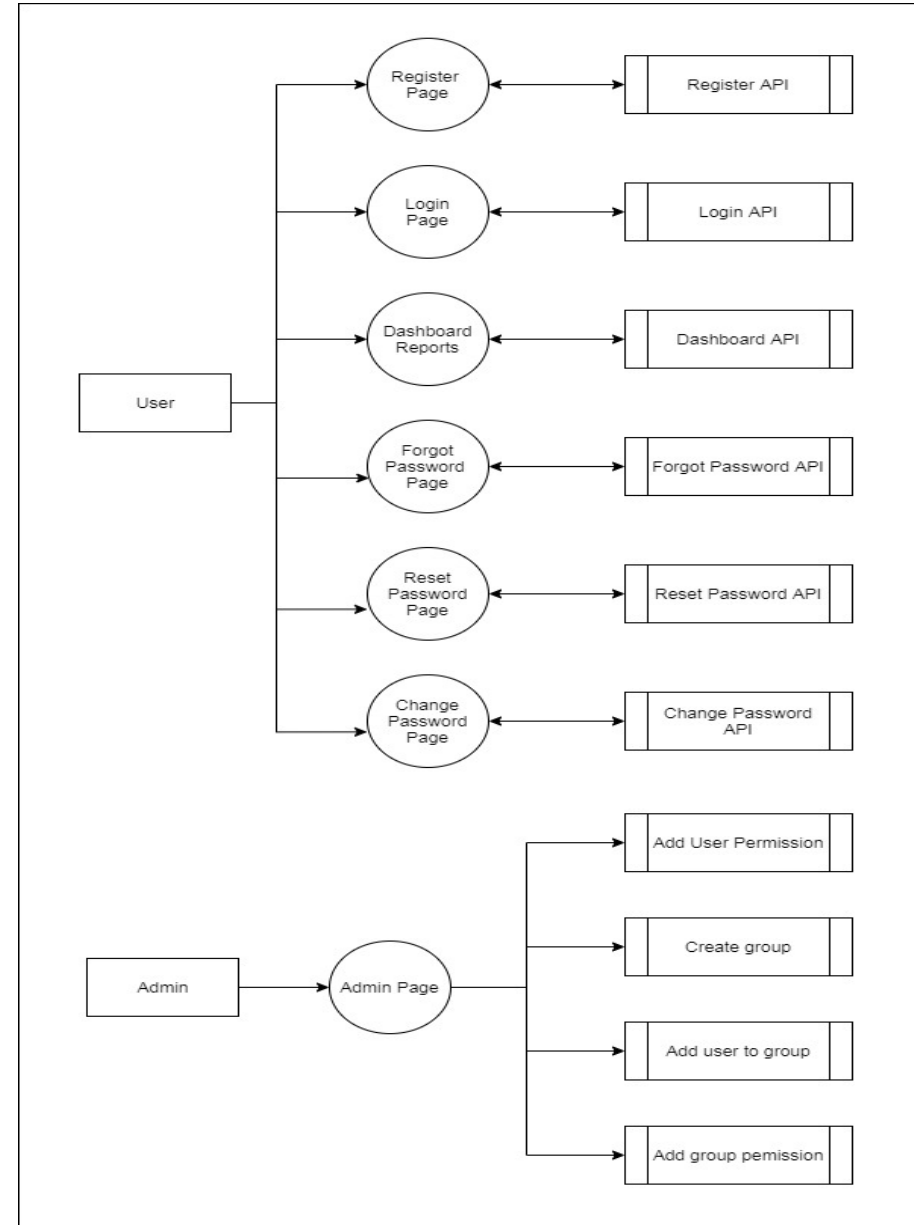


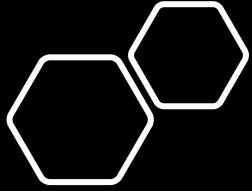
DATA FLOW DIAGRAM LEVEL 0



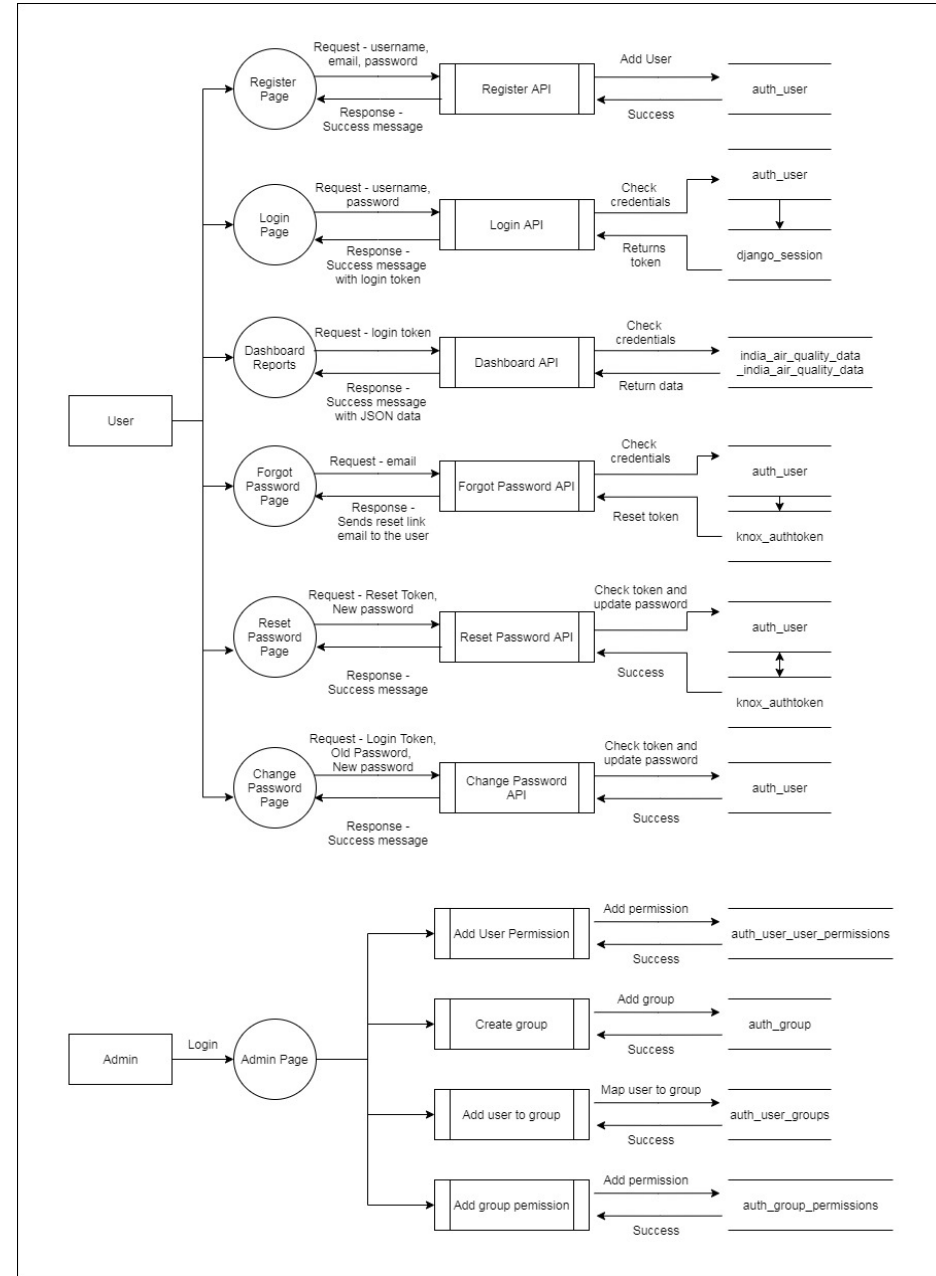


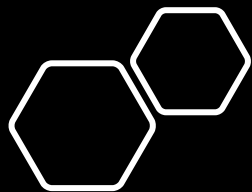
DATA FLOW DIAGRAM LEVEL 1





DATA FLOW DIAGRAM LEVEL 2





FORMS AND REPORTS

India Air Quality Analytics Report x +

localhost:4200/auth/register Incognito (2)

[←](#)

Register

Full name:

Email address:

Password:

Repeat password:

☐ Agree to [Terms & Conditions](#)

Already have an account? [Log in](#)

India Air Quality Analytics Report x +

localhost:4200/auth/register Incognito (2)

[<](#)

Register

Hooray! You have registered successfully

Full name:

buvanesh

Email address:

buvanesh@gmail.com

Password:

....

Repeat password:

....

☒ Agree to [Terms & Conditions](#)

REGISTER

India Air Quality Analytics Report x +

localhost:4200/auth/register Incognito (2)

[<](#)

Register

Full name:

Email address:

Email should be the real one!

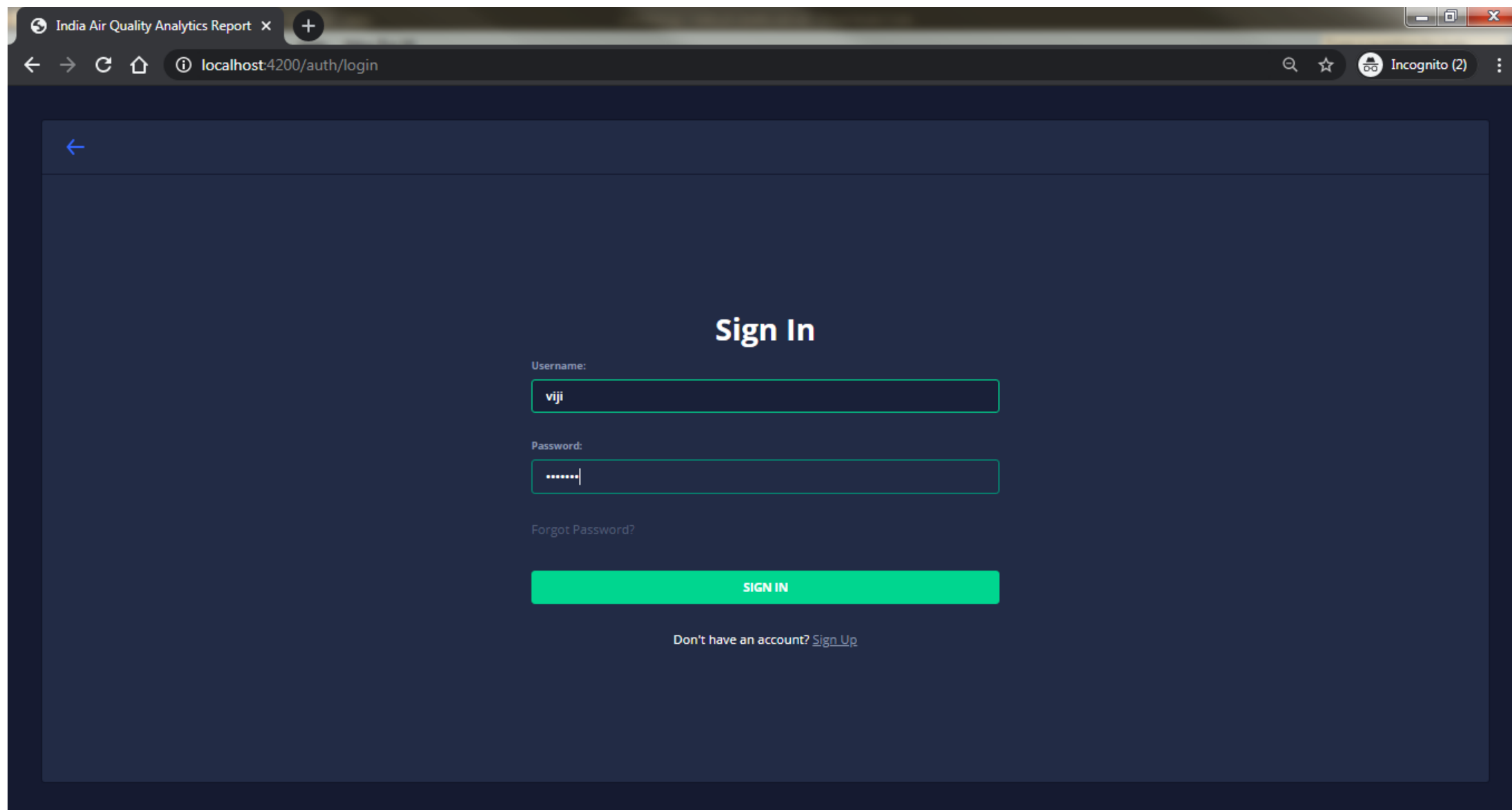
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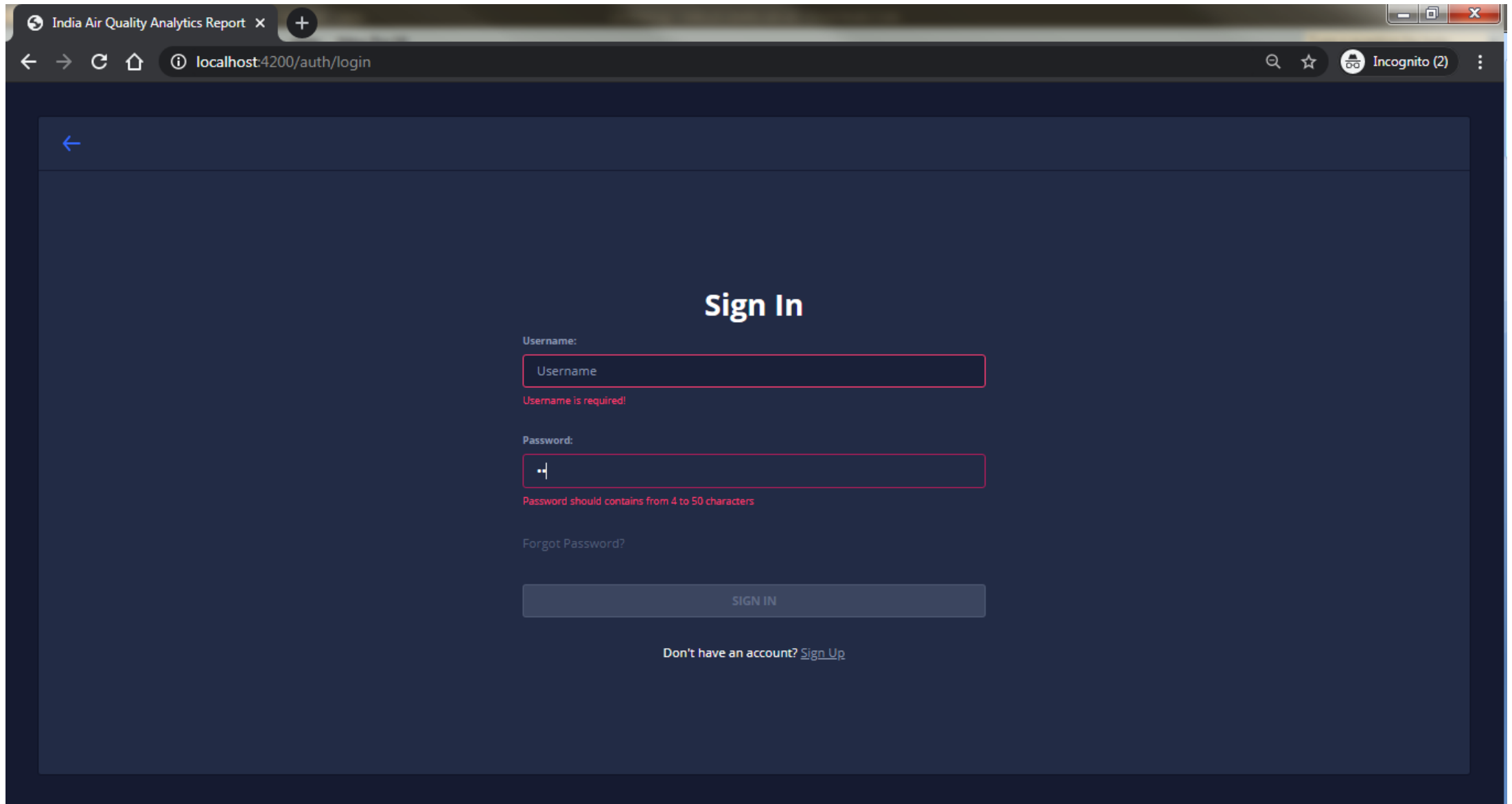
Password is required!

