Object-oriented Programming

Prof. YoungWoon Cha

CSE Department
Spring 2023

Course Introduction

- ## Course Objectives
  - This course introduces fundamental concepts of object-oriented programming (OOP) with C++ programming language.

- ## Lecture Contents
  - OOP principles:
    - Encapsulation, Inheritance, Polymorphism, Overloading ...
  - Practice and solve problems using C++ language.
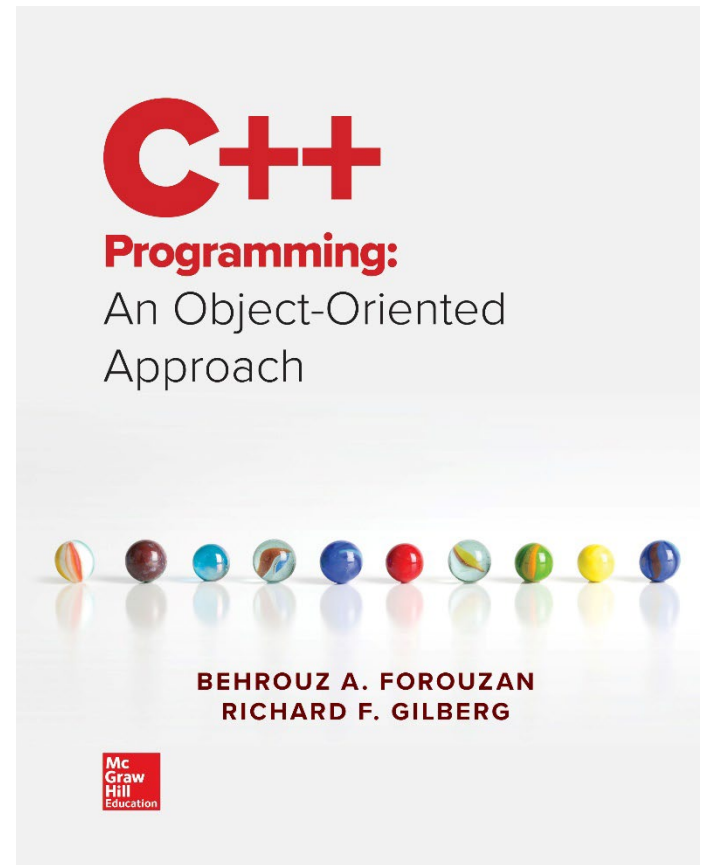
- ## Lecture Method
  - 50% Lecture + 50% Exercise

Course Introduction

- Instructor
  - Prof. YoungWoon Cha
  - Office: #293-2 Engineering Bldg. C.
  - Email: youngcha@konkuk.ac.kr
  - Website: https://sites.google.com/site/youngwooncha/
  - Office hours: 2~3pm on Tuesday. (by appointment through email)

- Teaching Assistant
  - TBA
  - Role: Q&A, Exercise session.
- Classroom: #402 New Millennium Hall

Textbook

- Not required
- Lecture slides
- Reference book
  - On Amazon 11th street

Course Grading Policy

- Mid-term 35%, Final 35%
  - **Mid-term exam: TBD (Hand coding)**
  - **Final exam: TBD (Hand coding)**
  - If someone receives a score of "0" (including absence or cheating) on the mid-term or final exam, they will receive a grade of "F".

- Programming Assignments 20%
  - A score of "0" points will be given for late submissions or cheating on homework.
  - If a student is caught cheating on homework more than two times, they will be given a grade of 'F'.

- Attendance/Participation 10%
  - Deductions: -1 point for each absence, and -0.5 points for each late arrival.
  - Bonus: +1 point for each active participation in class.

Course Rules

- Prerequisite
  - Intermediate programming skills in C.
  - Students below intermediate level may struggle in exercise sessions.

- The classes will be held even on holidays.
  - Online lectures (less than 30%)

- Students are graded relatively.

Course Rules (cont'd)

- "not attending" a class includes:
  - Being absent from or late to class
  - Leaving the class in the middle
  - Chatting or using cell-phones in class

- Online Questions and Answers
  - Use Q&A in E-Campus.
  - Please note that I am unable to respond to any email inquiries.

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Tentative Schedule

Wk	Topic	Contents
1	Introduction to the course	Course Syllabus, C++ and OO programming concepts
2	Classes	Basics on C++ language and differences from C language
3	Classes	Classes and objects, using classes and objects, constructors and destuctors
4	Classes	Data members and methods, object pointers
5	Inheritance	Basic concepts for inheritance, protected members
6	Inheritance	Constructors and destuctors in inheritance, multiple inheritance
7	Polymorphism	Basics on polymorphism
8	Mid-term exam	Mid-term exam

9	Polymorphism	C++ binding, name overloading and hiding, abstract base classes
10	Operator overloading	Basic operator overloading, operator overloading for top-level functions, friend functions
11	Operator overloading	IO operator overloading, assignment operator overloading, special operator overloading
12	Template classes	Basics on template classes
13	Template classes	Standard template library (STL)
14	C++ IO classes	Basics on IO classes, ios_base and basic_ios, high-level IO classes
15	C++ IO classes	IO manipulator, file IO classes, Character stream IO classes, buffer classes
16	Final exam	Final exam

How to Achieve a Good Grade?

- Need good problem-solving skills using C++.
  - Practice, practice and practice...
  - Consistent and frequent practice using tools like a keyboard or your hands is key to improvement.
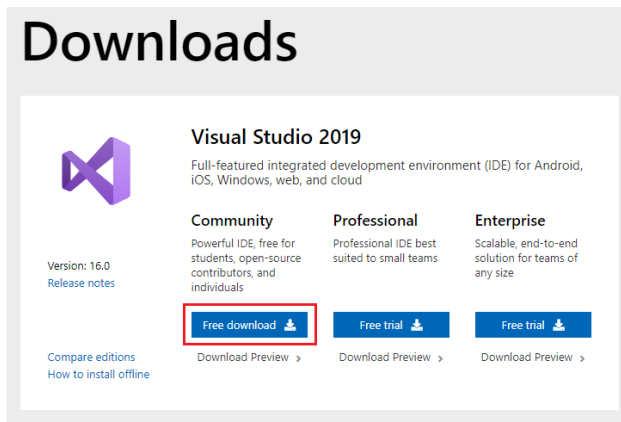
Why Take a Course in English?

- To improve communication skills in English.
- Being an excellent candidate in job market.
- Increase job opportunities worldwide.
    - Google, Meta, Microsoft, Apple, Amazon …

- Discussion is encouraged in class!

Assignment 0

Install Visual Studio 2019

- Programming tool in this course
  - **Microsoft Visual Studio Community 2019** (Note Not ver. 2022 !)

  - Must be English version (cannot answer any questions about the Korean version!)
  - Find a useful installation tutorial on youtube and succeed in "Hollo world".
  - VS 2019 must be prepared by next class.

End of Class

Thank you

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