

Censorship Web Proxy User Manual

CPSC 441 - Assignment 1

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Getting Started

What is a Web Proxy?

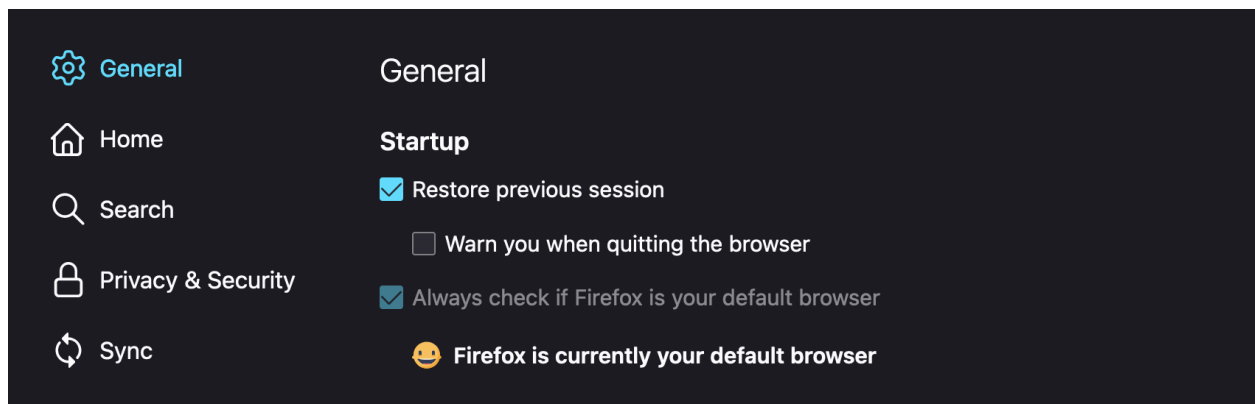
A Web proxy is a piece of software that functions as an intermediary between a Web client (browser) and a Web server. The Web proxy intercepts Web requests from clients and determines whether they should be transmitted to a Web server or not. If the request is blocked, the proxy informs the client directly. If the request is forwarded to the Web server, then any response that the proxy receives from the Web server is forwarded back to the client. From the server's point of view, the proxy **is** the client, since that is where the request comes from. Similarly, from the client's point of view, the proxy **is** the server, since that is where the response comes from. A Web proxy thus provides a single point of control to regulate Web access between clients and servers.

What does this Web Proxy feature?

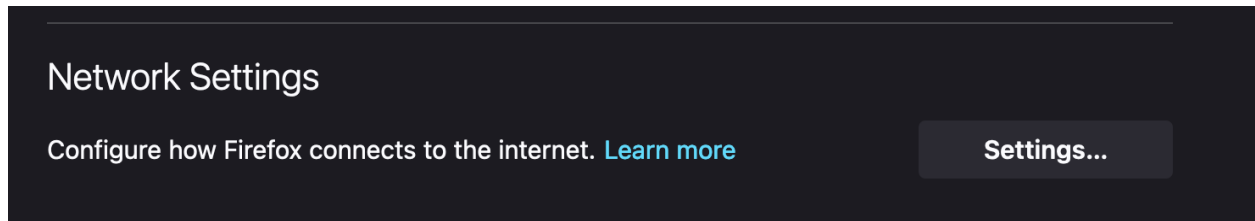
- Allows users to block HTTP/1.1 GET requests trying to access URLs containing a list of banned words.
- Supports images and HTML content.
- Allows users to add, remove, and view banned words.