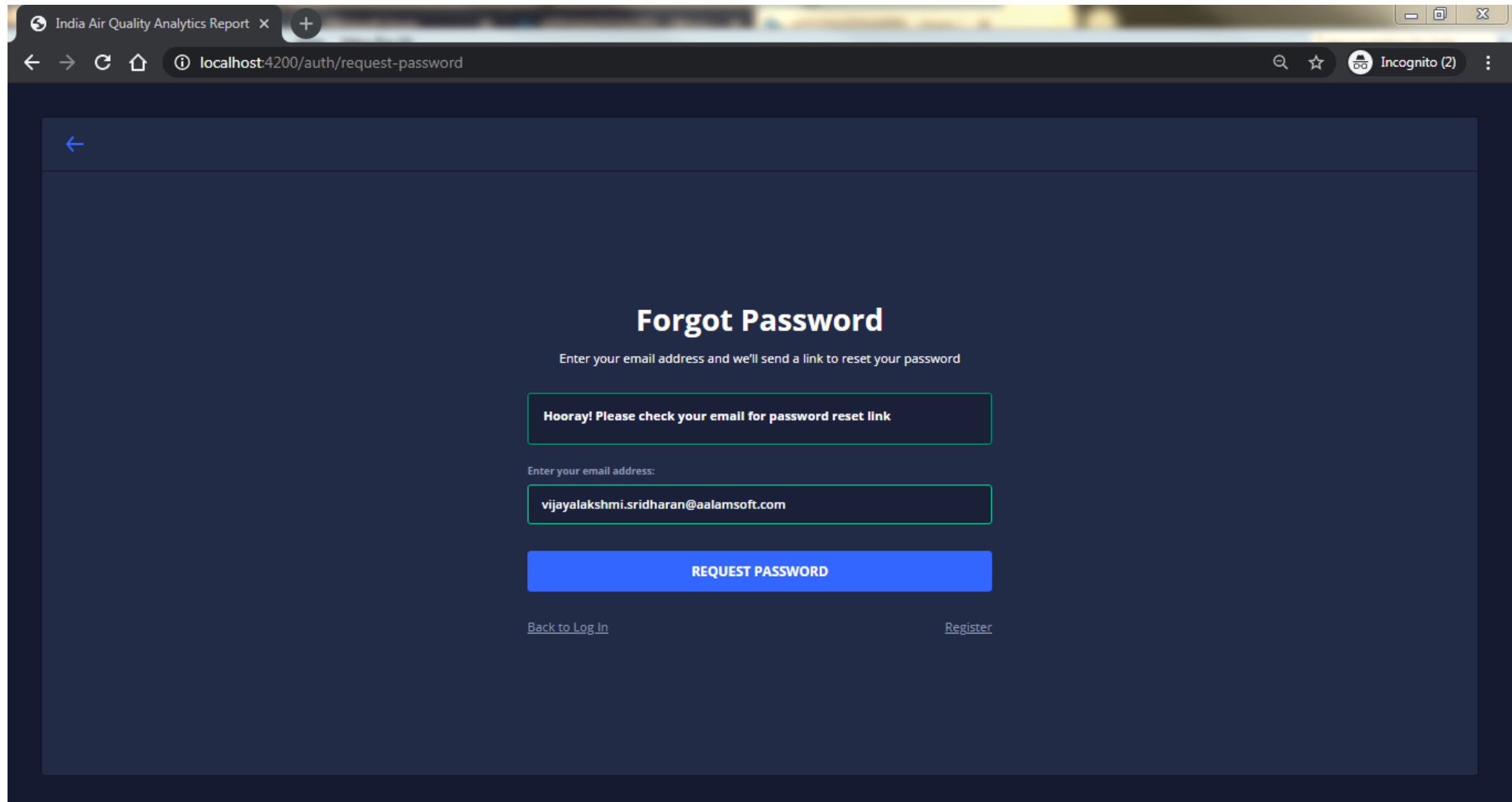
Repeat password:

Password confirmation is required!

☒ Agree to [Terms & Conditions](#)







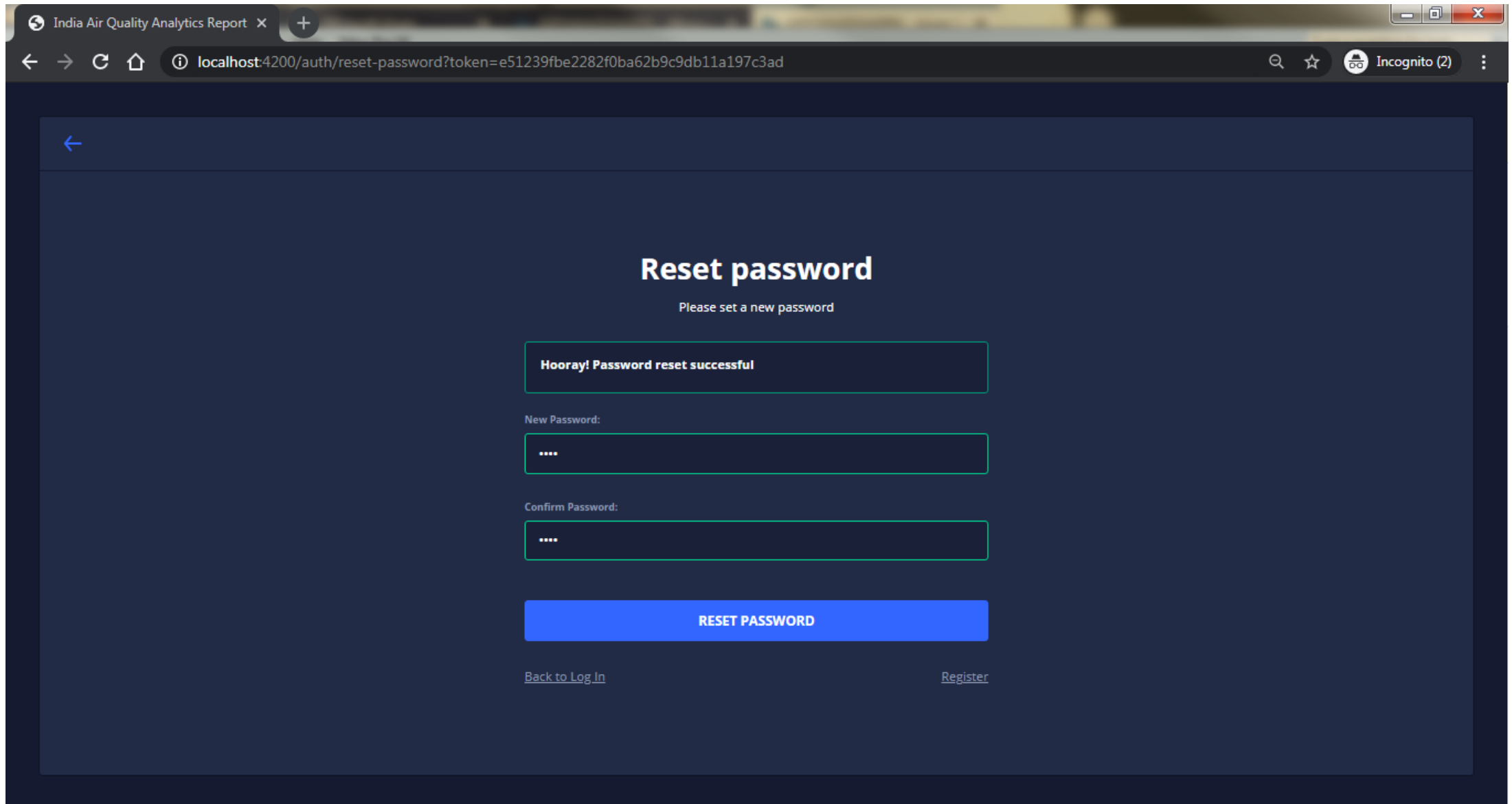
Password Reset for India Air Quality Analytics Report Portal

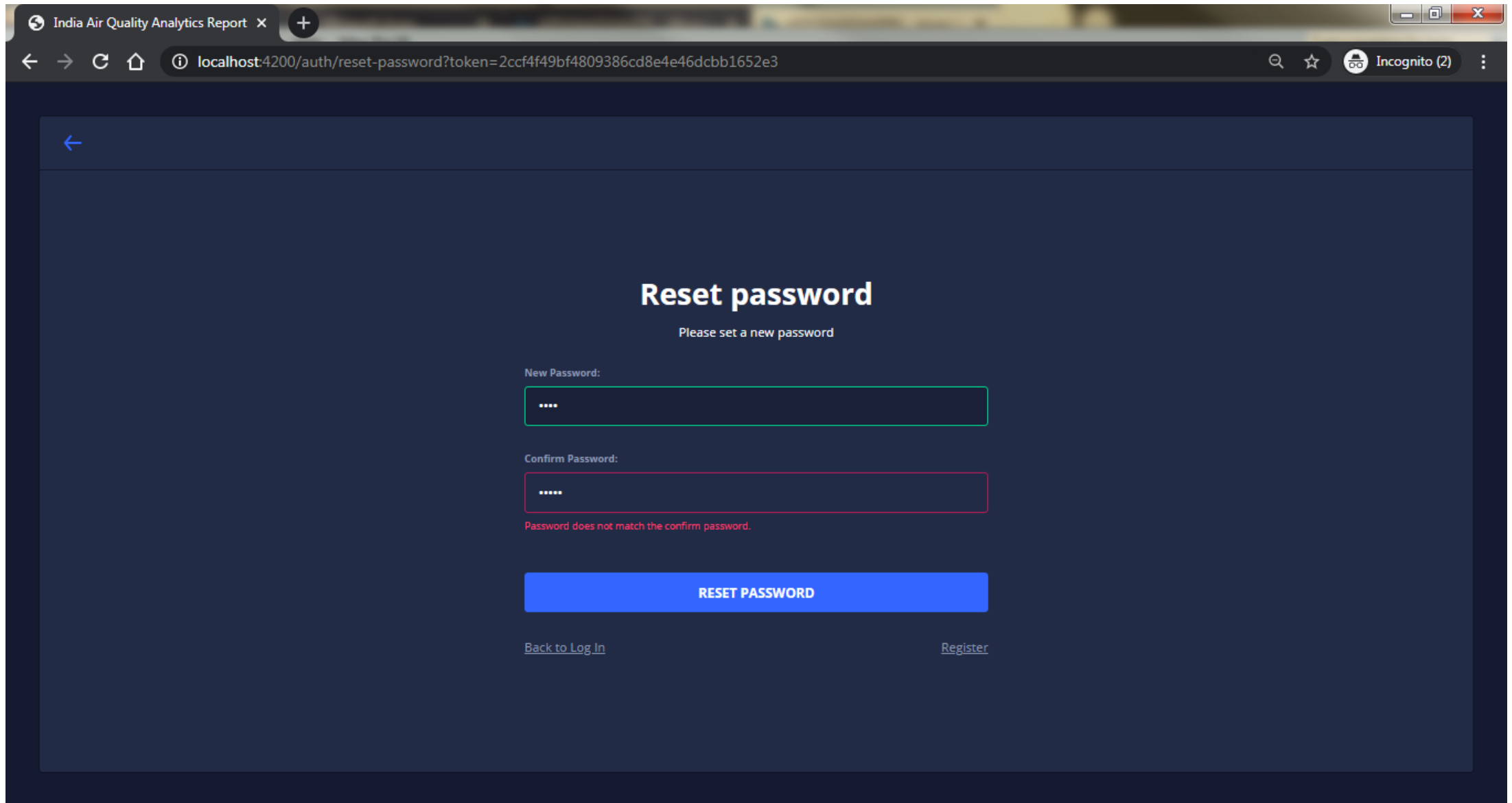
indiaairqualityanalytics@gmail.com

Sent: Wed 24-Feb-21 5:59 PM

To: vijayalakshmi.sridharan@aalamsoft.com

Please use the following link to reset your password - <http://localhost:4200/auth/reset-password?token=e51239fbe2282f0ba62b9c9db11a197c3ad>





Change password

Please set a new password

Hooray! Password changed successfully

Old Password:

....

