

Grading Scale for Project 1

Documentation – 10 points

Full credit will be given for documentation that is complete and contains thoughtful answers.

Description of error handling missing, incomplete and/or incorrect: -2/-3

Description of select server states missing, incomplete and/or incorrect: -2/-3

Description of thread server missing, incomplete and/or incorrect: -2/-3

Select Server – 45 points

FUNCTIONALITY – 33 points

Test 1: Server Sends One File – 10 points

File has bad checksum: -4

Test 2: Request 2000 Files Sequentially – 6 points

File has bad checksum: -4

Test case failed halfway through and crashed server: -5

Test 3: Connect Until Server is Overloaded (1000 connections) – 6 points

Non-deterministic error after a few hundred connections: -3

Segmentation fault after handling 1000 connections: -2

Server times out: -6

Server exits: -4

Test 4: 100 Simultaneous Downloads – 8 points

Failed after running several times: -2

Socket error: -6

Proper User I/O (Arguments, Usage, and Logging) – 3 points

No usage displayed when server is executed without arguments: -1

Time is not displayed in log file or not displayed in readable format (human time): -1

No output when a file is served successfully: -1

Print to stdout in addition to log file when log file is specified: -1

General Problems

Server does not compile or does not accept any connections and line(s) of code had to be added or modified by the instructor: -10

No fds set is passed into select or the set is empty and ignored: -5

Severe implementation errors, sent file back to client in inner loop without select: -10

ERROR HANDLING – 12 points

Test 5: Connect and Close Connection 5000 Times – 4 points

Server stopped accepting connections part of the way through: -4
Infinite loop: -4

Tests 6 and 7: Server Sends 404 and requests ../file – 4 points

Error 404 sent, then server crashes: -3
Error 404 not sent (server closes connection without sending): -4
../file sent to client: -2
Server hangs when ../file is requested (does not disconnect client or send 404): -2

Function Call Return Values are Checked – 2 points

The return values of a few functions were overlooked: -1
Many functions did not have error handling code: -2

Server Disconnects Idle Clients – 2 points

Server makes some effort to disconnect idle clients, but does not do it properly: -1
Server makes no effort to disconnect idle clients: -2

Thread Server – 45 points

FUNCTIONALITY – 33 points

Test 1: Server Sends One File – 10 points

File has bad checksum: -4

Test 2: Request 2000 Files Sequentially – 6 points

File has bad checksum: -4
Non-deterministic server failure (memory error or otherwise): -4
State buildup (subsequent runs take longer and eventually fail): -2
Pthread memory allocation error on subsequent runs: -3
Test case timed out: -6

Test 3: Connect Until Server is Overloaded (1000 connections) – 6 points

Non-deterministic memory error after a few hundred connections: -3
Server exited after passing test case: -3
Infinite loop: -4
Fails on subsequent runs: -5

Test 4: 100 Simultaneous Downloads – 8 points

Memory error: -6

Socket error: -6
Infinite loop: -6
Fails on subsequent runs: -3

Proper User I/O (Arguments, Usage, and Logging) – 3 points

No usage displayed when server is executed without arguments: -1
Time is not displayed in log file or not displayed in readable format (human time): -1
No output when a file is served successfully: -1
Print to stdout in addition to log file when log file is specified: -1

General Problems

Server does not compile or does not accept any connections and line(s) of code have to be added or modified by the instructor: -10

ERROR HANDLING – 12 points

Test 5: Connect and Close Connection 5000 Times – 4 points

Server fails after less than 5000 connections: -3
Memory error: -4
Test case times out and makes other test cases fail afterwards: -4

Tests 6 and 7: Server Sends 404 and requests ../file – 4 points

Server crashes on file that is not there: -4
Error 404 not sent (server closes connection without sending): -4
../file sent to client: -2

Function Call Return Values are Checked – 2 points

The return values of a few functions were overlooked: -1
Many functions did not have error handling code: -2

Server Disconnects Idle Clients – 2 points

Server makes some effort to disconnect idle clients, but does not do it properly: -1
Server makes no effort to disconnect idle clients: -2