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Weather Fetching Program

Topic Name	Page No.
Introduction	**2**
1.1 Purpose	2
1.2 Scope	2
1.3 Definitions, Acronyms, and Abbreviations	2
1.4 References	2
Overall Description	**2**
2.1 Product Perspective	2
2.2 Product Features	2
2.3 User Classes and Characteristics	3
2.4 Operating Environment	3
2.5 Design and Implementation Constraints	3
System Features	**3**
External Interface Requirements	**5**
4.1 User Interfaces	5
4.2 Hardware Interfaces	5
4.3 Software Interfaces	5
4.4 Communication Interfaces	5
Images	**6**
5.1 Main Menu	6
5.2 Searching Weather for a City	6
5.3 Searching Weather for a city from Favorite List	8
5.4 CRUD Operations on Favorite City List	10

1. Introduction

1.1 Purpose

The purpose of the above program is to create a command-line weather application that allows users to check weather of a city along with performing the CRUD operations on the Favorite City List.

1.2 Scope

The scope of this project, which is a command-line weather application, is relatively focused but covers several key functionalities. Its main purpose is to provide users with a convenient way to access weather information for various cities, manage a list of their favorite locations, and customize their weather experience.

1.3 Definitions, Acronyms, and Abbreviations

None

1.4 References

1.4.1 https://openweathermap.org/api/one-call-3

1.4.2 https://realpython.com/python-json/

2. Overall Description

2.1 Product Perspective

It is a standalone command-line weather application. From a product perspective, it can be viewed as an independent software tool designed to serve a specific purpose: providing users with weather information and basic city list management functionalities.

2.2 Product Features

- Weather Information: The application retrieves current weather data for a specified city and displays it in the console.
- Favorite City List: Users can maintain a list of their favorite cities for which they want to track the weather. They can add, delete, and update city names in this list.
- User Interface: The product features a text-based user interface, which allows users to interact with the application by selecting menu options.
- Screen Clearing: There is an option to clear the console screen for improved readability.
- Exit Option: Users can exit the program when they have finished using it.

2.3 Operating Environment

Operating environment must include:

- Python Interpreter
- Storage Access

2.4 Design and Implementation Constraints

2.4.1 Python Dependency

2.4.2 External Libraries

2.4.3 Internet Connectivity

2.4.4 Operating System Compatibility

2.4.5 Terminal Capabilities

2.4.6 Text-Based Interface

3. System Features

3.1 Check Weather by City Name

Users can retrieve current weather information for a specific city by providing its name. The application fetches and displays data, including temperature, weather conditions, and time.

3.2 Edit Favorite City List

Users can manage their list of favorite cities with CRUD operations

3.2.1 Add new cities to the list.

3.2.2 Remove cities from the list.

3.2.3 Change the name of cities in the list.

3.3 Search Weather for Favorite City List

Users can search for weather data within their favorite city list. Options include

3.3.1 Viewing weather data for a specific favorite city.

3.3.2 Fetching weather data for all cities in the list.

3.4 Clear Screen

The application provides a screen-clearing to enhance the user interface and improve readability. Users can clear the terminal screen to maintain a clean display of weather information.

3.5 User-Friendly Text-Based Interface

The application offers a user-friendly text-based interface with formatted and colored text output. This interface provides a visually appealing and organized presentation of weather information.

3.6 Time Display

The application displays the current time in a 24-hour format (AM/PM) alongside weather information. This provides context for the weather data.

3.7 Error Handling

The application incorporates error handling to address issues, such as invalid city names or API request failures. Users receive informative error messages.

3.8 Support for Favorite City List

Users can maintain a list of favorite cities, simplifying the process of checking the weather for frequently visited places.

3.9 Visual Enhancements

The application can use the "termcolor" library to provide colored and formatted text output, improving the visual appeal of weather information.

3.10 User Input Validation

Input validation is applied to ensure users enter valid city names and numerical choices when prompted, reducing the likelihood of errors.

3.11 Flexibility with City Names

Users have the flexibility to enter city names as text or numerical choices corresponding to their favorite city list order.

3.12 Local Data Storage

The application stores the list of favorite cities in a local file on the user's system, ensuring data persistence across application sessions.

3.13 Current City to Favorite List

After checking the weather for the current city, users are prompted to add the current city to their favorite city list for easy access.

3.14 Clear and Intuitive Menus

The application provides clear and intuitive menus to facilitate user navigation and operation selection.

These s collectively form a robust command-line weather application that balances functionality with user-friendliness and customization options.

