CS425 – Mini Project
Words Building {Group No. 21}

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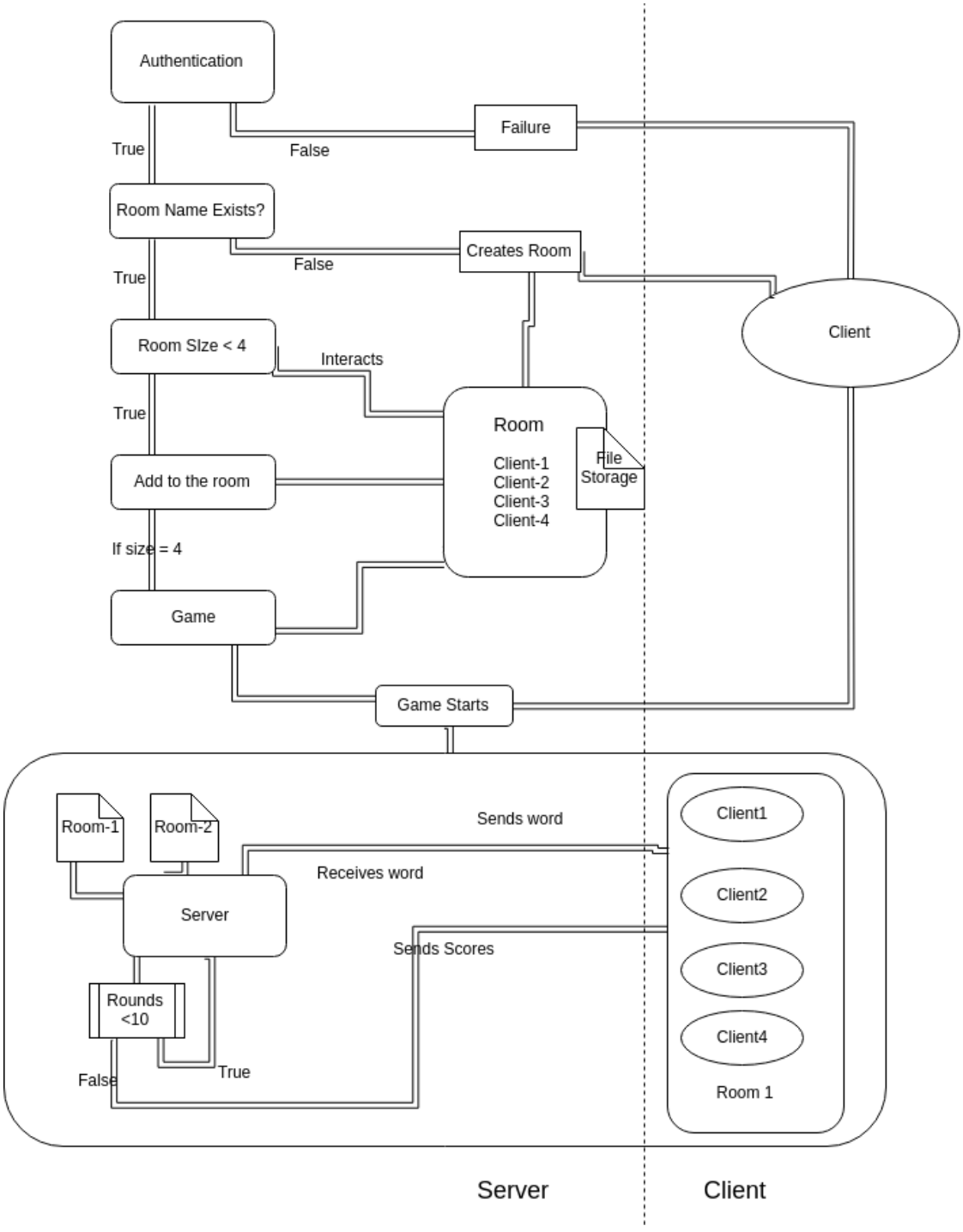
Introduction

- Main theme of **Words Building** is as follows..
  1. **Ram** provides a word, say **'young'**, **Lakshman** is expected to come up with a word which starts with **'g'** (ending of the first word) and the game continues in a circular fashion.
  2. Score is given in the form of penalty, which is based on the time taken by the individual to come up with the word.
- In this project, we would want to build a virtual environment, so that friends could connect to the server and play the game.

