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Class : TE (B) COMP
ROLL NO: 39055

LAB ASSIGNMENT 10 (B4)

TCP CHAT SOCKET PROGRAMMING

CODE:-

1)Client1.java (NEW THREAD):-

```
package com.company;

import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.ServerSocket;
import java.net.Socket;
public class Client1 {
   public static void main(String[] args) throws IOException {
      ServerSocket ss;
      Socket s;
      DataInputStream dis;
      DataOutputStream dos;
      int port = 6000;
      ss = new ServerSocket(port);
      while (true){
         try {
            s = ss.accept();
            dis = new DataInputStream(s.getInputStream());
            dos = new DataOutputStream(s.getOutputStream());
            Thread t = new Chat(s, dis, dos);
            t.start();
            if (s.isConnected()) {
               System.out.println("\n\t\t\t\t\t\tConnection with Client : Success\n");
            } else {
               System.out.println("F A I L E D");
            }
         } catch (Exception e) {
            System.out.println("Socket could not be created " + e);
         }
      }
   }
}
```

2)Client2.java (NEW THREAD):-

```
package com.company;

import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.InetAddress;
import java.net.Socket;
import java.util.Scanner;
public class Client2 {
   public static void main(String[] args) {
```

```
    Socket s = null;
    InetAddress ip;
    DataInputStream dis;
    DataOutputStream dos;
    int port = 6000;
    try {
       ip = InetAddress.getLocalHost();
       s = new Socket(ip,port);
       dis = new DataInputStream(s.getInputStream());
       dos = new DataOutputStream(s.getOutputStream());
       System.out.println("\n\t\t\t\t\t\tConnection with Client : Success\n");
       Scanner sc = new Scanner(System.in);
       System.out.println("************************** Register ************************");
       System.out.print("Name : ");
       String name = sc.nextLine();
       dos.writeUTF(name);
       System.out.println("************************************************************");
       System.out.println("\n-----------------------Conversation----------------------\n");
       String otherClientName = dis.readUTF();
       while (true) {
          String send;
          String receive;
          receive = dis.readUTF();
          if(receive.toLowerCase().contains("bye"))
          {
             System.out.println(otherClientName + "; says bye!");
             s.close();
             System.out.println("\n------------------------------------------------------------\n");
             break;
          }
          System.out.println(otherClientName + " : " + receive);
          System.out.print(name + " : ");
          send = sc.nextLine();
          if(send.toLowerCase().contains("bye"))
          {
             dos.writeUTF(otherClientName + " : " + send);
             s.close();
             System.out.println("\n------------------------------------------------------------\n");
             break;
          }
          dos.writeUTF(send);
       }
    } catch (IOException e) {
       e.printStackTrace();
    }
  }
}
```