4. External Interface Requirements

4.1 User Interfaces

4.1.1 Command Line Interface (CLI)

4.2 Hardware Interfaces

None

4.3 Software Interfaces

4.3.1 OpenWeatherMap API

4.3.2 Python Standard Libraries

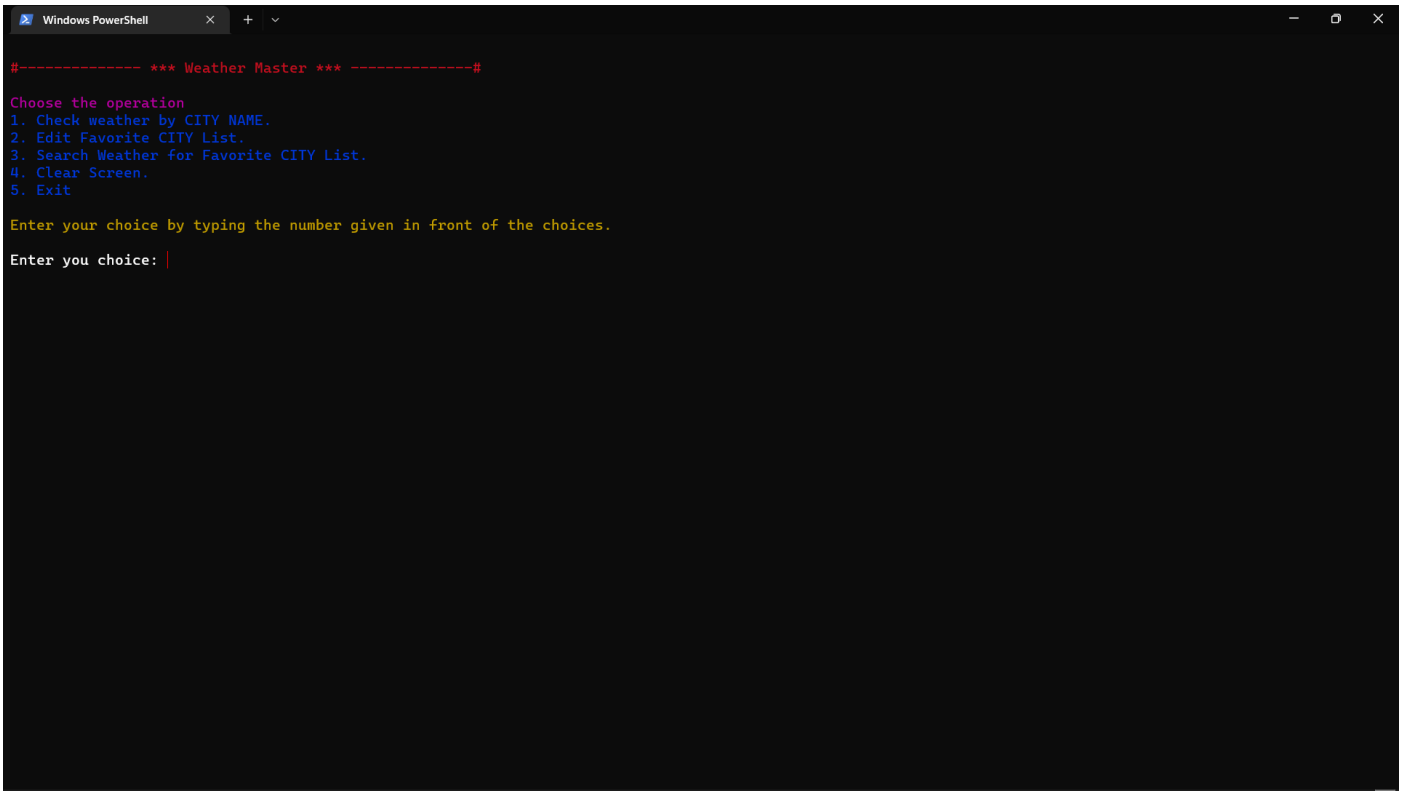
