Man in the Middle Attack

1) Create three virtual machines or use three different PC's.
2) Create Server.java file on first PC.

```
import java.net.*;

public class Server {
    public static void main(String[] args) throws Exception {
        DatagramSocket socket = new DatagramSocket(5000);
        byte[] buffer = new byte[1024];
        while (true) {
            DatagramPacket packet = new DatagramPacket(buffer,
buffer.length);
            socket.receive(packet);
            System.out.println("Client: " + new
String(packet.getData(), 0, packet.getLength()));
            byte[] response = System.console().readLine().getBytes();
            socket.send(new DatagramPacket(response, response.length,
packet.getAddress(), packet.getPort()));
        }
    }
}
```

3) Create Cient.java file on second PC.

```
import java.net.*;

public class Client {
    public static void main(String[] args) throws Exception {
        DatagramSocket socket = new DatagramSocket();
        InetAddress address = InetAddress.getByName("localhost");
        byte[] buffer = new byte[1024];
        while (true) {
            buffer = System.console().readLine().getBytes();
            socket.send(new DatagramPacket(buffer, buffer.length,
address, 5000));
            DatagramPacket packet = new DatagramPacket(buffer,
buffer.length);
            socket.receive(packet);
            System.out.println("Server: " + new
String(packet.getData(), 0, packet.getLength()));
        }
    }
}
```

4) Create MitmAttack.java file on third PC.

```
import java.net.*;

public class MitmAttack {
    public static void main(String[] args) throws Exception {
        // Hacker acts as a proxy
        DatagramSocket clientSocket = new DatagramSocket(5000);
        DatagramSocket serverSocket = new DatagramSocket();
        InetAddress serverAddress = InetAddress.getByName("server");
        int serverPort = 5000;

        byte[] buffer = new byte[1024];

        while (true) {
            DatagramPacket clientPacket = new DatagramPacket(buffer,
buffer.length);
            clientSocket.receive(clientPacket);
            String clientMessage = new String(clientPacket.getData(),
0, clientPacket.getLength());
            System.out.println("Intercepted from Client: " +
clientMessage);
            String modifiedMessage = "MITM altered: " + clientMessage;
            byte[] forwardToServer = modifiedMessage.getBytes();
            serverSocket.send(new DatagramPacket(forwardToServer,
forwardToServer.length, serverAddress, serverPort));
            DatagramPacket serverPacket = new DatagramPacket(buffer,
buffer.length);
            serverSocket.receive(serverPacket);
            String serverResponse = new String(serverPacket.getData(),
0, serverPacket.getLength());
            System.out.println("Intercepted from Server: " +
serverResponse);

            // Modify response or forward it to the client
            String modifiedResponse = "MITM altered: " +
serverResponse;
            byte[] forwardToClient = modifiedResponse.getBytes();
            InetAddress clientAddress = clientPacket.getAddress();
            int clientPort = clientPacket.getPort();
            clientSocket.send(new DatagramPacket(forwardToClient,
forwardToClient.length, clientAddress, clientPort));
        }
    }
}
```

5) Edit the first PC's hosts file to set IP address of third PC (Hacker) with the name of second PC (client).
   For example:
   192.168.0.9 client

6) Edit the second PC's hosts file to set IP address of third PC (Hacker) with the name of first PC (server).
   For example:
   192.168.0.9 server

7) Edit the third PC's hosts file to set IP address of the first pc and its name (server) and set IP address of the second pc and its name (client).
   For example:
   192.168.0.2 server
   192.168.0.3 client

8) Now run below files
   a. java MitmAttack.java (on third/Hacker PC)
   b. java Server.java (on first PC)
   c. java Client.java (on second PC)
9) Now send message from client and server and check they are received at other side as changed.