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Name : Matou, a Chat service

Description:
The purpose of Matou project is to realize a discussion and file exchanger service.

The clients are connected to a primary server. Each connected client is identified by a unique pseudo. The server must guarantee that two client will not have the same pseudo. After etablishing the connection, the client can:
        * Send message to all connected clients
        * Send privates messages or files to a particular client

Requirements:
        * All private communication are made by a direct connection between the two clients. The server will only be sollicited for the purpose of exchanging the address of those two clients.
        * Client will be managed to send a request for private messaging. And this client can't accept or refuse any private request.
        * Exchanging file should not block the messaging and vice versa.

Specifications:
        * The numbers are in Big Endian format
        * String are encoded into UTF-8 charset
        * The transport protocol used is TCP (with limit size specified)
        * The max size of an encoded pseudo is 32 bytes wihtout some special caracters (\n, \r ...)
        * The max size of a message is 512 bytes
        * The size of a chunk of file is 512 bytes

Acronym formats:
        * C-S : Client to Server
        * S-C : Server to Client
        * S-A : Server to All Client
        * C-C : Client to Client

Interactions:
    Request for public connection
        [C-S] Request connection to Server
        The client requests a connection to the server with a specified
        pseudo
        +------+------------+--------+
        | int | int | String |
        +------+------------+--------+
        | Type | SizePseudo | Pseudo |
        +------+------------+--------+

        [S-C] Validation of the connection
        The serveur answers with a boolean which will indicate whether the
        pseudo is valid or not. If the pseudo is valid the connection is
        established.
        +------+-------------+
        | int | byte |
        +------+-------------+
        | Type | Acceptation |
        +------+-------------+

        [S-A] Notification of the new connection
        The server notifies all clients that a new one is connected.
        +------+------------+--------+
        | int | int | String |
        +------+------------+--------+
        | Type | SizePseudo | Pseudo |
        +------+------------+--------+

    Sending message to the public domain
        [C-S] Sending message
        The client sends his public message to the server.
        +------+-------------+---------+
        | int | int | String |
        +------+-------------+---------+
        | Type | SizeMessage | Message |
        +------+-------------+---------+

        [S-A] Retransmission of the message
        The server forwards the public message to all connected clients.
        +------+------------+--------+-------------+---------+
        | int | int | String | int | String |
        +------+------------+--------+-------------+---------+
        | Type | SizePseudo | Pseudo | SizeMessage | Message |
        +------+------------+--------+-------------+---------+

    Requesting private connection
        [C-S] Requesting connection between the source(Src) and the
        destination(Dst)
        The client Src notifies the server that he wants to be connected
        with the client Dst.
        +------+---------------+-----------+
        | int | int | String |
        +------+---------------+-----------+
        | Type | SizePseudoDst | PseudoDst |
        +------+---------------+-----------+

[S-C] Requesting acceptation of the connection from Dst
The server notifies the client Dst that he received a connection
request form client Src.
```
+------+--------------+-----------+
| int  |     int      |  String   |
+------+--------------+-----------+
| Type | SizePseudoSrc | PseudoSrc |
+------+--------------+-----------+
```

[C-S] Confirm the connection request to Src
The client Dst notifies the server whether he accepted or refused
the client Src's private's connection request.
```
+------+--------------+-----------+--------+
| int  |     int      |  String   | byte   |
+------+--------------+-----------+--------+
| Type | SizePseudoSrc | PseudoSrc | Accept |
+------+--------------+-----------+--------+
```

[S-C] Notification of the private
The server forwards the answer of client Dst to client Src.
```
+------+--------------+-----------+--------+
| int  |     int      |  String   | byte   |
+------+--------------+-----------+--------+
| Type | SizePseudoDst | PseudoDst | Accept |
+------+--------------+-----------+--------+
```

[S-C] Connection between the source(Src) and the destination(Dst)
The server sends the private connection data for the private
connection of client Dst to client Src.
```
+------+--------------+-----------+-------------------+
| int  |     int      |  String   | InetSocketAddress |
+------+--------------+-----------+-------------------+
| Type | SizePseudoDst | PseudoDst | AddressDst        |
+------+--------------+-----------+-------------------+
```

[S-C] Connection between the source(Src) and the destination(Dst)
The server sends the private connection data for the private
connection of client Src to client Dst.
```
+------+--------------+-----------+-------------------+---------+
| int  |     int      |  String   | InetSocketAddress |  int    |
+------+--------------+-----------+-------------------+---------+
| Type | SizePseudoSrc | PseudoSrc | AddressSrc        | PortSrc |
+------+--------------+-----------+-------------------+---------+
```

Sending private message
[C-C] Sending private message between Src and Dst
The client Src send a message to client Dst.
```
+------+-------------+---------+
| int  |     int     | String  |
+------+-------------+---------+
| Type | SizeMessage | Message |
+------+-------------+---------+
```

Sending file in private
        [C-C] Sending file between Src and Dst
        The client Src sends a file to client Dst. The file is segmented
        into chunk with a fixed size (Only the last part will eventually be
        smaller).
        +------+-----------+-----------+-------+
        | int | long | bytes | bytes |
        +------+-----------+-----------+-------+
        | Type | SizeFile | FileChunk | ... |
        +------+-----------+-----------+-------+

    Private sign out
        [C-C] Sign out
        The client notifies his interlocutor that he wants to terminate the
        private connection.
        +------+
        | int |
        +------+
        | Type |
        +------+

    Public sign out
        [C-S] Sign out
        The client notifies the server that he wants to terminate the
        connection.
        +------+
        | int |
        +------+
        | Type |
        +------+

        [S-A] Sign out notification
        The server notifies all clients that a client has left the chat
        room.
        +------+-----------+--------+
        | int | int | String |
        +------+-----------+--------+
        | Type | SizePseudo | Pseudo |
        +------+-----------+--------+