New Password:

....

Confirm Password:

....

CHANGE PASSWORD

Change password

Please set a new password

Old Password:

New Password:

Password is required!

Confirm Password:

Password confirmation is required!

CHANGE PASSWORD

Django administration

Username:

Password:

Log in

Site administration

AUTHENTICATION AND AUTHORIZATION

Groups [+ Add](#) [Change](#)

Users [+ Add](#) [Change](#)

DJANGO_REST_PASSWORDRESET

Password Reset Tokens [+ Add](#) [Change](#)

INDIA_AIR_QUALITY_DATA

India_air_quality_datas [+ Add](#) [Change](#)

KNOX

Auth tokens [+ Add](#) [Change](#)

Recent actions

My actions

None available

Add group | Django site admin

localhost:8000/admin/auth/group/add/

Incognito (2)

Django administration

WELCOME, 0040. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Authentication and Authorization > Groups > Add group

AUTHENTICATION AND AUTHORIZATION

Groups + Add

Users + Add

DJANGO_REST_PASSWORDRESET

Password Reset Tokens + Add

INDIA_AIR_QUALITY_DATA

India_air_quality_datas + Add

KNOX

Auth tokens + Add

Add group

Name:

Permissions:

Available permissions ⓘ

auth | permission | Can delete permission

auth | permission | Can view permission

contenttypes | content type | Can add content type

contenttypes | content type | Can change content type

contenttypes | content type | Can delete content type

contenttypes | content type | Can view content type

django_rest_passwordreset | Password Reset Token | Can add

django_rest_passwordreset | Password Reset Token | Can change

django_rest_passwordreset | Password Reset Token | Can delete

django_rest_passwordreset | Password Reset Token | Can view

india_air_quality_data | india_air_quality_data | Can add india

india_air_quality_data | india_air_quality_data | Can change

india_air_quality_data | india_air_quality_data | Can delete

india_air_quality_data | india_air_quality_data | Can view

Choose all ⓘ

Hold down "Control", or "Command" on a Mac, to select more than one.

Chosen permissions ⓘ

auth | group | Can add group

auth | group | Can change group

auth | group | Can delete group

auth | group | Can view group

auth | user | Can add user

auth | user | Can change user

auth | user | Can delete user

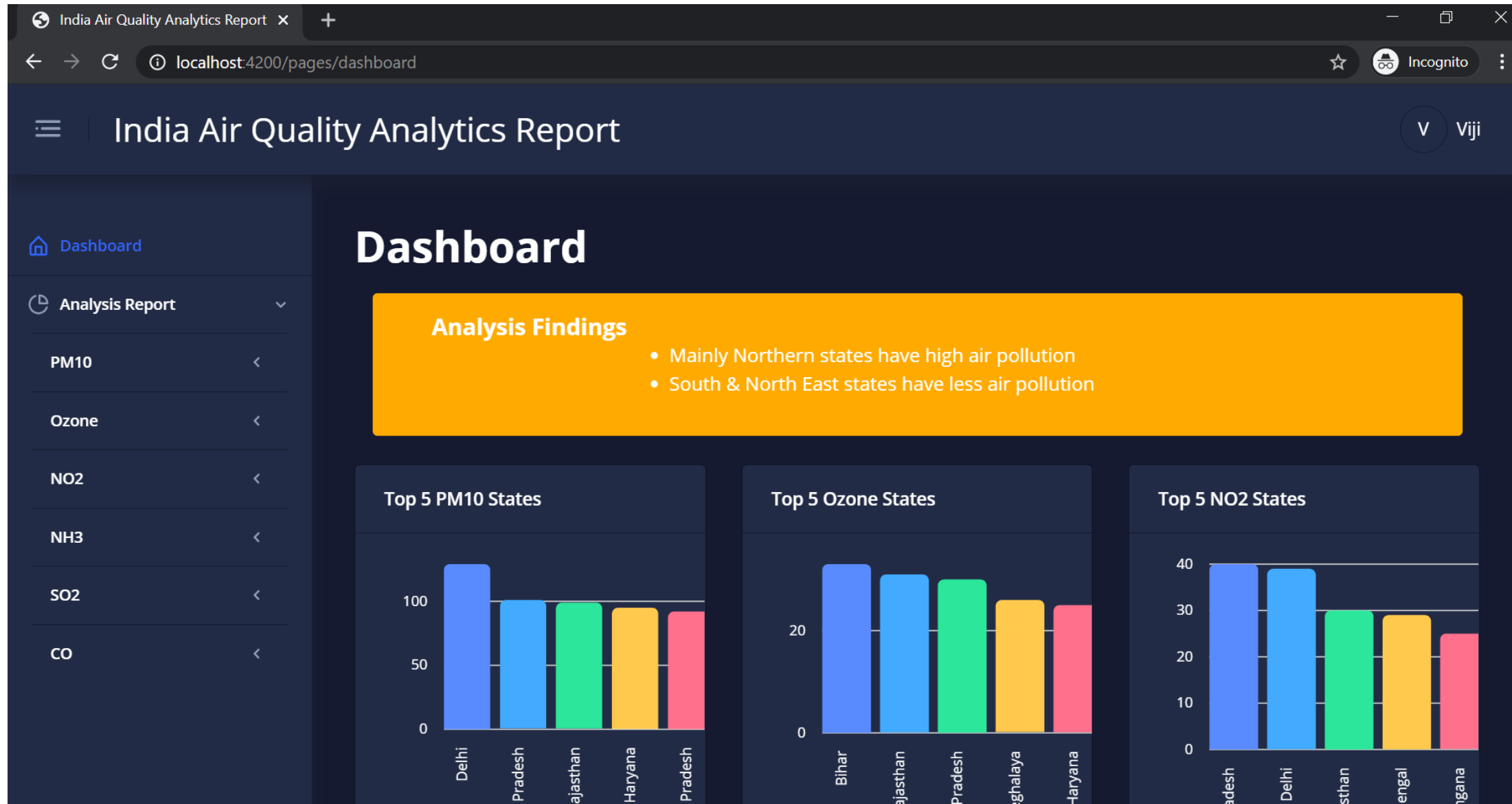
auth | user | Can view user

Remove all ⓘ

Save and add another

Save and continue editing

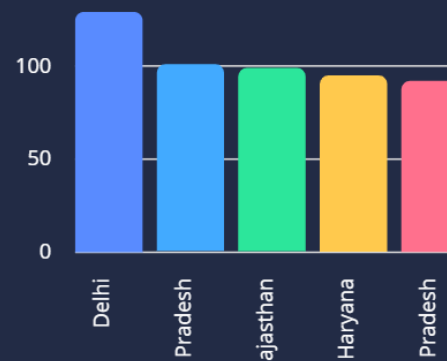
SAVE



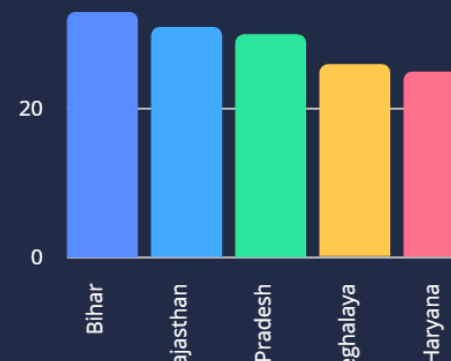
Analysis Findings

- Mainly Northern states have high air pollution
- South & North East states have less air pollution

