

# Cybersecurity Information Gathering Tool Report

## 1. Project Overview

**Project Name:** Cybersecurity Information Gathering Tool

**Developer:** Parth Srivastava

**Technology Used:** Python, Requests, Socket, JSON

**Purpose:** This tool collects basic network information about a given domain, including HTTP headers, IP address, and geolocation data.

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## 2. Features Implemented

- **Fetch HTTP Headers:** Extracts response headers from a target domain.
  - **Resolve IP Address:** Gets the IP address of the given domain.
  - **IP Geolocation Lookup:** Fetches the physical location of the resolved IP.
  - **Error Handling:** Handles invalid domain inputs, request failures, and JSON parsing errors.
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## 3. Project Execution

### 3.1 Code Implementation

```
import sys
import requests
import socket
import json

if len(sys.argv) < 2:
    print("Usage: " + sys.argv[0] + " <url>")
    sys.exit(1)
```

```

try:

    req = requests.get("http://" + sys.argv[1])
    print("\n" + str(req.headers))

    gethostby_ = socket.gethostbyname(sys.argv[1])
    print("\nThe IP address of " + sys.argv[1] + " is: " + gethostby_ + "\n")

    req_two = requests.get("https://ipinfo.io/" + gethostby_ + "/json")
    resp_ = json.loads(req_two.text)

    print("Location: " + resp_.get("loc", "N/A"))
    print("Region: " + resp_.get("region", "N/A"))

except requests.exceptions.RequestException as e:
    print("Error fetching data:", e)
except socket.gaierror:
    print("Error: Invalid domain")
except json.JSONDecodeError:
    print("Error parsing JSON response")

```

### 3.2 Example Execution

**Command:** python Main.py google.com

### 3.3 Expected Output

```
{'Date': 'Sat, 22 Mar 2025 16:32:20 GMT', 'Expires': '-1', 'Cache-Control':
'private, max-age=0', ...}
```

The IP address of google.com is: 142.250.206.46

Location: 13.0878,80.2785

Region: Tamil Nadu

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## 4. Screenshots

## 4.1 Implementation

The screenshot displays a Windows desktop with a VS Code editor window open. The editor is titled "INFORMATION GATHERING TOOL" and shows a Python script named "Main - Copy.py". The script is a command-line tool that takes a URL as an argument and fetches information from it. It uses the `requests` module to make a GET request and the `json` module to parse the response. The script prints the headers of the request, the IP address of the host, and the location and region of the host. It also handles exceptions for network errors, invalid domains, and JSON parsing errors.

```

1 import sys
2 import requests
3 import socket
4 import json
5
6 if len(sys.argv) < 2:
7     print("Usage: " + sys.argv[0] + " <url>")
8     sys.exit(1)
9
10 try:
11     req = requests.get("http://" + sys.argv[1])
12     print("\n" + str(req.headers))
13
14     gethostby_ = socket.gethostbyname(sys.argv[1])
15     print("\nThe IP address of " + sys.argv[1] + " is: " + gethostby_ + "\n")
16
17     req_two = requests.get("https://ipinfo.io/" + gethostby_ + "/json")
18     resp_ = json.loads(req_two.text)
19
20     print("Location: " + resp_.get("loc", "N/A"))
21     print("Region: " + resp_.get("region", "N/A"))
22
23 except requests.exceptions.RequestException as e:
24     print("Error fetching data:", e)
25 except socket.gaierror:
26     print("Error: Invalid domain")
27 except json.JSONDecodeError:
28     print("Error parsing JSON response")
29

```

The VS Code interface includes a sidebar on the left with the Explorer, Search, and Run and Debug views. The Explorer view shows the file structure of the project, including a folder named "Main - Copy.py". The Search view is empty. The Run and Debug view shows the current configuration for running the script. The bottom status bar displays the file encoding as "UTF-8", the current line and column as "Ln 18, Col 17", the number of spaces as "Spaces 4", the current file as "Copy.py", the editor language as "Python", and the date and time as "22/01/2025".

## 4.2 Output

```
File Edit Session View Go Run Terminal Help
Python 3.7.4 Shell
Main: Copying X
1 import sys
2 import requests
3 import socket
4 import json
5
6 if len(sys.argv) < 2:
7     print("Usage: " + sys.argv[0] + " <url>")
8     sys.exit(1)
9
10 try:
11     req = requests.get("http://" + sys.argv[1])
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This tool successfully retrieves essential network information about any given domain.