4.3.3 Local File System

4.4 Communication Interfaces

4.4.1 HTTP requests for the data fetching

5. Images

5.1 Main Menu

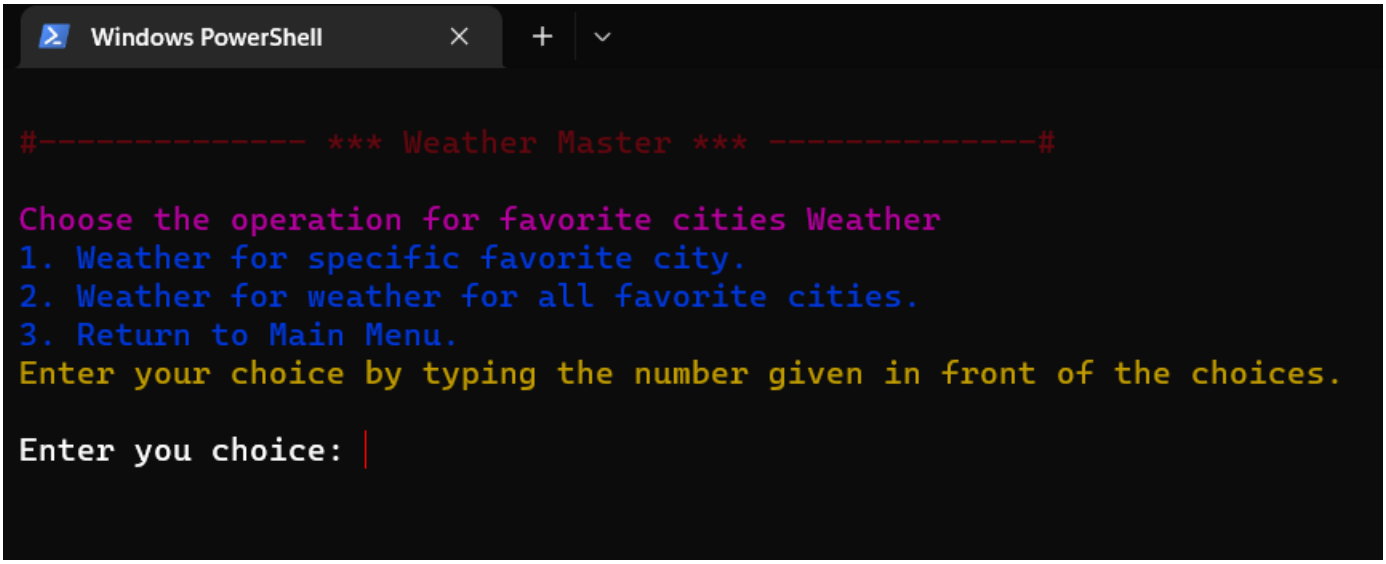


5.2 Searching Weather for a City

5.2.1 Typing name of the City

