MASTER IN COMPUTER SCIENCE

unine UNIVERSITÉ DE NEUCHÂTEL

Assignment 7 - HTTP proxy (part 1)

Security

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1 Assignment instructions

In this assignment, you will develop a filtering HTTP proxy server. The proxy server will block some web pages based on a blacklist. The blacklist will consist in a file containing a list of regular expressions matching forbidden domain names. Access to any content under forbidden domain names will be answered with HTTP status code 451[1]. URL-based blocking must only match the hostname part (e.g. `ads\..+` must not block `http://www.google.com/ads.ring/about.html`).

Your proxy server must be able to:

1. Understand and serve HTTP/1.1 verbs `HEAD`, `GET` and `POST`
2. Transfer textual and binary content
3. Serve requests in a reasonable time

Optionally (i.e. bonus points will be awarded), you may also support the following protocols:

4. HTTP/2.0
5. HTTPS using the `CONNECT` verb

[1] https://tools.ietf.org/html/rfc7725

2 Hand-in

The time allotted for this assignment is 1 week. The deadline is on 2017-12-06T13:59:59 local time. Late submissions are not accepted.

- To be submitted to Ilias[2]:
  - Source code of **your** assignment
  - Readme file briefly mentioning how to compile and run your program, which dependencies it requires, etc.
  - All the files have to be packed in an archive in a standard format[3], named following this exact pattern (in lowercase letters only):
    `security17-as<assignment number>-<your family name>.<extension>`.
    For example, if your name were to be *Homer J. Simpson*, you would use the following filename for this assignment: `security17-as7-simpson.tar.gz`
  - Please use the "Upload File" button when handing-in your assignment in Ilias. Do **not** use "Upload Multiple Files as Zip-Archive".
- You have to present a demonstration of the program in class (to the TA).
  - It is **mandatory** for each student to demonstrate his or her submission!
  - The sooner you present your assignment, the better (even before the deadline).

Your grade will depend on both the presentation and the code.

3 Notes

You can use your favorite programming language for the assignments of this course, so long as it is a programming language readily available on the GNU/Linux operating system[4].

Should you have additional questions, please direct them to the TA at sebastien.vaucher@unine.ch.

[2] Or sent by e-mail for external students

[3] `.tar`, `.tar.gz`, `.tar.bz2`, `.tar.xz`, `.zip`

[4] You can use any of the languages in the following list. If you want to use another language, please check with the TA first. List in alphabetical order: Bash, C, C++, Go, Java, Kotlin, Perl, PHP, Python, Ruby, Rust, Scala