

SIEC: C PROGRAMMING

L #01: C PROGRAMMING INSTALLATION AND STRUCTURES

Seung Beop Lee

School of International Engineering and Science

CHONBUK NATIONAL UNIVERSITY

Outline

- **C Language Overview**
 - C programming language
 - Why to use C ?
- **C Program Installation on Windows**
- **C Programming Process**
 - Theory
 - Practice

C Language Overview

- C programming language
- Why to use C ?

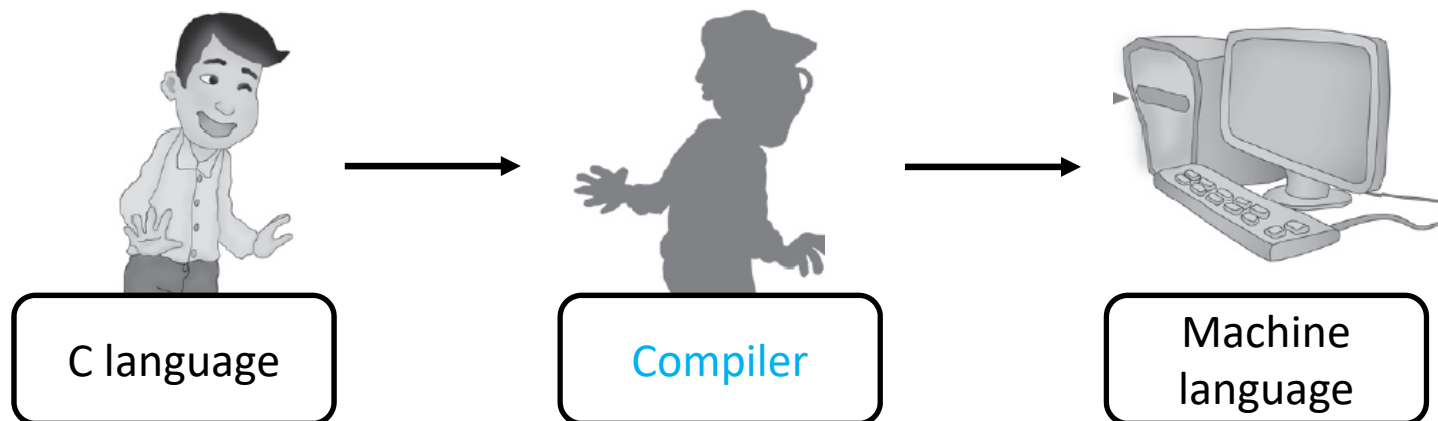
C Language Overview

- C programming language

- The C language stands for one of the promised forms of computer programming languages that people and **compilers** can understand.

- **Compiler (C, C++)**

- The compiler, that is as an interpreter between humans and machines, is a converter that changes the programming language into a machine-understandable machine language which is composed of 0 and 1.



C Language Overview

■ Why to use C ? (Advantages)

- It is easy to learn.
- It is a structured language.
- It produces efficient programs.
- It can handle low-level activities If you need to control.
 - The low-level language is that the people can not understand directly the code because the code is composed of 0 and 1 for machine.
 - The high-level language is that the people can understand directly when they read the code.
- It can be compiled on a variety of computer platforms.

■ Disadvantages

- It is more difficult to learn than the **perfect** high-level languages.
- So, It requires a lot of programming attention.

C Program Installation on Windows

C Program Installation on Windows

- Find the Microsoft Visual Studio Community

The screenshot shows a Google search for "Microsoft Visual Studio Community". The search bar at the top contains the text "Microsoft Visual Studio Community". Below the search bar, the results are displayed. The top result is "Visual Studio Community - Microsoft", which is highlighted with a red box. Below this result, there is a section titled "함께 검색한 항목" (Items searched together) with a list of related terms: "visual studio community 2015", "visual studio 2019 c++", "visual studio 2019 community download", "visual studio 2019 key", "비주얼 스튜디오 커뮤니티 회사", and "visual studio code". To the right of the search results, there is a card for "마이크로소프트 비주얼 스튜디오 (Microsoft Visual Studio)" with a description in Korean, version information (16.1.3), and other details.

