

430.211 Programming Methodology (프로그래밍 방법론)

Intro & C++ Basics

Lab 1 Week 1

Fall 2025

Outline

- Lab I Overview
- Lab Introduction
 - Elice Guide
 - Assignment
 - Attendance Check
- C++ Basics

Lab I Overview

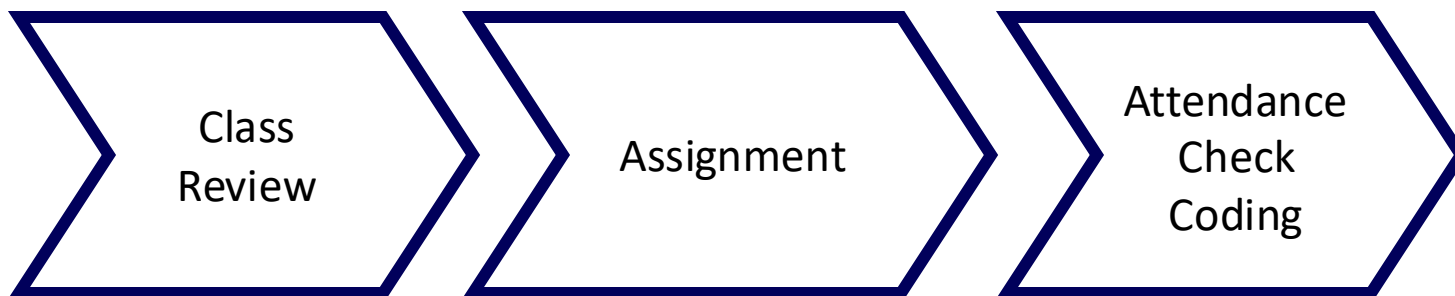


- TA Info (Lab I TA)

- Jungyoon Hwang (danieljyh@snu.ac.kr)
- Juhyeon Park (parkjh9229@naver.com)
- Yongho Kim (peterkim98@snu.ac.kr)

Lab I Overview

- Overview



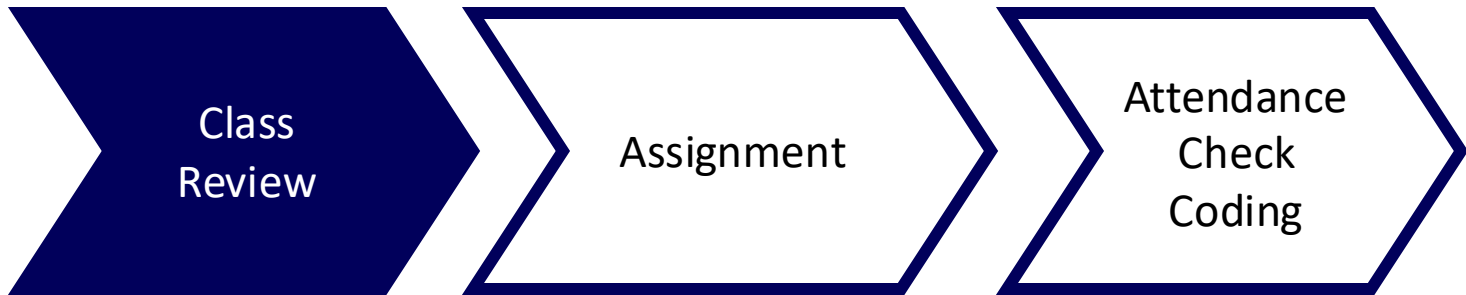
- Q&A

- Public : ETL question board
- Private : ETL question board

Lab I → Yongho Kim (peterkim98@snu.ac.kr)

Lab I Overview

- Overview



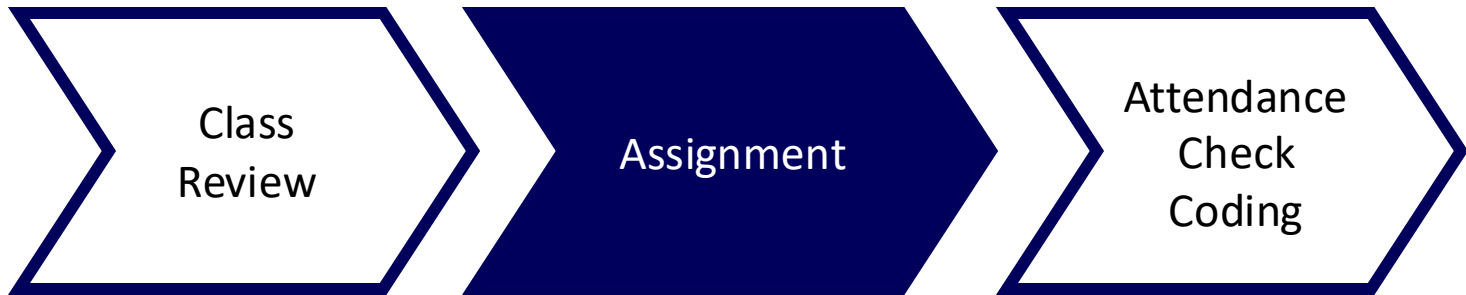
- Lab I focuses on reviewing the class material

