

## Socket programming homework TCP & UDP

I made each server and client for UDP/TCP in individual projects in order to work on 2 different devices. The client can request information on a device and send it to the server on the other device then the server sends the information. Each device has a unique IP address.

### TCP:

```
TCPClient x
C:\Users\msys\.jdk\openjdk-20.0.1\bin\java.exe "-javaagent:C:\Program Files
Enter the number of searching attempts: 0
Enter car Id is either capital or small: b001
b001 seat ibiza 2009 orange saed 9087654
Enter car Id is either capital or small: b001
b001 seat ibiza 2009 orange saed 9087654
Enter car Id is either capital or small: A001
a001 vw polo 2005 black noora 3467892
Enter car Id is either capital or small: c002
c002 audi a6 2020 silver hiba 0956784
Enter car Id is either capital or small: C003
c003 bmw x7 2022 brown noah 9076045
Enter car Id is either capital or small: B002
b002 hyundai kona 2019 white sami 8750888
Process finished with exit code 0
```

```
TCPServer x TCPServer x
C:\Users\msys\.jdk\openjdk-20.0.1\bin\java.exe "-javaagent:C:\Program Fil
the server is on and running
Process finished with exit code 0
```

## TCP Client:

I made a socket and this is very important step in TCP , this socket has 2 parameters . The address and the port we will send it on. Then we will get from the socket the input stream and the output stream.

The user enters the number of searching attempts as we see here in the results. He asked requests for all cars Id and received the correct info from the server. (id is case insensitive)

## TCP Server:

I made a server socket and gave it the port and IP number. Then I get the input stream and output stream from the socket. I initialized a file where the information consists, I put the path of the file as an argument of the file to give the information from it to the client via the server when request happens. I made a for loop to reach to the end of the file while searching about the car model information and send them to the client. I split the spaces between information for each car model in the file.

## UDP:

```
UDPClient x
C:\Users\msys\jdk\openjdk-20.0.1\bin\java.exe "-javaagent:C:\Program
Enter the number of search attempts: 1
Enter the vehicle number: b001
b001 seat ibiza 2009 orange saed 9087654
localhost/127.0.0.1
Process finished with exit code 0
```

```
C:\Users\msys\jdk\openjdk-20.0.1\bin\java.exe "-javaagent:C:\Program I
Received :b001
```

### UDP Client:

Same as in TCP Client

### UDP Server:

I made a socket and then as the code above (it's on steps on each line ). And I put the path of the file I want to read from the information. So this way will give me the same result as TCP.

### **What is the main difference between these two ways(TCP & UDP)?**

Transmission control protocol (TCP) and user datagram protocol (UDP) are foundational pillars of the internet, enabling different types of data transmission from a network source to the destination. TCP is more reliable, while UDP prioritizes speed and efficiency.

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