Programming Assignment

Question 2 Report R1

Computer Networks Final Project – COEN 233

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1. Question No. 2 Client using customized protocol on top of UDP protocol

This is for requesting identification from server for access permission to cellular network. The client requests access information from server; the server will verify the validity of the request and will respond accordingly.

For the program assignment 2 you can imagine client's software module is acting on behalf of a cell phone. The client's software module sends the request for identification of its device in a packet to the server; the packet has the following information:

Server opens and reads a file named "Verification_Database.txt", the contents of this file will be saved on the server, which contains the Subscriber's Number, Technology, and payment status (paid = 1, not paid = 0).

- Verification_Database.txt contains as follows (subscriber No. | Tech | Paid/unpaid):

4085546805 04 1
4086668821 03 1
9259873124 02 0
4156758490 03 1
4152019385 04 1

- input.txt contains as follows:

4085546805 04 1
9086668821 03 1
9259873124 02 0
4156758490 03 1
4152019385 03 1

Subscriber conditions which will be tested by using input.txt are as follows:

- Subscriber has not paid message
- Subscriber does not exist on database message
- Subscriber permitted to access the network message
- Access granted

1.1 Client and Server terminal outputs

```
oalmasi@DESKTOP-R2B9NK7:~/CN_HW2_F/Final Code to upload$ ./client

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 1
=*=*=*Packet Length: 12
=*=*=*Technology: 4
=*=*=*Subscriber No: 4085546805
=*=*=*End of Packet ID: ffff
Status: paid subscription, access granted.  ◄─────────────

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 2
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 9086668821
=*=*=*End of Packet ID: ffff
Status: Subscriber does not exist.  ◄─────────────

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 3
=*=*=*Packet Length: 12
=*=*=*Technology: 2
=*=*=*Subscriber No: 9259873124
=*=*=*End of Packet ID: ffff
Status: Unpaid subscription.  ◄─────────────

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 4
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 4156758490
=*=*=*End of Packet ID: ffff
Status: paid subscription, access granted.  ◄─────────────

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 5
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 4152019385
=*=*=*End of Packet ID: ffff
Status: Technology mismatch.  ◄─────────────
```

Figure 1 – Client Output Terminal for all subscriber conditions.

```
oalmasi@DESKTOP-R2B9NK7:~/CN_HW2_F/Final Code to upload$ ./server
Server is now up and running...
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 1
=*=*=*Packet Length: 12
=*=*=*Technology: 4
=*=*=*Subscriber No: 4085546805
=*=*=*End of Packet ID: ffff
paid subscription, access granted.  ←

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 2
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 9086668821
=*=*=*End of Packet ID: ffff
Subscriber does not exist.  ←

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 3
=*=*=*Packet Length: 12
=*=*=*Technology: 2
=*=*=*Subscriber No: 9259873124
=*=*=*End of Packet ID: ffff
Unpaid subscription.  ←

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 4
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 4156758490
=*=*=*End of Packet ID: ffff
paid subscription, access granted.  ←

=*=*=*=*=*=* New Packet =*=*=*=*=*=*
=*=*=*Packet ID: ffff
=*=*=*Client ID: ff
=*=*=*Access Permission: fff8
=*=*=*Segment No: 5
=*=*=*Packet Length: 12
=*=*=*Technology: 3
=*=*=*Subscriber No: 4152019385
=*=*=*End of Packet ID: ffff
Technology mismatch.  ←
```

Figure 2 – Server Output Terminal for all subscriber conditions.

```
oalmasi@DESKTOP-R2B9NK7:~/CN_HW2_F/Final Code to upload$ ./client

 =*=*=*=*=*=* New Packet =*=*=*=*=*=*
 =*=*=*Packet ID: ffff
 =*=*=*Client ID: ff
 =*=*=*Access Permission: fff8
 =*=*=*Segment No: 1
 =*=*=*Packet Length: 12
 =*=*=*Technology: 4
 =*=*=*Subscriber No: 4085546805
 =*=*=*End of Packet ID: ffff
 No response.
 No response.
 No response.
 Server does not repsond.
oalmasi@DESKTOP-R2B9NK7:~/CN_HW2_F/Final Code to upload$ []
```

Figure 3 – Client Output Terminal for while running with no server.