Configuring your Browser

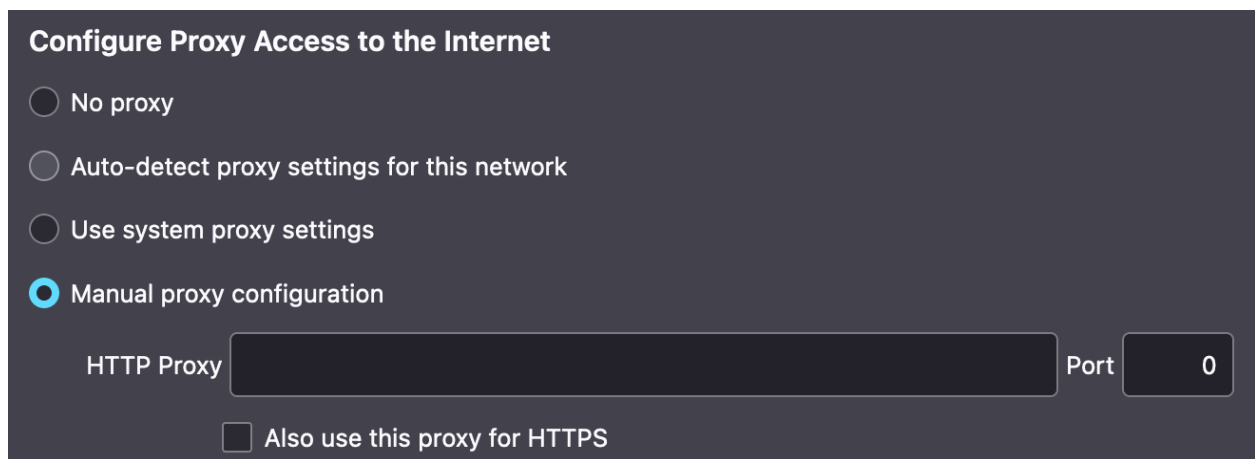
Step 1.) Navigate to your browser's settings/preferences



