

Experiment 08

AIM:


To determine the geolocation (country, city, or approximate location) of at least 10 IP addresses using online IP geolocation tools, databases, and techniques, and to accurately identify the physical location associated with each IP.

Theory:

IP geolocation is the process of mapping an IP address to its physical location. This can provide details such as **country, city, ISP, organization, and approximate latitude/longitude**.

Applications of IP Geolocation:

1. **Geolocation Services** → Weather apps, streaming platforms, or news portals provide region-specific content.
2. **Security** → Helps detect malicious IPs or cyberattacks originating from certain regions.
3. **Content Localization** → E-commerce and media platforms adjust prices, ads, and recommendations based on IP.
4. **Fraud Prevention** → Banks and payment gateways detect anomalies when logins occur from unusual locations.
5. **Network Troubleshooting** → IT teams can identify and resolve location-specific connectivity issues.
6. **Compliance & Regulations** → Ensures services are delivered only within permitted regions.
7. **Market Research** → Companies study user geolocation data to expand their business strategically.
8. **Content Delivery Networks (CDNs)** → Direct traffic to the nearest servers, improving speed.

 **Note:** IP geolocation is approximate and may not always be 100% accurate due to VPNs, proxies, and ISP routing. Privacy laws (like GDPR) must also be respected.

Requirements / Tools Used

1. A list of at least 10 IP addresses.

2. Online tools such as:
 - **iplocation.net**
 - **ipinfo.io**
 - **GeoLite2 (MaxMind Database)**
 - **WHOIS lookup**
3. Stable internet connection.
4. Spreadsheet/Notepad to record results.

Procedure

1. Find your current IP address

- Visit whatismyipaddress.com or simply search “What is my IP” on Google.
- Note down the IPv4 address displayed.

The screenshot displays the IPADDRESS.COM website interface. At the top, there is a search bar with the text "Search by IP, Website, Domain or Subdomain". Below this, the main heading is "What Is My IP Address?". The page is divided into several sections:

- MY PUBLIC IP ADDRESS:** Displays the IPv6 address as 400:1f00:2:cdb7:8eb:419:6afe:1ee and the IPv4 address as 182.48.224.12.
- MY IP INFORMATION:** Lists the ISP as D-Vois Broadband Pvt, City as Mumbai, Region as Maharashtra, and Country as India. It includes buttons for "HIDE IP ADDRESS" and "SHOW FULL IP ADDRESS INFORMATION".
- Lookup any IP Address or Website:** A search bar with a "Lookup" button.
- Trace an Email Address:** A search bar with a "Lookup" button.
- Frequently Asked Questions (FAQ):** A section for common questions.

Below the main content, there is a detailed table of connection and location information:

CONNECTION TYPE
Cable/DSL [internet speed test]
LOCATION
Mumbai, Maharashtra, 400703, India
CONTINENT
Asia
COUNTRY
India (IN)
STATE
Maharashtra (MH)
CITY
Mumbai

IANA (Internet Assigned Numbers Authority) IPv4 Address Space Allocation for Subnet 182.0.0.0/8	
IPV4 ADDRESS SPACE PREFIX	182/8
REGIONAL INTERNET REGISTRY (RIR)	APNIC
ALLOCATION DATE	August 2009
WHOIS SERVER	whois.apnic.net
RDAP SERVER (REGISTRATION DATA ACCESS PROTOCOL)	https://rdap.apnic.net/
STATUS	ALLOCATED Delegated entirely to specific RIR (Regional Internet Registry) as indicated.

2. Record Observed Details

- Country
- City / Region
- ISP / Organization
- Latitude/Longitude (if available)

3. Verify Consistency

- Compare results from multiple sources.
- Note any differences (due to databases or ISP routing).

Conclusion

We have successfully used the geolocation (country, city, or approximate location) of each IP address (at least 10) One can use online IP geolocation tools, databases, and various techniques to gather information and accurately identify the physical location associated with each IP.