Google

Microsoft Visual Studio Community

전체 이미지 동영상 뉴스 쇼핑 더보기

검색결과 약 135,000,000개 (0.78초)

visualstudio.microsoft.com > Home > Visual Studio 2019 | Visual Studio

Visual Studio Community - Microsoft

6일 전 - Visual Studio Community. Android, iOS 및 Windows용 최신 응용 프로그램뿐 아니라 웹 응용 프로그램 및 클라우드 서비스를 만들기 위한 모든 ...

이 페이지를 3번 방문했습니다. 최근 방문 날짜: 18. 9. 10

함께 검색한 항목

- visual studio community 2015
- visual studio 2019 c++
- visual studio 2019 community download
- visual studio 2019 key
- 비주얼 스튜디오 커뮤니티 회사
- visual studio code

관련 질문

- What is Microsoft Visual Studio community?
- Is Microsoft Visual Studio community free?
- Is Visual Studio 2019 Community Edition free?
- Who can use Visual Studio community?

마이크로소프트 비주얼 스튜디오 (Microsoft Visual Studio)

웹 프로그램

마이크로소프트 비주얼 스튜디오는 마이크로소프트 윈도우에서 작동하며, 다양한 언어로 프로그래밍할 수 있는 마이크로소프트의 통합 개발 환경이다. 프로그램, 웹 사이트, 웹 프로그램 등을 개발할 수 있다. 위키백과

안정화 버전: 2019 버전 16.1.3; (2019년 5월 24일)

종류: 통합 개발 환경

라이선스: 프리미엄

개발자: 마이크로소프트

운영 체제: 마이크로소프트 윈도우

- Type the Microsoft Visual Studio Community on the google website

C Program Installation on Windows

- Download the VS Community

Microsoft | Visual Studio Visual Studio 2019 기능 버전 다운로드 지원 구독자 액세스 무료 Visual Studio Microsoft 전체 검색

Visual Studio Community

Android, iOS 및 Windows용 최신 응용 프로그램뿐 아니라 웹 응용 프로그램 및 클라우드 서비스를 만들기 위한 모든 기능을 갖춘 확장 가능한 무료 IDE입니다.

Visual Studio 다운로드 ↓

- Click this button.

필요한 모든 것을 한 곳에서

- 유연성
- 생산성
- 에코 시스템
- 언어

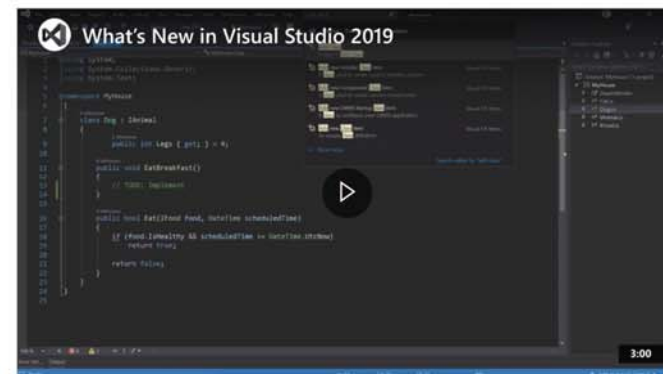
C Program Installation on Windows

- Download the VS Community



Visual Studio를 사용하여 개발 시작

- 설치 지침**
설치에 대한 도움이 필요하세요? Visual Studio 설치의 도움말 설명서를 확인하세요.
[지침 >](#)
- 빠른 시작 가이드**
C++ 콘솔을 사용하여 첫 번째 애플리케이션을 개발하는 방법에 대한 자습서를 사용해 보세요.
[계산기 앱 자습서 >](#)
- 클라우드 앱 만들기**
Azure 체험 계정으로 Azure App Services를 사용하여 .NET 앱을 빌드하고 배포하고 확장하세요.
[체험판 시작하기 >](#)



- Check the file



C Program Installation on Windows

- Open the download folder

Microsoft | Visual Studio 제품 다운로드 구입 지원 구독자 액세스 무료 Visual Studio

Microsoft 전체 검색 Sign in

Visual Studio를 다운로드해 주셔서 감사합니다.
다운로드가 곧 시작됩니다. 다운로드가 시작되지 않은 경우에는 [여기를 클릭하여 다시 시도하세요](#)

Visual Studio를 사용하여 개발 시작



설치 지침

설치에 대한 도움이 필요하세요? Visual Studio 설치의 도움말 설명서를 확인하세요.

[지침 >](#)



빠른 시작 가이드

C++ 콘솔을 사용하여 첫 번째 애플리케이션을 개발하는 방법에 대한 자습서를 사용해 보세요.

