

C Programming (W5)



Welcome!!

Please check attendance individually.
(Mobile App)

Things to do today

- 01** CLI (Tab, Arrow), Folder & file, File extension, EnvDev(Path)
Handling Input
- 02** Codyssey structure (Check homework) – Codyssey Overview
Codyssey C1-P2 : Evaluation (Discussion)
How to evaluate the source code in github
- 03** Lecture Notes (Ch.4 ~)
- 04** Codyssey Requirements : C1-P3, P4(Discussion) □
Homework
 - Use chrome browser
 - Change computer's time to korean time.
 - Be careful of spaces in the textbook (pdf)
(e.g. printf(“ ”) >> printf(""))

In a PC, a **shell** is a user interface that allows you to interact with the operating system. It can be **command-line-based (CLI)** or **graphical (GUI)**:

1. Command-Line Shell (CLI) – This is a text-based interface where users enter commands to perform tasks.

Examples:

- **Bash** (Linux, macOS)
- **PowerShell** (Windows)
- **Command Prompt (cmd.exe)** (Windows) - doskey /history
- **Zsh, Fish** (Unix-like systems)

2. Graphical Shell (GUI) – This provides a visual interface with icons, windows, and menus. Examples:

- **Windows Explorer** (Windows shell)
- **GNOME/KDE/Xfce** (Linux desktop environments)
- **macOS Finder** (Mac shell)

PC에서 셸은 운영 체제와 상호 작용할 수 있는 사용자 인터페이스입니다. 명령줄 기반(**CLI**) 또는 그래픽(**GUI**)일 수 있습니다.

1. 명령줄 셸(**CLI**) - 사용자가 명령을 입력하여 작업을 수행하는 텍스트 기반 인터페이스입니다.

예: Bash(Linux, macOS)

PowerShell(Windows)

명령 프롬프트(cmd.exe)(Windows) - doskey /history

Zsh, Fish(Unix 계열 시스템)

