



# (Autonomous College Affiliated to the University of Mumbai) NAAC ACCREDITED with "A" GRADE (CGPA: 3.18)

Department of Computer Science and engineering (Iot, Cyber security with block chain technology)

Class: S.Y. B.Tech. Semester: IV

Course Code: DJS22ICL402 Course Name: Computer Networks Lab

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## **Experiment No: 6**

Aim: Write a program to implement Error Detection and correction mechanism:

Hamming code

CRC

## Code:

## **DATAGRAM**

while(true) {

```
import java.net.*; class WriteServer { public
static int serverPort = 666; public static int
clientPort = 999; public static int buffer size =
1024; public static DatagramSocket ds; public
static byte buffer[] = new byte[buffer size];
public static void TheServer() throws Exception {
int pos=0; while (true) { int c = System.in.read();
switch (c) { case -1:
System.out.println("Server Quits.");
return; case '\r': break; case '\n':
ds.send(new
DatagramPacket(buffer,pos,InetAddress.getLocalHost(),clientPort)
);
pos=0; break; default:
buffer[pos++] = (byte)
C;
public static void TheClient() throws Exception {
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```





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```
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  DatagramPacket p = new DatagramPacket(buffer, buffer.length);
  ds.receive(p);
  System.out.println(new String(p.getData(), 0, p.getLength()));
  public static void main(String args[]) throws Exception {
  if(args.length == 1) {
  ds = new DatagramSocket(serverPort);
  TheServer();
  } else {
  ds = new DatagramSocket(clientPort);
  TheClient();
 TCP Server :- import
 java.io.*; import
 java.net.*;
  public class TCPServer { public static
    void main(String[] args) { try {
         ServerSocket serverSocket = new ServerSocket(12345); //
  Create server socket
         System.out.println("TCP Server running...");
while (true) {
            Socket clientSocket = serverSocket.accept(); // Wait for
  client connection
            System.out.println("Client connected: " +
  clientSocket.getInetAddress().getHostAddress());
```





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```
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            BufferedReader in = new BufferedReader(new
 InputStreamReader(clientSocket.getInputStream())); PrintWriter
 out = new
 PrintWriter(clientSocket.getOutputStream(), true);
String message = in.readLine(); // Read message from client
            System.out.println("Received from client: " + message);
            out.println("Message received: " + message); // Send
 response to client
            clientSocket.close(); // Close connection with client
      } catch (IOException e) {
         e.printStackTrace();
 TCP Client:-
 import java.io.*;
 import java.net.*;
 public class TCPClient { public static
    void main(String[] args) { try {
         Socket socket = new Socket("localhost", 12345); //
 Connect to server
         System.out.println("Connected to TCP Server...");
```





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```
BufferedReader userInput = new BufferedReader(new
  InputStreamReader(System.in));
         BufferedReader in = new
  BufferedReader(newInputStreamReader(socket.getInputStream())
         PrintWriter out = new
  PrintWriter(socket.getOutputStream(), true);
  Course Code: DJS22ICL402
                                    Course Name: Computer Networks Lab
         System.out.print("Enter message: ");
         String message = userInput.readLine(); // Read user input
         out.println(message); // Send message to server
String response = in.readLine(); // Receive response from server
         System.out.println("Server response: " + response);
         socket.close(); // Close connection with server
       } catch (IOException e) {
         e.printStackTrace();
```

OUTPUT:-

SERVER





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```
Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.

C:\Users\djsce.student\Desktop\SOCKET>java TCPClient.java
Connected to TCP Server...
Enter message: Hi! This is from CSE(ICB) YAY!!
Server response: Message received: Hi! This is from CSE(ICB) YAY!!

C:\Users\djsce.student\Desktop\SOCKET>
```

## **CLIENT**

```
C:\Windows\System32\cmd.exe-java TCPServerjava — X

C:\Users\djsce.student\Desktop\SOCKET>java TCPServer.java

**CP Server running...

Client connected: 127.0.0.1

Received from client: Hi! This is from CSE(ICB) YAY!!
```

## **UDP CLIENT**

```
import java.io.*;
import java.net.*;
```

public class UDPClient { public static void main(String[] args) { try {

DatagramSocket socket = new DatagramSocket(); // Create UDP socket

InetAddress serverAddress =
InetAddress.getByName("localhost");





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BufferedReader userInput = new BufferedReader(new InputStreamReader(System.in));

System.out.print("Enter message: ");
String message = userInput.readLine(); // Read user input

byte[] buffer = message.getBytes();
DatagramPacket packet = new DatagramPacket(buffer,

buffer.length, serverAddress, 9876); socket.send(packet); //

Send packet to server byte[] responseBuffer = new byte[1024];





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```
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       DatagramPacket responsePacket = new
DatagramPacket(responseBuffer, responseBuffer.length);
       socket.receive(responsePacket); // Receive response from
server
       String response = new String(responsePacket.getData(), 0,
responsePacket.getLength());
       System.out.println("Server response: " + response);
       socket.close(); // Close socket
     } catch (IOException e) {
       e.printStackTrace();
}
UDP SERVER
import java.io.*;
import java.net.*;
public class UDPServer { public static
  void main(String[] args) { try {
       DatagramSocket socket = new DatagramSocket(9876); //
Create UDP socket
       System.out.println("UDP Server running...");
       byte[] buffer = new byte[1024];
       DatagramPacket packet = new DatagramPacket(buffer,
buffer.length);
```





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```
while (true) { socket.receive(packet); // Receive packet from
       client
          String message = new String(packet.getData(), 0,
packet.getLength());
          System.out.println("Received from client: " + message);
          InetAddress clientAddress = packet.getAddress(); int
          clientPort = packet.getPort();
          byte[] responseBuffer = ("Message received: " +
message).getBytes();
          DatagramPacket responsePacket = new
DatagramPacket(responseBuffer, responseBuffer.length,
clientAddress, clientPort);
          socket.send(responsePacket); // Send response to client
     } catch (IOException e) {
       e.printStackTrace();
}
OUTPUT:-
SERVER
```



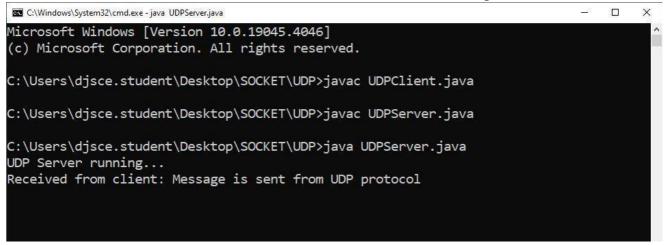


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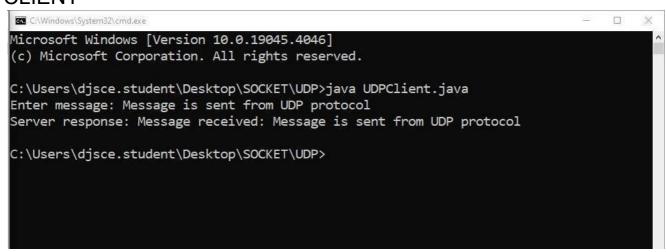


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#### **CLIENT**



**Conclusion:** To conclude that I have successfully implement and successfully performed Socket programming using Java Programming. I have successfully implemented both types of socket programming. I have successfully implemented UPD, TCP and Datagram for both server side and client side. I have learned about UDP,TCP and Datagram successfully.