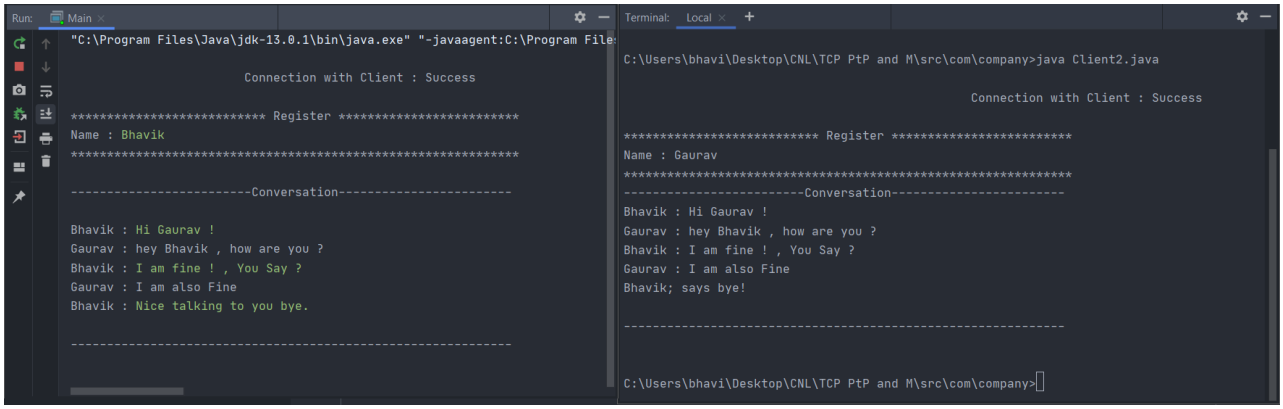
3)Chat.java (extending THREAD and implementing @Override run()):-

```
package com.company;

import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.Socket;
import java.util.Scanner;
public class Chat extends Thread{
```

```
  final DataInputStream dis;
  final DataOutputStream dos;
  final Socket s;
  public Chat(Socket s, DataInputStream dis, DataOutputStream dos) {
    this.s = s;
    this.dis = dis;
    this.dos = dos;
  }
  @Override
  public void run() {
    Scanner sc = new Scanner(System.in);
    System.out.println("************************* Register ************************");
    System.out.print("Name : ");
    String name = sc.nextLine();
    try {
      dos.writeUTF(name);
    } catch (IOException e) {
      e.printStackTrace();
    }
    System.out.println("*************************************************************");
    String otherClientName = null;
    try {
      otherClientName = dis.readUTF();
    } catch (IOException e) {
      e.printStackTrace();
    }
    System.out.println("\n-----------------------Conversation-----------------------\n");
    while(true) {
      try {
        String send;
        String receive;
        System.out.print(name + " : ");
        send = sc.nextLine();
        if(send.toLowerCase().contains("bye"))
        {
          dos.writeUTF(otherClientName + " : " + send);
          System.out.println("\n-------------------------------------------------------------\n");
          break;
        }
        dos.writeUTF(send);
        receive = dis.readUTF();
        if(receive.toLowerCase().contains("bye"))
        {
          System.out.println(otherClientName + "; says bye!");
          System.out.println("\n-------------------------------------------------------------\n");
          break;
        }
        System.out.println(otherClientName + " : " + receive);
      } catch (IOException e) {
        e.printStackTrace();
      }
    }
  }
}
```

OUTPUT:-


Run: Main
"C:\Program Files\Java\jdk-13.0.1\bin\java.exe" "-javaagent:C:\Program File
Connection with Client : Success
********** Register **********
Name : Bhavik
----------Conversation----------
Bhavik : Hi Gaurav !
Gaurav : hey Bhavik , how are you ?
Bhavik : I am fine ! , You Say ?
Gaurav : I am also Fine
Bhavik : Nice talking to you bye.
Terminal: Local
C:\Users\bhavi\Desktop\CNL\TCP PtP and M\src\com\company>java Client2.java
Connection with Client : Success
********** Register **********
Name : Gaurav
----------Conversation----------
Bhavik : Hi Gaurav !
Gaurav : hey Bhavik , how are you ?
Bhavik : I am fine ! , You Say ?
Gaurav : I am also Fine
Bhavik; says bye!
C:\Users\bhavi\Desktop\CNL\TCP PtP and M\src\com\company>