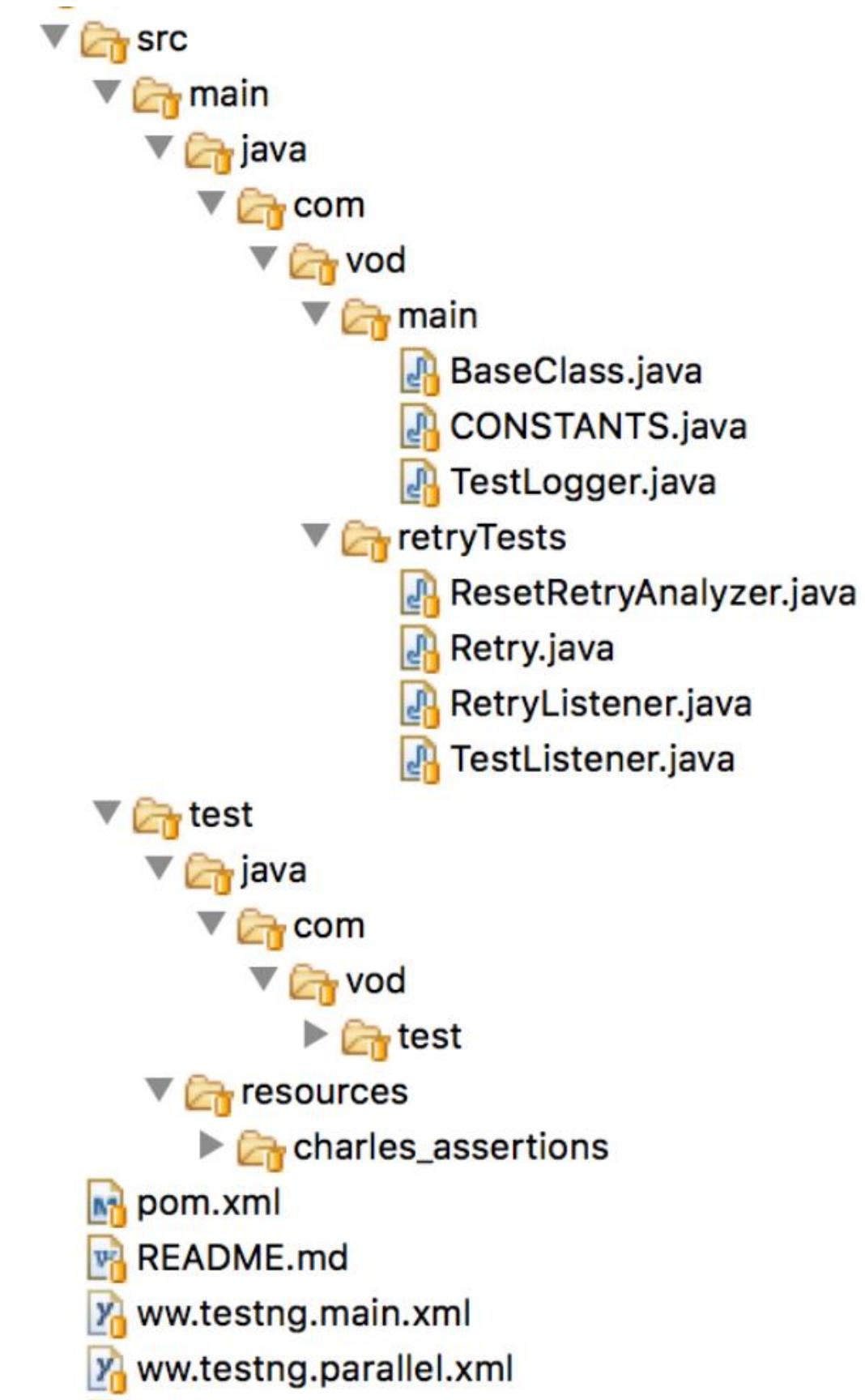
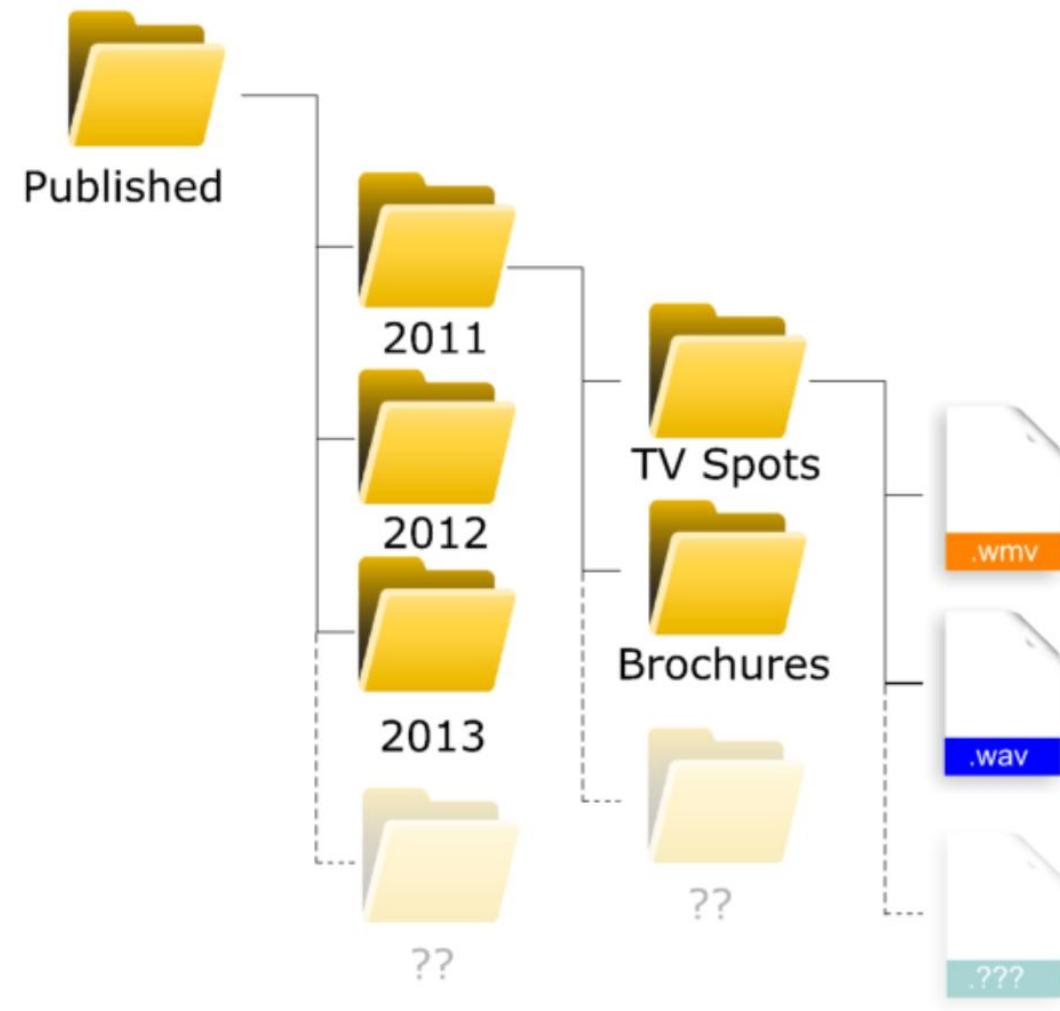
2. 그래픽 셸(**GUI**) - 아이콘, 창 및 메뉴가 있는 시각적 인터페이스를 제공합니다.