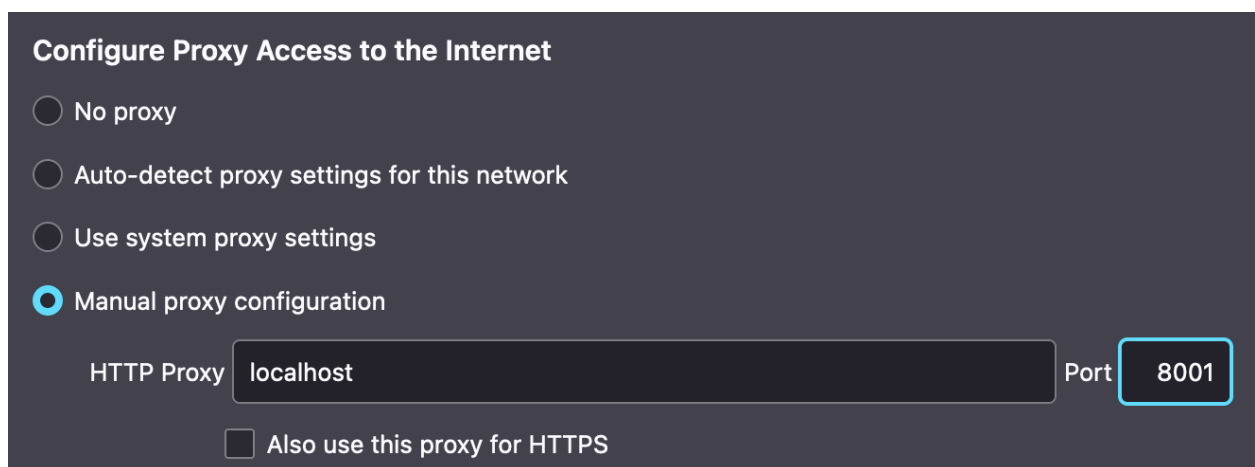
Step 2.) Navigate to Network Settings



Step 3.) Select Manual Proxy Configuration



Step 4.) Enter IP:localhost and Port:8001 for HTTP proxy



Compiling and Starting the Proxy

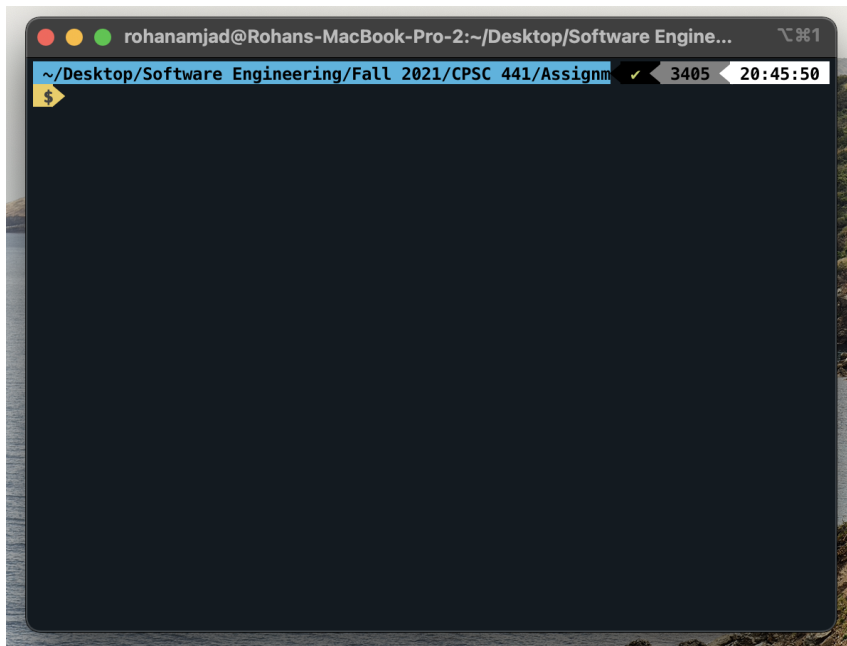
Files you will receive

As a user, you will receive a file called `main.cpp`.

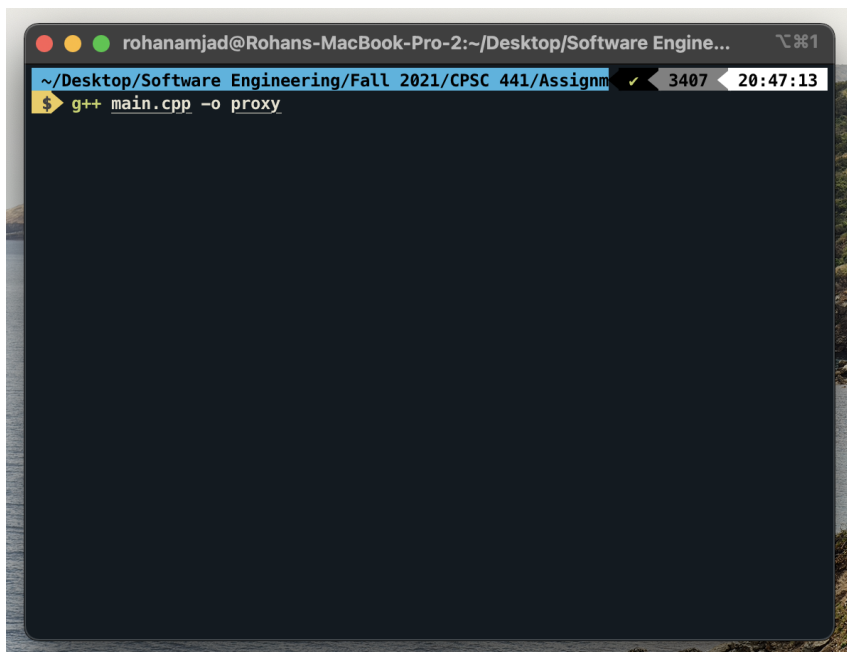
How to compile and start the Web Proxy

Note: In order to compile and execute the Web Proxy, g++ is required

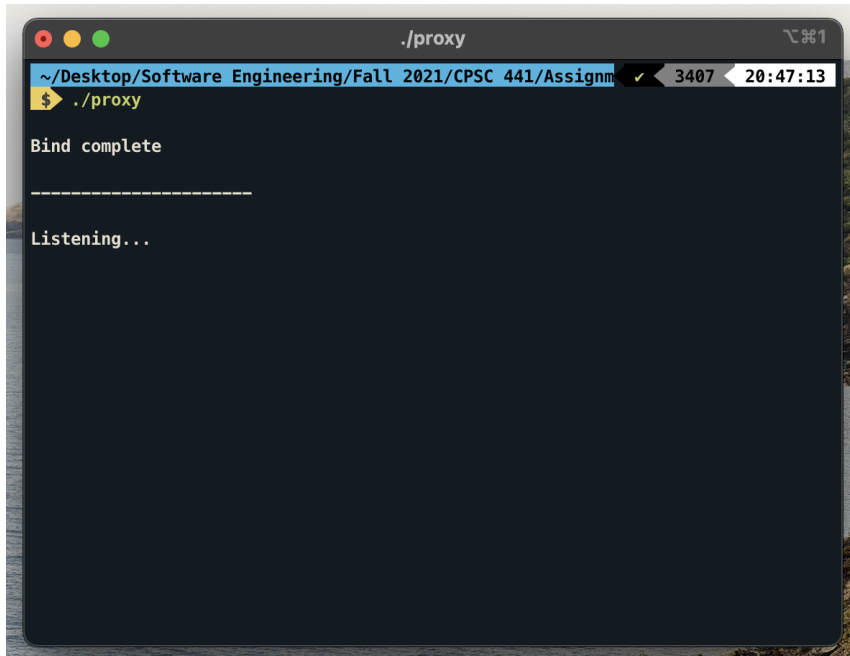
Step 1.) Open a new terminal where main.cpp is located



