DON BOSCO INSTITUTE OF TECHNOLOGY
Department of Electronics & Telecommunication
AY:2022-2023

MINI PROJECT REPORT

Geo IP Lookup Using Python

1. Introduction:

The Geo IP Lookup script is a Python-based graphical user interface (GUI) application that enables users to fetch geo location details of a given IP address. This script utilizes the Tkinter library for the GUI and the **requests** module to interact with an external API.

2. Objectives and Outcomes:

2.1 Objectives:

- To develop a user-friendly application for IP-based geo location lookup.
- To integrate an external API for fetching real-time location data.
- To ensure accurate and efficient data retrieval and display.
- To provide a simple GUI for users to input an IP address and receive relevant details.

2.2 Outcomes:

- A functional GUI-based application capable of fetching geo location details from an API.
- Successful retrieval and display of country, region, city, ISP, latitude, and longitude.
- Implementation of error handling for invalid IP addresses.
- Improved understanding of API integration and GUI design in Python.

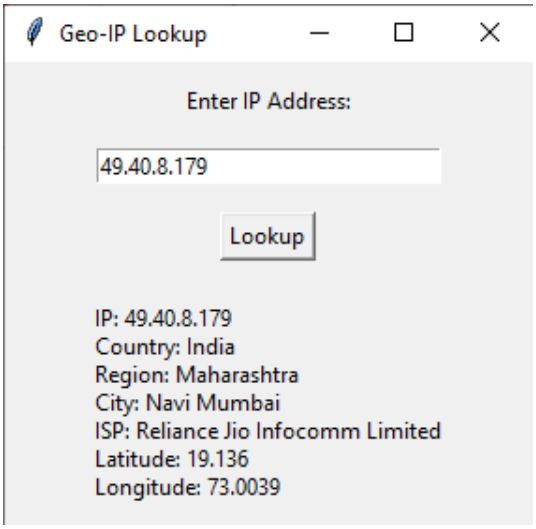
3. Methodology:

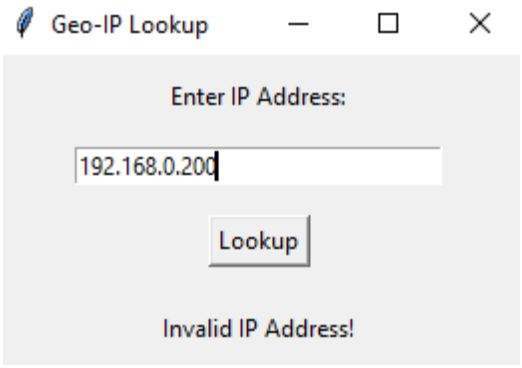
- The script utilizes Tkinter to create a simple and interactive interface. The GUI consists of:

    - ✓ An entry field (`entry_ip`) where users input an IP address.
    - ✓ A button (`button_lookup`) that triggers the lookup function.
    - ✓ A label (`result_label`) that displays the retrieved geolocation information or an error message.

- The script uses the `requests` module to send a GET request to the `http://ip-api.com/json/{ip}` API endpoint. The response is received in JSON format and parsed to extract relevant details.
- The `get_geo_info()` function retrieves the IP address from the entry field, sends the request, and processes the response. If the response indicates failure, it displays an error message; otherwise, it extracts and formats geo location details for display.
- The script updates the `result_label` to display the IP address, country, region, city, ISP, latitude, and longitude in a structured manner within the GUI.

4. Results:





The script allows users to enter an IP address and fetch real-time geo location data. It also successfully retrieves and displays information such as country, region, city, ISP, latitude, and longitude and provides error handling for invalid IP addresses.

5. Conclusion:

This Geo IP Lookup script effectively demonstrates API integration and GUI development in Python. While the script is functional, incorporating additional features such as input validation and better UI design could enhance usability and robustness.

6. Future Scope:

- Adding input validation to check for proper IP address formatting before making an API request.
- Enhancing the UI with additional styling for better readability.
- Displaying the location on a map using an API like Google Maps.
- Handling network-related exceptions gracefully.

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