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Roll No.: 162
Sub.: Distributed Computing

Experiment No.: 06

Aim: Program to demonstrate Mutual Exclusion using java.

Mutual Server Program:

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

public class MutualServer implements Runnable
{
	private Socket socket;
	private static ServerSocket ss;

	MutualServer (Socket newSocket)
	{
		this.socket = newSocket;
	}

	public static void main(String[] args)
	{
		try
		{
			ss = new ServerSocket(7000);
			System.out.println("Server Started");
			while(true)
			{
				Socket s = ss.accept();
				MutualServer es = new MutualServer(s);
				Thread t = new Thread(es);
				t.start();
			}
		}
		catch (Exception e)
		{
			e.printStackTrace();
		}
	}

	public void run()
	{
		try
```

```
        {
            BufferedReader in = new BufferedReader(new
InputStreamReader(socket.getInputStream()));
            while (true)
            {
                System.out.println(in.readLine());
            }
        }
        catch (Exception e)
        {
            e.printStackTrace();
        }
    }
}
```

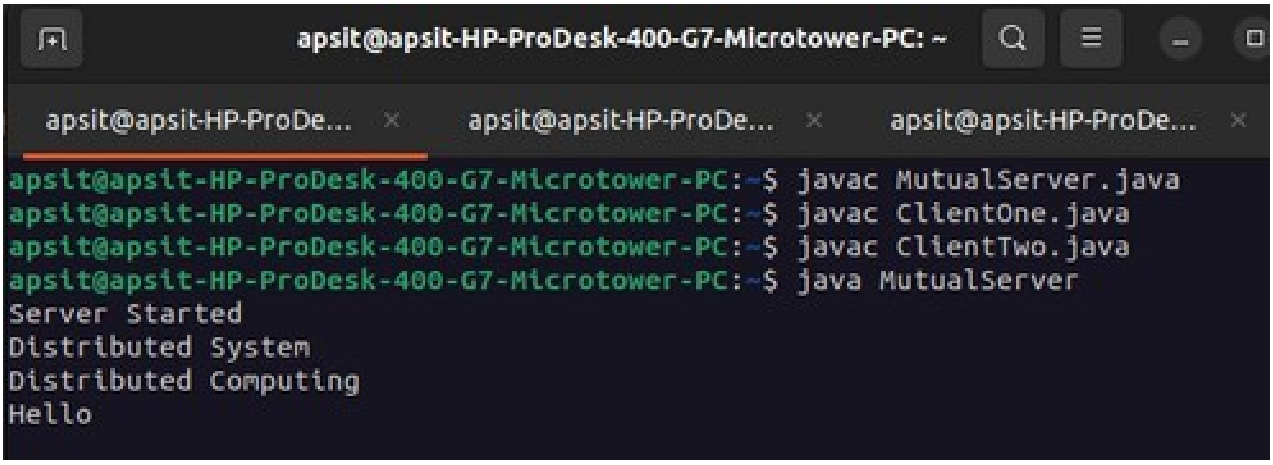
Client One Program:

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

public class ClientOne
{
    public static void main(String args[]) throws IOException
    {
        Socket s= new Socket("localhost", 7000);
        PrintStream out = new PrintStream(s.getOutputStream());
        ServerSocket ss= new ServerSocket (7001);
        Socket s1= ss.accept();
        BufferedReader in1 = new BufferedReader(new
InputStreamReader(s1.getInputStream()));
        PrintStream out1 = new PrintStream(s1.getOutputStream());
        BufferedReader br= new BufferedReader(new
InputStreamReader(System.in));
        String str="Token";
        while(true)
        {
            if(str.equalsIgnoreCase("Token"))
            {
                System.out.println("Do you want to send some data");
                System.out.println("Enter Yes or no");
                str=br.readLine();
                if(str.equalsIgnoreCase("Yes"))
                {
                    System.out.println("Enter the data");
                    str=br.readLine();
                    out.println(str);
                }
                out1.println("Token");
            }
            System.out.println("Waiting for Token");
            str=in1.readLine();
        }
    }
}
```

