

5. (1 points) Your server should send back an HTTP response line that indicates an error if the requested URI is not a number, or is less than 100, or is greater than 20,000.

The ApacheBench program is available for debugging or testing your server. This program can generate multiple HTTP requests to your server with any desired level of concurrency. The program executable is installed on the CS (ashley.cse.sc.edu) as /usr/sbin/ab, you can get usage information by '/usr/sbin/ab -h'. Below is sample usage of the ab program to give you an idea of what it does. The test run below sends 100 requests to www.cse.sc.edu for the URI ~wyxu/foo.html, sending 10 requests at a time (10 clients at a time).

```
> /usr/sbin/ab -n 100 -c 10 www.cse.sc.edu/~wyxu/foo.html
This is ab implemented using the ApacheBench Perl API, version 0.5
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Server Software:      Apache

Server Hostname:     www.cse.sc.edu
Server Port:         80

Document Path:       /~wyxu/foo.html
Document Length:     409 bytes

Concurrency Level:   10
Time taken for tests: 0.318 seconds
Sent requests:       100
Completed requests:  100
Failed requests:     0
Total transferred:   66400 bytes
HTML transferred:    40900 bytes
Requests per second: 314.465408805031
Transfer rate:       203.911163522013 kb/s received

Connnection Times (ms)
           min      avg      max
Connect:    1       3.34    17
Response:   6      29.05   110

Warning messages from ab():
[Warn:] None.

HTTP request:
GET /~wyxu/foo.html HTTP/1.0

User-Agent: ApacheBench-Perl/0.63

Host: www.cse.sc.edu

Accept: */*

Response headers:
HTTP/1.1 200 OK

Date: Wed, 07 Nov 2007 23:19:12 GMT

Server: Apache

Last-Modified: Wed, 07 Nov 2007 03:06:29 GMT
```

```
ETag: "e1bb5336-199-92a9740"
```

```
Accept-Ranges: bytes
```

```
Content-Length: 409
```

```
Connection: close
```

```
Content-Type: text/html; charset=ISO-8859-1
```

6. (1 point) Your server should print out information about every message received and every message sent.

7. (2 point) The quality of the codes.

This project will count for 15 points toward your final grade. Remember a grade of zero will be given, if your programs cannot be compiled and executed on Unix/Linux machines. You need to submit all the source code necessary to build your system, a Makefile, and a README file via the Dropbox named project03 before the due day. The README file should contain following information: 0) your name and whether you are an undergraduate; 1) the programming environment you used; 2) how to compile your programs; 3) how to execute your programs; 4) the name of each file submitted along with a one line description of what is in the file; 5) If your code is not complete, tell me what works and what doesn't.