WIRESHARK:-

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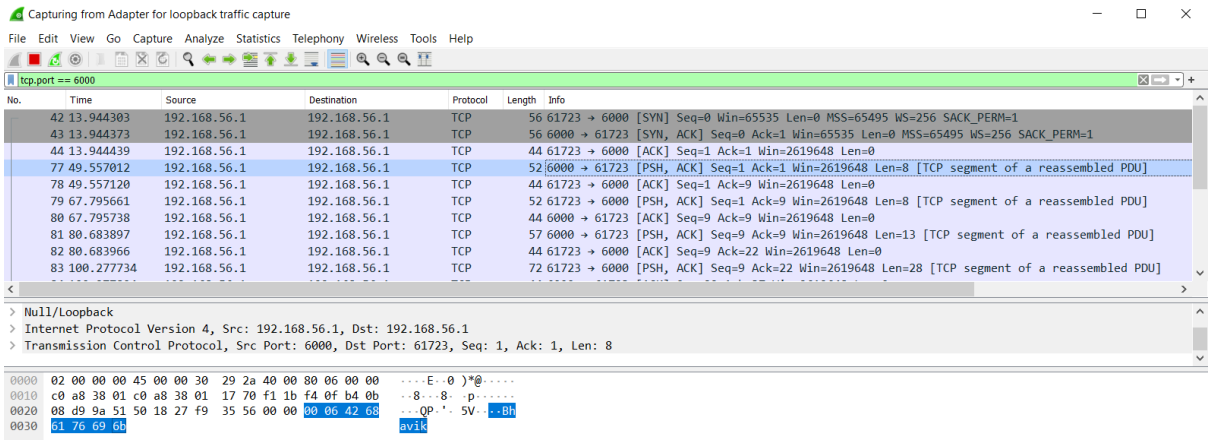
Capturing from Adapter for loopback traffic capture
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
tcp.port == 6000
No. Time Source Destination Protocol Length Info
42 13.944303 192.168.56.1 192.168.56.1 TCP 56 61723 → 6000 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
43 13.944373 192.168.56.1 192.168.56.1 TCP 56 6000 → 61723 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM=1
44 13.944439 192.168.56.1 192.168.56.1 TCP 44 61723 → 6000 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
77 49.557012 192.168.56.1 192.168.56.1 TCP 52 6000 → 61723 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=8 [TCP segment of a reassembled PDU]
78 49.557120 192.168.56.1 192.168.56.1 TCP 44 61723 → 6000 [ACK] Seq=1 Ack=9 Win=2619648 Len=0
79 67.795661 192.168.56.1 192.168.56.1 TCP 52 61723 → 6000 [PSH, ACK] Seq=1 Ack=9 Win=2619648 Len=8 [TCP segment of a reassembled PDU]
80 67.795738 192.168.56.1 192.168.56.1 TCP 44 6000 → 61723 [ACK] Seq=9 Ack=9 Win=2619648 Len=0
81 80.683897 192.168.56.1 192.168.56.1 TCP 57 6000 → 61723 [PSH, ACK] Seq=9 Ack=9 Win=2619648 Len=13 [TCP segment of a reassembled PDU]
82 80.683966 192.168.56.1 192.168.56.1 TCP 44 61723 → 6000 [ACK] Seq=9 Ack=22 Win=2619648 Len=0
83 100.277734 192.168.56.1 192.168.56.1 TCP 72 61723 → 6000 [PSH, ACK] Seq=9 Ack=22 Win=2619648 Len=28 [TCP segment of a reassembled PDU]
Null/Loopback
Internet Protocol Version 4, Src: 192.168.56.1, Dst: 192.168.56.1
Transmission Control Protocol, Src Port: 6000, Dst Port: 61723, Seq: 1, Ack: 1, Len: 8
0000 02 00 00 00 45 00 00 30 29 2a 40 00 80 06 00 00 ····E··0)*@·····
0010 c0 a8 38 01 c0 a8 38 01 17 70 f1 1b f4 0f b4 0b ··8···8· ·p·····
0020 08 d9 9a 51 50 18 27 f9 35 56 00 00 00 06 42 68 ···QP·'· 5V····Bh
0030 61 76 69 6b avik