예: Windows Explorer(Windows 셸)

GNOME/KDE/Xfce(Linux 데스크톱 환경)

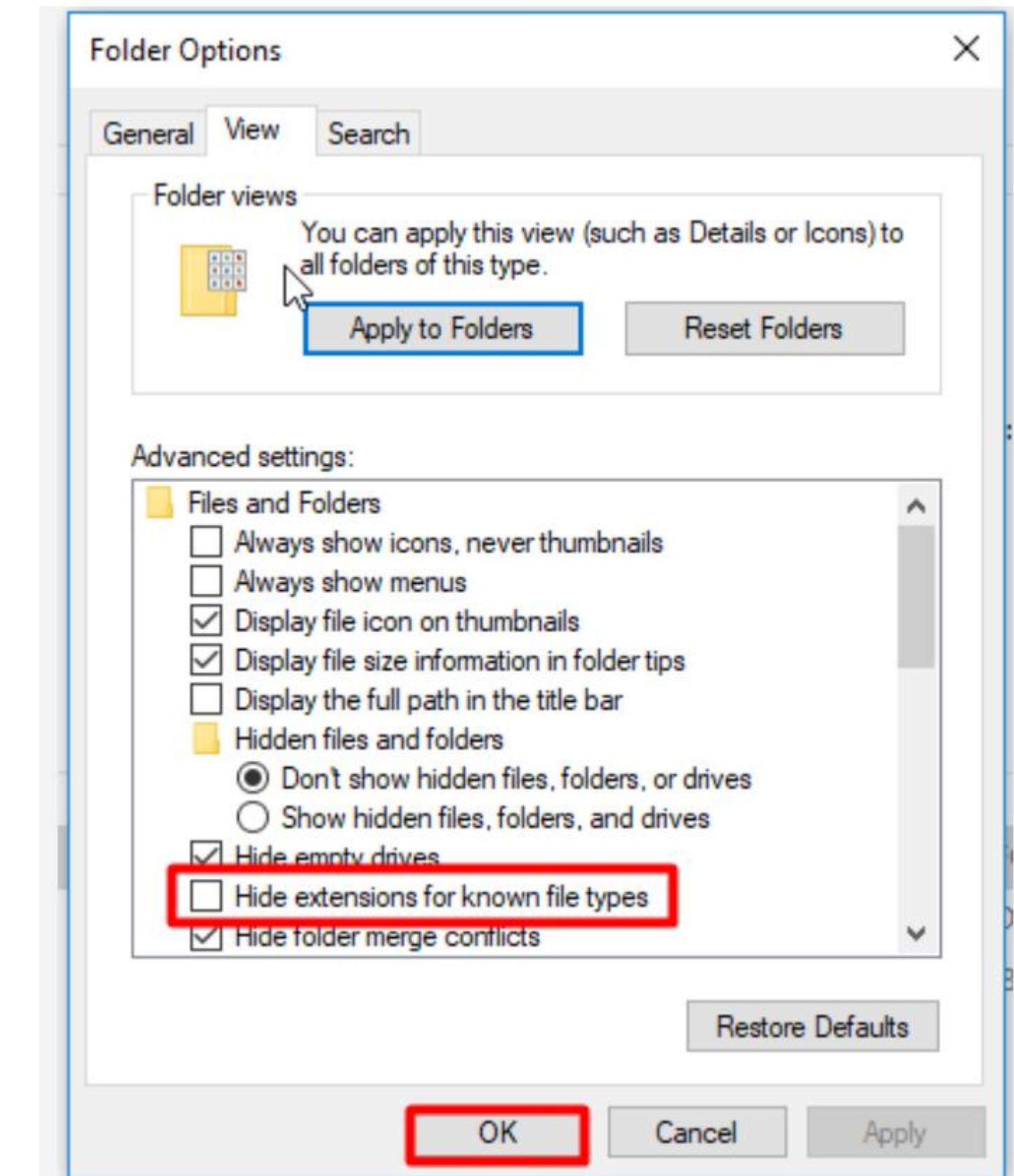
macOS Finder(Mac 셸)

