Assignment 2, Group D1

TDTS04 - Computer Networks and Distributed Systems

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1 Compile

As we are using python no compilation is needed, to start the proxy just type this command into the terminal.

```
$ python3 ./proxy.py
```

2 Configure

To configure proxy host IP and proxy host port number simply add these to the command line argument when running the program, proxy host IP should be sent as a string.

```
$ python3 ./proxy.py "proxy_host_ip" proxy_host_port
```

You can change the default values in the source code in the function start_proxy().

To route the traffic from your computer through the Proxy server you have to change the systems proxy settings. On a system running Ubuntu 20.04 this setting can be found under Network Settings then Network Proxy. Change the proxy mode to manual and enter the same proxy host- IP and Port you set in the previous step.

3 Features

The Proxy server handles basic HTTP traffic and is able to modify both HTTP requests and HTTP responses. These modifications are:

- All occurences of the word 'Smiley' will be replaced by 'Trolly' on the requested webpage.
- All occurences of the word 'Stockholm' will be replaced by 'Linköping' on the requested webpage, except for embedded image URL's.
- All links(external and embedded URL's) to the image "smiley.jpg" will be manipulated into the link to the image "trolly.jpg".

4 Testing

The proxy server underwent thorough testing on a personal computer within a school network to ensure its functionality and compatibility in that environment. However, specific tests on SU-computers have not been conducted, and potential variations in network configurations at different locations may influence the proxy's performance.

While conducting tests, it was observed that Firefox, when configured with the proxy, imposed restrictions on website caching. This restriction posed a challenge in generating the expected 304 status code, as caching is essential for conditional GET requests and responses in the HTTP protocol.

Comprehensive testing covered various HTTP status codes, including the successful handling of 200 (OK) responses, scenarios where the proxy correctly identified unchanged content with a 304 (Not Modified) status, and situations where the proxy appropriately handled 404 (Not Found) errors.

All designated test-websites were successfully processed by the proxy server, and the modified content was rendered accurately on both Chromium and Firefox browsers. This ensures the proxy's effectiveness in altering content without issues on popular web browsers.