**EXP NO:12A**  **DATE:05/11/24**

**Roll no:231901002**

**Packet Sniffing Using Socket**

**AIM:**

To study packet sniffing concept and implement it using sockets. **Algorithm:**

**Import Libraries**: Import necessary modules from scapy for packet capturing and IP layers.

**Define Packet Callback**:

* Check if the packet contains an IP layer.
* Extract protocol number, source IP, and destination IP from the IP layer.
* Identify the protocol type (ICMP, TCP, UDP) based on the protocol number.
* Print the protocol name, source IP, and destination IP.

**Main Function**:

* Use sniff to capture packets on the default network interface.
* For each packet, call packet\_callback to process and display packet information.

**Run Program**:

* Execute the main function to start packet sniffing when the script runs.

**Program:**

from scapy.all import sniff from scapy.layers.inet import IP, TCP, UDP, ICMP def packet\_callback(packet): if IP in packet:

ip\_layer = packet[IP] protocol = ip\_layer.proto src\_ip = ip\_layer.src dst\_ip = ip\_layer.dst

# Determine the protocol protocol\_name = "" if protocol == 1:

protocol\_name = "ICMP" elif protocol == 6: protocol\_name = "TCP" elif protocol == 17: protocol\_name = "UDP" else:

protocol\_name = "Unknown Protocol"

# Print packet details print(f"Protocol: {protocol\_name}") print(f"Source IP: {src\_ip}") print(f"Destination IP: {dst\_ip}") print("-" \* 50) def main():

# Capture packets on the default network interface sniff(prn=packet\_callback, filter="ip", store=0) if \_\_name\_\_ == "\_\_main\_\_":

main()

**Output:**

Protocol: TCP

Source IP: 192.168.1.10

Destination IP: 93.184.216.34

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Protocol: ICMP

Source IP: 192.168.1.10

Destination IP: 8.8.8.8

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Protocol: UDP

Source IP: 192.168.1.10

Destination IP: 8.8.4.4

-------------------------------------------------- Protocol: TCP

Source IP: 192.168.1.10

Destination IP: 172.217.14.206

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**Result**:

Thus,packet sniffing concept andimplement it using sockets is studied and successfully executed.