COMP 2011 PA3 Introduction

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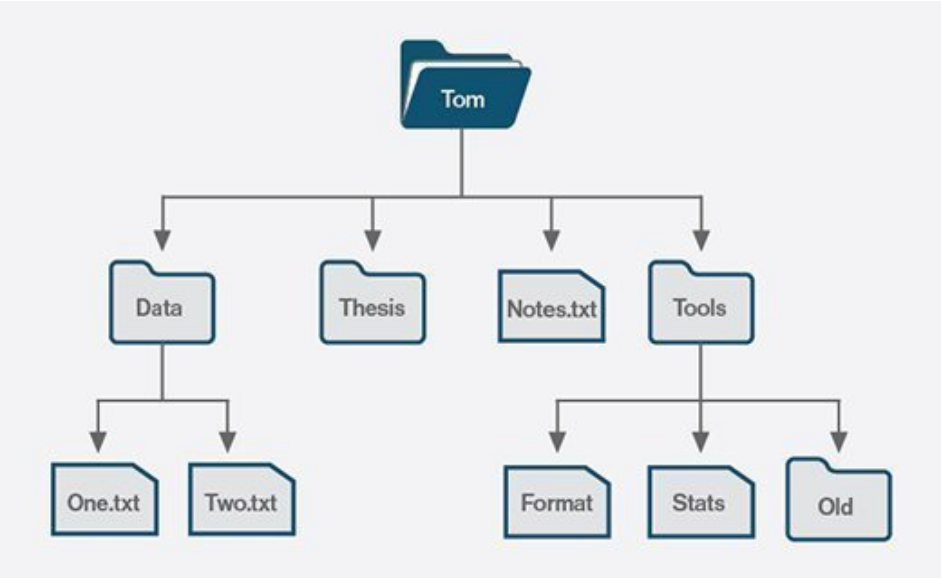
Outline

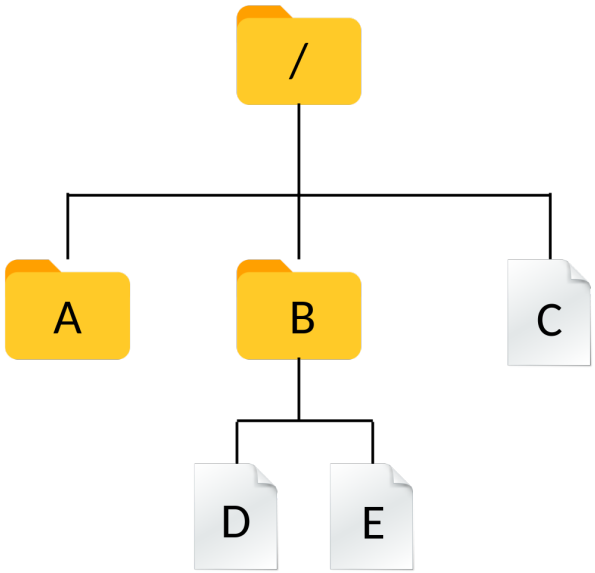
Tree-Structured File System

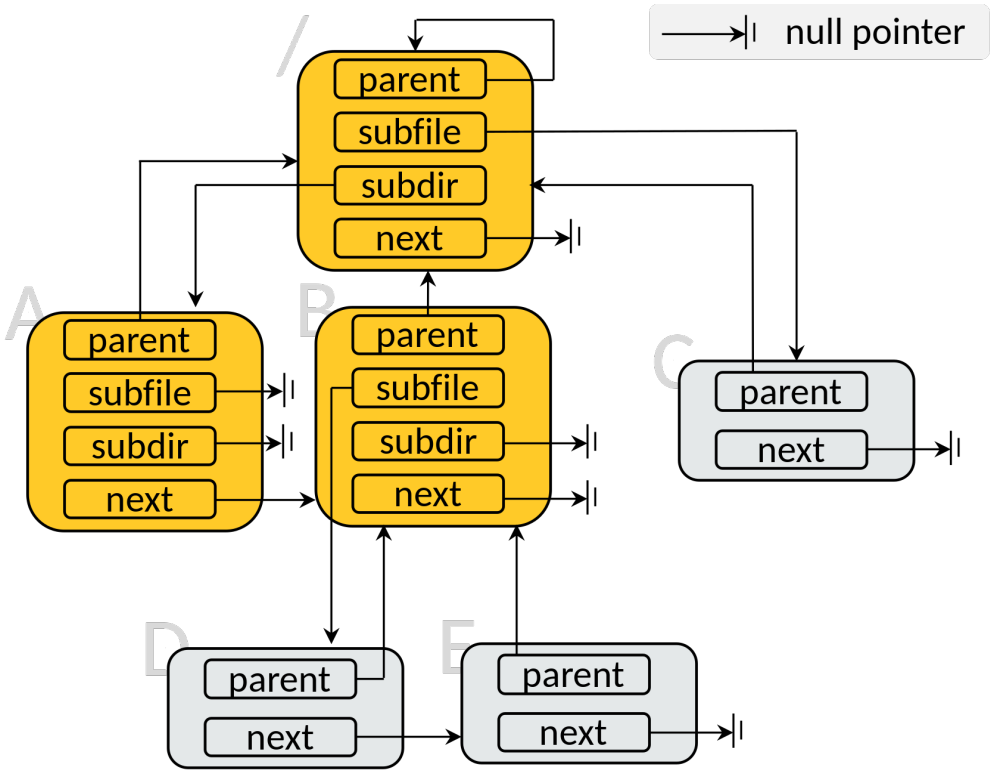
- File systems are usually represented as trees.



