Socket Programming

DCN Lab Program

Problem Statement

- To Use TCP/UDP sockets and write a client server program in which the client sends the file name in request message and the server sends back the contents of the requested file if present.

Socket Programming

- Socket programming is a way of connecting two nodes on a network to communicate with each other.
- One socket(node) listens on a particular port at an IP, while the other socket reaches out to the other to form a connection.

How to use sockets?

- Set up a socket.
- Send and Receive the packets.
- Close the socket.

Typical Server Program Using TCP

1. Set up a Socket (Prepare to communicate)

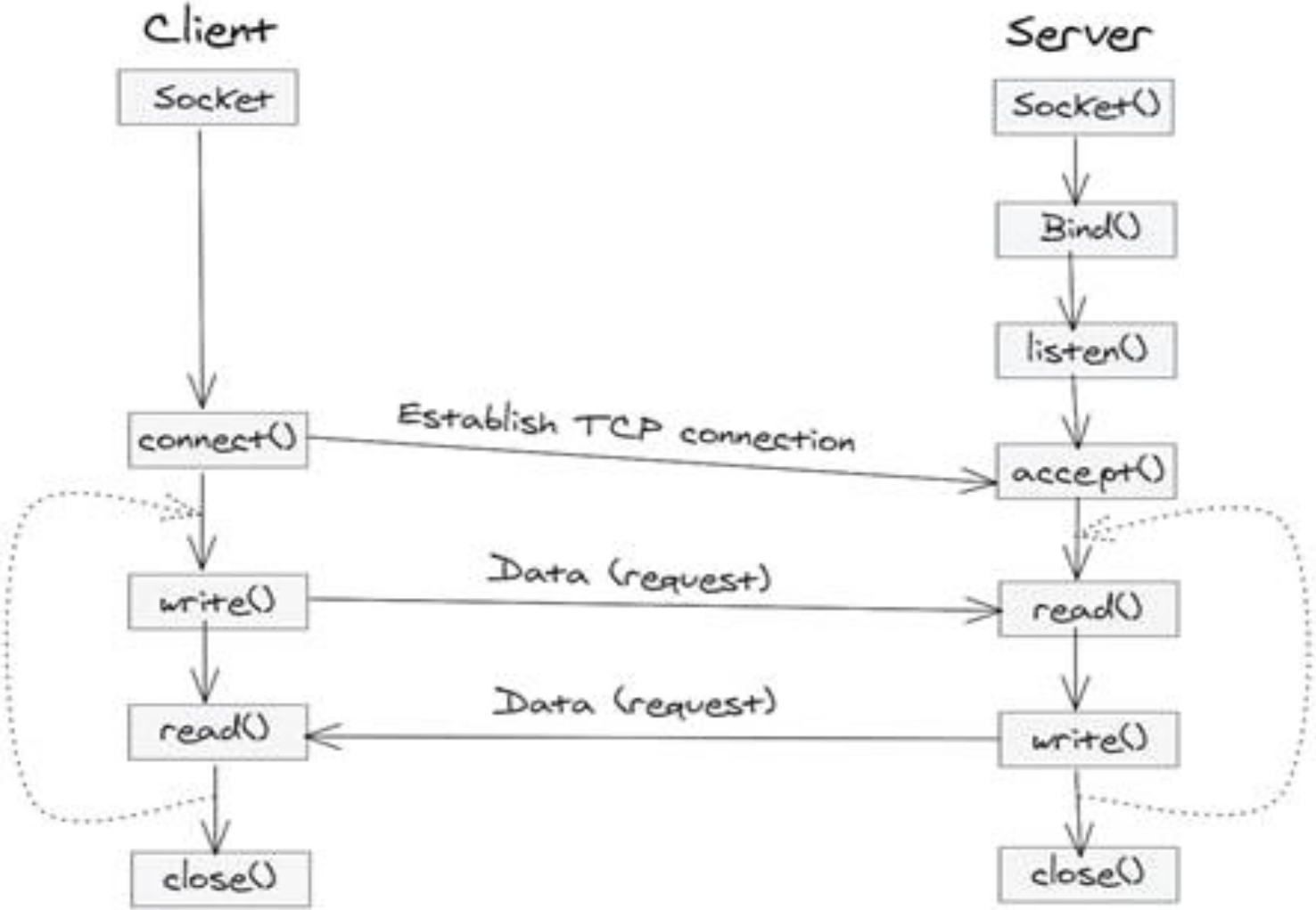
2. Wait to hear from a client

3. Send and receive packets (Exchange data with the client over the new socket s_new)

Typical Client Program Using TCP

- Set up a Socket (Prepare to communicate)
  - Create a socket
  - Determine server IP address and port number
  - Initiate the connection to the server
- Send and receive packets (Exchange data with the server)
  - Write data (i.e., request) to the socket
  - Read data (i.e., response) from the socket
  - Do stuff with the data (e.g., display a Web page)
- Close the socket.

STATE DIAGRAM



Client.java

```
import java.net.*;

import java.io.*;

public class TCPC

{		public static void main(String[] args) throws Exception

		{		Socket sock=new Socket("127.0.01",4000);

				System.out.println("Enter the filename");

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

				String fname=keyRead.readLine();

				OutputStream ostream=sock.getOutputStream();
```

```
PrintWriter pwrite=new PrintWriter(ostream,true);
pwrite.println(fname);

InputStream istream=sock.getInputStream();

BufferedReader socketRead=new BufferedReader(new InputStreamReader(istream));

String str;

while((str=socketRead.readLine())!=null)

{               System.out.println(str);

}
```

```
pwrite.close();

socketRead.close();

keyRead.close();

}

}
```

Code : **Server.java**

```
import java.net.*;

import java.io.*;

public class TCPS

{		public static void main(String[] args) throws Exception

		{		ServerSocket sersock=new ServerSocket(4000);

				System.out.println("Server ready for connection");

				Socket sock=sersock.accept();

				System.out.println("Connection Is successful and waiting for chatting");
```

```
InputStream istream=sock.getInputStream();
BufferedReader fileRead=new BufferedReader(new InputStreamReader(istream));

String fname=fileRead.readLine();

BufferedReader ContentRead=new BufferedReader(new FileReader(fname));

OutputStream ostream=sock.getOutputStream();

PrintWriter pwrite=new PrintWriter(ostream,true);

String str;

while((str=ContentRead.readLine())!=null){

pwrite.println(str);

 }
```

```
sock.close();

sersock.close();

pwrite.close();

fileRead.close();

ContentRead.close();

}

}
```