Lab Assignment 4. Hardening applications: `cpulimit`

1. Open the web browser to download a dvd image using http (here you can finde one)

`https://cdimage.debian.org/debian-cd/current/amd64/iso-dvd/debian-11.5.0-amd64-DVD-1.iso`

   - with the `top` command check how much CPU the web browser is using
   - use the `cpulimit` program to reduce the CPU this web browser is using to one tenth (1/10) of whatever it is using
   - check how much CPU it is using now
   - (close the web browser and end the `cpulimit` program)

Lab Assignment 4. Hardening applications: `cgroups`

2. Create a *cgroup*
   - open a terminal and add the pid of the shell in that terminal to that *cgroup*
   - from that terminal open a web browser. Open several windows in that web browser and load several pages
   - check which processes the *cgroup* consists of
   - determine how much memory they are using and limit memory usage to (approx) one third of what they are using
   - assess how the browser is performing now
   - *freeze* all the processes in the *cgroup* and then *unfreeze* them

Lab Assignment 4.Hardening applications: `containers`

3. create a container of type *debian*, boot it in the foreground, login to the container (you might have to change the root password) and install the web server (`apt-get install apache2`) and the ssh server (apt-get install ssh) in the container
   - debian 11 containers use a virtual interface *lxcbr?* that allows the container to get configured with dhcp
4. Create (with `useradd`) three users in the container *usuario02*, *hideous* and *usuario01* (in that order). Check to which user in the host machine do the files of *usuario02*, *hideous* and *usuario01* in the container belong to

Lab Assignment 4.Hardening applications: `apparmor`

5. Create a copy of the `vi` (or `nano`) editors and name it c-editor
   - It must be placed in the same directory as the original editor
   - must be world-executable
   - Create an `apparmor` configuration file that specifies that
     - only `.c` files in /home/user/C/ directory can be edited
     - a file named `shell.c` can't be edited even if it resides in that directory
   - check de difference between the *enforce* and *complain* mode

Lab Assignment 4

6. Check the web page http://localhost on the host machine (not the container)
7. boot the container (without the -F flag)
8. Login into the container with `ssh` and modify from within the container the page served by the web server
9. Check the web page `http://address_of_the_container`

Lab Assignment 4: Work submission

- After performing the corresponding tasks of the lab assigment, a pdf document, describing what has been done (including screenshots showing the behaviour of the virtual machine, changes made to configuraton files, output from commands...) should be sent to
  - `antonio.yanez@udc.es`. (students at udc)
  - `yolanda@det.uvigo.es`. (students at uvigo)
- The subject of the mail should be *FSO: practica-3*
- The attachement should be named with the lab assignment number and the surname and name of the student, in the form P4-Surname-Name.pdf, avoiding non-ascii characteres (á, é, ñ ...)
  - For example, for this lab assigment, the work submitted by student *Donald Trump Núñez* should come as an attached file named `P3-TrumpNunez-Donald.pdf` to a mail with the subject *FSO: practica-3*
- The work must be submitted within 15 minutes of the end of the lab assignment class