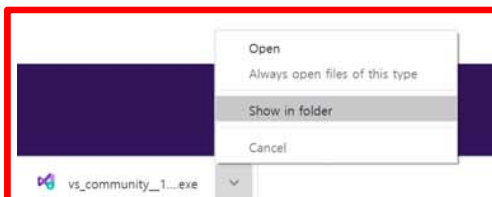
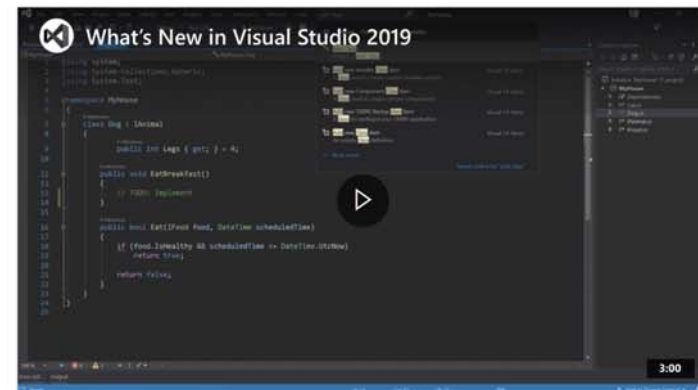
[계산기 앱 자습서 >](#)



클라우드 앱 만들기

Azure 체험 계정으로 Azure App Services를 사용하여 .NET 앱을 빌드하고 배포하고 확장하세요.

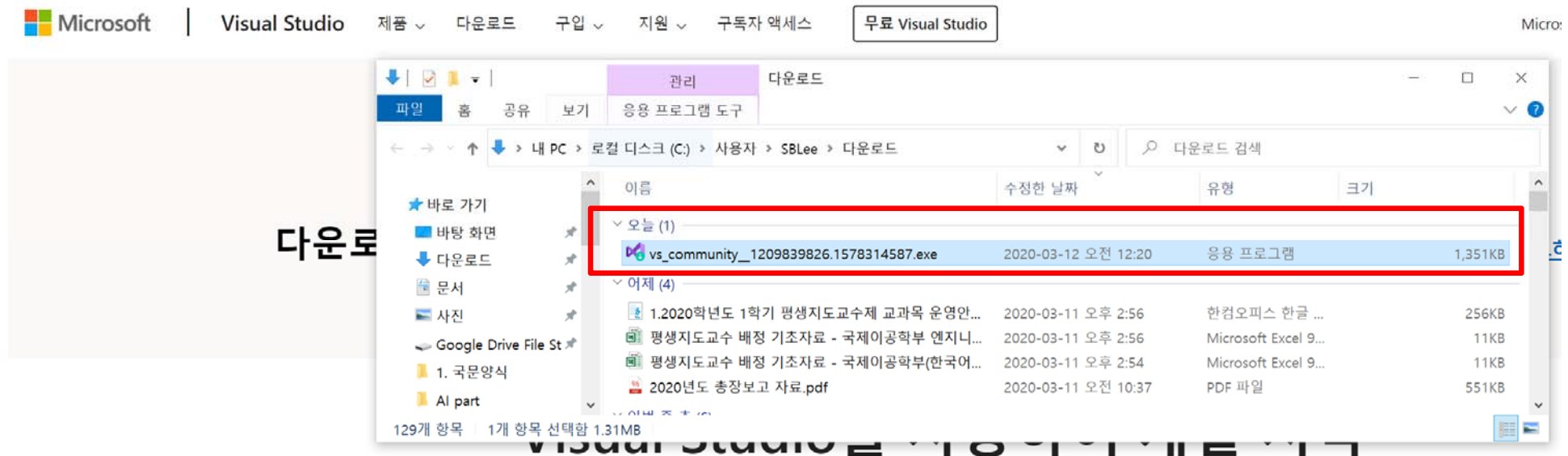
[체험판 시작하기 >](#)



- Click the right mouse button on the download file.
- Select the open folder icon (폴더 열기).