5.2.2 Search Result

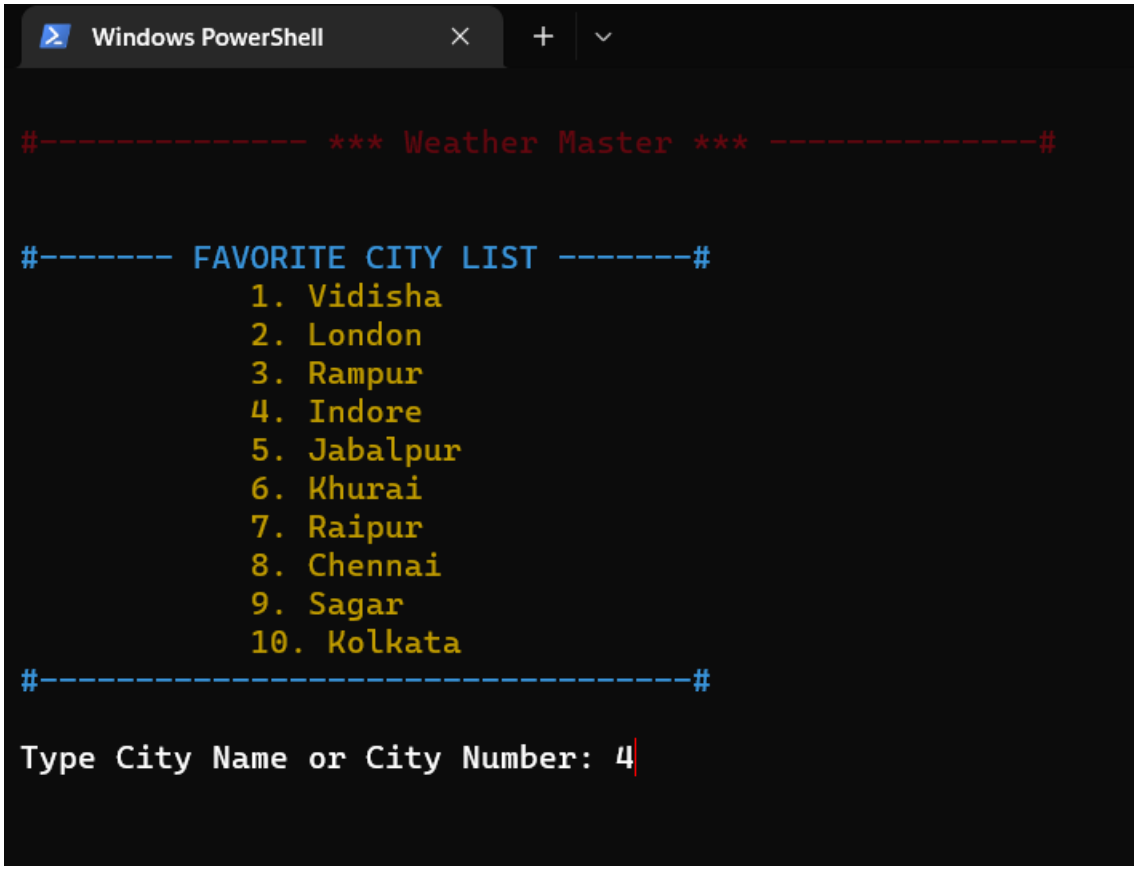
5.3 Weather Search for Favorite Cities

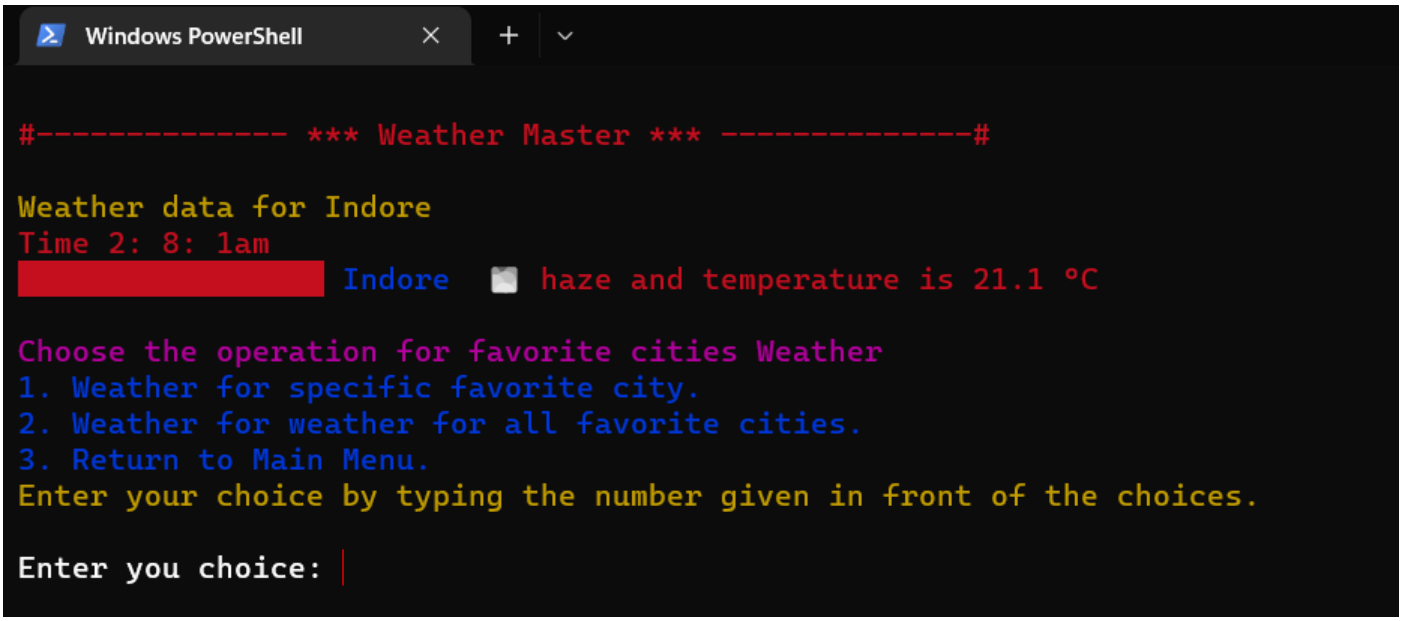


Options are given to search weather for specific city or for all cities of the Favorite City List.