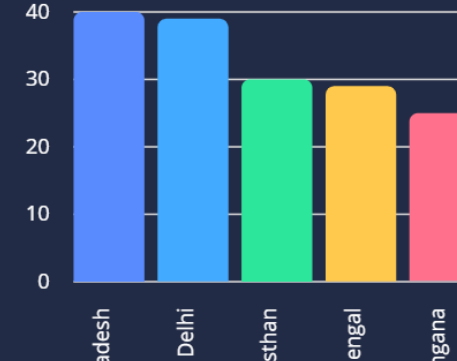
Top 5 PM10 States

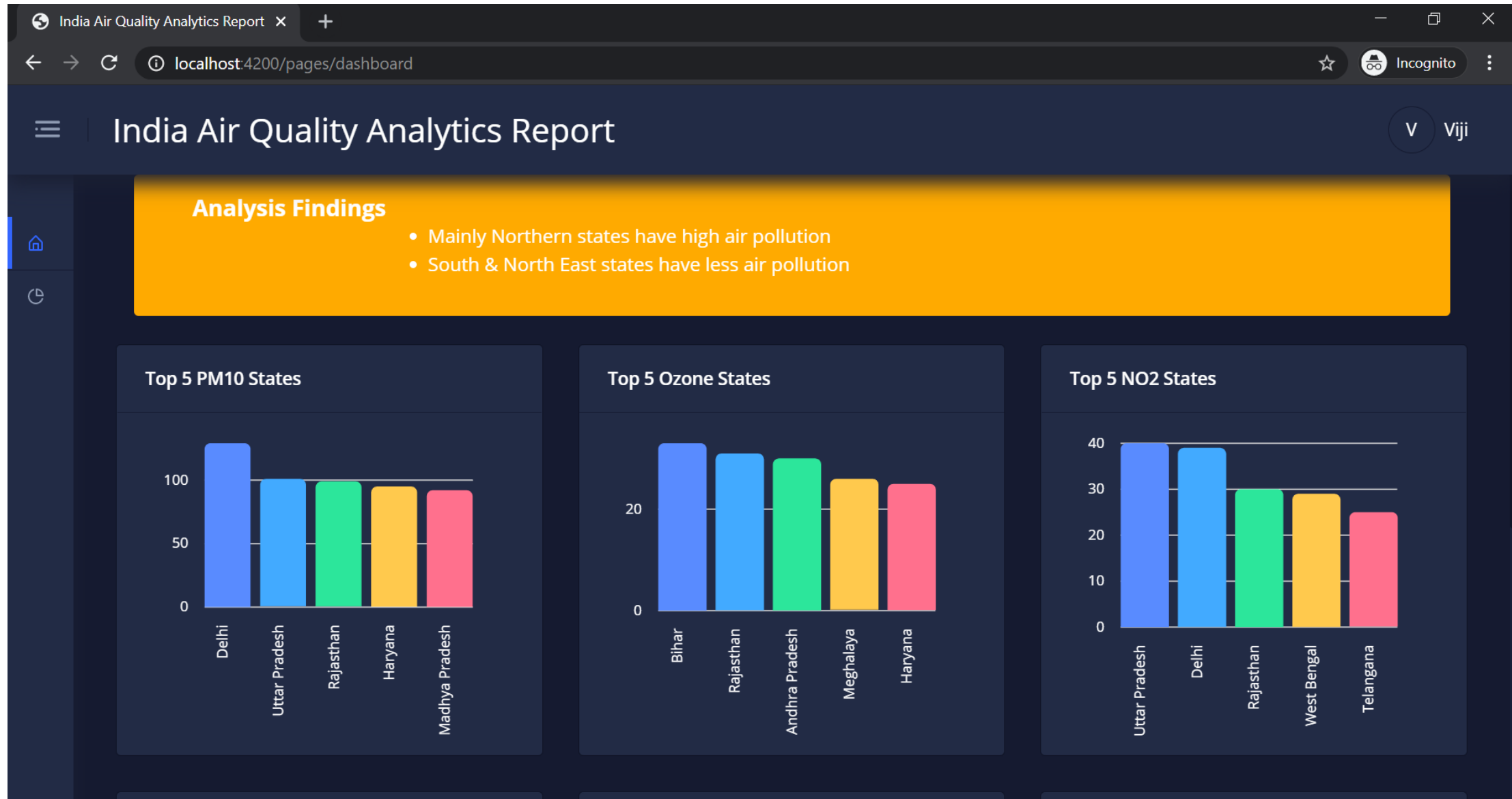


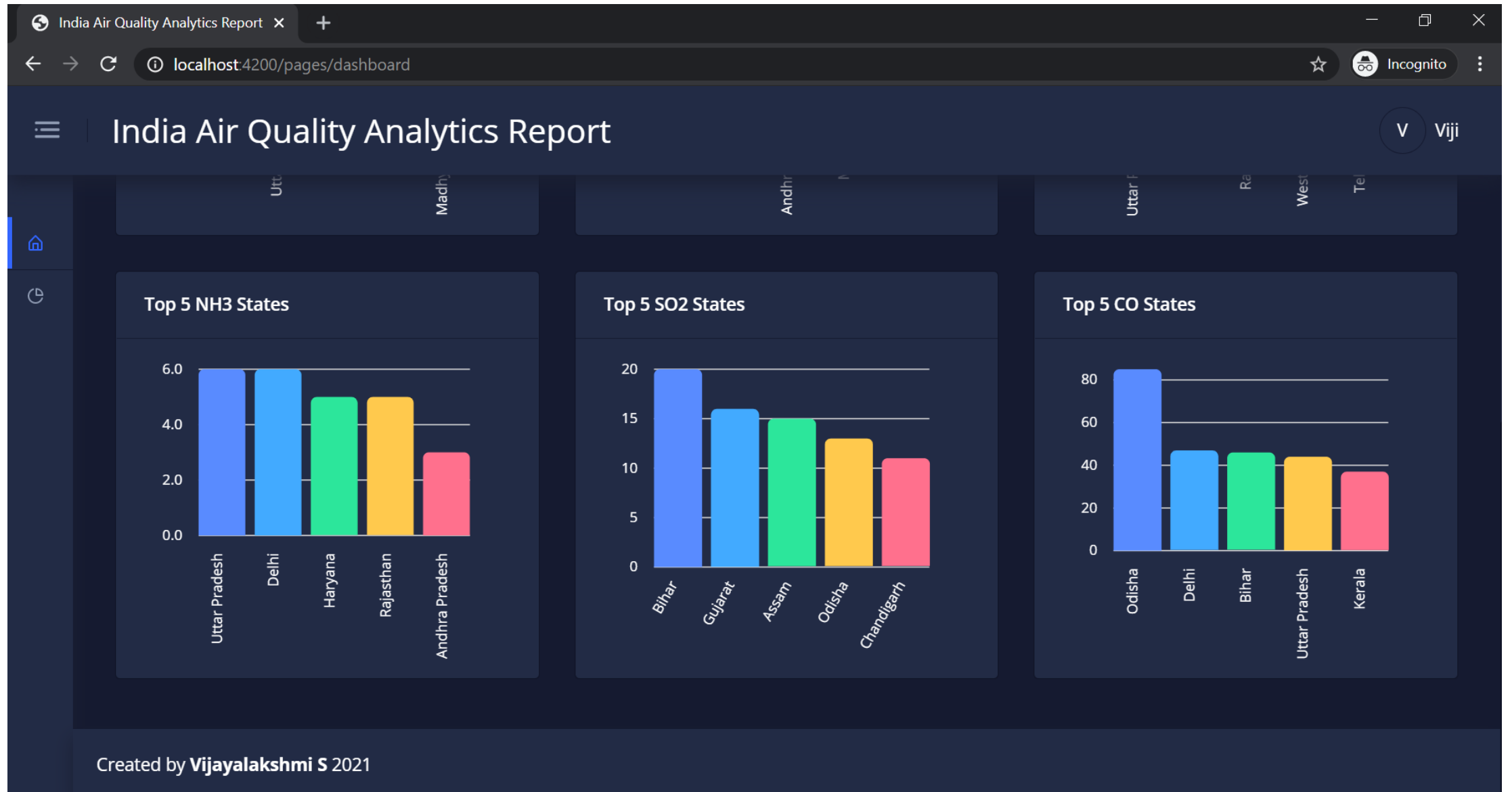
Top 5 Ozone States



Top 5 NO2 States







India Air Quality Analytics Report

localhost:4200/pages/charts/pm10

Incognito

India Air Quality Analytics Report

V Viji

Dashboard

Analysis Report

PM10

PM10 Report

PM10 Grid

Ozone

NO2

NH3

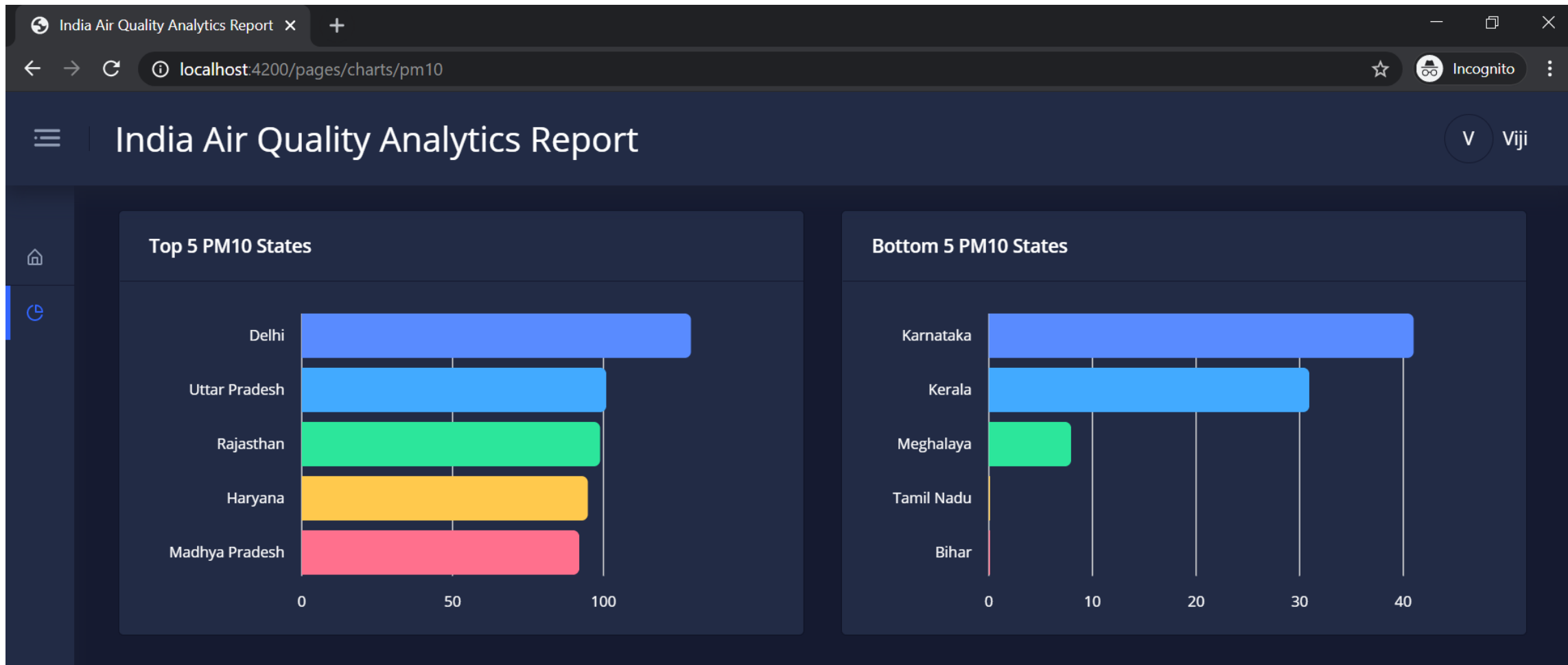
Particulate Matter 10

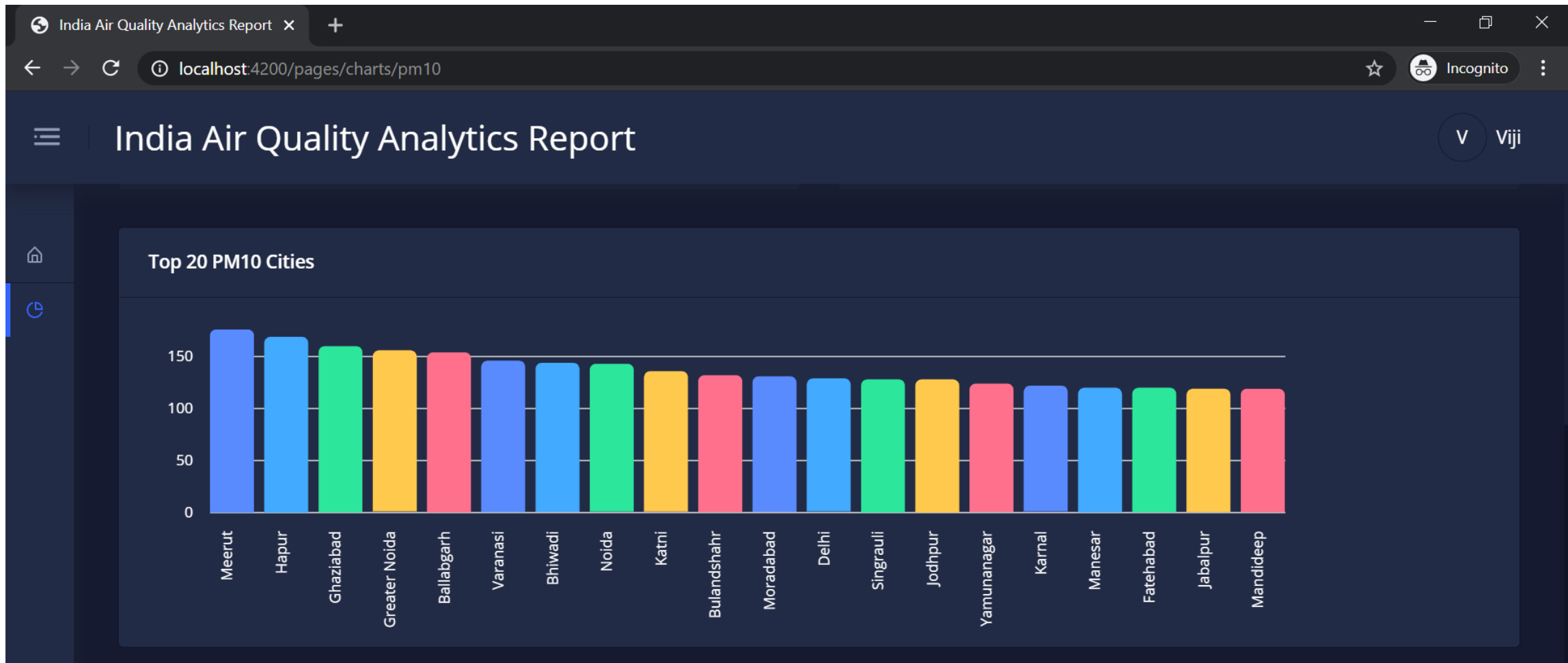
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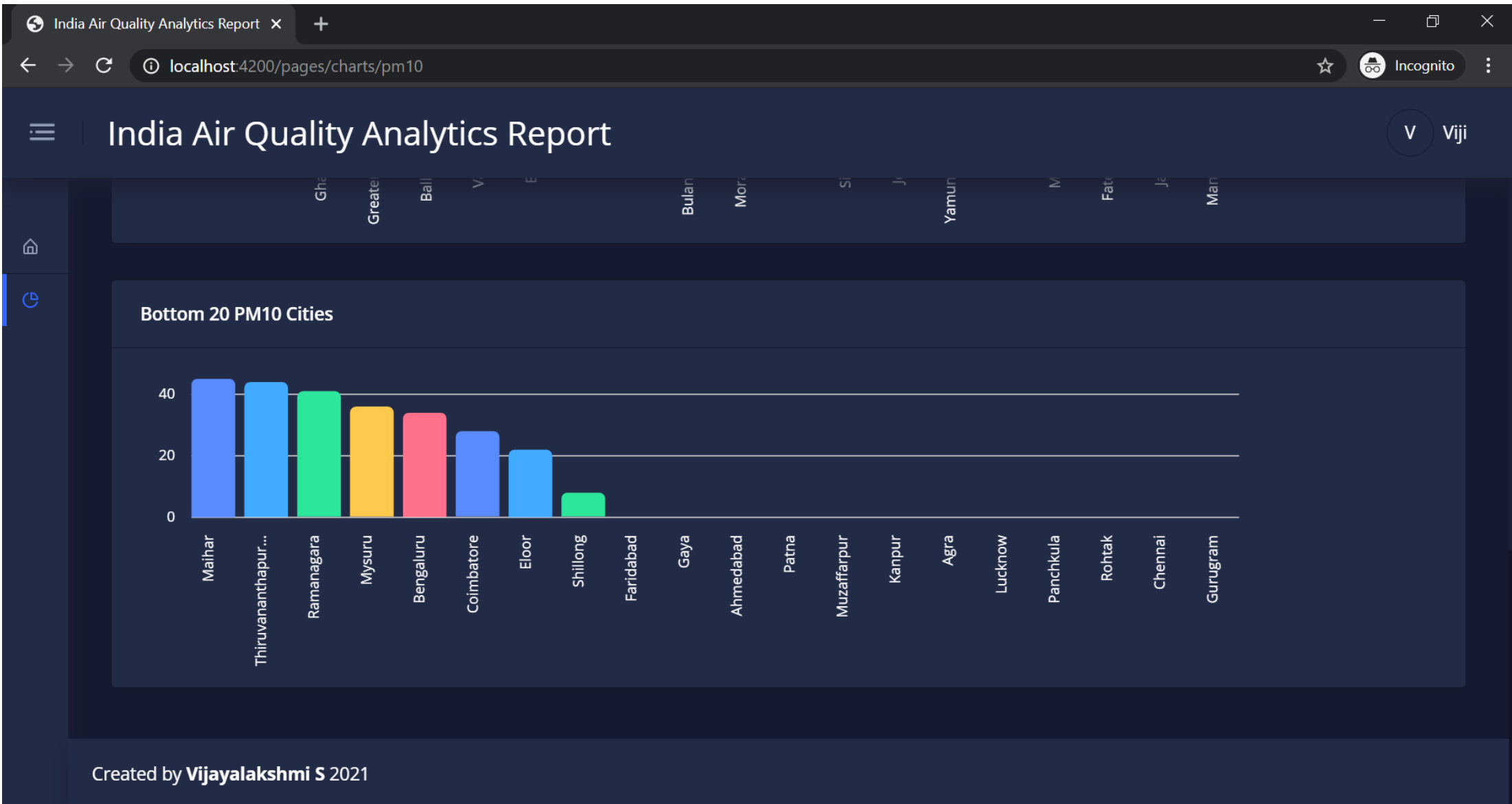
Automobile emissions, dust and cooking smoke. These particles are mixed in air and pollute it.