C Program Installation on Windows

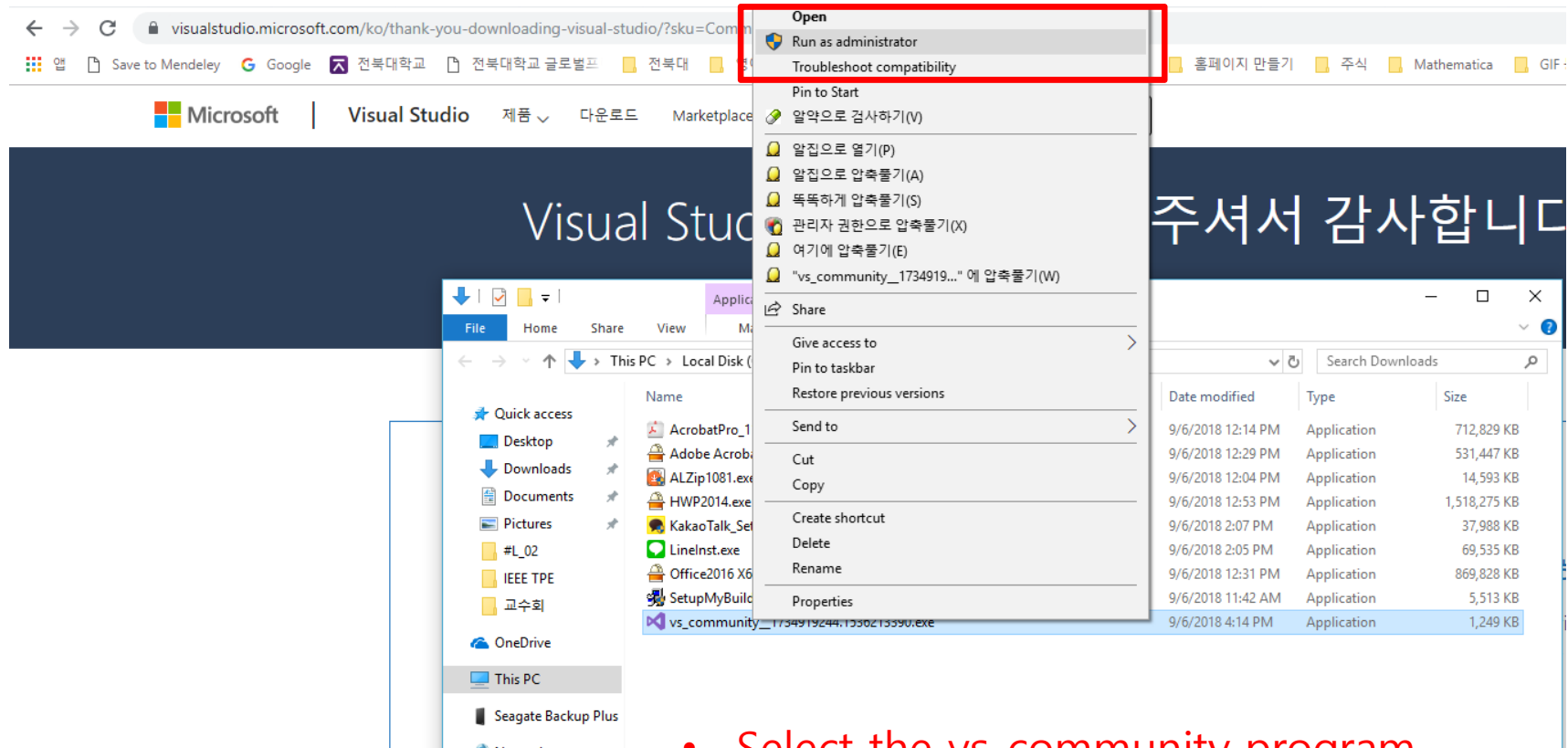
- Check the VS community 2017



- The download folder will be opened.
- You can find the vs_community program in the download folder.