Folder & File



File extension

Name	Date modified	Type
wikiHow Sample PDF.pdf	10/5/2006 1:04 AM	Adobe Acrobat D...
Serial.cru	8/22/2020 11:33 AM	CRU File
Sample.docx	12/16/2012 1:46 PM	Microsoft Word D...
Sales.xlsx	9/3/2017 2:59 AM	Microsoft Excel W...
Nikola Tesla1.docx	8/15/2020 7:17 AM	Microsoft Word D...
Nikola Tesla Biography2.docx	5/4/2017 5:32 PM	Microsoft Word D...
Nikola Tesla Biography.docx	10/16/2018 9:59 AM	Microsoft Word D...
Mortgage.xlsx	2/22/2015 4:26 PM	Microsoft Excel W...
Items.tsv.xlsx	5/2/2019 8:52 PM	Microsoft Excel W...
bookmark.htm	11/28/2020 8:13 PM	Chrome HTML Do...
Book2.xlsx	5/29/2017 7:53 AM	Microsoft Excel W...
Book1.xlsx	5/29/2017 7:52 AM	Microsoft Excel W...
816_sample_ppt.cru	8/15/2020 9:17 PM	CRU File
816.pptx	8/15/2020 6:29 AM	Microsoft PowerP...



Problem solving tips (std_input.c)

1. Determine what the input is
 - scanf, fgets, getchar, sscanf

Key Differences

Feature	scanf	fgets
Reads	Formatted input (e.g., int, float, single word)	Whole line including spaces
Stops At	Whitespace (space, tab, newline)	Newline or buffer limit
Buffer Overflow	Possible if input exceeds buffer size	Prevents buffer overflow
Newline Handling	Skip newline character	Stores newline if there is space

2. Determine what the output is

Problem solving tips (std_input.c)

1. **input** 이 무엇인지에 따라 결정

- **scanf, fgets, getchar, sscanf**

주요 차이점

특징	scanf	fgets
읽어 드리는 방법	포맷된 입력 (예, int, float, single word)	공백을 포함한 전체 줄
Stops At	Whitespace (space, tab, newline)	Newline 또는 buffer limit
Buffer Overflow	입력이 버퍼 크기를 초과하는 경우 발생	버퍼 오버플로우를 방지
Newline Handling	줄바꿈 문자를 건너뛴다	공백이 있으면 줄바꿈을 저장

Step for homework (Review)

- 01** Read a problem in **Codyssey** (Specifically Implementation Task, Constraints)

- 02** Implement the solution of a problem in **VSC**
Run and make sure your solution satisfies implementation task & constraints

- 03** Upload your solution into your **github**.

