


Project Title – Weather Forecasting Tool


Problem Statements

Fastest Coder Hackathon
Powered by GitHub Copilot




Python - Weather Forecasting Tool

Create a command-line tool that accepts a city's name and returns the weather forecast. Leverages Open Weather Map API to fetch weather data and parse it using Python. Your solution should demonstrate how GitHub Copilot can help you with API usage, data parsing, and error handling.




Ruby - URL Shortener Service

Build a simple URL shortener service using Ruby and the Sinatra web framework. The service should accept a long URL as input, generate a unique short URL, and store the mapping in a suitable data structure. Demonstrate how GitHub Copilot can provide suggestions for implementing the URL shortening algorithm, handling user input, and managing the data store.




NET (C#) - Task Management Application

Develop a basic task management application using C# and .NET Framework. The application should allow users to create, update, and delete tasks and mark them as completed. Show how GitHub Copilot can be used to generate code for implementing CRUD operations, input validation, and user interface design.



JavaScript - Personal Finance Tracker


Create a web-based personal finance tracker using JavaScript, HTML, and CSS. The application should allow users to add, edit, and delete income and expense transactions and display the current balance. Use GitHub Copilot to guide you in implementing features, handling user input, and designing a responsive user interface.



Java - Simple E-commerce Inventory Management System

Develop a simple inventory management system for an e-commerce platform using Java. The system should include basic functionalities such as adding, updating, removing products, and checking the available stock. Use GitHub Copilot to assist in generating code for implementing different operations and handling edge cases.

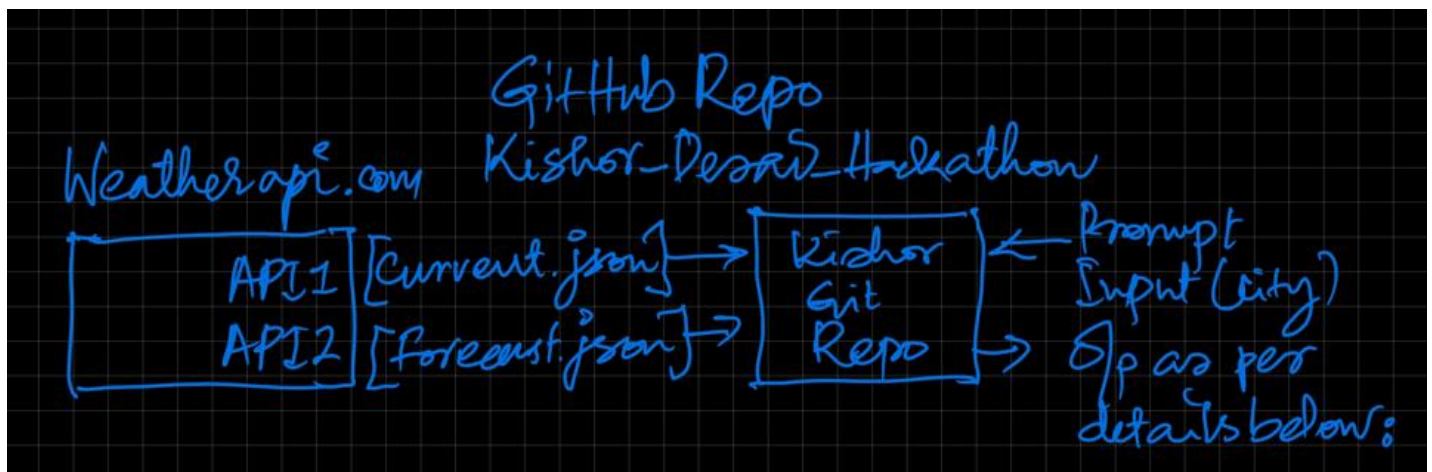
Each problem statement is designed to be solvable within 4 hours, allowing developers to focus on understanding and utilizing GitHub Copilot's capabilities while solving real-world challenges.