5.3.1 For Specific City

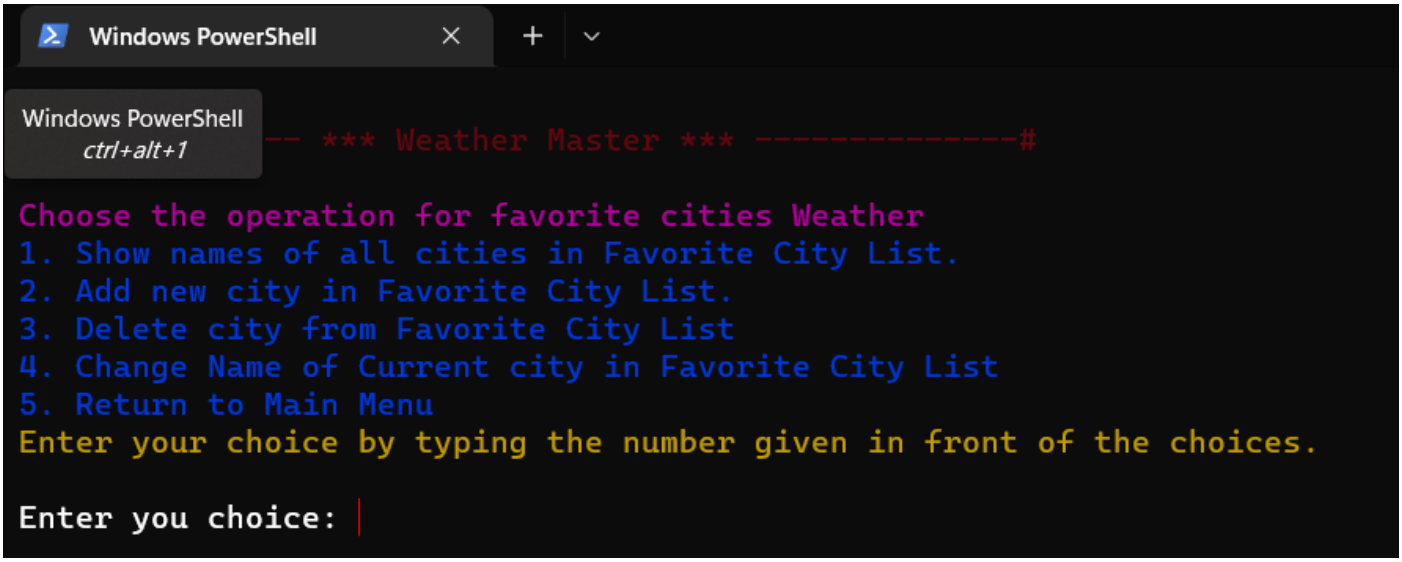
In specific city option, user can either type the city number or the name of the city in order to search the weather for the city.


Windows PowerShell
#-------------- *** Weather Master *** --------------#
#------- FAVORITE CITY LIST -------#
1. Vidisha
2. London
3. Rampur
4. Indore
5. Jabalpur
6. Khurai
7. Raipur
8. Chennai
9. Sagar
10. Kolkata
#----------------------------------#
Type City Name or City Number: 4