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

File System in PA3





Outline

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`.

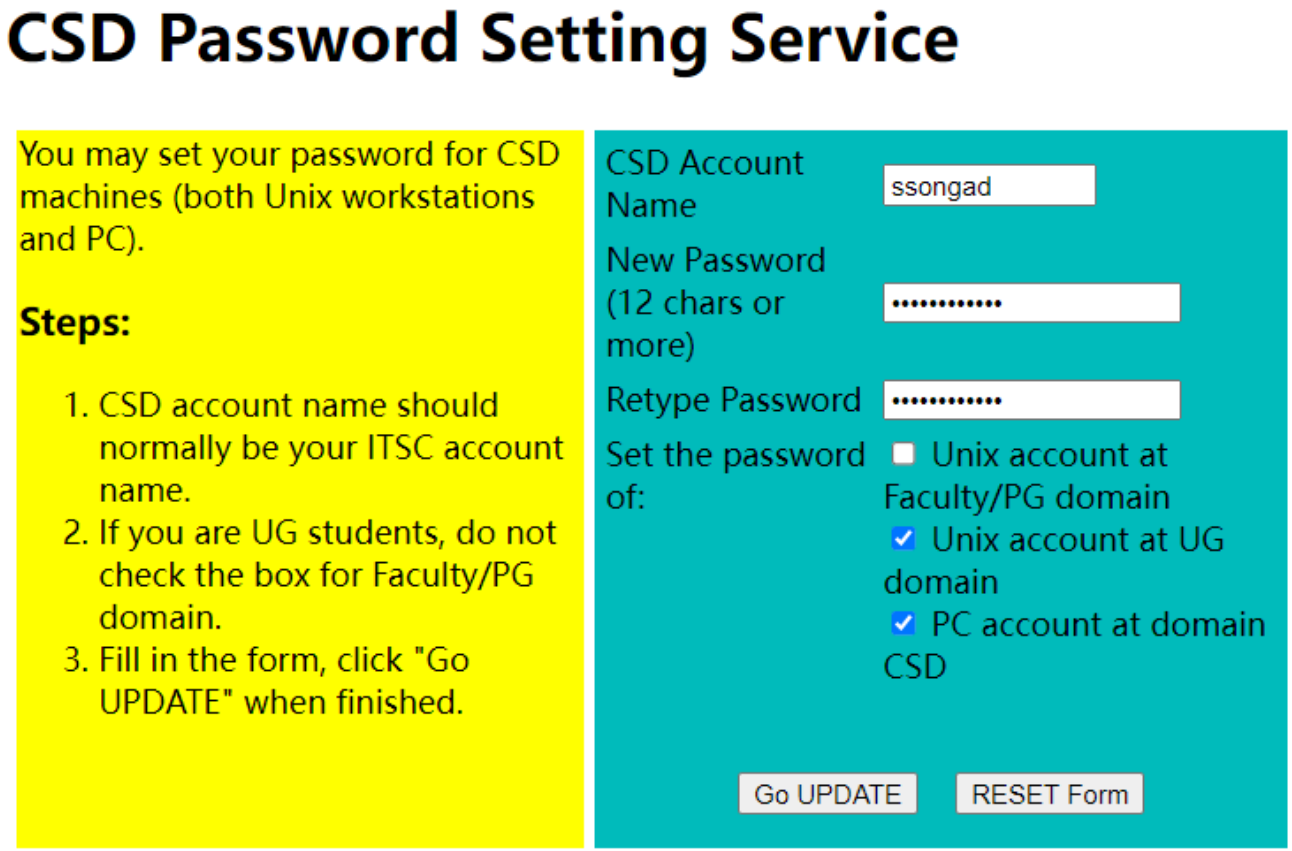
Outline

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



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.

Outline

Any Questions?