Client Two Program:

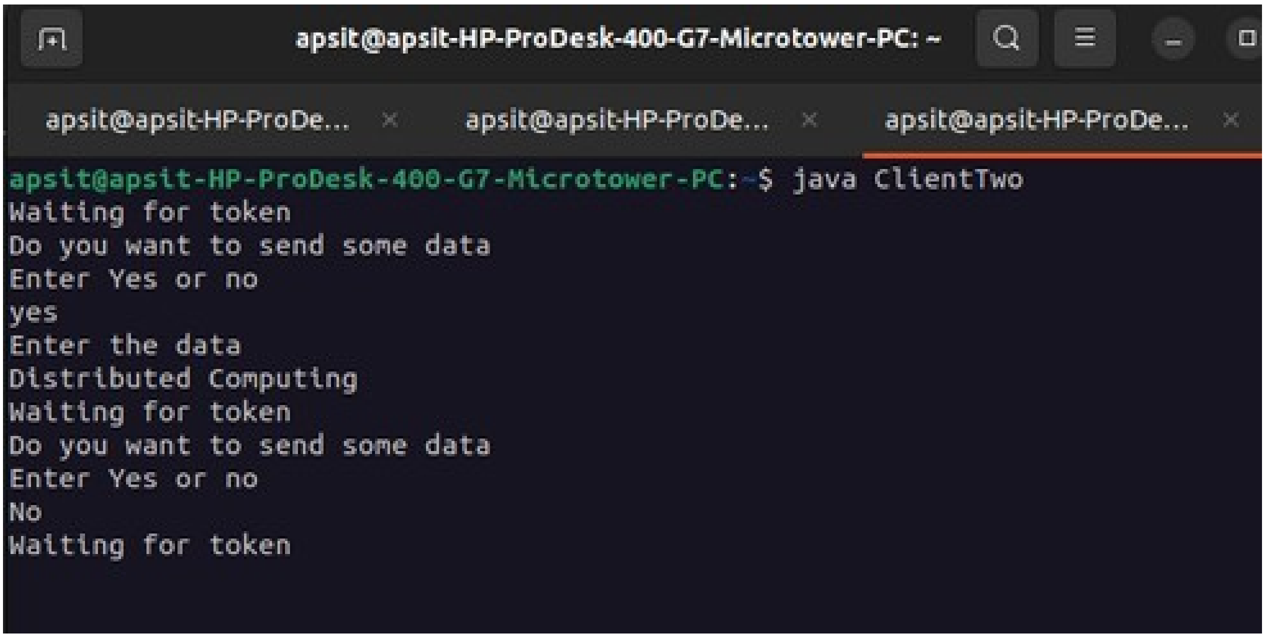
```
import java.io.*;
import java.net.*;

public class ClientTwo
{
    public static void main(String args[]) throws IOException
    {
        Socket s= new Socket("localhost", 7000);
        PrintStream out = new PrintStream(s.getOutputStream());
        Socket s2= new Socket("localhost", 7001);
        BufferedReader in2= new BufferedReader(new
InputStreamReader(s2.getInputStream()));
        PrintStream out2 = new PrintStream(s2.getOutputStream());
        BufferedReader br= new BufferedReader(new
InputStreamReader(System.in));
        String str;
        while(true)
        {
            System.out.println("Waiting for token");
            str=in2.readLine();
            if(str.equalsIgnoreCase("Token"))
            {
                System.out.println("Do you want to send some data");
                System.out.println("Enter Yes or no");
                str=br.readLine();
                if(str.equalsIgnoreCase("Yes"))
                {
                    System.out.println("Enter the data");
                    str=br.readLine();
                    out.println(str);
                }
                out2.println("Token");
            }
        }
    }
}
```

Output:



