Client protocol

1. **Open a control connection** with the server
2. Send a command to the server
   - Send a 10 byte string with the length of the command to the server
   - Send the command to the server
3. **Open a data connection** with the server
   - Receive a 10 byte string from the server indicating the port to connect to for the data connection
   - Create a new socket connected to the server on the indicated port number for the data connection
4. Send/receive data to/from server
   - Determine the type of command that has been sent
   - If a file or message needs to be sent:
     - Send a 10 byte string to the server indicating the size of the file or message to be sent
     - Send the file or message to the server
   - If a file or message needs to be received:
     - Receive a 10 bytes string from the server indicating the size of the file or message
     - Receive the file or message from the server
5. **Close the data connection**
6. Repeat steps 2-5 until the "quit" command is sent
7. **Close the control connection**

Server protocol

1. Open a **control connection** with the client
2. Listen for a command
   - Receive a 10 byte string with the length of the command from the client
   - Given a command length of *N*, receive the command as a string of length *N* from the client
3. **Open a data connection** with the client
   - Create a new socket with a randomly chosen available port number for the data connection
   - Over the control connection, send the port number of the socket just created to the client
   - Accept the connection request from the client
4. Send/receive data to/from client
   - Determine the type of command that has been received
   - If a file or message needs to be sent:
     - Send a 10 byte string to the client indicating the size of the file or message to be sent
     - Send the file or message to the client
   - If a file or message needs to be received:
     - Receive a 10 bytes string from the client indicating the size of the file or message
     - Receive the file or message from the client
5. **Close data connection**
6. Repeat steps 2-5 until the "quit" command is received
7. **Close the control connection**