

Lab1 - Protocols

The purpose of this connection between a client and server is to simulate a game of “Rock, Paper, Scissors”. This can be modeled by the back and forth communication between server and client.

Protocol for Server/Client:

1. Client requests connection to server at port 5000
2. Server confirms connection by welcoming user with a statement: “Welcome!”
3. Server requests menu option (>PLAY >CHECK SCORE >QUIT)
4. User responds with game of choice by sending “PLAY” or check score by sending “SCORE”, or “QUIT” to terminate connection
5. Server checks user input for errors
 - a. Ex: if “PLAYs” is sent, server will ask for input again, otherwise continue
 - i. If “QUIT” entered, server farewells the user and closes the connection.
 - ii. If “SCORE” entered, server responds with formatted number of times player won/lost/tied.
 - iii. If “PLAY” entered, server asks user for choice: “Rock, paper, or scissors?”
 1. If non-appropriate choice is made, loop back and take input again, otherwise continue
 - a. Ex: if “ROCKsf” is sent, server will ask for input again
 2. Server generates random number for choice (ex: rock = 1, paper = 2, scissor = 3)
 3. Compares generated choice with player’s choice and determines winner
 - a. If result is a tie, loop back and get choices again “I Chose ____! It’s a draw!!” and increment tie counter
 4. Server replies to user with the outcome: “You won!” or “You lost!”
Increment score counter for win/loss
 - iv. Return back to main menu

Example Run:

User: attempt to connect to server at port 5000
Server: Connection established. Welcome!
Server: What would you like to do? >PLAY >Check SCORE >QUIT
User: "PLAY"
Server: "Respond with Choice(ROCK, PAPER, SCISSOR): "
User: "ROCK"
Server: "I chose Scissors. You won!"
Server: What would you like to do? >PLAY >Check SCORE >QUIT
User: "PLAY"
Server: "Respond with Choice(ROCK, PAPER, SCISSOR): "
User: "PAPER"
Server: "I Chose Paper. It's a draw!"
Server: What would you like to do? >PLAY >Check SCORE >QUIT
User: "SCORE"
Server: "SCORE: 1 - 0 - 1"
Server: What would you like to do? >PLAY >Check SCORE >QUIT
User: "QUIT"
Server: "Thanks for playing. Goodbye!"