

Case No.	Case	Expected Result	Actual Result
01	make client	Compiles with no errors	OK
02	make server	Compiles with no errors	OK
03	Run client with inactive server	Connection error	OK
04	run server	Server starts and waits for client to connect	OK
05	SIGINT (CTRL+C) at server with no client connected	Server prints total run time and exits	OK
06	Run client with active server	Connected successfully, menu displayed on terminal window	OK
07	Input 0 (display menu) at client menu	Menu printed to terminal window, awaiting next input	OK
08	Input 1 (Obtain student ID and server IP) at client menu	Student ID prefixed with server IP printed to client terminal window	Output OK but server crashes with segmentation fault on client exit
09	Input 2 (Obtain server time) at terminal menu	Current server time printed to client terminal window	OK
10	Input 3 (Obtain server uname info) at client menu	Each field of utsname structure received from server is printed to client terminal window	OK
11	Input 4 (Obtain file names in server upload directory) at client menu	List of regular files in server's upload directory printed to client terminal window	Displays all files in upload directory, not just regulars*
12	Input 5 (Exit) at client menu	List of altered employees output to client and server terminal window, Client thread closes with no errors, server stays active	OK
13	run each option consecutively, including exit	All outputs work as before, client thread closes with no errors and server stays active	All outputs work as before, client closes with no errors, server crashes with segmentation fault*
14	Launch two clients with server running	Both clients connect to server with menu	OK

		displaying at terminal windows	
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```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $ make
cc -c -o rdwrn.o rdwrn.c -I. -Wall -g -O0
cc -c -o client.o client.c -I. -Wall -g -O0
cc -o client rdwrn.o client.o -I. -Wall -g -O0
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $
```

Case: 01

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $ make
cc -c -o rdwrn.o rdwrn.c -I. -Wall -g -O0 -pthread
cc -c -o server.o server.c -I. -Wall -g -O0 -pthread
cc -o server rdwrn.o server.o -I. -Wall -g -O0 -pthread
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $
```

Case: 02

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $ ./client
Error - connect failed: Connection refused
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $
```

Case: 03

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $ ./server
Waiting for incoming connections...
Waiting for a client to connect...
```

Case: 04

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $ ./server
Waiting for incoming connections...
Waiting for a client to connect...
^CSIGINT Recieved...
Elapsed server time: 16 seconds.
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $
```

Case: 05

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $ ./client
Connected to server...
Hello String: hello SP student
Received: 17 bytes

0. Display menu.
1. Obtain student ID and server IP.
2. Obtain server time.
3. Obtain server uname info.
4. Obtain file names in server upload directory.
5. Exit.
option>
```

Case: 06 (Client)

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $ ./server
Waiting for incoming connections...
Waiting for a client to connect...
Connection accepted...
Handler assigned
Waiting for a client to connect...

```

Case: 06 (Server)

```
option> 0
0. Display menu.
1. Obtain student ID and server IP.
2. Obtain server time.
3. Obtain server uname info.
4. Obtain file names in server upload directory.
5. Exit.
option>
```

Case: 07

```
option> 1
Option one.
192.168.88.132 Student ID: S1712082
option> █
```

Case: 08

```
option> 2
Option two.
Current servertime: Sun Dec 10 15:59:25 2017
option> █
```

Case: 09

```
option> 3
Option three.
Node name:    osboxes
System name:  Linux
Release:      3.19.0-32-generic
Version:      #37~14.04.1-Ubuntu SMP Thu Oct 22 09:41:40 UTC 2015
Machine:      x86_64
option>
```

Case: 10

```
option> 4
Option four.
File 1: .
File 2: ..
File 3: file
File 4: test
option> █
```

Case: 11

```
(Counter: 1)
payload length is: 12 (8 bytes)
Age is 24
id is 3
Salary is 13001.21
(12 bytes)

(Counter: 2)
payload length is: 12 (8 bytes)
Age is 25
id is 3
Salary is 13002.21
(12 bytes)

(Counter: 3)
payload length is: 12 (8 bytes)
Age is 26
id is 3
Salary is 13003.21
(12 bytes)

(Counter: 4)
payload length is: 12 (8 bytes)
Age is 27
id is 3
Salary is 13004.21
(12 bytes)

Thread 140130010523392 exiting
```

```
option> 5
Goodbye!
(Counter: 0)
Age is 24
id is 3
Salary is 13001.21
```

```
(Counter: 1)
Age is 25
id is 3
Salary is 13002.21
```

```
(Counter: 2)
Age is 26
id is 3
Salary is 13003.21
```

```
(Counter: 3)
Age is 27
id is 3
Salary is 13004.21
```

```
(Counter: 4)
Age is 28
id is 3
Salary is 13005.21
```

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $
```

Case: 12

```
(Counter: 4)
payload length is: 12 (8 bytes)
Age is 27
id is 3
Salary is 13004.21
(12 bytes)

Thread 140649726297856 exiting
Segmentation fault
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $
```

Case: 13

```
ben@osboxes ~/labs/cwk2/S1712082_SP_2/server $ ./server
Waiting for incoming connections...
Waiting for a client to connect...
Connection accepted...
Handler assigned
Waiting for a client to connect...
Connection accepted...
Handler assigned
Waiting for a client to connect...

ben@osboxes ~/labs/cwk2/S1712082_SP_2/client $ ./client
Connected to server...
Hello String: hello SP student
Received: 17 bytes

0. Display menu.
1. Obtain student ID and server IP.
2. Obtain server time.
3. Obtain server uname info.
4. Obtain file names in server upload directory.
5. Exit.
option> 
```

Case: 14