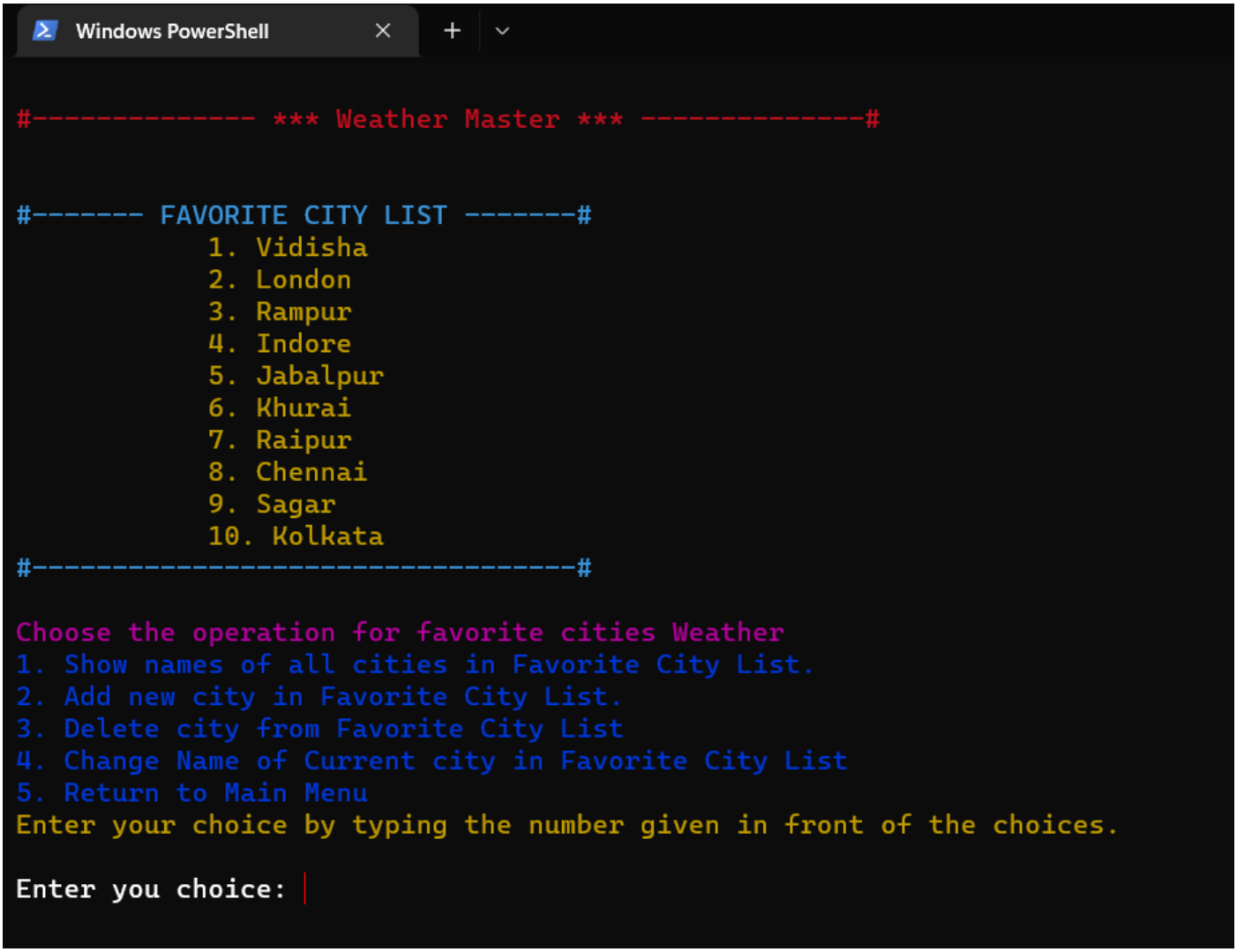

Windows PowerShell
#-------------- *** Weather Master *** --------------#
Weather data for Indore
Time 2: 8: 1am
Indore haze and temperature is 21.1 °C
Choose the operation for favorite cities Weather
1. Weather for specific favorite city.
2. Weather for weather for all favorite cities.
3. Return to Main Menu.
Enter your choice by typing the number given in front of the choices.
Enter you choice:

5.3.2 For all Cities

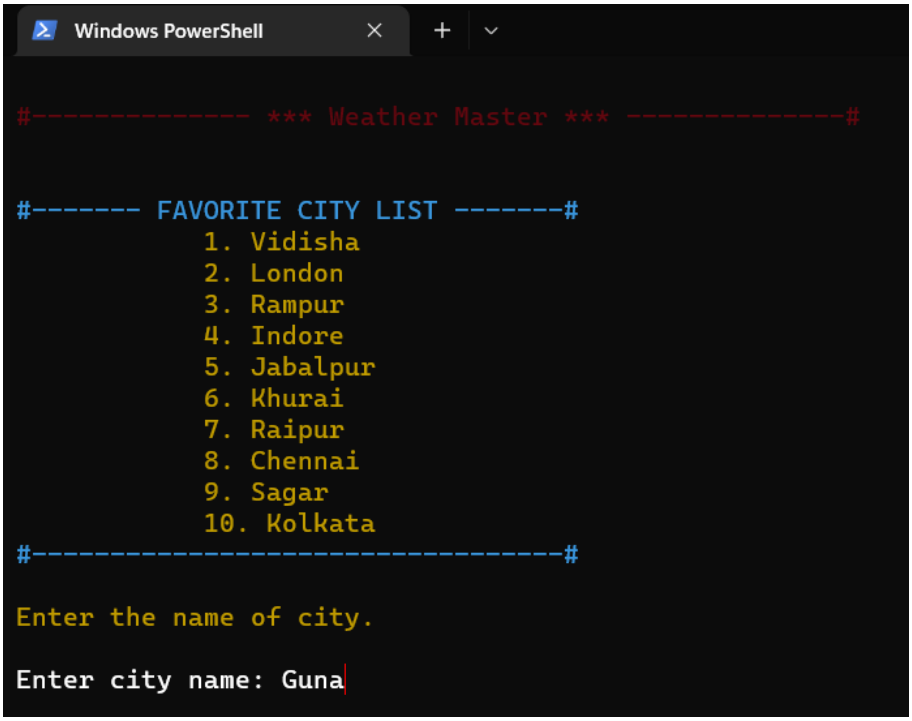
5.4 CRUD Operations on Favorite City List