- Based on coding



Lab I Overview

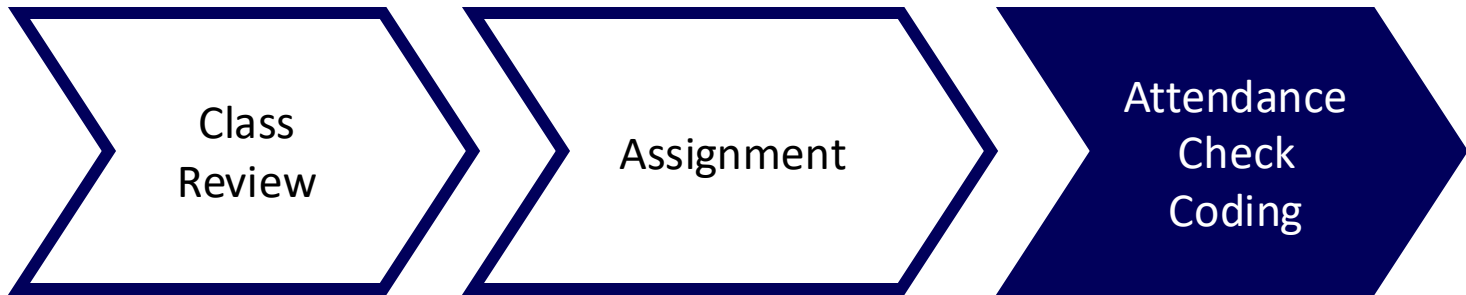
- Overview



- Problems are related to the lecture of the week
- TA will give you a brief explanation
- Due: one hour before the next lab I session
(~14:30 Friday)

Lab I Overview

- Overview



- Attendance will be checked with a simple programming problem
- After your solution is confirmed by TAs, you are free to leave.
- Problems will be revealed at the lab session

Outline

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Elice Guide

☰ 2024-1 Programming Methodology (002) > 모듈

2024년 1학기

최근 공지사항

- 홈
- 공지 
- 강의계획서
- 수강생
- 수강생 알림
- 모듈
- 주차학습
- 게시판
- 과제 
- 토론 
- 퀴즈 
- 성적
- 페이지 추가 
- 파일
- 성과(성취목표) 
- 루브릭(평가척도)
- 강의/출결
- 학습 활동 현황
- My CMS
- 조교/청강생 승인
- 코딩수업**
- 설정

1주차 모듈

- PM_Lecture1.pptx
- Absolute C++.pdf
- Week 1 출석 / 설문조사
- Lecture 1 Q&A

2주차 모듈



모듈에 추가하려면 여기에 파일을 드롭하세요

또는 파일 선택

3주차 모듈

Elice Guide

수업 목록 > Lab1-Week1

비공개 설정

Lab1-Week1







수업 날짜: 2024.03.07
Introduction & C++ Basics

0 / 2

수업 공개 ▼ 수정하기

⊕ 자료 추가 AI 퀴즈 생성 Beta

☐ 학습자료 자료 관리 ▼

<input type="checkbox"/>	 수강생 윤리강령	▼ ⋮
<input type="checkbox"/>	 Practice	▼ ⋮
<input type="checkbox"/>	 Exercise 1	자료 공개 ▼ ⋮
<input type="checkbox"/>	 Exercise 2	자료 공개 ▼ ⋮
<input type="checkbox"/>	 Exercise 3	자료 공개 ▼ ⋮
<input type="checkbox"/>	 Exercise 4	자료 공개 ▼ ⋮

Elice Guide

- Read the description carefully
- And fill in the TODO
- “실행” is not graded!

Write a code that prints "Hello, world!"



