## Summary of My Current Program :

My program reads packets from a file, processes the packets, and displays their details. It uses a linked list to store the packets and handles duplicate packets by incrementing a reference count. Here is a detailed summary of the key components and functionality:

- **Includes and Definitions :**
  - **Includes:** Standard libraries for memory management, string manipulation, and network functions.
  - **Definitions:** Constants for maximum line length and maximum bytes per packet.
- **Packet Structure :**
  - **EthernetIIHeader:** Structure to store Ethernet II header information.
  - **IPv4Header:** Structure to store IPv4 header information.
  - **EthernetII_IPv4_Packet:** Structure to store a packet with Ethernet II and IPv4 headers, a reference count, and a pointer to the next packet in the linked list.
- **Helper Functions :**
  - **hex_to_byte:** Converts a hex string to a byte.
  - **find_and_increment:** Searches the linked list for a packet with the same source and destination IP addresses. If found, increments the reference count and returns 1. Otherwise, returns 0.
  - **parse_raw_packet:** Parses raw bytes into an EthernetII_IPv4_Packet structure. Verifies if the packet is an IPv4 packet and copies the Ethernet II and IPv4 headers.
  - **display_packet_info:** Displays the details of a packet, including Ethernet II and IPv4 header information.
  - **display_packet_info_listed:** Displays smac, dmac, sip, dip from link list.
  - **process_packet:** Adds a packet to the linked list or increments the reference count if it is a duplicate.
  - **free_packet_list:** Frees the memory allocated for the packet list.

- **Main Function:**
  - Opens the input file and initializes variables.
  - Reads each line from the input file.
  - Checks if the line starts with a valid offset.
  - Processes each hex byte in the line.
  - Parses and processes the packet if 34 bytes are read.
  - Displays the total number of packets.
  - Displays the details of all packets.
  - Frees the memory allocated for the packet list.

- **Packets in packets.txt :**
  - **File Content:** The packets.txt file contains 10 raw packet data captured by Wireshark.