Amir Azodi (`amir.azodi@hpi.uni-potsdam.de`)
Marian Gawron (`marian.gawron@hpi.uni-potsdam.de`)
Dr. Feng Cheng (`feng.cheng@hpi.uni-potsdam.de`)

# Exercise #1
# Internet Security – Weaknesses and Targets
# Prof. Dr. Ch. Meinel
# October 16th, 2013 - Winter Semester 2013/14

**Topic: Linux Shell Commands and Usage / Virtual Networking**
**Maximum points: 110%**

Linux and Unix systems offer a multitude of tools and mechanisms on the shell. To gather some experience in shell usage on Linux, we designed the following tasks. All the tasks have to be solved by using ONLY the following shell commands: `head`, `tail`, `cat`, `awk`, `sed`, `grep`, `tr`, `fold`, `cgrep`, `curl`, and `cut`. Please use the `bash` shell which should be present on most Linux distributions. Scripting, i.e., loops, conditions, etc., can ONLY be used for the scripting tasks.

If you run Windows on your computer, you can either use the Cygwin environment to obtain a shell (`http://www.cygwin.com/`) or install a Linux distribution in a virtual machine (i.e. with Virtual Box, `http://www.virtualbox.org/`).

**Shell Usage**

1. Write a shell command line to transform all "M" characters to "a" and all "F" characters to "j" of the given text. Don't use any scripting! - (20%)
   TEXT: "XU ndF eTgUdgbTS TkTgniWXcV gXVWi ndF lXMa QT PQaT id gTPS iWXh RMTPgan RdcVgPiFMPiXdch"

2. Write a shell command line to transform all characters with a ROT11 in upper case of the previously transformed text. Don't use any scripting! - (10%)

**Scripting**

1. Implement a bash script that takes a url as argument and counts the number of links in the webpage. - (25%)

   $(\text{i.e.} <\text{a href}=...>\text{link}</\text{a}>)$

2. Write a bash script to grab a text file from the url given below. You must provide an argument in your GET request to get your specific page. Your script should be able to extract your username uid = "firstname"."lastname" from the text returned by the webpage. - (35%)
   `https://hpi-vdb.de/vulndb/isec_task/`
   note 1: Your script should not contain the uid string itself.
   note 2: The regex should not include everything before and after the uid.
   note 3: The more primitive the regex, the lower the mark.

**Virtual Machines**

1. Explain the different network settings in VirtualBox. (i.e. NAT, Bridged Adapter, Internal Network, Host-only Adapter and Generic Driver) - (20%)

*Hand-in:* October 30th, 2013, 12:00 p.m. online at `fb10moodle.hpi.uni-potsdam.de`