

USER MANUAL

This project contains two programs server.c and client.c.

Initially the server is up and running. Then client code is executed. It starts sending Type 1 UDP packets to the server at an interval of 100 ms and Type 2 UDP packets at an interval of 150 ms. Each packet contains a trailer checksum which calculated by bitwise XOR.

The server checks the checksum for any errors and discards the packet if it contains errors. If the packet is error-free the type of the packet is determined and corresponding thread increments the count of the packet type and removes the packet from the queue.

Executing the program:

Compile the server code using the command:

```
gcc -o server B200730CS+B200770CS-Server.c
```

Compile the client code using the command:

```
gcc -o client B200730CS+B200770CS-Client.c
```

Start the server using the command:

```
./server
```

Start the client using the command:

```
./client
```

The client starts sending packets of Type 1 and Type 2 and server prints the packets received and count of packets a_count and b_count;

Client:

The image shows a Linux desktop environment with a terminal window open. The terminal title bar reads "aadharsh@jarvis: ~/Documents/Assignments/S6/networks_theory". The terminal output shows a network simulation with the following text:

```
aadharsh@jarvis: ~/Documents/Assignments/S6/networks_theory$ ./client
Sending Packets to Server
Socket Created For Type A Packets...

Socket Created For Type B Packets...

Packet 1 Sent: seq_no=0
Packet 1 Sent: seq_no=1
Packet 2 Sent: seq_no=0
Packet 2 Sent: seq_no=1
Packet 2 Sent: seq_no=2
Packet 1 Sent: seq_no=2
Packet 1 Sent: seq_no=3
Packet 2 Sent: seq_no=3
Packet 1 Sent: seq_no=4
Packet 2 Sent: seq_no=4
Packet 2 Sent: seq_no=5
Packet 1 Sent: seq_no=5
Packet 2 Sent: seq_no=6
Packet 1 Sent: seq_no=6
Packet 2 Sent: seq_no=7
Packet 2 Sent: seq_no=8
Packet 2 Sent: seq_no=9
Packet 1 Sent: seq_no=7
Packet 1 Sent: seq_no=8
Packet 2 Sent: seq_no=7
Packet 1 Sent: seq_no=9
Packet 2 Sent: seq_no=8
Packet 2 Sent: seq_no=9
aadharsh@jarvis: ~/Documents/Assignments/S6/networks_theory$
```

The background of the terminal window is a dark, stylized image of a character in a dynamic pose, possibly a superhero or a character from a video game. The desktop environment includes a taskbar at the top with icons for Activities, Terminal, and a clock showing 24% battery. The terminal window has a dark theme and a search bar in the top right corner.

Server:

The image shows a Linux desktop environment. At the top, there is a panel with 'Activities', 'Terminal', and a clock showing 'Apr 15 22:46'. Below this is a terminal window titled 'aadharsh@jarvis: ~/Documents/Assignments/S6/networks_theory'. The terminal shows the execution of a program named 'server'. The output of the program is as follows:

```
aadharsh@jarvis: ~/Documents/Assignments/S6/networks_theory$ ./server
Receiving Packets from Client...
a_count=0      b_count=0
Received Type 1 packet: seq_no=0
a_count=1      b_count=0
Received Type 1 packet: seq_no=1
a_count=2      b_count=0
a_count=2      b_count=0
a_count=2      b_count=0
Received Type 2 packet: seq_no=0
Received Type 2 packet: seq_no=1
Received Type 2 packet: seq_no=2
Received Type 1 packet: seq_no=2
Received Type 1 packet: seq_no=3
Received Type 2 packet: seq_no=3
Received Type 1 packet: seq_no=4
Received Type 2 packet: seq_no=4
Received Type 2 packet: seq_no=5
Received Type 1 packet: seq_no=5
Received Type 2 packet: seq_no=6
a_count=6      b_count=7
Received Type 1 packet: seq_no=6
Received Type 2 packet: seq_no=7
Received Type 2 packet: seq_no=8
Received Type 2 packet: seq_no=9
a_count=7      b_count=10
Exiting Error Function
Received Type 1 packet: seq_no=7
a_count=8      b_count=10
Received Type 2 packet: seq_no=8
a_count=8      b_count=11
a_count=8      b_count=11
a_count=8      b_count=11
a_count=8      b_count=11
a_count=8      b_count=11
a_count=8      b_count=11
a_count=8      b_count=11
```

The desktop background is a dark image of a character from the anime Naruto, specifically Naruto Uzumaki in his Nine-Tails Chakra Mode. The terminal window is the active application, and the desktop environment appears to be GNOME.