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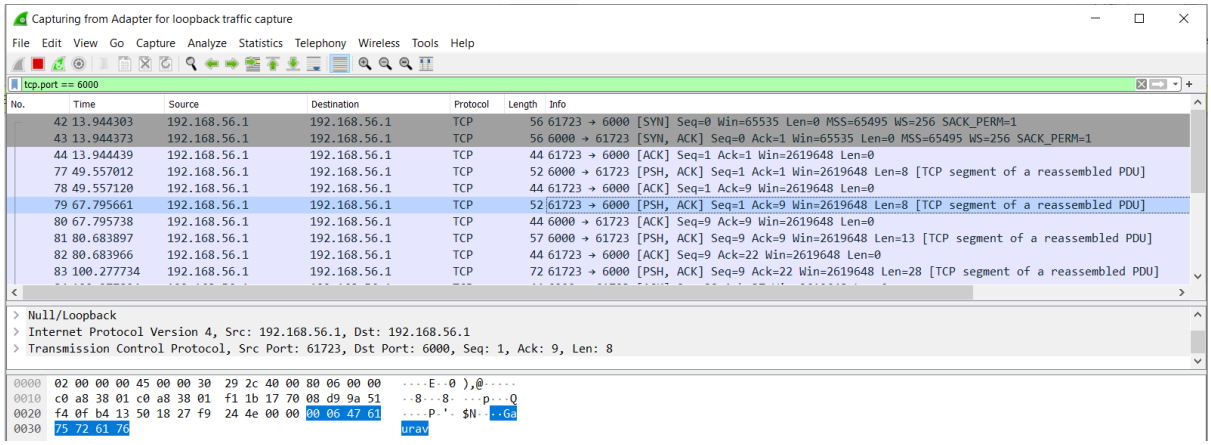
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83 100.277734 192.168.56.1 192.168.56.1 TCP 72 61723 → 6000 [PSH, ACK] Seq=9 Ack=22 Win=2619648 Len=28 [TCP segment of a reassembled PDU]
Null/Loopback
Internet Protocol Version 4, Src: 192.168.56.1, Dst: 192.168.56.1
Transmission Control Protocol, Src Port: 61723, Dst Port: 6000, Seq: 1, Ack: 9, Len: 8
0000 02 00 00 00 45 00 00 30 29 2c 40 00 80 06 00 00 ····E··0),@·····
0010 c0 a8 38 01 c0 a8 38 01 f1 1b 17 70 08 d9 9a 51 ··8···8· ···p···Q
0020 f4 0f b4 13 50 18 27 f9 24 4e 00 00 00 06 47 61 ····P·'· $N····Ga
0030 75 72 61 76 urav