C Program Installation on Windows

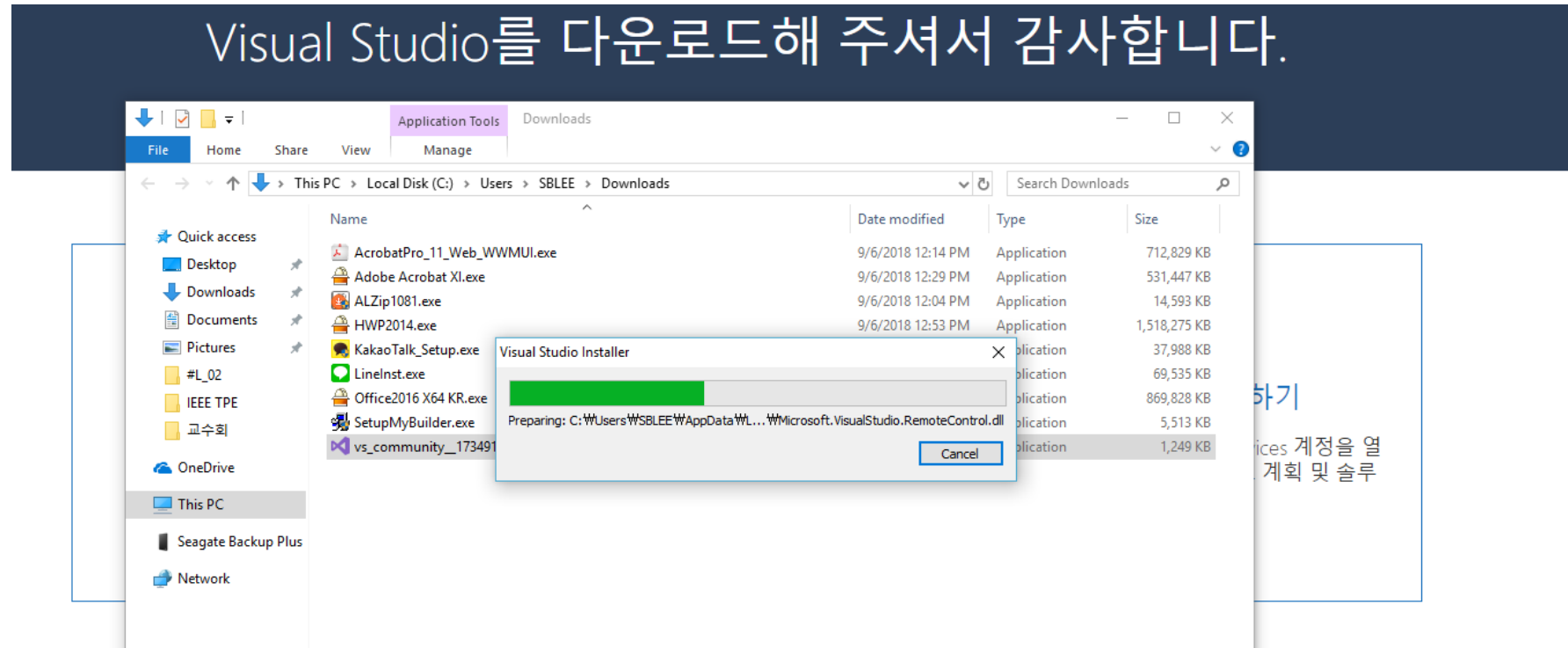
- Run the VS community 2017 as administrator



- Select the vs_community program.
- Click the right mouse button.
- Click the run as administrator.

C Program Installation on Windows

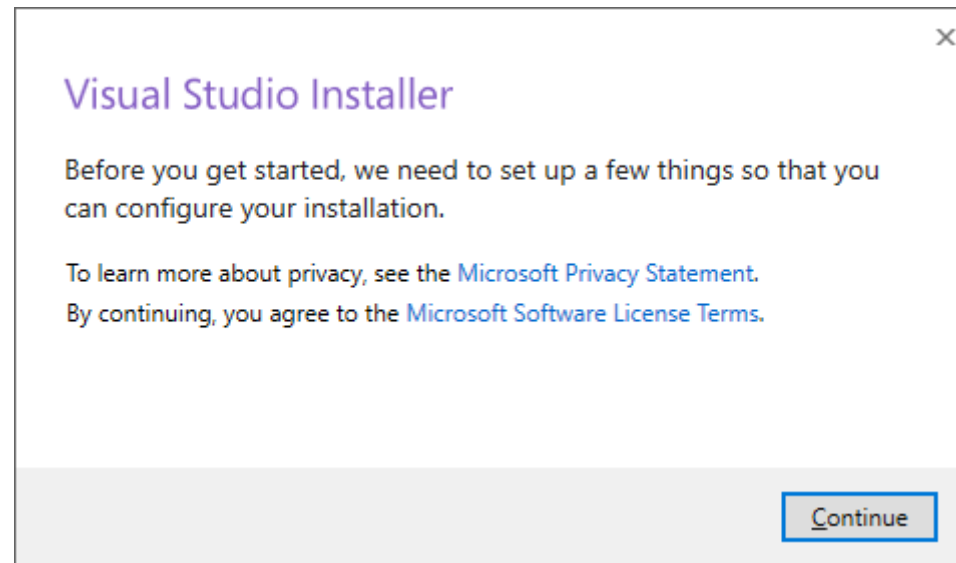
- Run the VS community 2017 as administrator



- You can check the installation process for the VS community.

