Operating Systems: Practice: Lesson 1

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Introduction to TA

My GitHub profile
https://www.github.com/amirkhaniansev

My LinkedIn profile
https://www.linkedin.com/in/amirkhaniansev

My Telegram account
https://t.me/amirkhaniansev

Tools

We will use the following tools:

1. Ubuntu - on WSL, natively or on virtual machine (VirtualBox, VmWare).
2. GCC toolchain for compilation
3. cmake for generating makefiles
4. make for building projects

Homeworks

We will use the following tools and services for homeworks:

1. git for software version control
2. Any code editor can be used. Visual Studio Code is preferred since it has official cmake extension.
3. GitHub for hosting your repository and review.
4. Telegram for sending me pull-request links.

A bit warm-up

What are operating systems?

Why do we need them?

What is UNIX?

What is POSIX and why is there a necessity for it?

What is linux?

What is GNU?

What are linux distributions?

GCC

GCC GNU Compiler Collection

Compilation Stages

1. C -> ASM
2. ASM -> object code
3. Linking

make

make is a build automation tool, which enables developers

1. build source code
2. detect changes in the tree upon rebuild with the help of target structure.

cmake

cmake is a build system with compiler-independent method. cmake generates files for another system like make. We will use cmake to create make files, then we will build our projects with make.

git & GitHub`

git is a software version control system which uses the concept of repositories.

GitHub is a service for hosting git repositories. Other examples are BitBucket, GitLab, etc.

How to add a new homework in GitHub?

In order to add a new homework in your GitHub repository you should create a new branch, perform changes, create pull request, add me as a reviewer, and send the pull request link to me privately NOT in the group chat. You should also include a screenshot from your terminal in Telegram message where I can see the content of your homework(just run ls -l) and your username(run whoami) to be sure this is your computer and you did it. I will check it, grade it, merge your branch and send the result to you.

Simple homework

Declare

print_string(const char str, const size_t size);*
print_integer(const int int_value);
print_double(const double double_value);

in print_utilities.h.

Define them in print_utilities.c.

Call them in main.c.

Create cmake project, add as a new homework at GitHub and send to me.

Thank you!