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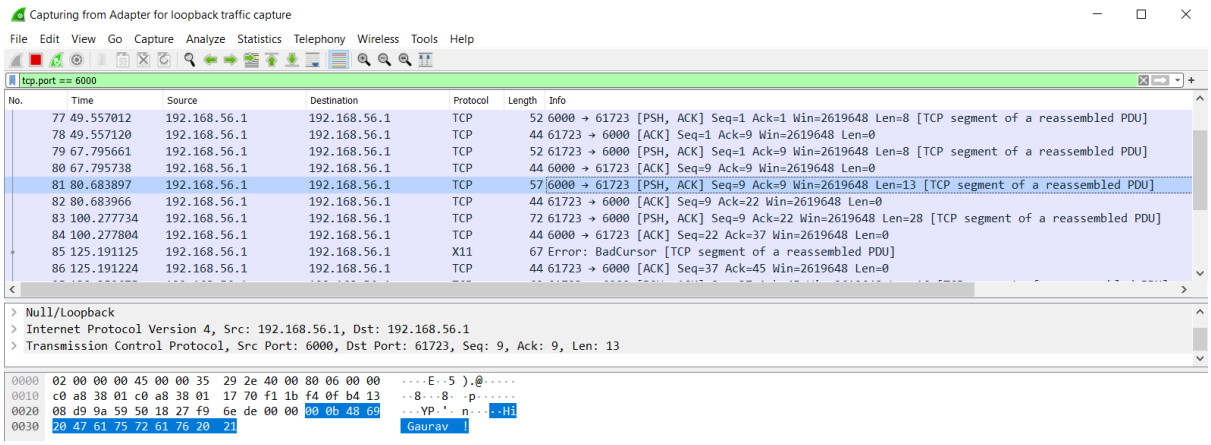
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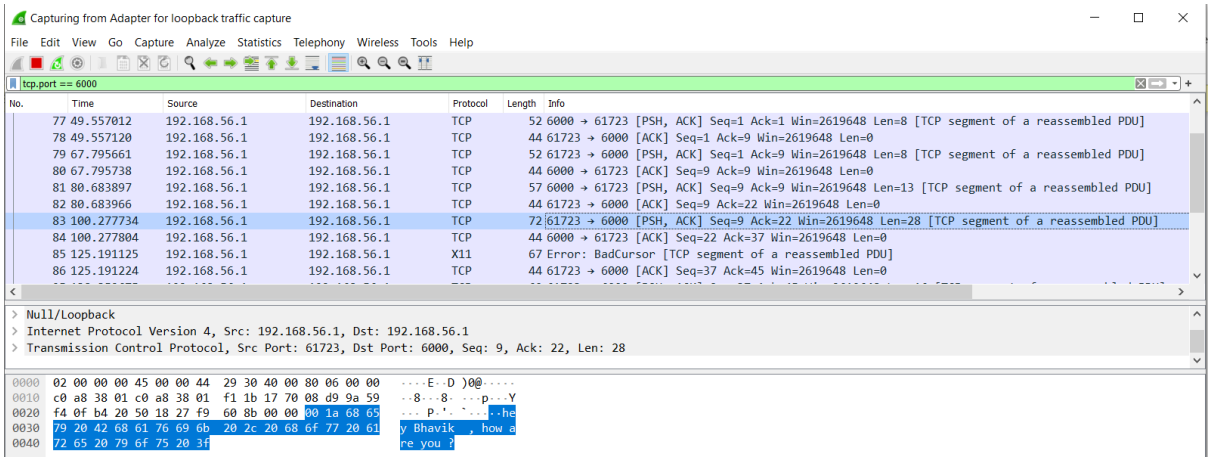
84 100.277804 192.168.56.1 192.168.56.1 TCP 44 6000 → 61723 [ACK] Seq=22 Ack=37 Win=2619648 Len=0
85 125.191125 192.168.56.1 192.168.56.1 X11 67 Error: BadCursor [TCP segment of a reassembled PDU]
86 125.191224 192.168.56.1 192.168.56.1 TCP 44 61723 → 6000 [ACK] Seq=37 Ack=45 Win=2619648 Len=0
Null/Loopback
Internet Protocol Version 4, Src: 192.168.56.1, Dst: 192.168.56.1
Transmission Control Protocol, Src Port: 6000, Dst Port: 61723, Seq: 9, Ack: 9, Len: 13
0000 02 00 00 00 45 00 00 35 29 2e 40 00 80 06 00 00
0010 c0 a8 38 01 c0 a8 38 01 17 70 f1 1b f4 0f b4 13
0020 08 d9 9a 59 50 18 27 f9 6e de 00 00 00 0b 48 69
0030 20 47 61 75 72 61 76 20 21
Gaurav !

-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tcp.port == 6000
No. Time Source Destination Protocol Length Info
77 49.557012 192.168.56.1 192.168.56.1 TCP 52 6000 → 61723 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=8 [TCP segment of a reassembled PDU]
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Null/Loopback
Internet Protocol Version 4, Src: 192.168.56.1, Dst: 192.168.56.1
Transmission Control Protocol, Src Port: 61723, Dst Port: 6000, Seq: 9, Ack: 22, Len: 28
0000 02 00 00 00 45 00 00 44 29 30 40 00 80 06 00 00
0010 c0 a8 38 01 c0 a8 38 01 f1 1b 17 70 08 d9 9a 59
0020 f4 0f b4 20 50 18 27 f9 60 8b 00 00 00 1a 68 65
0030 79 20 42 68 61 76 69 6b 20 2c 20 68 6f 77 20 61
0040 72 65 20 79 6f 75 20 3f
y Bhavik , how a
re you ?

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