Effects

- Particulates are the deadliest form of air pollution
- Making lakes and streams acidic
- Depleting the nutrients in soil
- Contributing to acid rain effects
- PM can stain and damage stone and other materials, statues and monuments







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Analysis Report

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PM10 Report

PM10 Grid

Ozone

NO2

NH3

SO2

CO

Particulate Matter 10

State	City	Value
Uttar Pradesh	Meerut	176
Uttar Pradesh	Hapur	169
Uttar Pradesh	Ghaziabad	160
Uttar Pradesh	Greater Noida	156
Haryana	Ballabgarh	154

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Ozone Grid

NO2

NH3

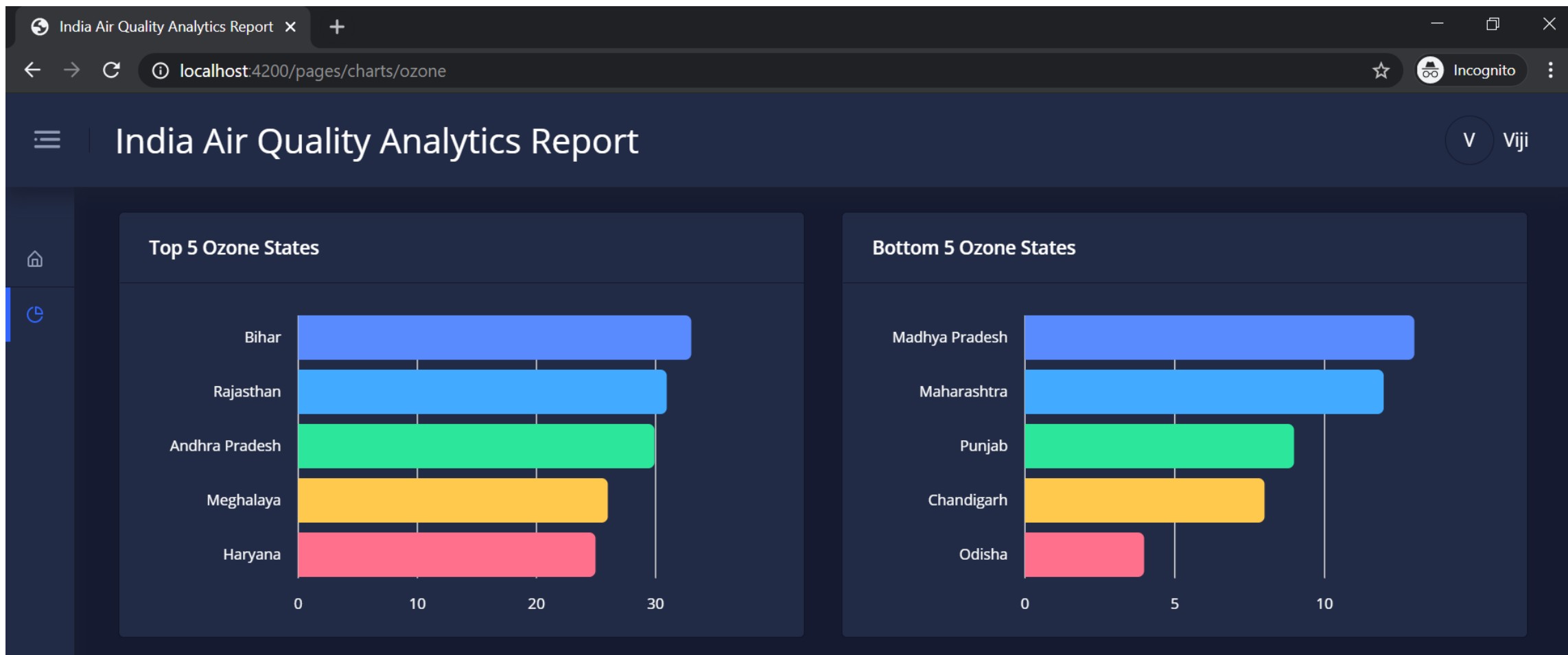
Ozone

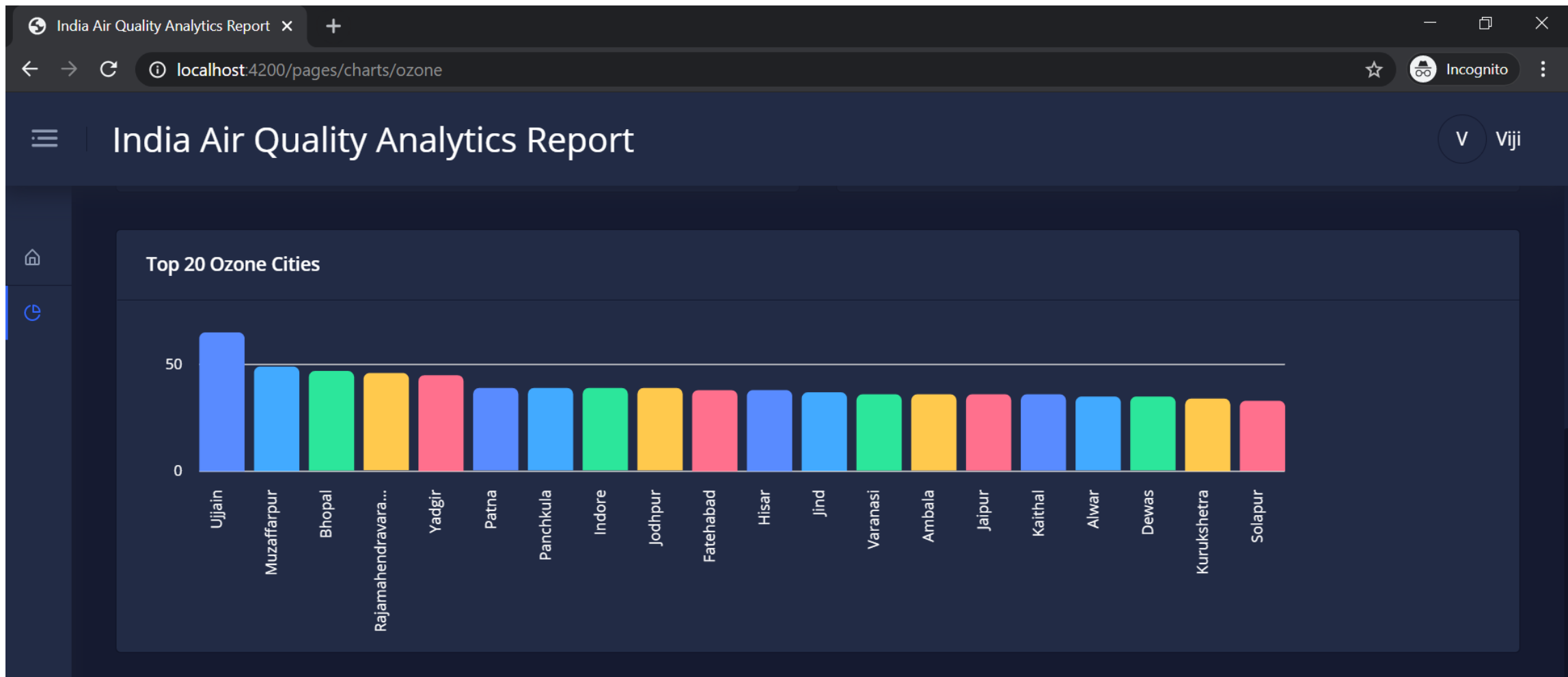
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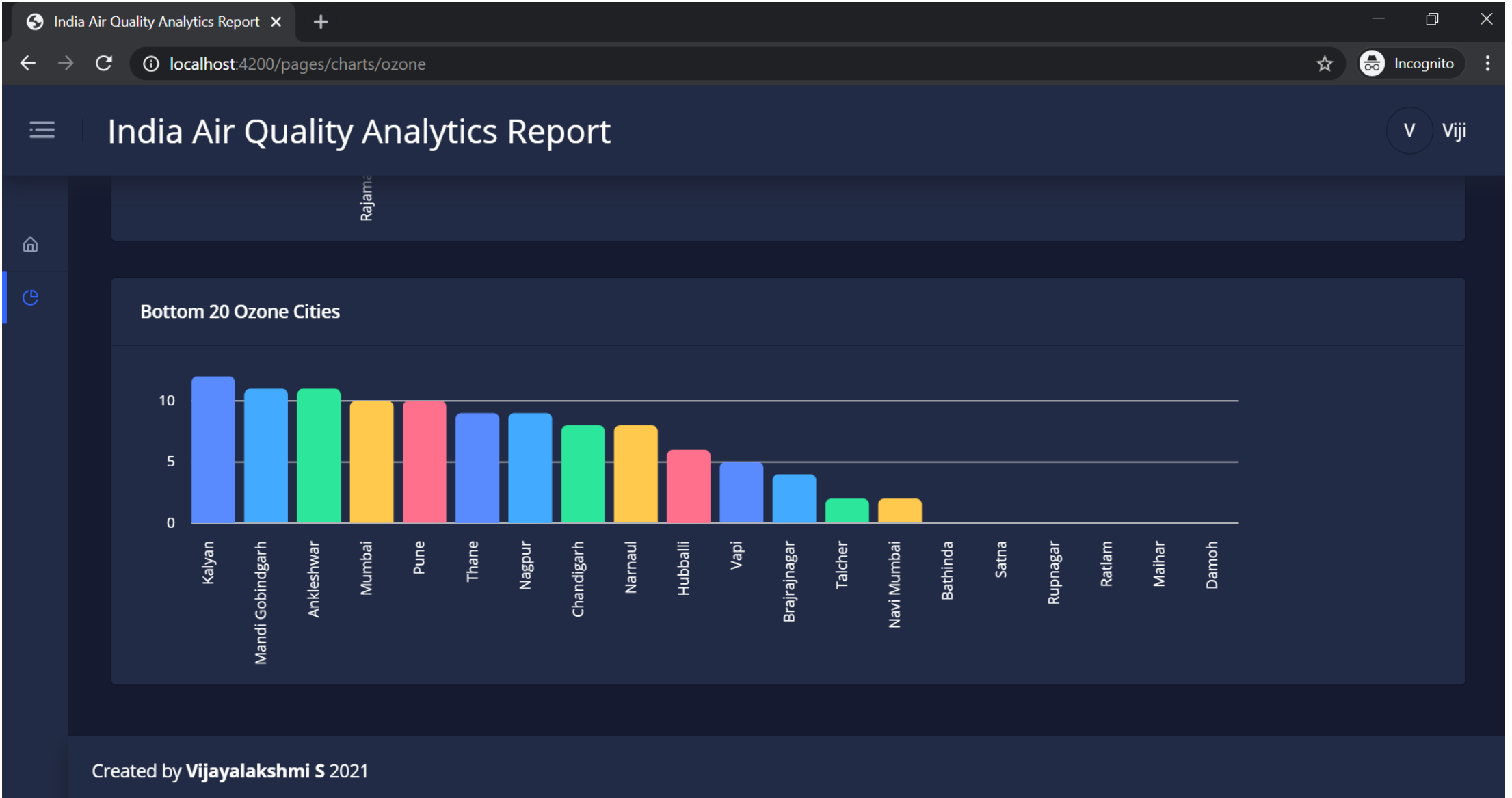
Emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight.

Effects

- Slow the plant's growth
- Changes water and nutrient cycles
- Inflame and damage the airways
- Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis







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Ozone Report

Ozone Grid

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CO

Ozone

State	City	Value
Madhya Pradesh	Ujjain	65
Bihar	Muzaffarpur	49
Madhya Pradesh	Bhopal	47
Andhra Pradesh	Rajamahendravaram	46
Karnataka	Yadgir	45

