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

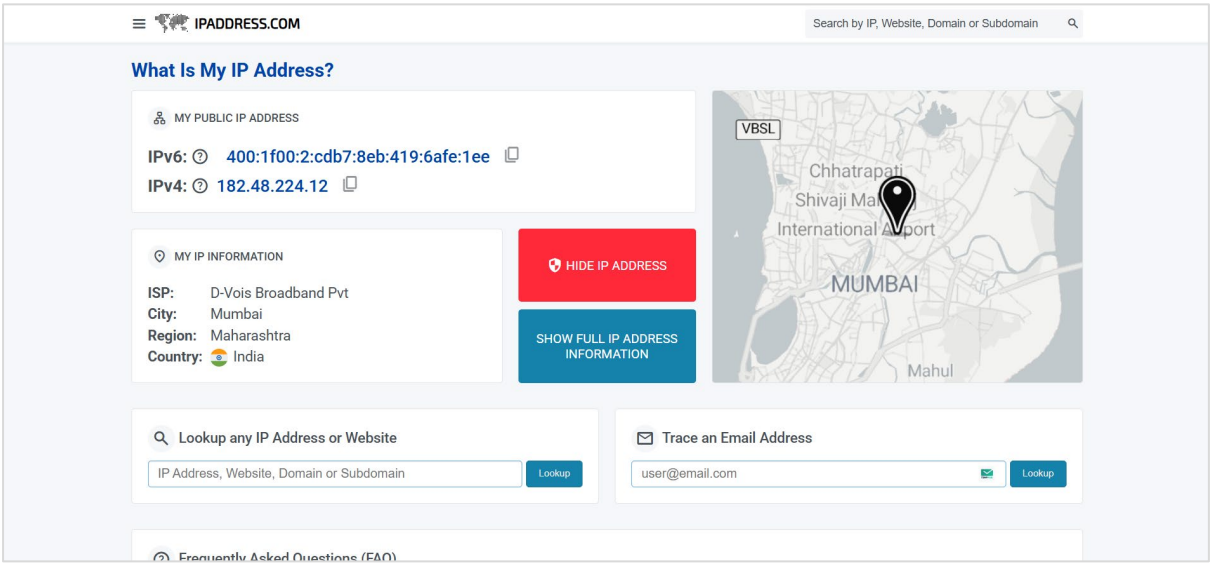
1. A list of at least 10 IP addresses.

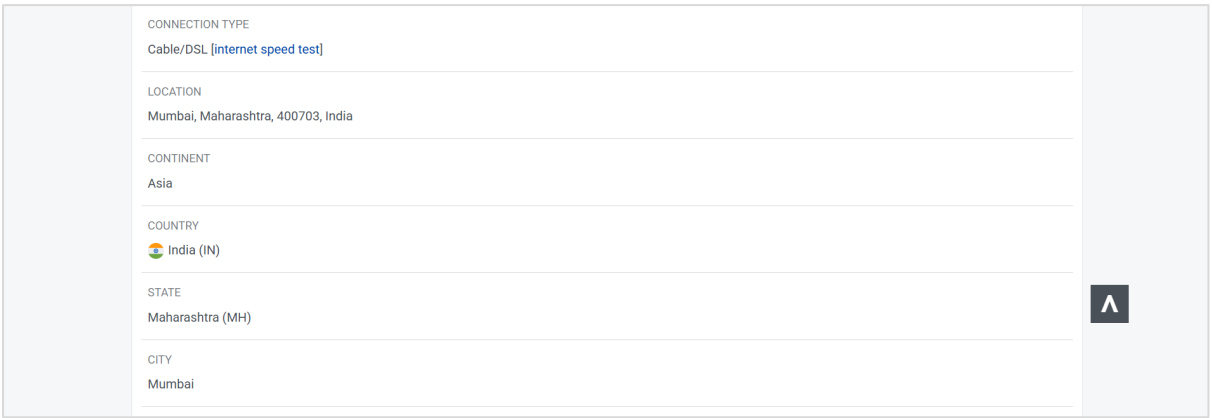
2. Online tools such as:
    - **iplocation.net**
    - **ipinfo.io**
    - **GeoLite2 (MaxMind Database)**
    - **WHOIS lookup**
3. Stable internet connection.
4. Spreadsheet/Notepad to record results.

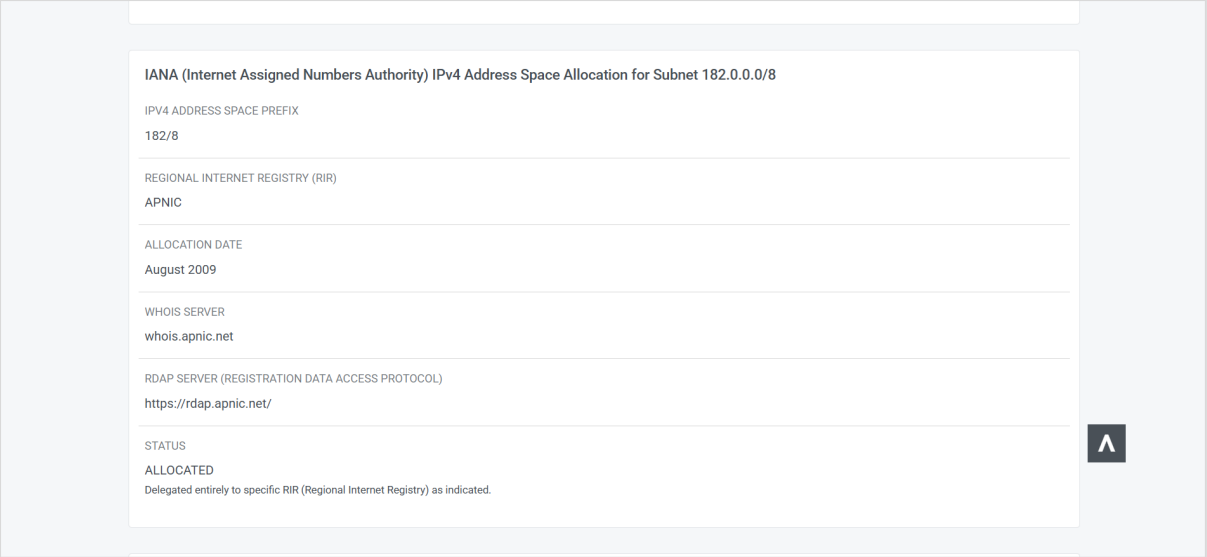
Procedure

1. Find your current IP address

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







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.