The screenshot shows the Elice IDE interface. At the top, a task description reads: "Write a code that prints 'Hello, world!'". Below this, a C++ code editor displays the following code:

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main()
6 {
7     // Write your code here!
8
9     cout << "Hello, world!" << endl;
10
11     return 0;
12 }
13
14
```

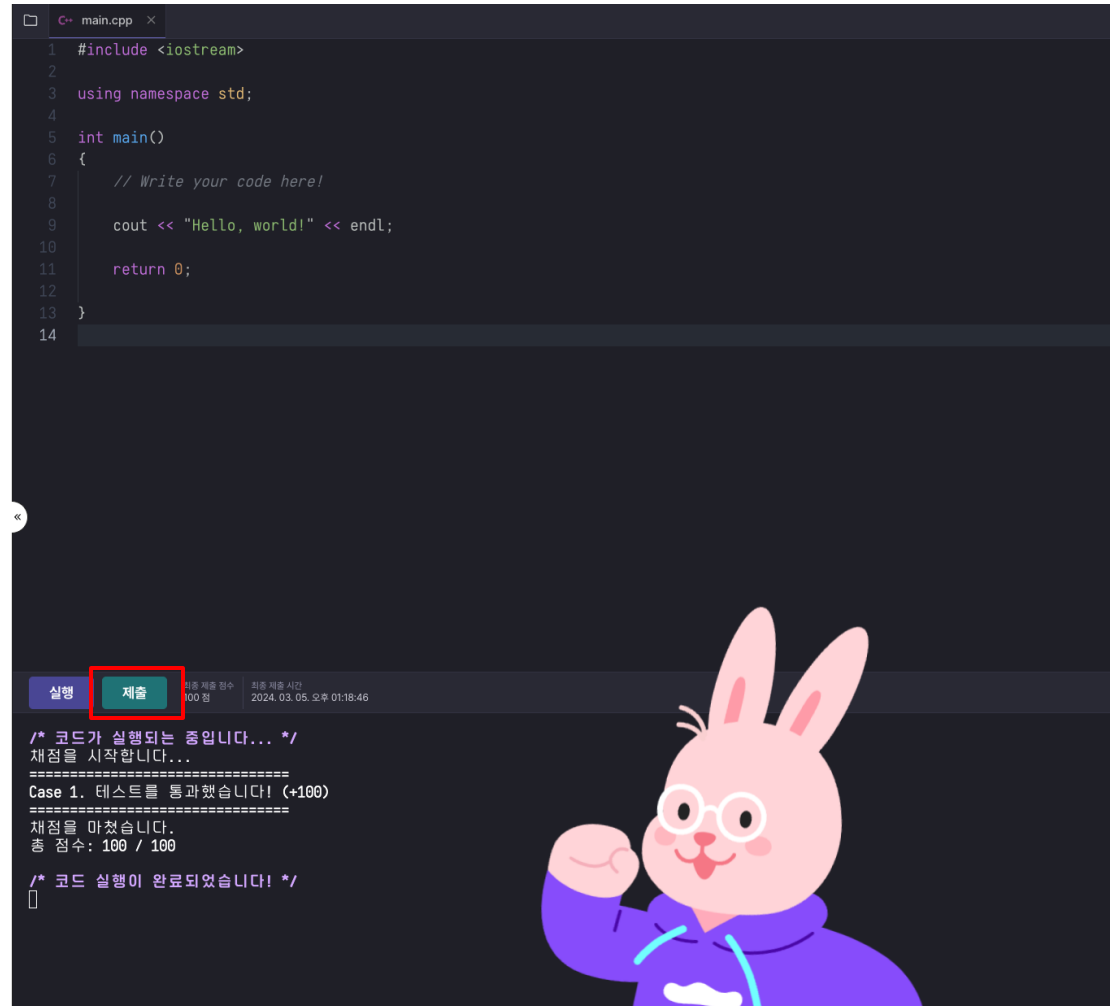
At the bottom of the IDE, there is a status bar with two buttons: "실행" (Run) and "제출" (Submit). The "실행" button is highlighted with a red box. To the right of these buttons, the status shows: "최종 제출 점수 100 점" (Final submission score 100 points) and "최종 제출 시간 2024. 03. 04. 오후 03:13:19" (Final submission time 2024. 03. 04. PM 03:13:19). Below the buttons, the output of the program is shown:

```
/* 코드가 실행되는 중입니다... */
Hello, world!