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NO2 Report

NO2 Grid

NH3

SO2

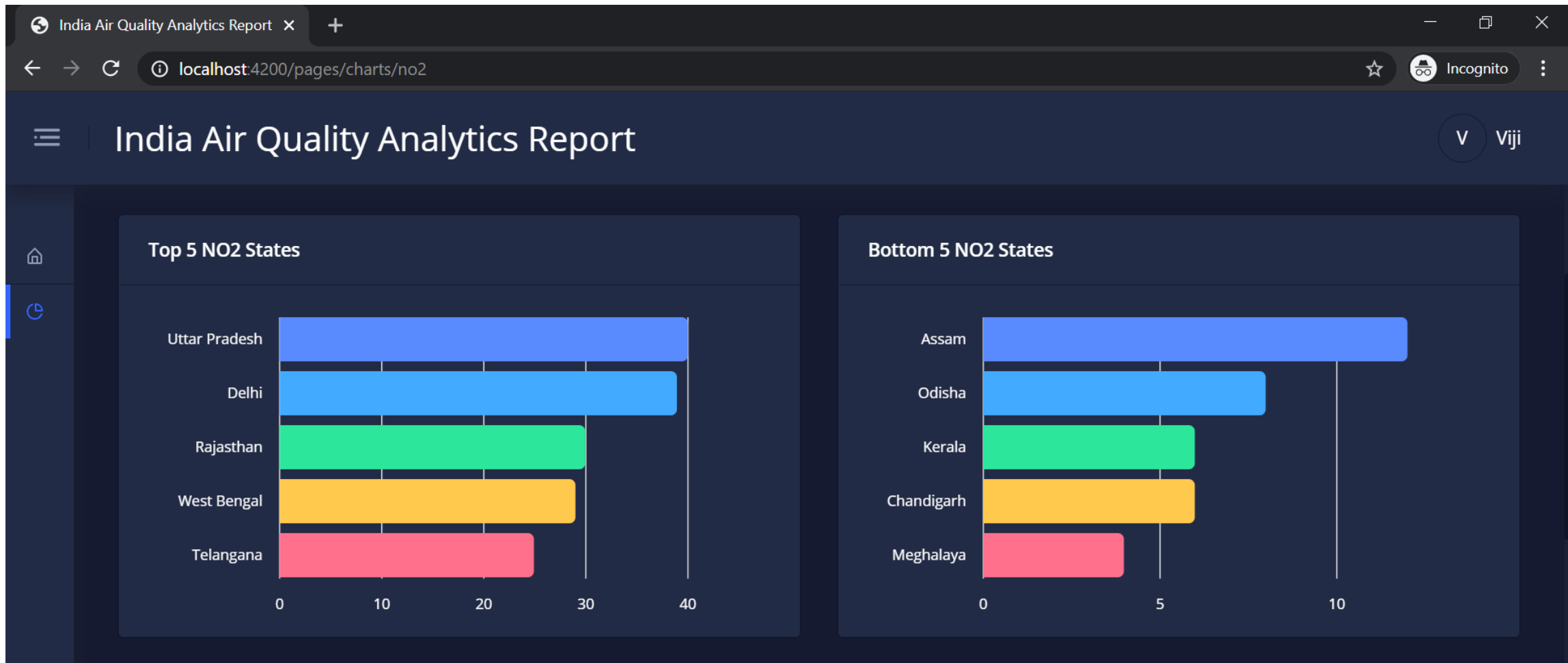
Nitrogen Dioxide

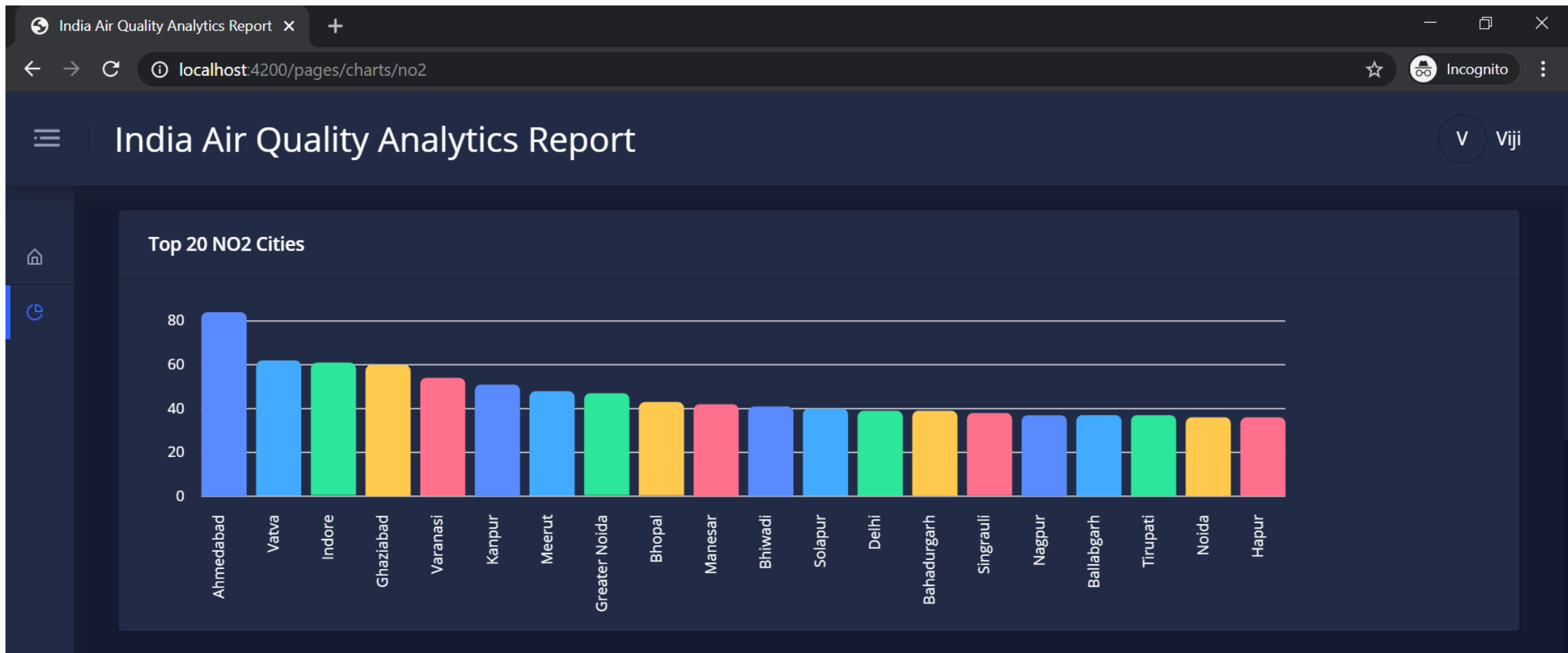
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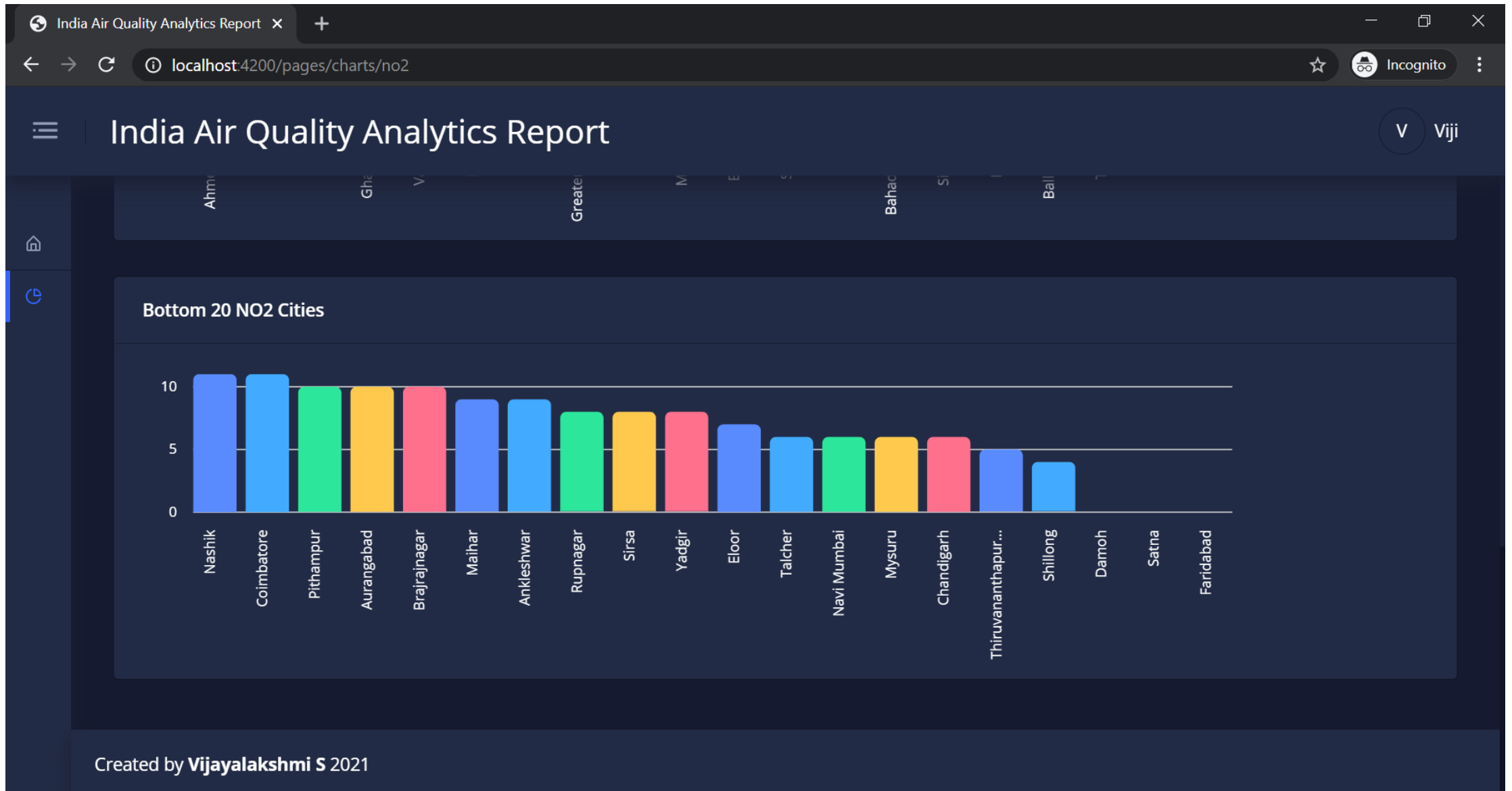
Combustion of fossil fuels (coal, gas and oil), making nitric acid, welding and using explosives, refining of petrol and metals, commercial manufacturing, and food manufacturing.

Effects

- Elevated levels of nitrogen dioxide can cause damage to the human respiratory tract and increase respiratory infections and asthma
- It may also affect the senses, by reducing a person's ability to smell an odour
- High levels of nitrogen dioxide are also harmful to vegetation—damaging foliage, decreasing growth or reducing crop yields
- Nitrogen dioxide can fade and discolour furnishings and fabrics, reduce visibility, and react with surfaces







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Analysis Report

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Ozone

NO2

NO2 Report

NO2 Grid

NH3

SO2

CO

Nitrogen Dioxide

State	City	Value
Gujarat	Ahmedabad	84
Gujarat	Vatva	62
Madhya Pradesh	Indore	61
Uttar Pradesh	Ghaziabad	60
Uttar Pradesh	Varanasi	54