Step 2.) To compile the Web Proxy, execute the command: `g++ main.cpp -o proxy`



Step 3.) To start the Web Proxy, execute the command: `./proxy`

A screenshot of a macOS terminal window titled './proxy'. The window shows the command prompt at a directory path, followed by the execution of './proxy'. The output indicates that the binding is complete and the program is now listening for connections.

```
~/Desktop/Software Engineering/Fall 2021/CPSC 441/Assignm 3407 20:47:13
$ ./proxy

Bind complete

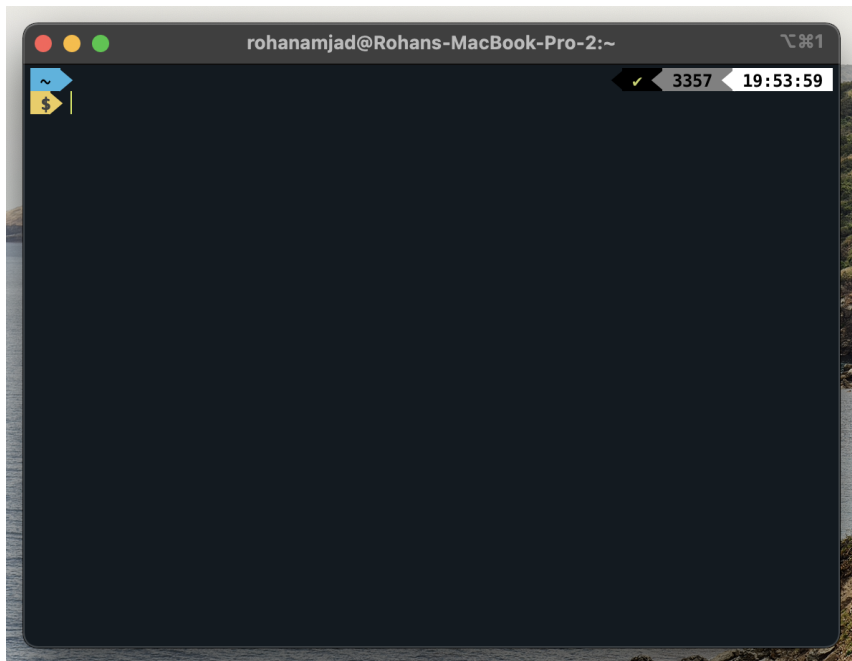
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Listening...
```