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 Microsoft Azure

Components Used:

- Visual Studio Code (IDE)
- Python (Anaconda Distribution) – Ver 3.9
 - o Requests Module
 - o Tabulate Module for neat output
- API's Consumed
 - o <http://api.weatherapi.com/v1/current.json?key={apikey}&q={city}>
 - o <http://api.weatherapi.com/v1/forecast.json?key={apikey}&q={city}&days=3>

Architecture Diagram:



Program Execution / output:

```
Anaconda Prompt

F:\ACADEMICS\EXTRAS\MSFTHCKTHN_230624>python main.py

Enter the City Name: Bangalore

Current Weather Details of Bangalore,Karnataka,India:



| Temperature | Feels Like  | Condition     | Humidity | Wind Speed      | Wind Direction |
|-------------|-------------|---------------|----------|-----------------|----------------|
| 27.0C/80.6F | 28.5C/83.3F | Partly cloudy | 66       | 19.1KPH/11.9MPH | W              |



Forecast Details:



| Max Temperature | Min Temperature | Condition     | Humidity | Chance of Rain | Precipitation |
|-----------------|-----------------|---------------|----------|----------------|---------------|
| 26.9C/80.4F     | 20.7C/69.3F     | Moderate rain | 75.0     | 89%            | 12.2 mm       |



Astro Details:



| Sunrise Time | Sunset Time | Moonrise Time | Moonset Time |
|--------------|-------------|---------------|--------------|
| 05:55 AM     | 06:49 PM    | 10:50 AM      | 11:30 PM     |



F:\ACADEMICS\EXTRAS\MSFTHCKTHN_230624>_
```

Unit Test code inclusion using Co-Pilot. Test Case Execution Outcome:

```
F:\ACADEMICS\EXTRAS\MSFTHCKTHN_230624>python test.py
Enter the City Name:Bangalore

Current Weather Details of Bangalore,Karnataka,India:



| Temperature | Feels Like  | Condition     | Humidity | Wind Speed      | Wind Direction |
|-------------|-------------|---------------|----------|-----------------|----------------|
| 27.0C/80.6F | 28.4C/83.2F | Partly cloudy | 66       | 20.2KPH/12.5MPH | WSW            |



Forecast Details:



| Max Temperature | Min Temperature | Condition     | Humidity | Chance of Rain | Precipitation |
|-----------------|-----------------|---------------|----------|----------------|---------------|
| 26.9C/80.4F     | 20.7C/69.3F     | Moderate rain | 75.0     | 89%            | 12.2 mm       |



Astro Details:



| Sunrise Time | Sunset Time | Moonrise Time | Moonset Time |
|--------------|-------------|---------------|--------------|
| 05:55 AM     | 06:49 PM    | 10:50 AM      | 11:30 PM     |



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Ran 1 test in 0.002s

OK
```

Error Handling for User Input:

```
Anaconda Prompt
F:\ACADEMICS\EXTRAS\MSFTHCKTHN_230624>python forecast.py

Enter the City Name: 7
Invalid Input : City Name should be a String
Enter the City Name: Bangalore

Current Weather Details of Bangalore,Karnataka,India:
```

Temperature	Feels Like	Condition	Humidity	Wind Speed	Wind Direction
28.0C/82.4F	30.1C/86.2F	Partly cloudy	66	22.0KPH/13.6MPH	W

```
Forecast Details:
```

Max Temperature	Min Temperature	Condition	Humidity	Chance of Rain	Precipitation
26.9C/80.4F	20.7C/69.3F	Moderate rain	75.0	89%	12.2 mm

```
Astro Details:
```

Sunrise Time	Sunset Time	Moonrise Time	Moonset Time
05:55 AM	06:49 PM	10:50 AM	11:30 PM

```
F:\ACADEMICS\EXTRAS\MSFTHCKTHN_230624>_
```

Note: Tried using the Co-Pilot to generate a code for error handling and input validation, but couldn't get sufficient code, hence wrote the code on my own.

[Thank You Team Microsoft and GitHub for being wonderful host !](#)