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Ozone

NO2

NH3

NH3 Report

NH3 Grid

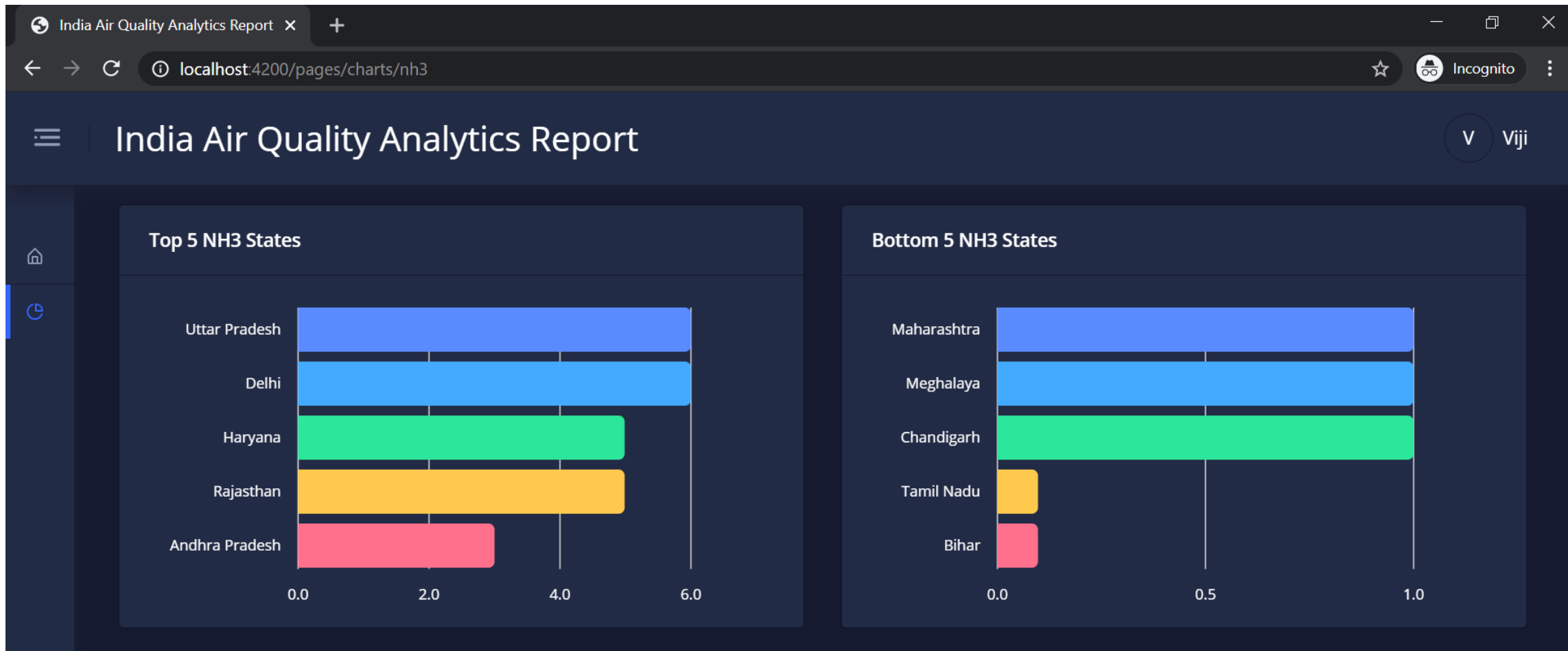
Ammonia

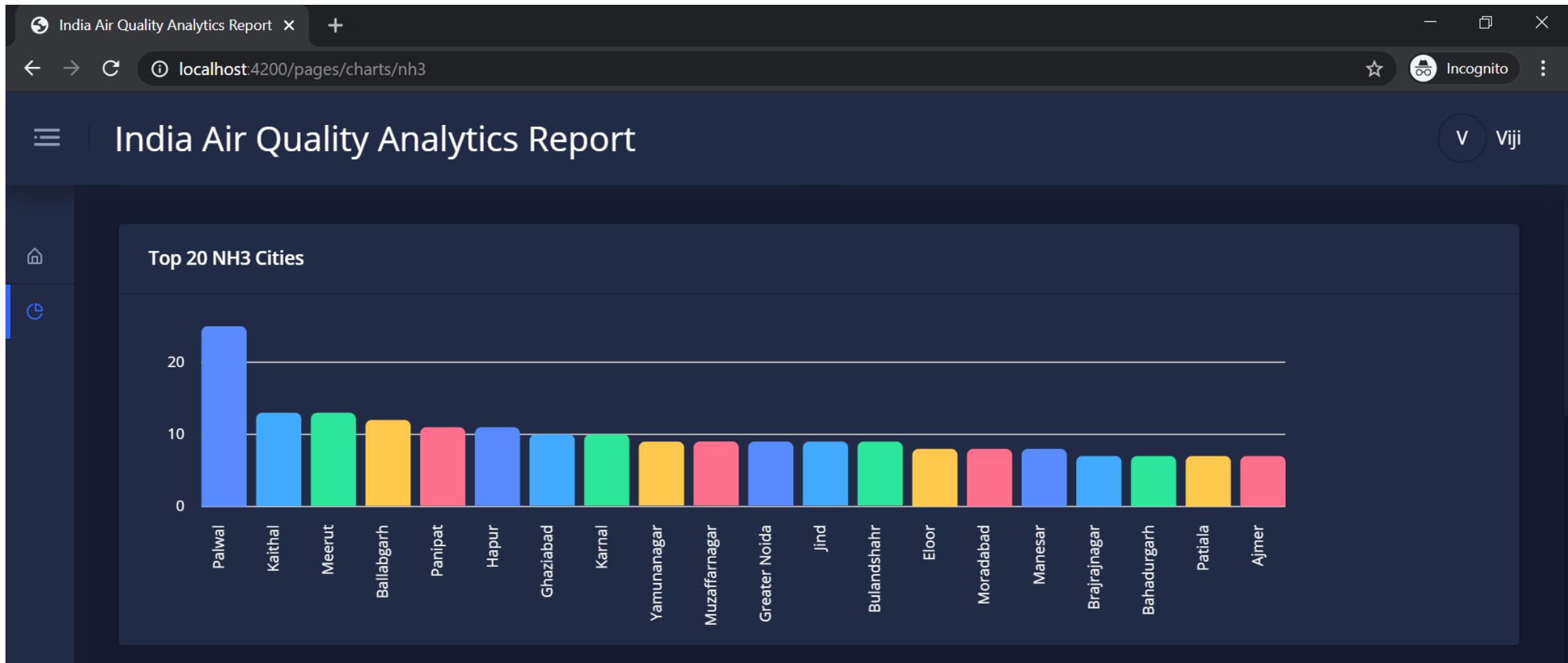
Source

Agriculture, including animal husbandry and NH3-based fertilizer applications, industrial processes, vehicular emissions and volatilization from soils and oceans.

Effects

- Exposure to ammonia in air may produce rapid skin or eye irritation
- Ammonia may cause severe injury and burns
- When excessive amounts of ammonia enter the central nervous system, the brain's defences are severely challenged





India Air Quality Analytics Report

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Dashboard

Analysis Report

PM10

Ozone

NO2

NH3

NH3 Report

NH3 Grid

SO2

CO

Ammonia

State	City	Value
Uttar Pradesh	Hapur	11
Uttar Pradesh	Ghaziabad	10
Haryana	Karnal	10
Uttar Pradesh	Bulandshahr	9
Haryana	Jind	9

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Dashboard

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NO2

NH3

SO2

SO2 Report

SO2 Grid

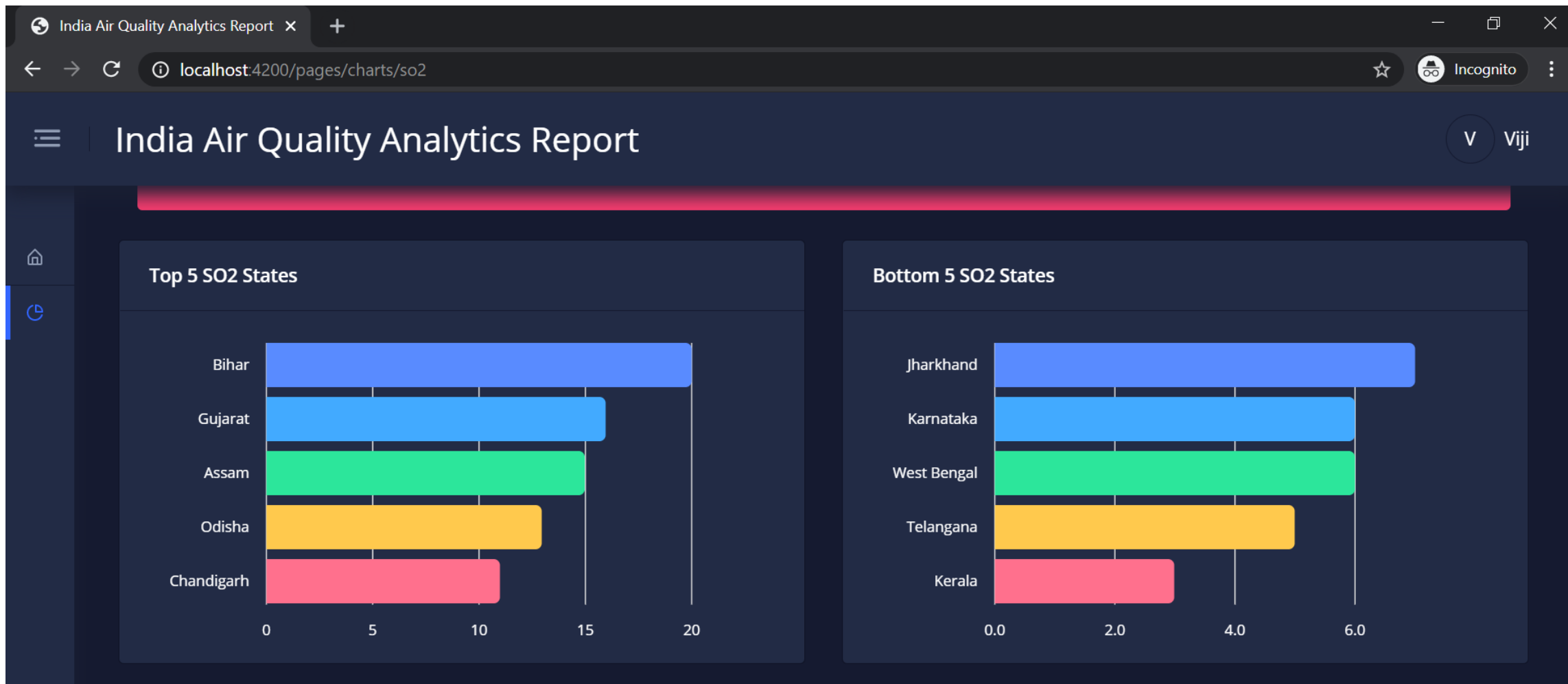
Sulphur Dioxide

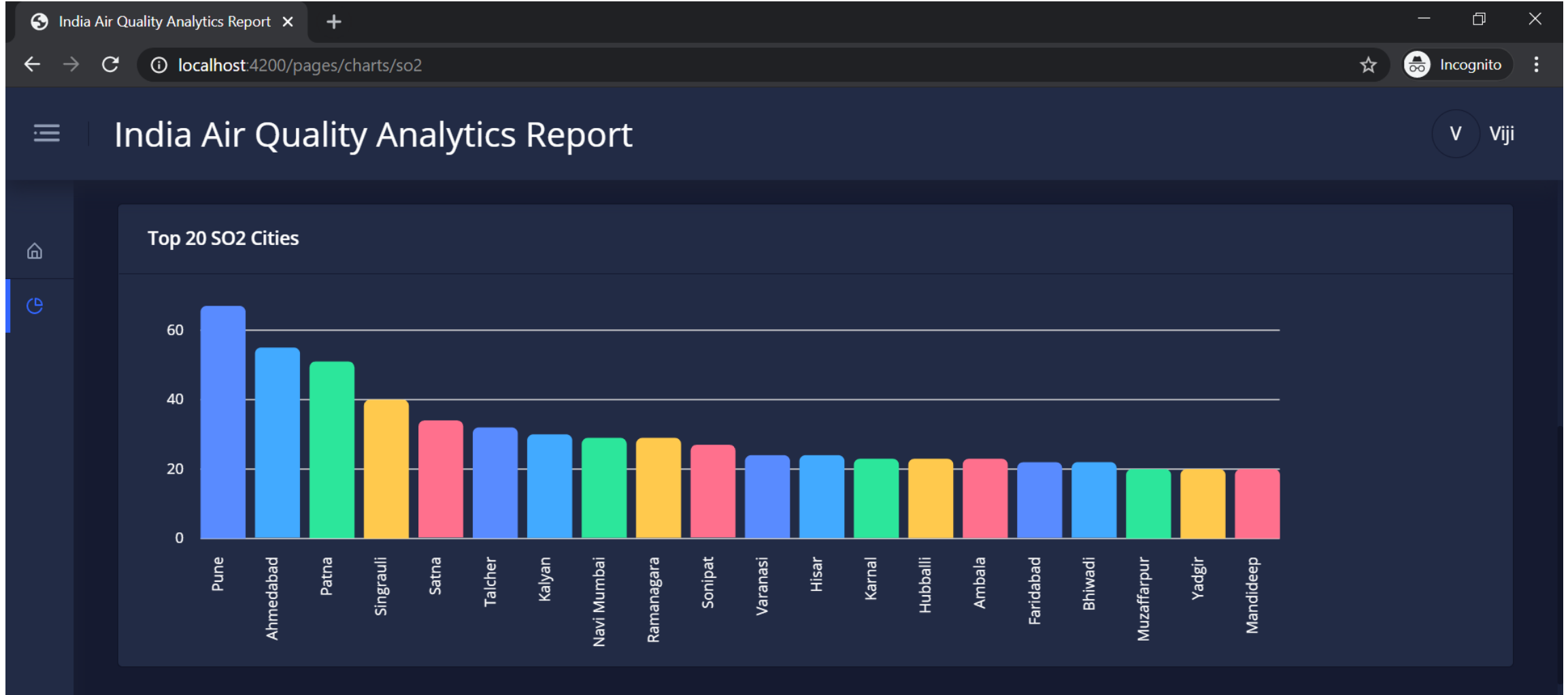
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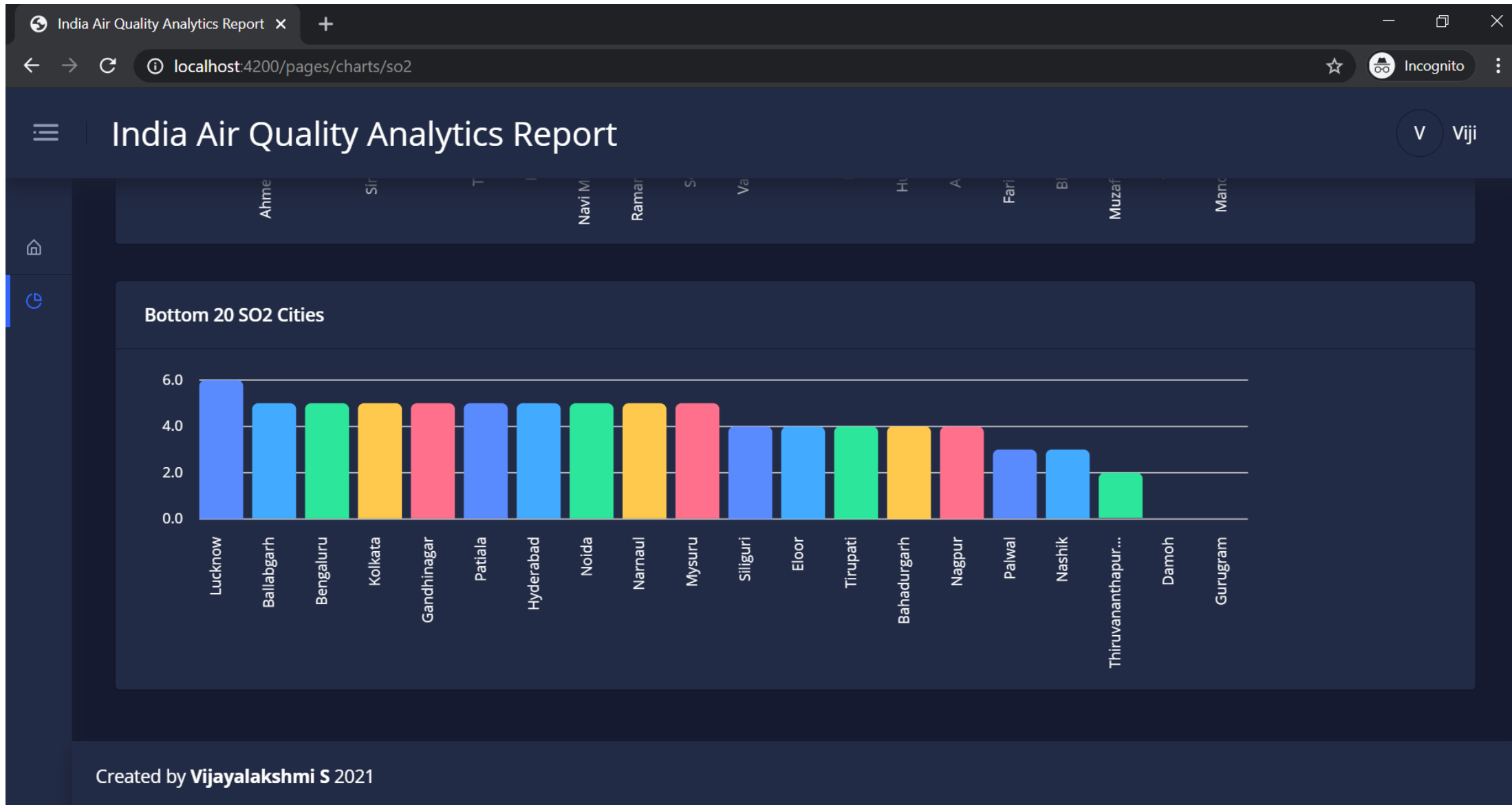
Emitted by the burning of fossil fuels(coal, oil, and diesel) or other materials that contain sulfur, power plants, metals processing and smelting facilities, and vehicles.

