

COMP 2011 PA3 Introduction

SONG Sizhe

The Hong Kong University of Science and Technology

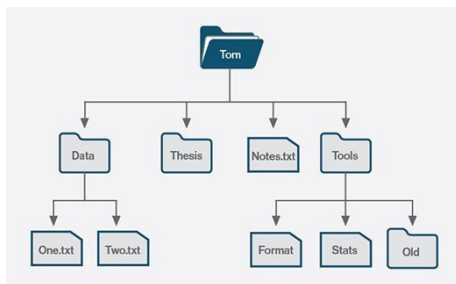
April 22, 2022

Outline

- 1 The File System
- 2 The Command Line Tool
- 3 Check Memory Leak Yourself
- 4 Q & A

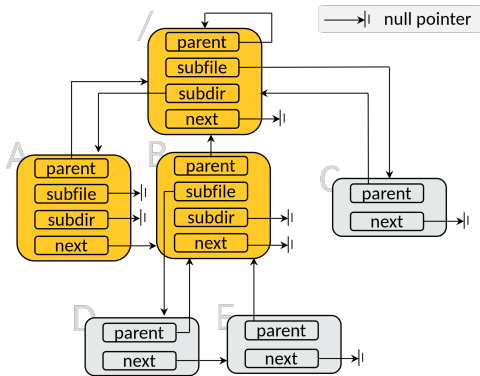
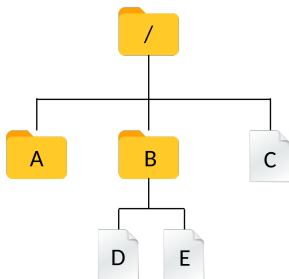
Tree-Structured File System

- File systems are usually represented as trees.



- There is a root node (root directory).
- Only directories could have children. Files must be leaf nodes.

File System in PA3



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What's Command Line

- Another way to control your machine, besides GUI (**g**raphical **u**ser **i**nterface).
- Control the machine by "commands", strings with certain syntax.
- Usually looks like a bunch of words separated by whitespaces, with the first word as the command name and the rest of them as parameters.

```
>>> cd pa3  
>>> g++ *.cpp -o main  
>>> ./main
```

- You will implement some commands like these in this assignment.

The Command Line in PA3

PA3 implements a very simple command line that supports 12 commands.

Supported Commands

- `exit`
- `ls`
- `ll`
- `pwd`
- `cd`
- `touch`
- `mkdir`
- `rm`
- `mv`
- `tag`
- `tree`
- `help`

There's already a `main.cpp` and a `Makefile` in the skeleton codes. You can compile and run the program to use the command line.

```
>>> make
>>> ./pa3
```

The Command Line in PA3

Use the command `help` to check all the commands and their usages. We will demo the PA3 command line here. If you haven't attended this session, you can check the recording.

Important

Do not use `Ctrl+C` to terminate the program. Use the command `exit`.

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What You Need

- CSD Account
Access CS Linux machines
- SFTP Client (FileZilla, scp)
Send codes to remote machines
- SSH Client (PuTTY, ssh)
Compile and run on remote machines

CSD Account

- It is not the ITSC account, although the account name is usually the same.
- If you took CS courses before, you probably already have a CSD account.
- If not, you can use the link below to activate your CSD account.
<https://password.cse.ust.hk:8443/pass.html>

CSD Password Setting Service

You may set your password for CSD machines (both Unix workstations and PC).

Steps:

1. CSD account name should normally be your ITSC account name.
2. If you are UG students, do not check the box for Faculty/PG domain.
3. Fill in the form, click "Go UPDATE" when finished.

The screenshot shows a web form titled "CSD Password Setting Service" with a teal background. It contains the following fields and options:

- CSD Account Name:** A text input field containing "ssongad".
- New Password (12 chars or more):** A password input field with masked characters "*****".
- Retype Password:** A password input field with masked characters "*****".
- Set the password of:** A section with three radio button options:
 - ☐ Unix account at Faculty/PG domain
 - ☒ Unix account at UG domain
 - ☒ PC account at domain CSD
- Buttons:** Two buttons at the bottom: "Go UPDATE" and "RESET Form".

Send Your Codes to Remote

- You can follow the instructions in the link below to use FileZilla.
<https://course.cse.ust.hk/comp2012/assignments/assignment1/leak-checking/>
- We will go through the procedure together now. If you haven't attended this session, you can check the recording.

Connect to Remote Machine with ssh

- Again, you can follow the link in last slide to use PuTTY.
- We provide another method here, which doesn't require you to install anything.
- Open your terminal (e.g. Powershell in Windows) and use the command `ssh`:

```
>>> ssh <account>@<hostname>  
>>> ssh ssongad@csl2wk20.cse.ust.hk
```

- Then you will be prompted to enter your password. Type your password (it won't be displayed on the screen) and then press enter.
- If everything is OK, you should see something like this:

```
csl2wk20:ssongad:1>
```

Compile and Run

- Move to the directory of your source codes using `cd`
e.g. `cd pa3`
- Compile your codes using `g++`
`g++8 -std=c++11 -fsanitize=address,leak,undefined -g -o pa3 *.cpp`
- Run your program
`./pa3`
- Then you can play with the command line, any memory leak or other relevant bugs will be reported at runtime.

ZINC Test Cases

ZINC #43 to #84 checks your codes with `-fsanitize` option. Remember that any errors reported by `-fsanitize` will trigger the 10% penalty.

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Any Questions?