/* 코드 실행이 완료되었습니다! */
[]
```

Elice Guide

- Press “제출” button to test your code
- You can resubmit as much as you need



Lab Assignment

- Your assignment will be graded on the code on Elice
 - There will be additional hidden cases
- Due: one hour before the next lab I session
(~14:30 Friday)
- After the deadline, the assignment tab **will be closed**

Attendance Check

- Your attendance will be checked with a simple problem
- After the class is over, raise your hand show your screen to TAs after pressing “제출” and getting 100% on Elice
- You are free to leave after your attendance is checked

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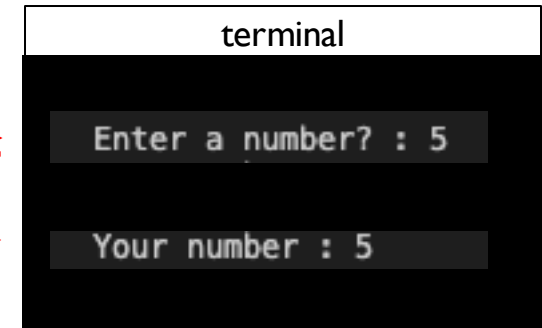
C++ Basic Structure

- Let's think of a simple code from python
 - Input a number
 - Print the inputted number

< Python >

```
val = input("Enter a number?")  
print("Your number", val)
```

Enter a number? :
5
Your number : 5



C++ Basic Structure

- Python built in functions

< Python >

```
val = input("Enter a number?")  
print("Your number", val)
```

Enter a number? :

5

Your number : 5

terminal

Enter a number? : 5

Your number : 5

- Input() and print() are **built-in function** to read input from the keyboard and to display output.
 - Input() returns as a string type (type cast)
 - Output() can display many complex types

<https://www.geeksforgeeks.org/c-c-include-directive-with-examples/>

http://www.qnx.co.uk/developers/docs/6.5.0/index.jsp?topic=%2Fcom.qnx.doc.dinkum_en_cpp%2Flib_cpp.html

C++ Basic Structure

- Ex 1. Console I/O and Namespace

```
#include <iostream>

int cout(void){
    return 3;
}

int main(void){
    int val;

    std::cout << "Enter a number? : ";
    std::cin >> val;

    cout << "Your number : " << val << std::endl;

    return 0;
}
```

What happens?



C++ Basic Structure

- Ex 1. Console I/O and Namespace

```
#include <iostream>

int cout(void){
    return 3;
}

int main(void){
    int val;

    std::cout << "Enter a number? : ";
    std::cin >> val;

    cout << "Your number : " << val << std::endl;

    return 0;
}
```

What happens?

Error: **invalid operands** to binary expression('int()' and 'constant char [15]')

C++ Basic Structure

- **Namespace**

- Namespace, scope resolution operator(::) is covered later in Chap 11, Chap 6
- When programs use libraries from a variety of sources, the possibility of *name collision* may exist.

NAVER 인물검색

검색

통합검색



유정 (남유정) 가수

신체 163cm

소속 브레이브 걸스



유정 사회기관단체인

출생 1954년

유정 변호사, 대학교수

경력 제33회 사법시험 합격

학력 서울대학교 법학 학사

Variables, Expressions

- Ex. 2 Program for total sum of your lift
 - 1. Use 3 variables (squat, dead, bench)
 - 2. Print the total sum of the 3 inputs
- Result

```
Squat? (Kg): 110
Deadlift? (Kg): 180
Benchpress? (Kg): 80
Your total lift is 370
```

Variables, Expressions

```
#include <iostream>
using namespace std;

int main(void){

    int squat, dead, bench = 0;
    // int squat(0), dead(0), bench(0) initialization

    cout << "Squat? (Kg): ";
    cin >> squat;

    cout << "Deadlift? (Kg): ";
    cin >> dead;

    cout << "Benchpress? (Kg): ";
    cin >> bench;

    //print total weight
    cout << "Your total lift is " << squat + dead + bench << endl;

    return 0;
}
```

Variables, Expressions

- Ex. 3 Celsius to Fahrenheit conversion
 - Is the program running correctly?

```
1  #include <iostream>
2  using namespace std;
3
4  int main(void){
5
6      double c, f = 0;
7
8      cout << "Enter current temperature (in Celsius): ";
9      cin >> c;
10     f = (9/5) * c + 32.0;
11     cout << "Current temperature in Fahrenheit: " << f << endl;
12
13     return 0;
14 }
```

Variables, Expressions

- Ex. 3 Celsius to Fahrenheit conversion