- 04** Request the evaluation (10 minutes discussion) through **Codyssey**
Then participate the evaluation of classmate's solution (10 minutes discussion)

Homework 진행 순서

01

Codyssey 문제 파악(특히 수행문제, 제약사항)

02

VSC에서 **Coding** 구현
Terminal에서 실행 확인 및 **Codyssey**에 요청하는 수행문제, 제약사항 만족하는지 확인

03

Github에 구현한 **Source code** 저장(Upload)

04

Codyssey에서 동료 “평가요청” (평가자에게 설명)
역할을 바꿔서 평가 요청한 동료의 **Source code** “평가참여”

Codyssey 구조

Subproject	Learning Course	Problem	Week	Essential
Step 1: Audition for Cody Enter	Course 1: Wasteland with Value, Magratea Standard Input/Output	01 Question 1 Introduce myself	1	O
		02 Question 2 Project Kick-Off!	2	O
		03 Question 3 Children who became Milliways candidates	3	O
		04 Question 4 Who will choose the one who will hold the key to destiny?	4	O
		05 Question 5 The hand that determines destiny		-
		06 Question 6 The one chosen to embark on a journey of adventure		-
		07 Question 7 So that no one is forgotten		-
		08 Question 8 Certification test		-
		09 Question 9 From the cradle to the stage		-
Step 2: 8-Step Training Program	Course 2: Sprouts Blooming in the Wasteland Multidimensional Arrays	01 Question 1 8-step training program	5	O
		02 Question 2 Dumbass, the problem is physical strength!	6	O
		03 Question 3 My Basic Workout Routine	6	O
		04 Question 4 A Flexitarian Who Dreams of Being Vegan		-
		05 Question 5 The Conflict Between Hunger and Fullness		-
		06 Question 6 Escaping Obsessive-Compulsive Disorder		-
		07 Question 7 Workout Routine for K-POP Idols		-
		08 Question 8 A Talent with Both Civil and Military Skills		-
		09 Question 9 Starbucks' Jazz Album		-
Step 3: Wounds Heal in the Gardener's Hands	Course 3: Wounds Heal in the Gardener's Hands Structures	01 Question 1 A Fight with Yourself	7	O
		02 Question 2 Facing Trauma	8	O
		03 Question 3 There is No Way to Escape Your Own Ghosts	8	O
		04 Question 4 Friends Who Go Together to Go Far		-
		05 Question 5 A Day Organized in 3 Questions		-
		06 Question 6 Peak-End Law		-
		07 Question 7 Between Coolness and Passion		-
		08 Question 8 Standing at the Starting Point of a Race		-
		09 Question 9 Anti-Hunger Games		-
Step 4: Temperature of Language	Course 4: Temperature of Language Pointers	01 Question 1 How Good is My Korean?	9	O
		02 Question 2 Consonants and Vowels	9	O
		03 Question 3 Basic Grammar Learned through Puzzles	9	O
		04 Question 4 End-of-the-Sentence Linking		-
		05 Question 5 Dictionary Game		-
		06 Question 6 Dialects and Standard Language		-
		07 Question 7 Dictation		-
		08 Question 8 Measurement is the Key to Improvement		-
Step 5: Temperature of Sound	Course 5: Temperature of Sound	01 Question 1 Facing the Present	10	O
		02 Question 2 Finding My Voice	10	O
		03 Question 3 Those Who Realized the Principle	10	O
		04 Question 4 Singing a Song		-

Requirements list (C1-P2)

1. 사용자 입력

- 사용자에게 "yyyy-mm-dd" 형식으로 현재 날짜를 입력하라는 메시지를 표시합니다.
- 사용자에게 이름을 입력하라는 메시지를 표시합니다.

2. 입력 처리

- "입력이 성공적으로 처리되었습니다."라는 메시지를 표시합니다.
- 입력한 값(이름 및 날짜)이 스플래시 화면 출력에 통합되었는지 확인합니다.

[현재 날짜를 "yyyy-mm-dd" 형식으로 입력하세요]: 2023-08-20

[당신의 이름을 입력하세요]: 아서 덴트

입력이 정상적으로 처리되었습니다.

