Task 1: Basic Network Sniffer

Python Program

```
from scapy.all import sniff, IP, TCP, UDP

def packet_callback(packet):
    if IP in packet:
        ip_src = packet[IP].src
        ip_dst = packet[IP].dst
        proto = packet[IP].proto
        print(f"\n[+] New Packet Captured")
        print(f"Source IP: {ip_src}")
        print(f"Destination IP: {ip_dst}")
        if proto == 6 and TCP in packet:
            print("Protocol: TCP")
            print(f"Source Port: {packet[TCP].sport}, Destination Port: {packet[TCP].dport}")
        elif proto == 17 and UDP in packet:
            print("Protocol: UDP")
            print(f"Source Port: {packet[UDP].sport}, Destination Port: {packet[UDP].dport}")
        else:
            print(f"Protocol: Other ({proto})")
        if packet.haslayer("Raw"):
            payload = packet["Raw"].load
            print(f"Payload: {payload[:50]}...")

print("Starting network sniffer... Press Ctrl+C to stop.")
sniff(prn=packet_callback, store=False)
```

Sample Output

```
[+] New Packet Captured
Source IP: 192.168.1.10
Destination IP: 142.250.182.110
Protocol: TCP
Source Port: 52344, Destination Port: 443
Payload: b'GET / HTTP/1.1\r\nHost: www.google.com\r\n...'
```

Explanation

```
- Captures live packets using Scapy
- Shows Source/Destination IPs
- Displays Protocol (TCP/UDP/Other)
- Shows Ports and Payload if available
```