Redes de Computadores (Computer Networks)

Home work (assignment for evaluation)

RoosterNet

The aim of this work is to develop (in C / C++) a server and a client computer programs to play the traditional game tic-tac-toe ("Jogo do galo") between two remote players, using the internet.

The server program (RoosterNetServer) waits for being contacted by the client program (RoosterNetClient). After being contacted, the RoosterNetServer presents the remote player's name (the challenger), and ask its user (the defender) to accept or reject the remote player challenge for a game.
If the defender answer is negative the server closes the connection after informing the challenger (RoosterNetClient) by sending a message with two zero bytes (00). The RoosterNetServer should remain on, waiting for another client.
If the user (the defender) answer is positive the server asks for the first move (line and column), displays it in the screen and send a message with the move (two bytes) to the RoosterNetClient that displays the board (a 9x9 matrix) it in its screen. The challenger, at the RoosterNetClient, is asked for its move and the client program sends a message back to the server with that move.
The game continues until the 9th move or until there is one winner.

The RoosterNetServer screen could be like this:

```
RoosterNet server 2013
by authors'name
```

Waiting for a challenger…
New challenger: *opponent's name*.
Do you want to play with this challenger (Y/N)? N
Waiting for a challenger…
New challenger: *new opponent's name*.
Do you want to play with this challenger (Y/N)? Y
```
---
---
---
```
Your move…
Line (1 to 3): 2
Column (1 to 3): 2
```
---
-X-
---
```
The challenger's move…
```
---
-X-
0--
```
Your move…
Line (1 to 3): 1
Column (1 to 3): 3

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```
    --X
    -X-
    0--
```
The challenger's move…

The RoosterNetClient screen could be like this:

```
    RoosterNet client 2013
    by authors'name
```

You're name: *challenger's name*
Address of a defender: 193.62.254.200
That defender accepted you're challenge.
The defender's move…
```
    ---
    -X-
    ---
```
Your move…
Line (1 to 3): 3
Column (1 to 3): 1
```
    ---
    -X-
    0--
```
The defender's move…
```
    --X
    -X-
    0--
```
Your move…
Line (1 to 3): 1
Column (1 to 3):

Write a short report (one A4 page) on the program developed, including the specifications and a user and a programmer's manual. Comment the implemented code.
On a separate sheet you can (and should) make suggestions about changes and enhancements to the software and to the statements of the work (specifications).
The work will be presented orally and you may be asked to make changes to the software.
Deadline: 2013-12-31. The defenses are expected to take place in the 3 days after the Computer Networks 3rd test (during the normal exams season).
This homework may be done individually or in groups of two. You're supposed to use exclusively your own software code.

Bibliography:
- Computer Networking: a top-down approach, Kurose and Ross, Pearson, 2008.
- http://www.cs.rpi.edu/courses/sysprog/sockets/sock.html (Sockets Tutorial)
- http://www.beej.us/guide/bgnet/output/html/singlepage/bgnet.html (Beej's Guide to Network Programming Using Internet Sockets)