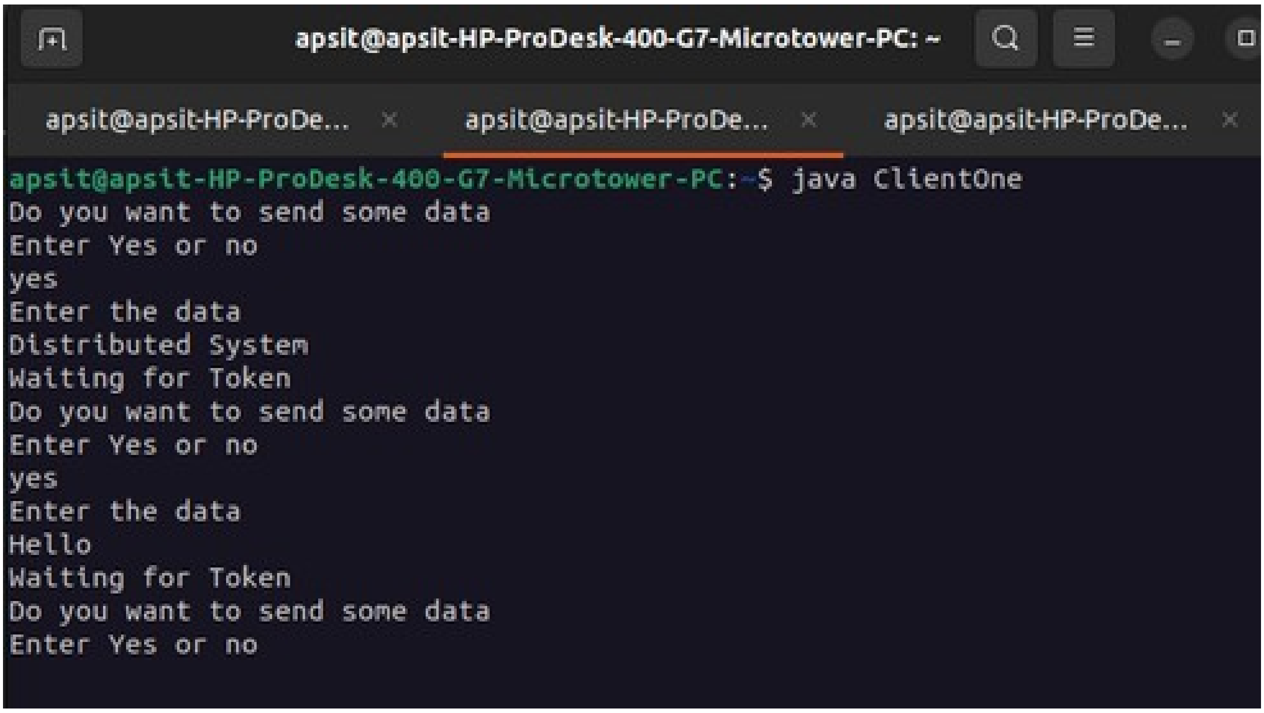
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC: ~
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×

```
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ javac MutualServer.java
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ javac ClientOne.java
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ javac ClientTwo.java
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ java MutualServer
Server Started
Distributed System
Distributed Computing
Hello
```



apsit@apsit-HP-ProDesk-400-G7-Microtower-PC: ~
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×

```
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ java ClientTwo
Waiting for token
Do you want to send some data
Enter Yes or no
yes
Enter the data
Distributed Computing
Waiting for token
Do you want to send some data
Enter Yes or no
No
Waiting for token
```



apsit@apsit-HP-ProDesk-400-G7-Microtower-PC: ~
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×
apsit@apsit-HP-ProDe... ×

```
apsit@apsit-HP-ProDesk-400-G7-Microtower-PC:~$ java ClientOne
Do you want to send some data
Enter Yes or no
yes
Enter the data
Distributed System
Waiting for Token
Do you want to send some data
Enter Yes or no
yes
Enter the data
Hello
Waiting for Token
Do you want to send some data
Enter Yes or no
```