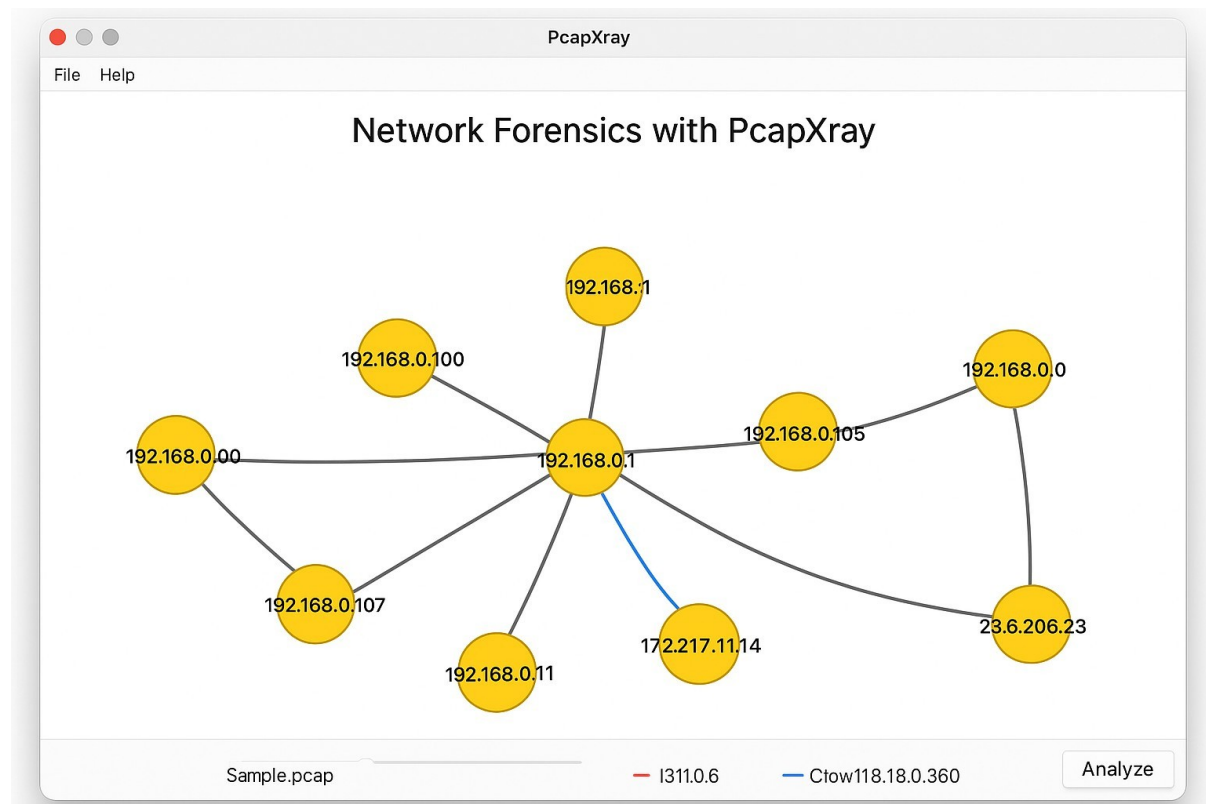


**EXPT: 15 DEMONSTRATE NETWORK FORENSICS USING PCAPXRAY TOOLS****Aim :**

To analyze captured network traffic using PcapXray and identify hosts, traffic patterns, and suspicious network activities for forensic investigation.

**Algorithm :**

1. Install prerequisites:
  - o Install Python 3, pip, Graphviz, Tkinter, and required libraries.
  - o Clone the PcapXray repository and install dependencies using `pip install -r requirements.txt`.
2. Prepare input:
  - o Obtain a .pcap file containing network traffic to be analyzed.
  - o Ensure the PCAP is from a safe/testing source for learning purposes.
3. Launch PcapXray:
  - o Open main.py in the repository using Python.
  - o Load the selected .pcap file via the GUI.
4. Analyze traffic :
  - o Observe the network graph of hosts (nodes) and connections (edges).
  - o Filter traffic based on Web, Tor, Malicious, DNS, or ICMP.
  - o Click on nodes/edges to view traffic details, HTTP requests, or extracted payloads.
5. Record observations:
  - o Note suspicious hosts, unusual ports, or Tor traffic.
  - o Check extracted files or payloads for anomalies.
  - o Optionally, cross-verify suspicious IPs with WHOIS or threat intelligence sources.
6. Document results:
  - o Capture screenshots of network diagrams and significant flows.
  - o Summarize the suspicious activities identified during analysis.

**Output :**

- Graphical visualization of network hosts and flows.
- Reports listing:
  - o Host IPs
  - o Connection types
  - o Protocols used
  - o Extracted payloads
  - o Flags for Tor/malicious traffic
- Optional JSON or text files summarizing traffic analysis.

**Result :**

- Hosts with the most connections were identified as central nodes.
- Web traffic, Tor traffic, and DNS requests were visualized clearly.
- Suspicious or unusual traffic flows were highlighted for further investigation.
- Payload extraction revealed potential files or URLs of interest.
- PcapXray provided a clear, interactive overview of network activity, making it easier to identify anomalies or malicious patterns compared to raw packet inspection in Wireshark.