IP LOCATION INFORMATION RETRIEVAL

Course: Operating Systems

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Class: 21B (BSCS)

PROJECT REPORT

By

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<u>ACKNOWLEDGMENT</u>

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<u>CONTENT</u>

Introduction

The Bash script is developed to gather and present geolocation information for a specified IP address by leveraging the ip-api.com JSON API. The script is designed for command-line execution, offering a convenient way to retrieve and display location details for a given IP address.

Key Features:

Input Validation:

- The script checks for the presence of a valid IP address as a command-line argument.
- Provides a usage message and exits with an error code if no IP address is supplied.

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Data Retrieval:

- Utilizes the curl command to fetch JSON data from the ip-api.com API based on the provided IP address.
- The obtained JSON response is stored in the variable res.

Status Verification:

- Extracts the 'status' field from the JSON response using jq.
- If the status is "success," proceeds with extracting and displaying location information.

Location Information Display (Success Case):

Parses and displays various location details:

- City
- Region

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- Country

- Country Code
- ZIP Code
- Timezone
- Latitude
- Longitude
- Organization
- ISP (Internet Service Provider)
- Queried IP address

Failure Handling (Failure Case):

- In case the status is not "success," the script prints an error message.
- Communicates the failure to retrieve location information for the specified IP address.

Tools Utilized:

cURL:

Employed for making HTTP requests and fetching data from the ip-api.com API.

JSON (JavaScript Object Notation):

The response data is structured in JSON format, facilitating easy extraction of relevant details.

jq:

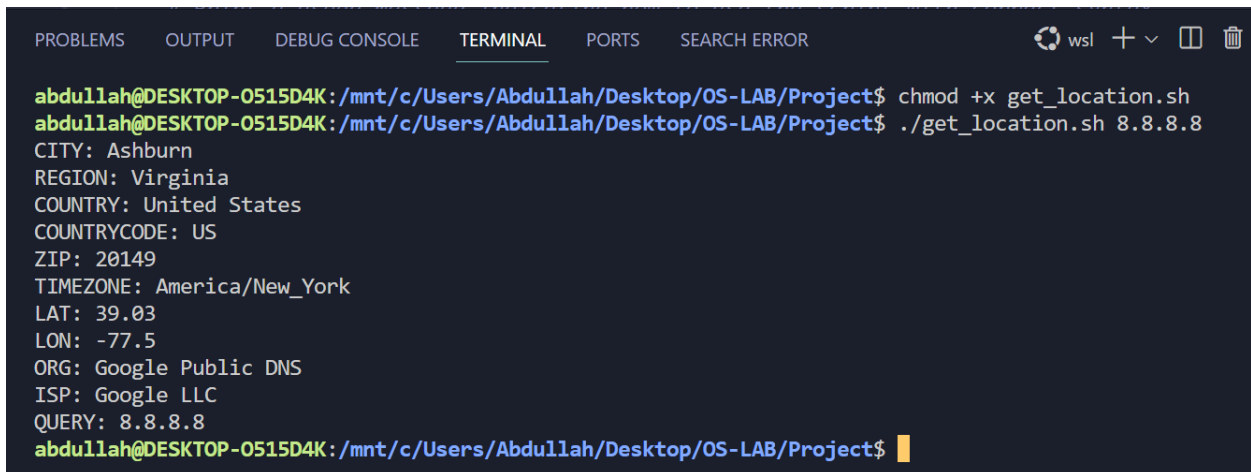Used for parsing and extracting specific fields from the JSON response, enhancing data manipulation capabilities.

Execution:

The script is executed from the command line, requiring an IP address as a parameter (e.g., ./script.sh 192.168.0.1).

Details of 8.8.8.8 IP Address

Details of 54.239.26.128 IP Address

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```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    SEARCH ERROR                    wsl  + ∨  ☐  🗑  ⋯

abdullah@DESKTOP-0515D4K:/mnt/c/Users/Abdullah/Desktop/OS-LAB/Project$ ./get_location.sh 54.239.26.128
CITY: Ashburn
REGION: Virginia
COUNTRY: United States
COUNTRYCODE: US
ZIP: 20149
TIMEZONE: America/New_York
LAT: 39.0438
LON: -77.4874
ORG: Amazon Technologies Inc. (us-east-1)
ISP: Amazon.com, Inc.
QUERY: 54.239.26.128
```

<u>Outcome</u>:

- If successful, the script provides a comprehensive display of location information for the specified IP address.
- In the event of a failure to retrieve information, an error message is presented to the user.

<u>Usage:</u>

./script.sh IP_ADDRESS

Conclusion:

The script offers a straightforward and efficient way to obtain and present location details for a given IP address. It harnesses commonly used command-line tools, making it accessible and user-friendly for individuals seeking quick geolocation information retrieval.

THANK YOU