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Ques-1)
Features :

- full client server functionality is implemented, the client and server are able to interact with each other in a one to one fashion
- The server should be able to perform some simple arithmetic calculations of addition, subtraction, multiplication, division
- **Please Note that:** the client is expected to give short arithmetic expression like (operand operator operand) so 2+3, 2-3, 2*3, ⅔ are allowed but 2+3+4 or similarly kind of lengthy and complex operations are not a part of functionality right now and also division by zero is not allowed otherwise the code will terminate itself

How to run:

- gcc -o server.out server.c ;./server.out 8999 [or you can also mention any port]
- gcc -o client.out client.c ;./client.out 127.0.0.1 8999 [this should be same as the above port]
- Press ctrl + c to exit/terminate both the files

Bugs:

- One bug which we could see of is that when we terminate the client by pressing ctrl + c then the server would go in an infinite loop

Ques-2)
Features:

- full client server functionality is implemented, the client and server are able to interact with each other in a one to many fashion like one server can handle multiple clients
- The server should be able to perform some simple arithmetic calculations of addition, subtraction, multiplication, division
- **Please Note that:** the client is expected to give short arithmetic expression like (operand operator operand) so 2+3, 2-3, 2*3, ⅔ are allowed but 2+3+4 or similarly kind of lengthy and complex operations are not a part of functionality right now and also division by zero is not allowed otherwise the code will terminate itself and the number of client at a time is also limited to **4** at a time

How to run:

- gcc -o multiserver.out multiserver.c ;./multiserver.out 8999
- gcc -o client.out client.c ;./client.out 127.0.0.1 8999
- Open more clients using above command
- Press ctrl + c to exit/ terminate the program

Bugs:

- One bug is that if any one client will move out then the server will move into an infinite loop so until the testing is done all the clients should remain active

Ques-3)
Features:

- full client server functionality is implemented using threads, the client and server are able to interact with each other in a one to many fashion like one server can handle multiple clients
- The server should be able to perform some simple arithmetic calculations of addition, subtraction, multiplication, division
- **Please Note that:** the client is expected to give short arithmetic expression like (operand operator operand) so 2+3, 2-3, 2*3, ⅔ are allowed but 2+3+4 or similarly kind of lengthy and complex operations are not a part of functionality right now and also division by zero is not allowed otherwise the code will terminate itself and the number of client at a time is also limited to **50** at a time

How to run:

- gcc -o threadserver.out -pthread threadserver.c ;./threadserver.out 8999
- gcc -o client.out client.c ;./client.out 127.0.0.1 8999
- Open more clients using above command
- Press ctrl + c to exit/ terminate the program

Possible Bugs:

- If any one client gets out then the whole server will automatically be shut down so testing could be done by keeping all the current clients active

Please Note: In some cases binding error may occur so in that case please try to change the port then the code will run fine