Effects

- Cause deforestation
- Acidify waterways to the detriment of aquatic life
- Corrode building materials and paints
- Sulfur dioxide irritates the respiratory tract and increases the risk of tract infections
- It causes coughing, mucus secretion and aggravates conditions such as asthma and chronic bronchitis







India Air Quality Analytics Report

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SO2 Report

SO2 Grid

CO

Sulphur Dioxide

State	City	Value
Maharashtra	Nashik	3
Kerala	Thiruvananthapuram	2
Haryana	Gurugram	0
Madhya Pradesh	Damoh	0

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CO Report

CO Grid

Carbon Monoxide

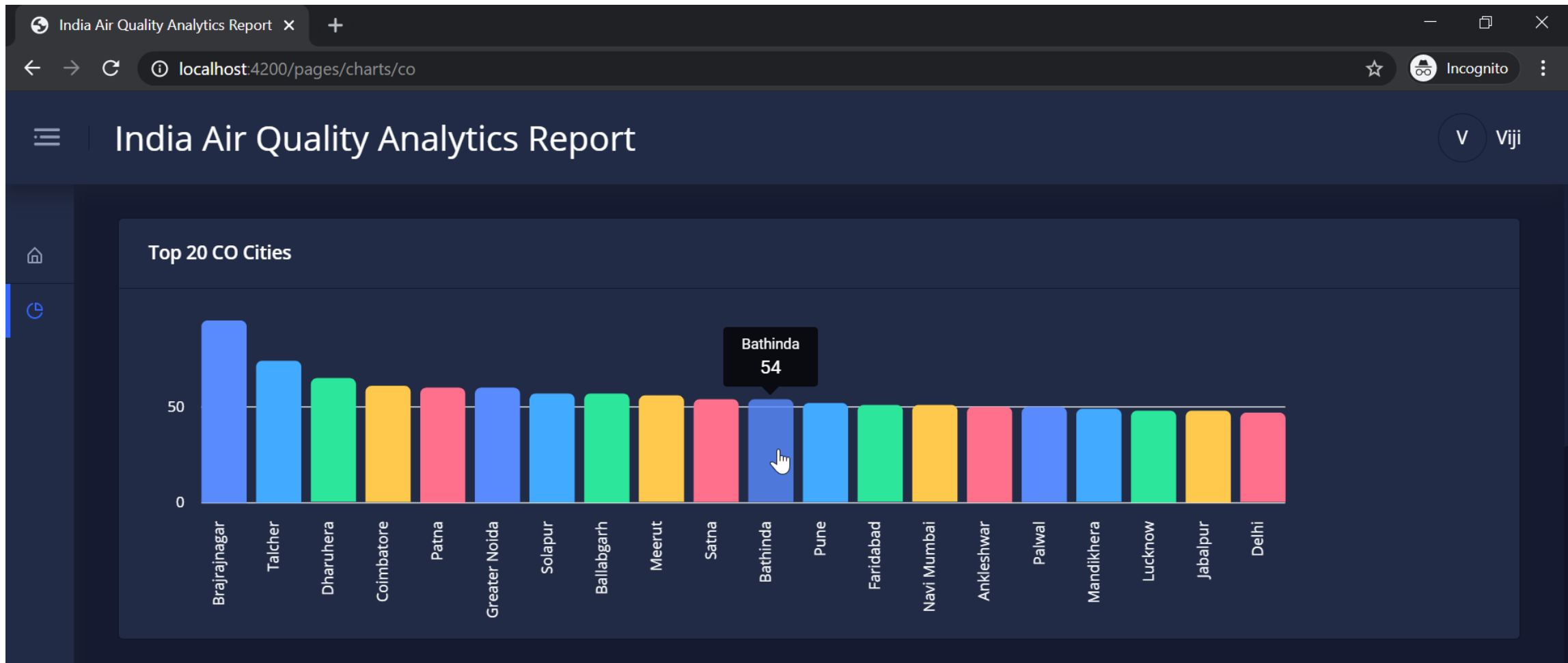
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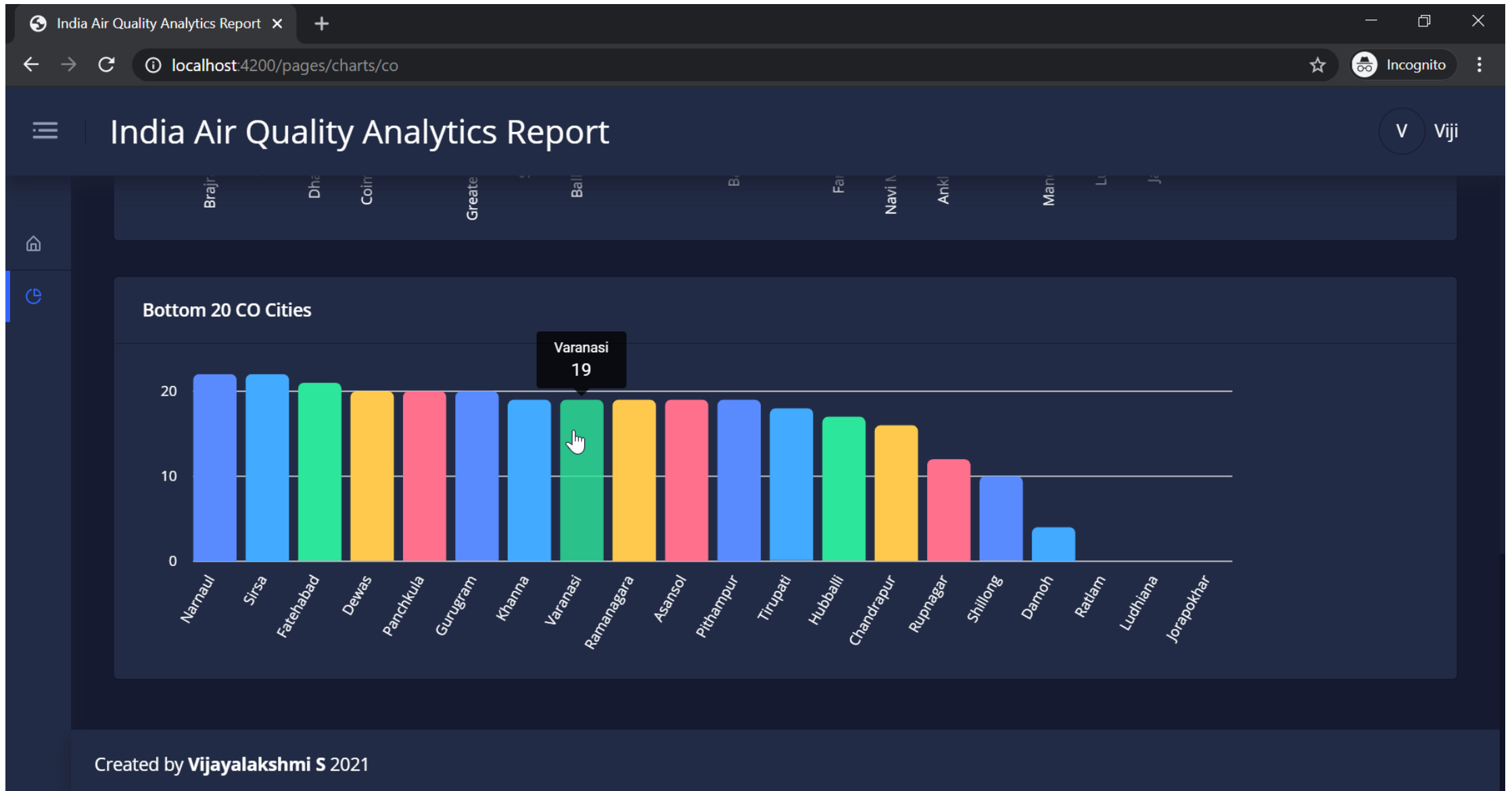
Water heaters, Furnaces or boilers, Fireplaces, Gas stoves and ovens etc

Effects

- Large exposures can result in loss of consciousness, arrhythmias, seizures, or death
- Young children take breaths more frequently than adults do, which may make them more susceptible to carbon monoxide poisoning
- Older people who experience carbon monoxide poisoning may be more likely to develop brain damage







India Air Quality Analytics Report

localhost:4200/pages/grid/co

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India Air Quality Analytics Report

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SO2

CO

CO Report

CO Grid

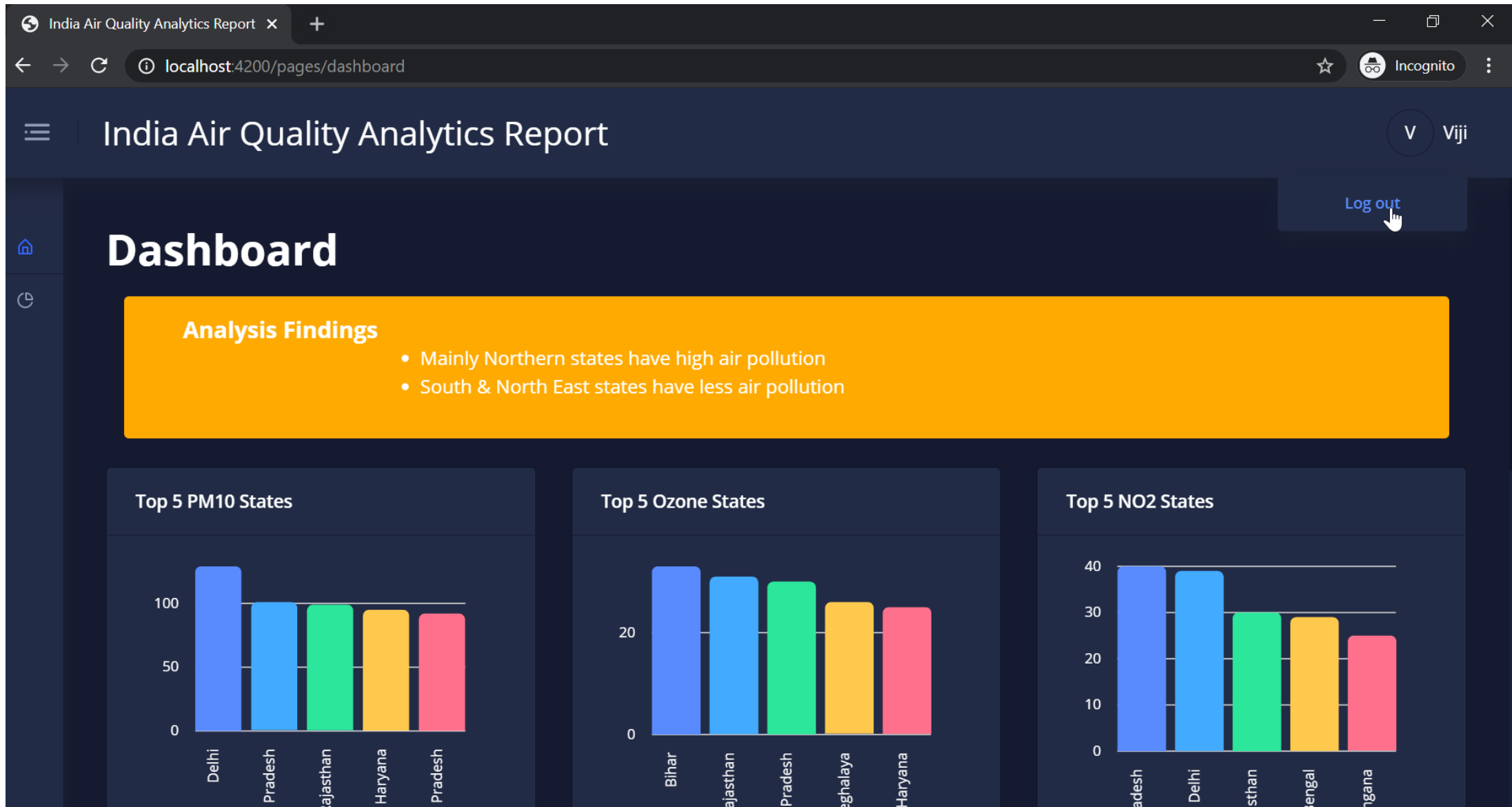
Carbon Monoxide

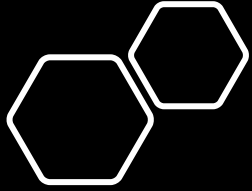
State	City	Value
Uttar Pradesh	Greater Noida	60
Haryana	Ballabgarh	57
Maharashtra	Solapur	57
Uttar Pradesh	Meerut	56
Punjab	Bathinda	54

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BIBLIOGRAPHY

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<https://www.django-rest-framework.org/>

<https://material.angular.io/>

<https://www.kaggle.com/karankrishna/india-air-quality-analysis>