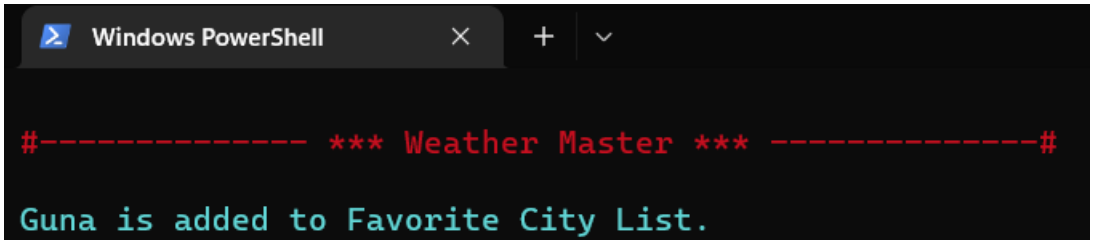


5.4.1 Display Name of all cities in Favorite City List



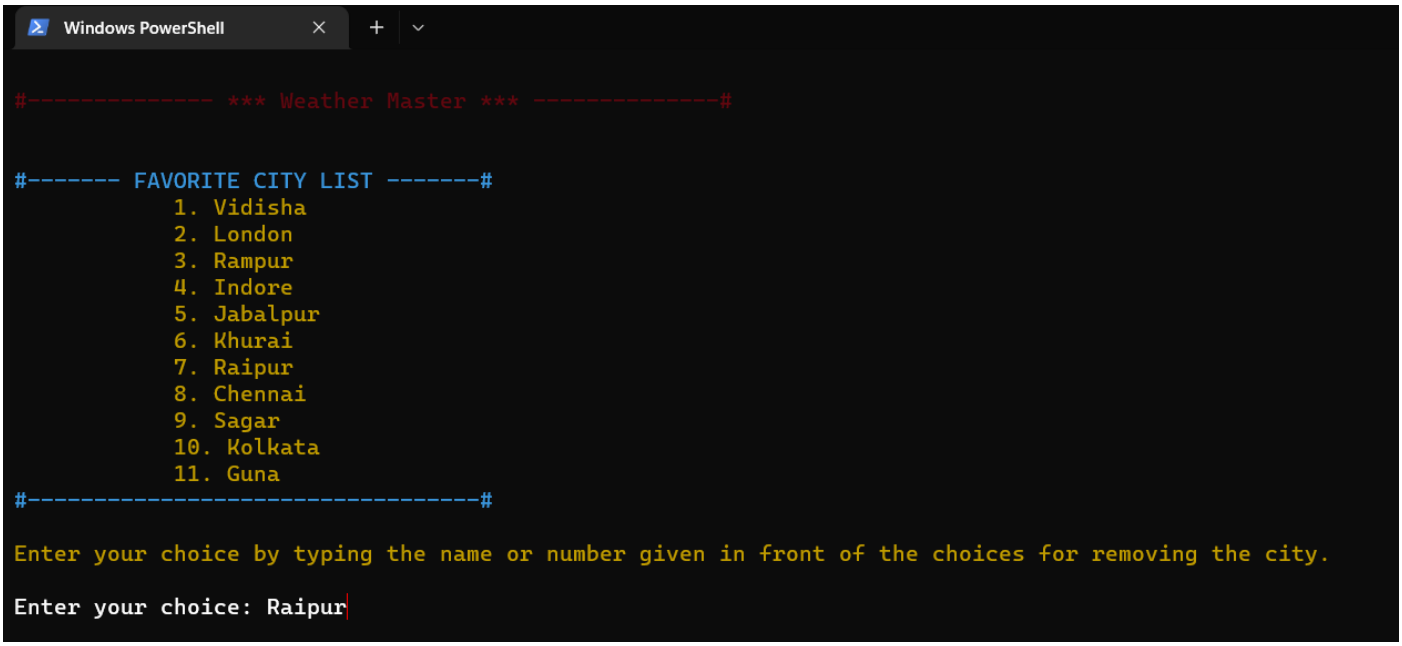
5.4.2 Adding New City Name



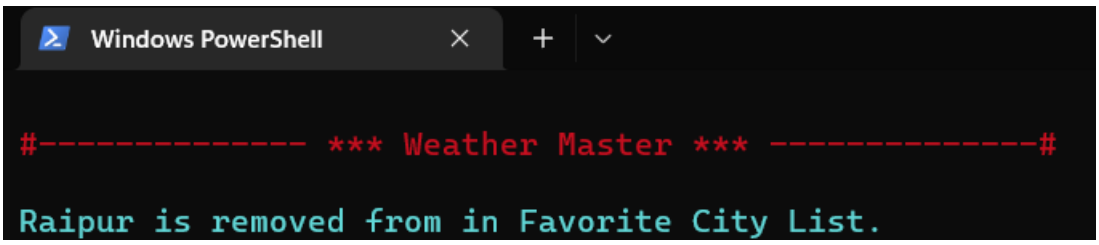


5.4.3 Deleting the Name of City

User can either type the city number or the name of the city in order to delete the city from the Favorite City List.