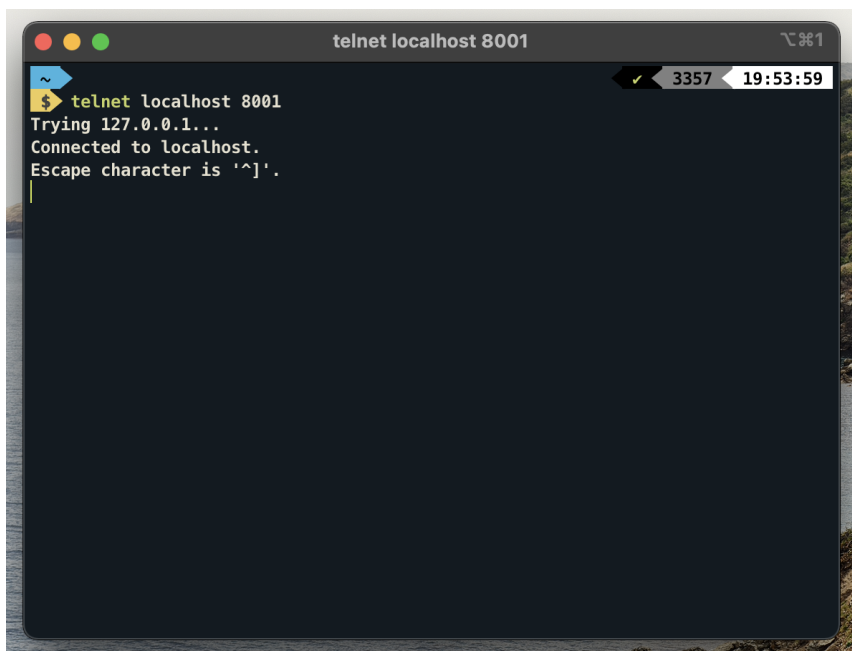
Adding/Removing Banned Words

Note: In order to add, remove, and view banned words, telnet is required

Step 1.) Open a new terminal window



Step 2.) Connect to the Web Proxy using telnet by executing the command: `telnet localhost 8001`

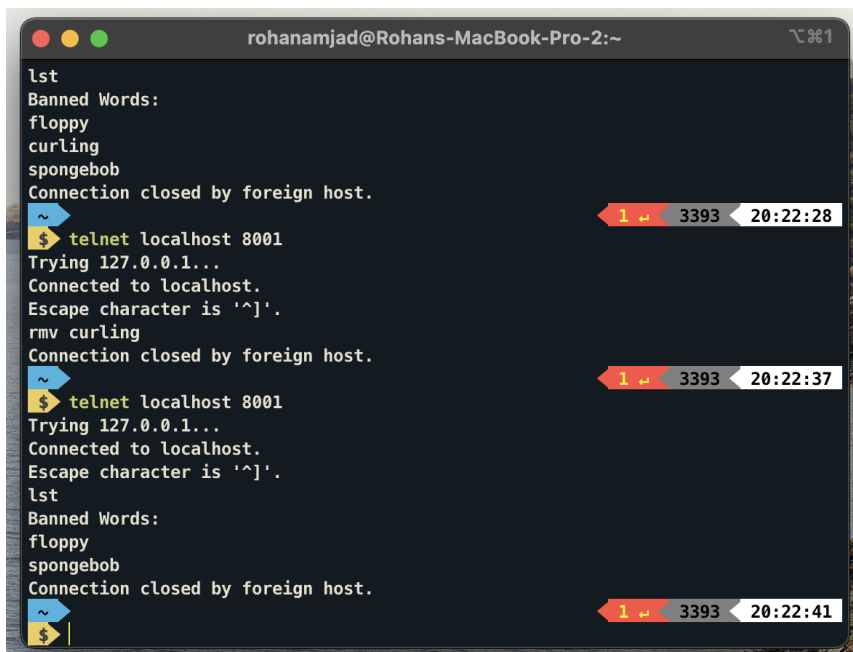


Step 3.) To add a word to the list of banned words, execute the command: `add yourword`



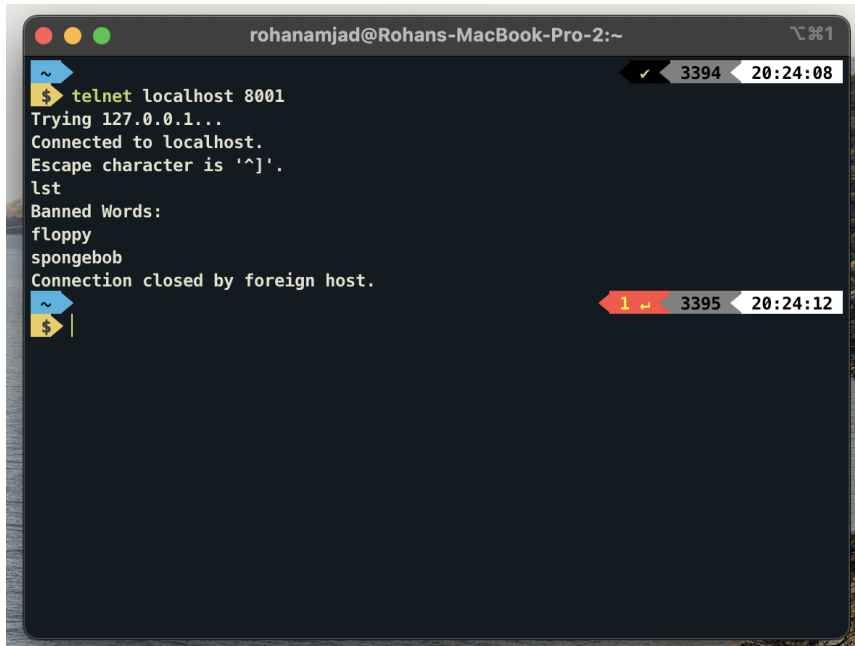
```
telnet localhost 8001
~
$ telnet localhost 8001
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
add spongebob
```