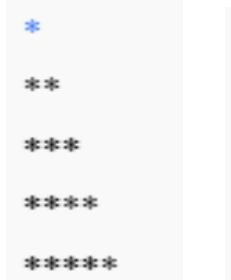
3. 스플래시 화면 출력- 처리 후 다음 스플래시 화면 형식을 표시합니다.

```
+++++
[마그라테아 ver 0.1]
풀 한 포기 없는 황무지에서 반짝이는 행성을 만들내는 곳 마그라테아,
사람들이 보지 못하는 잠재력을 찾고 전문가의 손길을 더해 보석을 빚는 곳,
마그라테아에 오신걸 환영합니다.

+++++
[사용자]: 아서 덴트          [실행 시간]: 2023년 8월 20일
=====
```

4. 보너스 : 표시 전 지연

- 입력이 처리된 후 3초 후에 화면을 비운 다음 스플래시 화면을 표시합니다.
- 스플래시 화면의 왼쪽과 오른쪽 가장자리에 각각 삼각형과 * 문자로 구성된 역직각 삼각형을 표시합니다.



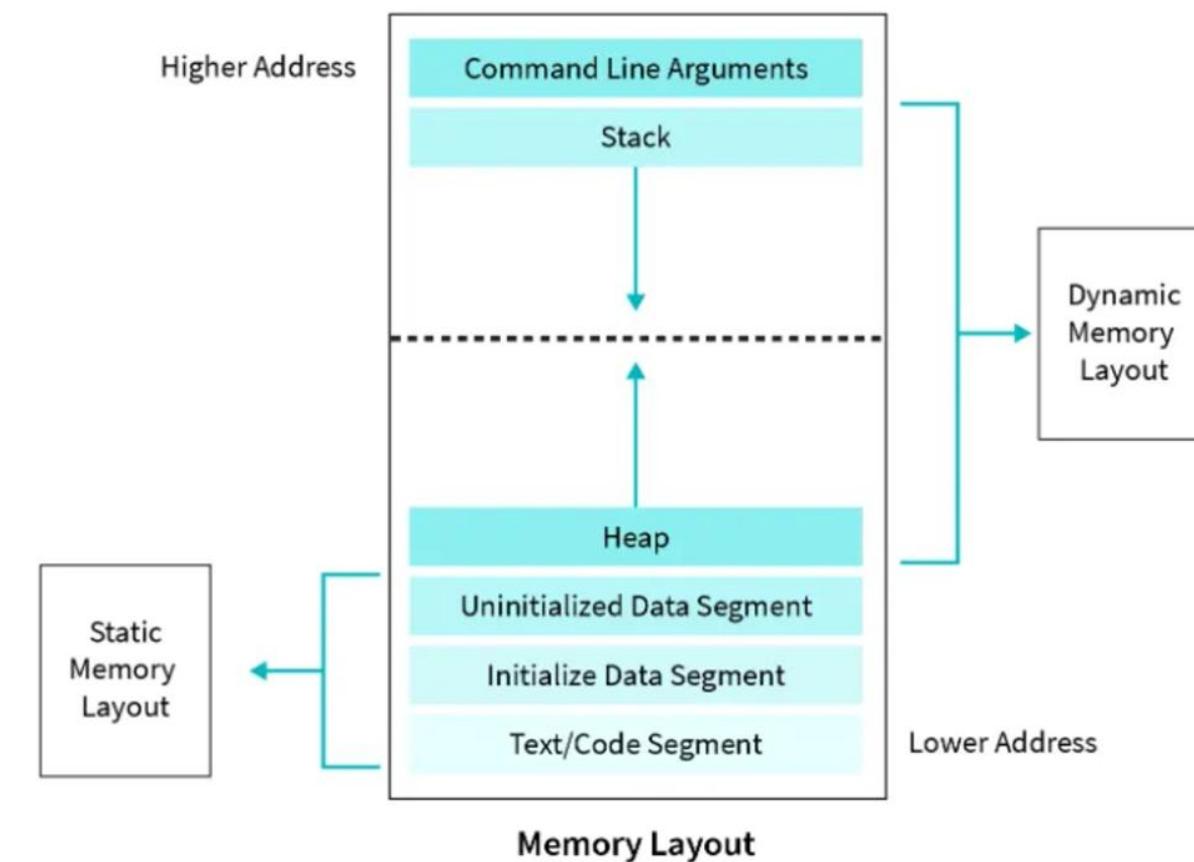
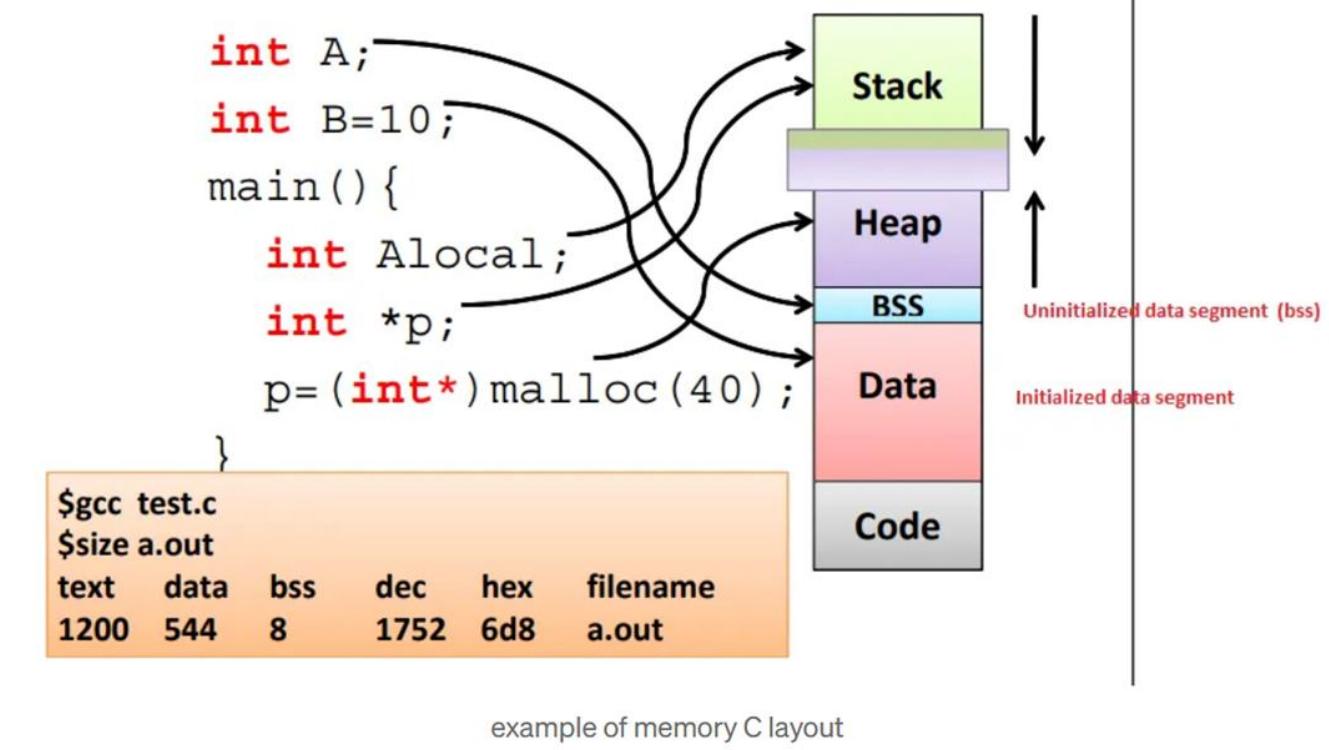
Homework

1. Finish Step 1, Course 1, Problem 3, 4

Progress : 002 > ch.4

See you next week!
DO NOT miss the classes

Memory layout of C program



```
#include <stdio.h>

int globalOne;
int globalTwo;
int init1 = 1;

int main(){
    int a=0;
    int b=0;
    return 0;
}
```

```
PS D:\wahyu\c> gcc hello-world.c -o hello-world
PS D:\wahyu\c>
```

compile the code

```
PS D:\wahyu\c> size .\hello-world.exe
      text     data      bss      dec      hex filename
  16880     1636      124    18640    48d0 .\hello-world.exe
PS D:\wahyu\c>
```

inspect the code by using size command

Text segment (instruction code) = 16880 byte

Data = 1636 byte

Bss (Uninitialized data segment) = 124 byte

Dec (decimal) = text + data + bss = 18640 byte

Text segment (instruction code) : it's include our code instruction and constant

Data : data is for initialized global variable, from above code is int init1 = 1;

Bss : for uninitialized global variable, from above code is int globalOne;