

Breathe Easy: The Air Quality Explorer

Concept:

This is a fun, interactive terminal program where you type in a city and it shows the current air quality using colors, ASCII art, and emojis (like 🌞, ☀️, ☁️). You can check as many cities as you want in one session, making it feel like a little exploration game.

Written Description:

Motivation & Concept:

I made *Breathe Easy: The Air Quality Explorer* because I wanted to make something you can actually see and feel from invisible air pollution data. Instead of just showing numbers, I wanted the program to feel alive, with emojis, colors, and ASCII art that represent air quality in a way that is human and a little playful.

It started with the idea: how can we show something as invisible as air quality using only text? By combining the World Air Quality Index API with Python libraries like Rich and PyFiglet, I realized you can make even plain terminal output expressive and even funny. The interface is meant to be playful, using bright colors, emojis, and big ASCII titles, so checking global air quality almost feels like a game rather than just reading data.

Creative Process & Technical Approach:

The program works in three main steps: input, visualization, and reflection. You type a city name, the program fetches data from the API, and then it prints a table with color-coded AQI values for each station. The AQI uses a legend with emojis: 🌞 for good air, 🙄 for unhealthy, and 💀 for really bad air. The idea is to exaggerate a bit for fun so the user can see the “feel” of the air quality in a simple, visual way.

On the technical side, I used Python’s requests to get live data, Rich to make colorful tables, and PyFiglet to make the ASCII headers. The code is split into functions for different tasks, getting the API data, classifying AQI, and printing the table. The loop lets users explore multiple cities, which makes the program interactive and a little meditative.

Expected Outcome & Reflection:

I hope people who use it come away more aware of how air quality varies around the world, and maybe a bit amused by how serious data can be made playful. Using colors and emojis turns dry numbers into a sort of “performance,” showing that even data can be fun and expressive.

Overall, this project shows that the terminal can be more than just a place for code. It can be a canvas for creativity, humor, and visual storytelling.

Screenshots of the functioning work:

```

Project1-John-William.py x README.me
Project1-John-William.py > main
64 def main():
92     uid = s["uid"]
93     station_name = s["station"]["name"]
94     console.print(f"Fetching data from station {i}/{len(stations)}: {station_name}...", style="dim")
95
96     try:
97         details = requests.get(f"{BASE_FEED_URL}{uid}/", params={"token": TOKEN}, timeout=5).json()
98         if details["status"] != "ok":
99             console.print(f"[red]Skipping {station_name} (invalid response) [/red]")
100             continue
101
102         data = details["data"]
103         aqi = data["aqi"]
104         dom = data.get("dominantpol", "N/A")
105         emoji, color, status = classify_aqi(aqi)
106         table.add_row(station_name, f"[{color}]{aqi}[/color]", f"[emoji] {status}", dom)
107
108     except Exception as e:
109         console.print(f"[red]Error fetching {station_name}: {e}[/red]")
110         continue
111
112     time.sleep(0.2)
113
114     console.print(table)
115     console.print("\n-----\n")

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

conda activate base
 (base) jeboycompuesto@jeboys-mbp Cart351-Project1 % conda activate base

Breathe Easy

Welcome to the Air Quality Explorer 🌍
 Type a city name to discover its air quality.

Enter a city (or type 'exit' to quit): montreal

Found 21 station(s) in Montreal:

conda activate base
 (base) jeboycompuesto@jeboys-mbp Cart351-Project1 % conda activate base

Breathe Easy

Welcome to the Air Quality Explorer 🌍
 Type a city name to discover its air quality.

Enter a city (or type 'exit' to quit): montreal

Found 21 station(s) in Montreal:

```
Enter a city (or type 'exit' to quit): montreal

Found 21 station(s) in Montreal:

Fetching data from station 1/21: Montreal...
Fetching data from station 2/21: Jardin Botanique, Montreal, Canada...
Error fetching Jardin Botanique, Montreal, Canada: HTTPSConnectionPool(host='api.waqi.info', port=443): Read timed out. (read
timeout=5)
Fetching data from station 3/21: Drummond, Montreal, Canada...
Error fetching Drummond, Montreal, Canada: HTTPSConnectionPool(host='api.waqi.info', port=443): Read timed out. (read
timeout=5)
Fetching data from station 4/21: Molson, Montreal, Canada...
Fetching data from station 5/21: Saint-Michel, Montreal, Canada...
Fetching data from station 6/21: St-Dominique, Montreal, Canada...
Fetching data from station 7/21: Verdun, Montreal, Canada...

Fetching data from station 9/21: Roberval, York, Montreal, Canada...
Fetching data from station 10/21: Maisonneuve, Montreal, Canada...
Error fetching Maisonneuve, Montreal, Canada: HTTPSConnectionPool(host='api.waqi.info', port=443): Read timed out. (read
timeout=5)
Fetching data from station 11/21: Ontario, Montreal, Canada...
Fetching data from station 12/21: Échangeur Décarie, Montreal, Canada...
Fetching data from station 13/21: Parc Pilon, Montreal, Canada...
Fetching data from station 14/21: Hochelaga-Maisonneuve, Montreal, Canada...
Fetching data from station 15/21: Duncan, Montreal, Canada...
Error fetching Duncan, Montreal, Canada: invalid literal for int() with base 10: '-'
Fetching data from station 16/21: Anjou, Montreal, Canada...
Fetching data from station 17/21: Dorval, Montreal, Canada...
Fetching data from station 18/21: Chénier, Montreal, Canada...
Fetching data from station 19/21: Saint-Jean-Baptiste, Montreal, Canada...
Fetching data from station 20/21: Aéroport de Montréal, Montreal, Canada...
```

Station	AQI	Status	Dominant Pollutant
Montreal	17	🌤️ Good	o3
Molson, Montreal, Canada	17	🌤️ Good	o3
Saint-Michel, Montreal, Canada	16	🌤️ Good	o3
St-Dominique, Montreal, Canada	16	🌤️ Good	o3
Verdun, Montreal, Canada	16	🌤️ Good	o3
Caserne 17, Montreal, Canada	15	🌤️ Good	o3
Roberval, York, Montreal, Canada	15	🌤️ Good	pm25
Ontario, Montreal, Canada	15	🌤️ Good	pm25
Échangeur Décarie, Montreal, Canada	14	🌤️ Good	o3
Parc Pilon, Montreal, Canada	14	🌤️ Good	o3
Hochelaga-Maisonneuve, Montreal, Canada	12	🌤️ Good	pm25
Anjou, Montreal, Canada	12	🌤️ Good	pm25
Verdun, Montreal, Canada	16	🌤️ Good	o3
Caserne 17, Montreal, Canada	15	🌤️ Good	o3
Roberval, York, Montreal, Canada	15	🌤️ Good	pm25
Ontario, Montreal, Canada	15	🌤️ Good	pm25
Échangeur Décarie, Montreal, Canada	14	🌤️ Good	o3
Parc Pilon, Montreal, Canada	14	🌤️ Good	o3
Hochelaga-Maisonneuve, Montreal, Canada	12	🌤️ Good	pm25
Anjou, Montreal, Canada	12	🌤️ Good	pm25
Dorval, Montreal, Canada	18	🌤️ Good	pm25
Chénier, Montreal, Canada	16	🌤️ Good	o3
Saint-Jean-Baptiste, Montreal, Canada	17	🌤️ Good	o3
Aéroport de Montréal, Montreal, Canada	16	🌤️ Good	o3
Sainte-Anne-de-Bellevue, Montreal, Canada	17	🌤️ Good	o3