CSE156/L Programming Lab 1: myweb.c
Serjo Barron
sepbarro
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Program Design:
1. Parse the arguments, namely the server address which must be separated into an IP address, port number, and file path
2. Create socket and bind to port number specified (or 80 by default)
3. Convert specified IP address to its binary equivalent
4. Connect to server socket
5. Format GET request or HEAD request (if -h flag is specified) into a string
6. Send request across server socket
7. Receive incoming response bytes and do either depending on request type:
   a. GET:
      i. Write the incoming bytes of the document to the file "output.dat"
      ii. Nothing is printed to stdout
   b. HEAD:
      i. Nothing is written to the file "output.dat"
      ii. Print the response header field content to stdout
8. Close file (if necessary) and program successfully exits

Program Instructions:
1. Go to the top directory (where the Makefile is) and use the command "make" to create a binary executable file in the bin directory
2. Change directory to the bin directory and execute the program with the following format:
   a. ./myweb www.example.com 93.184.216.34:80/index.html
   b. ./myweb www.example.com 93.184.216.34:80/index.html -h
3. If the "-h" flag is specified the program will execute the equivalent to a HEAD request, otherwise it will do a GET request
4. The appropriate action will be taken and will result in either:
   a. GET:
      i. File "output.dat" will be created in the top directory and will include the document data requested
   b. HEAD:
      i. The response header fields will be printed to stdout

Test Cases:
1. Invalid input: argument count
   a. ./myweb www.amazon.com
      i. Not enough arguments (expected at least 3, 2 given)
2. Invalid input: wrongly formatted IP address
   a. ./myweb www.amazon.com 104.107.106.50.1/
      i. Invalid IP address given (address not supported)

3. Invalid input: port before IP
   a. ./myweb www.amazon.com 80:104.107.106.50/
      i. Port given before IP address (expected after it)
4. Valid input: no specified port
   a. ./myweb www.softwarequest.com 216.92.49.183/
      i. No port specified, defaults to using port 80
5. Valid input: specified port
   a. ./myweb www.softwarequest.com 216.92.49.183:80/
      i. Port is specified to be 80, uses port 80 (used for HTTP)
6. Valid input: HEAD request
   a. ./myweb www.softwarequest.com 216.92.49.183:80/ -h
      i. "-h" flag is added to end of the command to enable a HEAD request