```
#include <iostream>

using namespace std;

int main()
{
    double c, f = 0;

    cout << "Enter current temperature (in Celsius): ";
    cin >> c;
    f = (9/5) * c + 32.0;
    /* Try the following:
    1) ((double)9/5) ○
    2) (9/(double)5) ○
    3) (double)(9/5) ✗
    4) (9.0/5) ○
    */
    cout << "Current temperature in Fahrenheit: " << f << endl;

    return 0;
}
```


Variables, Expressions

- Ex. 4 Celsius to Fahrenheit conversion (+ precision)

- 1. Use

```
cout.setf(ios::fixed);  
cout.setf(ios::showpoint);  
cout.precision(2);
```
- 2. Add additional variable 'precision'

- Result

```
Enter current temperature (in Celsius): 24.88  
Precision? : 1  
Current temperature in Fahrenheit: 76.784  
Current temperature in Fahrenheit (after precision): 76.8
```

Variables, Expressions

```
1  #include <iostream>
2  using namespace std;
3
4  int main(void){
5
6      double precision, c, f = 0;
7
8      cout << "Enter current temperature (in Celsius): ";
9      cin >> c;
10     f = (9.0/5) * c + 32.0;
11
12     cout << "Precision? : ";
13     cin >> precision;
14
15     cout << "Current temperature in Fahrenheit: " << f << endl;
16
17     cout.setf(ios::fixed);
18     cout.setf(ios::showpoint);
19     cout.precision(precision);
20
21     cout << "Current temperature in Fahrenheit (after precision): " << f << endl;
22
23     return 0;
24 }
```

Variables, Expressions

- Ex. 5 Program for total sum of you lift (upgraded)
 - 1. Use constant variable for pound ($1\text{kg} = 2.20462\text{ lbs}$)
 - 2. Do not add additional variables other than precision
 - 3. Round to 3rd decimal place
- Result

```
Squat? (Kg): 70
Deadlift? (Kg): 100
Benchpress? (Kg): 60
Your total lift (Lb) is 507.063
```

Variables, Expressions

```
1  #include <iostream>
2  using namespace std;
3
4  const double pound = 2.20462;
5
6  int main(void){
7
8      int squat, dead, bench = 0;
9      // int squat(0), dead(0), bench(0) initialization
10
11     cout << "Squat? (Kg): ";
12     cin >> squat;
13
14     cout << "Deadlift? (Kg): ";
15     cin >> dead;
16
17     cout << "Benchpress? (Kg): ";
18     cin >> bench;
19
20
21     cout.setf(ios::fixed);
22     cout.setf(ios::showpoint);
23     cout.precision(3);
24     //print total weight
25     cout << "Your total lift (Lb) is " << (squat + dead + bench)*pound << endl;
26
27     return 0;
28
29 }
```

Operators

- Ex. 6 Increment examples
 - What would be the output?

```
#include <iostream>

using namespace std;

int main()
{
    int i(1), j(2);

    cout << i++ << endl;

    cout << ++i << endl;

    cout << --j << endl;

    cout << j-- << endl;

    return 0;
}
```

Attendance Check Coding

- Hour / Minute / Second

Write a program that:

- Inputs an integer that represents a length of time in second.
- Outputs the converted hour, minute, second from the input
(ex) 50391 sec -> 13hr 59min 51sec

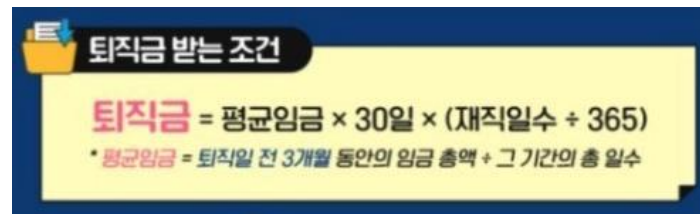
– **Result**

```
/* 코드가 실행되는 중입니다... */  
Total second? : 50391  
13hr 59min 51sec  
  
/* 코드 실행이 완료되었습니다! */  
□
```

Assignment

- Severance Pay calculator

- Write a program that calculates severance payment.
- Here, we use the formula below for its calculation.



$$\text{Severance} = \text{Average wage} \times 30 \times (\# \text{ of working days} \div 365)$$

- The number of working days(재직일수) is given as an input
(We assume every employee has worked at least a year, 재직일수 ≥ 365)
- Use **constant variable** for average wage(평균임금) (avgWage=60,000)
- Round to the nearest thousands (100의 자리에서 반올림).

Submission

- Attendance Check Code
 - After this week, raise your hand after you are finished
 - **There will be no attendance checks this week**
- Assignment
 - Write your code on Elice and submit
 - **This week's assignment will not be graded**
- Lab2: Sign and submit **Code of Ethics** on Elice (KOR or ENG)

Thank you!