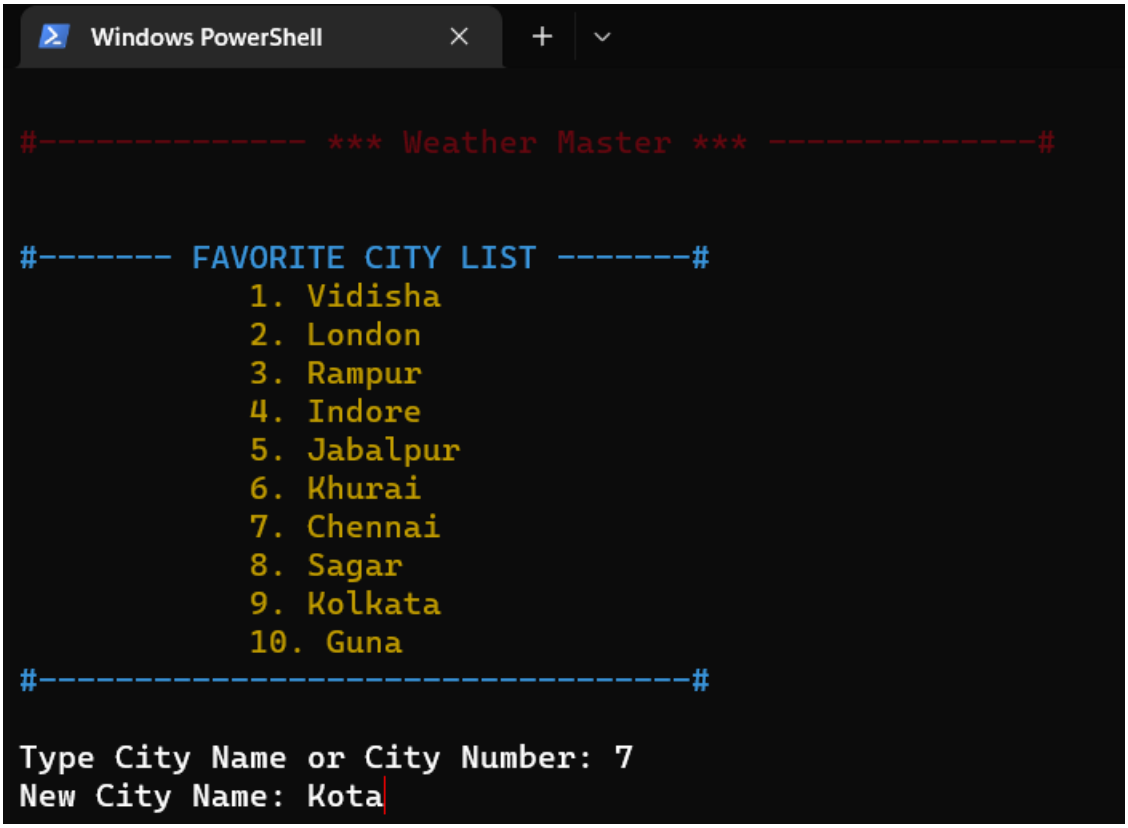
A confirmation message.



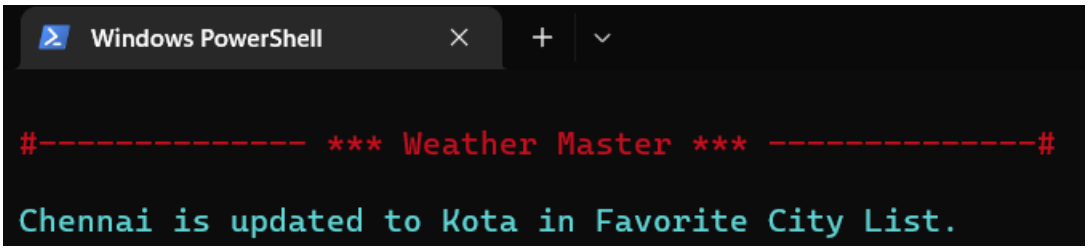
If city is not in list then a different message will appear.

5.4.4 Updating the city name

User can type the old city number or the city name for selecting that city for the updating. And after that user can new city name.



Confirmation message.



If city is not in list then a different message will appear.