Task 1: Basic Network Sniffer (Python Code)

This task involves creating a basic network sniffer in Python that captures and analyzes network traffic.

Python Code:

```
import socket
import struct

def sniff_packets():
    conn = socket.socket(socket.AF_PACKET, socket.SOCK_RAW, socket.ntohs(3))
    print("Sniffing started... Press Ctrl+C to stop.")
    try:
        while True:
            raw_data, addr = conn.recvfrom(65536)
            dest_mac, src_mac, eth_proto = struct.unpack('!6s6sH', raw_data[:14])
            print(f"\nEthernet Frame:")
                print(f"Destination MAC: {get_mac(dest_mac)}, Source MAC: {get_mac(src_mac)}, Protocol: {eth_proto}")
    except KeyboardInterrupt:
        print("\nSniffing stopped.")

def get_mac(bytes_addr):
    return ':'.join(format(b, '02x') for b in bytes_addr)

if __name__ == "__main__":
    sniff_packets()
```