p1. Project Overview

2025 Fall

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Project Overview

- **Project goal**
  - We will implement C-Minus compiler

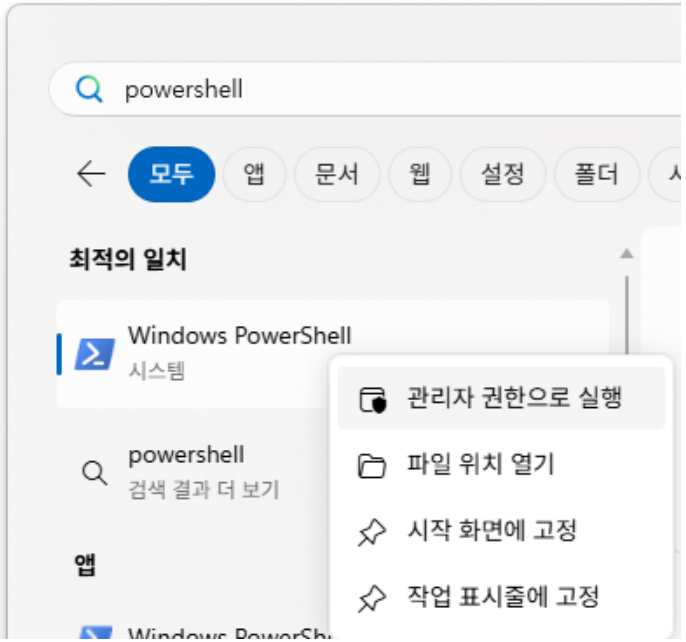
- **Project environments**
  - C-Minus compiler implementation using C
  - You should use docker for the project setup

Docker

- **It is a package of my target program (including code, libraries, dependencies, and even OS tools)**
- **It allows you to use the “exactly” same environment as my grading environment**
- **You are in charge of deductions for not using Docker**
  - There are potential setup issues (I had tons of grading issues last year)

Docker Setup (Windows)

- **You should setup Windows Subsystem for Linux (WSL) first**



Recommeded

```
PS C:₩WINDOWS₩system32> wsl --install Ubuntu-22.04
wsl: 레거시 배포 등록을 사용하고 있습니다. tar 기반 배포를 대신 사용하는 것이 좋습니다.
다운로드 중: Ubuntu 22.04 LTS
Ubuntu 22.04 LTS이(가) 다운로드되었습니다.
배포가 설치되었습니다. 'wsl.exe -d Ubuntu 22.04 LTS'을(를) 통해 시작할 수 있습니다.
Ubuntu 22.04 LTS 시작하는 중...
Installing, this may take a few minutes...

Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: hunjun
New password:
```

```
PS C:₩WINDOWS₩system32> wsl
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hunjun@DESKTOP-CPE4QQV:/mnt/c/WINDOWS/system32$
```

Now, you can start wsl

You can copy files from Windows through /mnt/…

Docker Setup (Windows)

- **Install docker on WSL**
  - `sudo apt-get update`
  - `sudo apt install docker.io`
  - `sudo systemctl start docker`
  - `sudo systemctl enable docker`

- **Add yourself to docker group**
  - `sudo usermod -aG docker [user id]`
  - `exit`
  - `wsl --shutdown`
  - `wsl`

Docker Setup (Mac)

- **Install docker directly on Mac**
  - `brew install --cask docker`

- **Check for installation**
  - `docker --version`

Project Setup - 1

- **Make a working directory on your home folder (Other places are fine..., but just make sure to be consistent)**
  - `mkdir ~/work`

- **Copy Dockerfile and default project files on your working directory (I'll upload them to the LMS)**
  - Make sure you have the tar.gz file and Dockerfile on the work directory

```
hunjun@DESKTOP-CPE4QGV:~/work$ cp /mnt/c/Users/user/Downloads/Dockerfile .
hunjun@DESKTOP-CPE4QGV:~/work$ cp /mnt/c/Users/user/Downloads/skeleton.tar.gz .
hunjun@DESKTOP-CPE4QGV:~/work$ ls
Dockerfile  skeleton.tar.gz
```

Project Setup - 2

- **Build the docker image using the following command**
  - `cd ~/work`
  - `docker build -t cs-compiler-hw:1.0 .`

- **Make a docker container using the generated docker image**
  - `docker run --name compiler2025 --rm -it -v "$PWD":/work -w /work cs-compiler-hw:1.0`

  ➔This will generate docker container named compiler2025

- **Now unzip the project folder and you are ready to go!**
  - `tar -xvf skeleton.tar.gz`

Project Overview

- **Scanner**
- **Parser**
- **Semantic Analysis**
- ~~**Code Generation**~~
  - ~~We will not do code generation~~

Grading

- **Evaluation Items**
  - Compilation (Success / Failure): 20%
  - Correctness check (several testcases): 70%
  - Report: 10%

- **Cheating**
  - There are tons of open-sources on the web (it is a popular compiler project). But do not use the open-source files. If you are caught cheating, the entire project score will be zero and there can be additional penalties.

Grading

- **Submission Format (very important)**
  - **Note #1:** You are not allowed to modify the provided Makefile (I'll provide a new Makefile for each project)
  - **Note #2:** Do not install additional packages to complete the project (I've already installed all the required libraries in the docker)
  - **Note #3:** Submit only necessary files
    - Do not submit temporary or redundant files (e.g., scan_temp.c, temp/main.c, test/main.c)
  - **Note #4:** Obey the submission file format: [Student No].zip
    - **The only exception** is when you submit multiple times
      - [Student No] (1).zip, [Student No] (2).zip, …

You cannot make a claim for getting 0 score if you do not obey the rules above → No exception

QnA Board

- I made a QnA board at the LMS

- There are three QnA boards (one for each project) ➔ you can upload any question to the board