Step 4.) To remove a word from the list of banned words, execute the command: `rmv yourword`



```
rohanamjad@Rohans-MacBook-Pro-2:~
lst
Banned Words:
floppy
curling
spongebob
Connection closed by foreign host.
~
$ telnet localhost 8001
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
rmv curling
Connection closed by foreign host.
~
$ telnet localhost 8001
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
lst
Banned Words:
floppy
spongebob
Connection closed by foreign host.
~
$
```

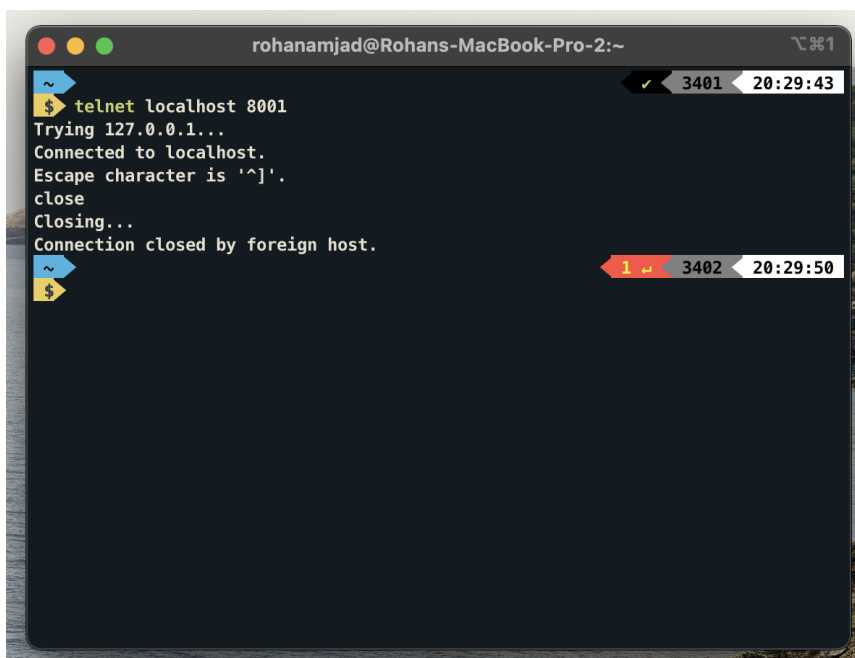
Step 5.) To view the list of banned words, execute the command: `lst`



```
rohanamjad@Rohans-MacBook-Pro-2:~  
~  
$ telnet localhost 8001  
Trying 127.0.0.1...  
Connected to localhost.  
Escape character is '^]'.  
lst  
Banned Words:  
floppy  
spongebob  
Connection closed by foreign host.  
~  
$
```

Closing the Proxy

Use telnet to close the Web Proxy by executing the command: `close`



```
rohanamjad@Rohans-MacBook-Pro-2:~  
~  
$ telnet localhost 8001  
Trying 127.0.0.1...  
Connected to localhost.  
Escape character is '^]'.  
close  
Closing...  
Connection closed by foreign host.  
~  
$
```

About

How was it debugged?

This Web Proxy was debugged using the Firefox browser and command line interface.

Where was it tested?

This Web Proxy was tested on Mac OS on my local network.

What works and what doesn't

Works

- Blocks HTTP/1.1 GET requests trying to get URLs containing a list of banned words.
- Allows users to add, remove, view banned words.
- Supports images and HTML content.
- Parses HTTP/1.1 requests.
- Handles redirection.
- Handles HTTP codes 200 (OK), 206 (Partial Content), 301 (Moved Permanently), 302 (Found), 304 (Not Modified), 403 (Forbidden), and 404 (Not Found).
- Redirects clients to error.html when a banned URL is requested.

Doesn't Work

- Does not handle CONNECT requests.
- Does not scan HTML content (bonus marks).