Testing

COMP8005 - Assignment 2
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General Information

Program Name: a.out
Configuration File: config.json

Note: The client depends on config.json to function properly. The server address and port number are defined in this configuration file.

Three echo clients and one echo server. The servers all use a different method of responding to the client.

Install

Important: Requires NodeJS 5.x to be installed.
Note: The scripts are intended for *nix distributions. Will not work on Windows OSes.

> npm install

Running the echo server

multi

> npm run multi

select

> npm run select

epoll

> npm run epoll

Running the client

> npm run client

Generate graphs

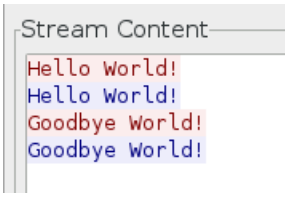
Important: Requires gnuplot to be installed.
Note: This only generates the response time graph for the client.

> npm run merge

Test Cases

1. Client can send variable-length text strings to the server

Tools used: Wireshark
Capture file: testing/test1.pcapng.gz



Procedure
Input 1: Hello World!
Input 2: Goodbye World!

Result: Pass

2. Client maintains the amount of

Tools used: bunyan (NodeJS JSON logging tool)
Log file: client.log

Can use bunyan to search specifically for bytes sent per connection or other fields on the log file. Ex. bunyan client.log -l debug -c 'this.bytesSent'

Procedure

(Start one of the servers)

> npm run client

(client.log is generated by the client)

> bunyan client.log

```
[2016-02-15T04:47:18.749Z] DEBUG: client/11118 on Snowdrop: Received data from server.
(requestNo=10, responseTime=118341083)
[2016-02-15T04:47:18.751Z] DEBUG: client/11118 on Snowdrop: Connection closed. (connect
ionTime=1240130658, requests=10, bytesSent=10240)
```

2.1. requests made

See above.

Result: Pass

2.2. data sent

See above.

Result: Pass

2.3. time for server to respond

See above.

Result: Pass

3. Client connection time can vary

Tools used: time (Debian GNU/Linux utility program) **Result:** Pass
Log file: client.log

Procedure

> time node echoclient.js

(edit config.json's "time" field)

> time node echoclient.js

```
frederick@Snowdrop:~/Downloads/8005/Homework/COMP8005 - Assignment 2$ time node echocli
ent.js

real    0m1.399s
user    0m1.416s
sys     0m0.205s
frederick@Snowdrop:~/Downloads/8005/Homework/COMP8005 - Assignment 2$ time node echocli
ent.js
Active connections: 100
Active connections: 100

real    0m3.530s
user    0m2.126s
sys     0m0.460s
frederick@Snowdrop:~/Downloads/8005/Homework/COMP8005 - Assignment 2$
```

4. Multiple clients can be run and connect to the same server

Tools used: bunyan (NodeJS JSON logging tool) **Result:** Pass
Log file: client.log

```
(requestNo=8, responseTime=88431036)
[2016-02-15T05:25:13.147Z] DEBUG: client/12787 on Snowdrop: Received data from server.
(requestNo=8, responseTime=89232201)
[2016-02-15T05:25:13.148Z] DEBUG: client/12787 on Snowdrop: Received data from server.
(requestNo=9, responseTime=90139732)
[2016-02-15T05:25:13.149Z] DEBUG: client/12778 on Snowdrop: Received data from server.
(requestNo=9, responseTime=90741015)
```

5. Server maintains a list of all connected clients

Tools used: ifconfig, netsh **Result:** Pass
Log file: server.log

Procedure

(Connect to one of the servers using any echo client. ‘server.log’ will be generated)

> node generateServerStats.js

(On each of the devices used to connect to the server, get its IP address)

> ifconfig

> netsh interface ip show addresses

Hostname	Requests	BytesTransferred
192.168.1.26	990	1024000
192.168.1.22	982	1024000

```
frederick@Snowdrop:~$ ifconfig
eth0      Link encap:Ethernet  HW
          inet addr:192.168.1.22
```

```
netsh>interface ip show addresses "Ethernet 2"

Configuration for interface "Ethernet 2"
    DHCP enabled:                         Yes
    IP Address:                           192.168.1.26
```

The difference in the number of requests is due to failed connections also counting towards the requests counter.

6. Server stores hostnames with number of requests generated and the amount of data transferred

See above. **Result:** Pass