

Client-Server computing

- IQ Quiz Portal

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Problem Definition:

On a network, we have created a server process which can interact with at max 5 client processes simultaneously. The clients can send request to the server for signing up for the quiz so that the server can maintain the details of the registered clients in 'user' and 'info' files. The server also uses semaphores to assign distinct ids to those clients who have signed up simultaneously. On successive logging in, the client can answer a set of simple and logical questions and send the answers back to the server. The server then sends the results back to the client. The server maintains the scores of the different clients and can be requested to display the highest score. The clients also can send messages to other clients through this portal. These server-client interactions are also recorded in the form of log file with data and timestamps.

Programming language: C

Tools: gcc, vi editor

Libraries used:

<stdio.h>
<string.h>
<stdlib.h>
<ctype.h>
<sys/types.h>
<sys/socket.h>
<sys/ipc.h>
<sys/msg.h>
<netinet/in.h>
<signal.h>
<pthread.h>
<err.h>
<semaphore.h>
<sys/types.h>
<sys/msg.h>
<time.h>

List of Programs developed:

1. iqserver.c - the program contains the main function of the server
2. serveroperations.h - the header file contains the various server functions, constants and global variables.
3. iqclient.c - the program contains the main function of the client
4. clientoperations.h - the header file contains the various client functions, constants and global variables.

Other files:

1. info.txt -file stores all the information about the registered users like name, city, college, etc.
2. user.txt -file stores the passwords of the users.
3. score.txt -file stores the scores of all users.
4. temp.txt -file used temporarily while updating any user's score
5. log.txt -log file of the processes and the activities

Sample Input and Output:

The sample input and output files can be seen in two files:

Client_1_IO.txt

Client_2_IO.txt

The files shows how a new user signs up and then uses the assigned user id to login for further sessions, After logging in user get a bunch of options like starting quiz, checking scores of other members, checking top scores, send and receive message to other clients and exit out of the program, The two files show the message sending and receiving between two clients using the message function of the portal.