Objective

- Idea is to build a Text-based Application, such that the server will be able to communicate parallelly with the clients.


Authentication
Failure
True
False
Room Name Exists?
Creates Room
False
True
Client
Room Slze < 4
Interacts
True
Room
Client-1
Client-2
Client-3
Client-4
File Storage
Add to the room
If size = 4
Game
Game Starts
Room-1
Room-2
Sends word
Receives word
Server
Sends Scores
Rounds <10
False
True
Client1
Client2
Client3
Client4
Room 1
Server
Client

The following lines provide a concise overview of the code in the documents server.c and client.c in a block-wise sequence

Note: [p - q] represent the line numbers <p to q> in the respective files).

[server.c]

[50-62]

- Created a socket and bind the server(port 9089 - macro variable) to the socket

[64-65]

- Listens for clients

[69]

- Infinite loop to allow service

[70-73]

- Accepts connection from clients

[74-86]

Forks when a new client adds

[56-94]

- Checks if the user exists in 'users.txt'. If Yes, then checks for the password and also notifies the client by sending a msg,
  i. If password Matched, then sends “Hello <username>” to the client.
  ii. Else sends message “Authentication Failure!!!”, and terminates the connection.

[98-104]

- If the user doesn't exist, then sends message “**Authentication Failure!!!**”, and terminates the connection.

[106-110]

- Receives the input file name from the client

[113-128]

- If file exists, then sends a message saying "**Download Initiated...**". Then, opens the file and sends the client line by line and receives acknowledgement. Once done, closes the file.

[129-132]

- If file doesn't exist, the message “**File Not Found**” is sent.

[134-135]

- Terminates the connection with the client

[client.c]

[23-37]

- Created a socket and bind the server(**port 9000** - macro variable) to the socket

[28-32]

- Parses the argv - <username:password@serverip> into **{username, password, ip_addr}**

[39-42]

- Connects the server, notifies if any error.

[45-48]

- Sends the username,
  1. if exists, then receives the message - "**Checking for the password...**"
  2. else message - "**Authentication Failure!!!**" & terminates the connection.

[50-53]

- Sends the password
  1. if matches, then receives the message - **"Hello** " <**username**>.
  2. else message - "**Authentication Failure!!!**" & terminates the connection.

[58-66]

- Takes filename as input from the user, Receives the following message -

i. "**File Not Found**", if the file is not present and the connection is terminated.
ii. "**Download Initiated...**", if the file is present.

[68-92]

- Opens a new file and writes the received messages line by line and sends the server the acknowledgement. Then closes the file

[93-94]

- Closes the connection

Assumptions and Limitations:

(1) PORT_NUMBER is hard_coded to '**9000**' in both server.c and client.c
(#define PORT_NUMBER 9000)
(2) username and password can not contain ':'
(3) Run the server using '**./server**'
(4) Run the client using '**./client harshan:123456789@127.0.0.1**'
[find more users and passwords in '**users.txt**']
(5) Then, the <file> is to be requested, just by entering the filename.
(6) After one request of a client is serviced, the server terminates connection with that client.
(7) Client exits once the file download completes or if the server does not have that file.

References:

https://www.youtube.com/playlist?list=PL0JmC-T2nhdgJ2Lw5YdufR8MffaQdAvEf
https://stackoverflow.com/questions/9206091/going-through-a-text-file-line-by-line-in-c
https://stackoverflow.com/questions/30213716/how-to-append-lines-to-already-existing-file
https://stackoverflow.com/questions/35197575/in-c-how-to-print-out-a-txt-file-line-by-line
https://www.tutorialspoint.com/c_standard_library/c_function_fgets.htm
https://stackoverflow.com/questions/3501338/c-read-file-line-by-line
https://www.programiz.com/c-programming/library-function/string.h/strcmp
http://www.cplusplus.com/reference/cstring/strtok/
https://stackoverflow.com/questions/18950835/printing-to-a-file-in-c
https://stackoverflow.com/questions/34008206/how-to-create-a-new-text-file-in-c