Assignment 3

o Serve side TCP networking

o multithreaded server

o Handle GET requests only
   ↳ check if request is valid (properly formatted Http)
      ↳ if not send back 400 bad request
      ↳ if it is check if requested object available
         ↳ if it is, return it along w/ 200 ok
            ↳ else send back 404 not found
      ↳ if after some time t connected client still
         has not sent any GET request, send
         back 408 timeout

o non-persistent Http
   ↳ after response sent close TCP connection
      ↳ include "Connection: close" header
         in Http response

Main Thread
listening on fixed port

> create server socket
while (! shutdown) {
  > listen for connection requests to server socket
  if request recieved {
    > accept connection
    > spawn new worker thread to process client request   ──> ## Worker Thread
  }   > start timer to recieve client GET
}   while (! timeout) {
> wait for threads to finish   > wait for client GET
> close sockets + clean up   if (GET recieved) { stop timer
                                                                 parse GET request (
                                                                   > extract requested object   } if syntax error encountered while parsing, return 400
)
                                                                 > search for requested object
                                                                 if (object found) { return object + 200 }
                                                                 else { return 404 }
                                                               }
                                                             } client connection timed out, return 408

Status Line

HTTP/1.1	200	Ok
	400	Bad Request
	404	Not Found
	408	Request Timeout

──> ## GET request form:

GET /objectPath HTTP/1.1
fixed (optional) fixed

> @ least "/" ──> return index.html

* we assume either no header lines or that they're perfectly formatted, only request line is scanned for syntax errors

Http Response:

HTTP/1.1 200   Ok
         400   Bad Request
         404   Not Found
         408   Request Timeout

Date: _<current date seen by server> \r\n
Server: _<server's name> \r\n
Last-Modified: _<last datetime requested object was modified > \r\n
Content-Length: _<size of object> \r\n
Content-Type: _<object file -type> \r\n
Connection: _Close \r\n
\r\n
<object data >

only if 200

* For Date: use Simple Date Format w/ pattern

        "EEE, dd MMM yyyy hh:mm:ss zzz"

* For Content-Type: use Files.probe ContentType()