C Program Installation on Windows

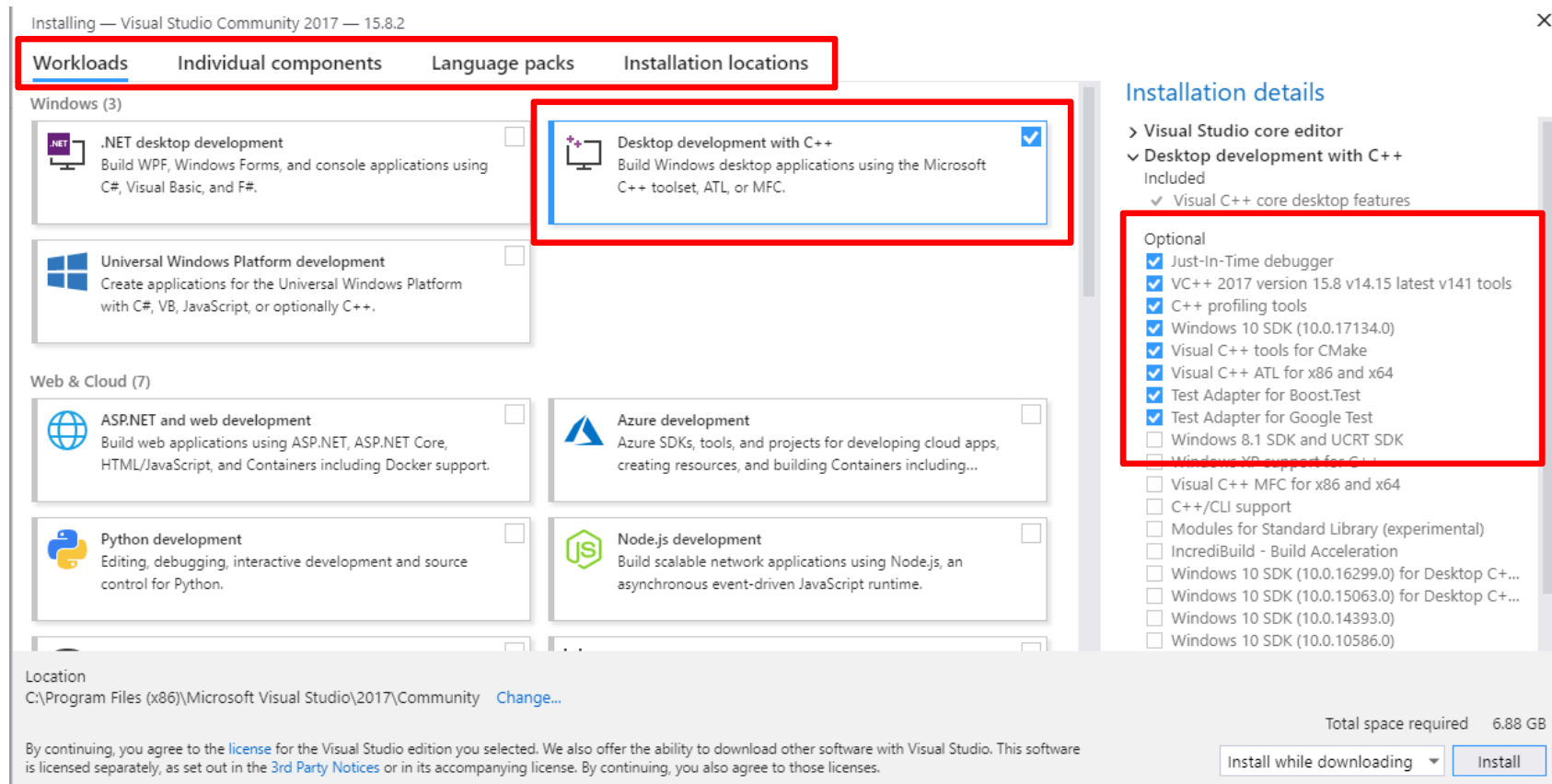
- Read and Check the Microsoft Privacy



- Check the Microsoft Privacy for installing the Visual Studio Community.

C Program Installation on Windows

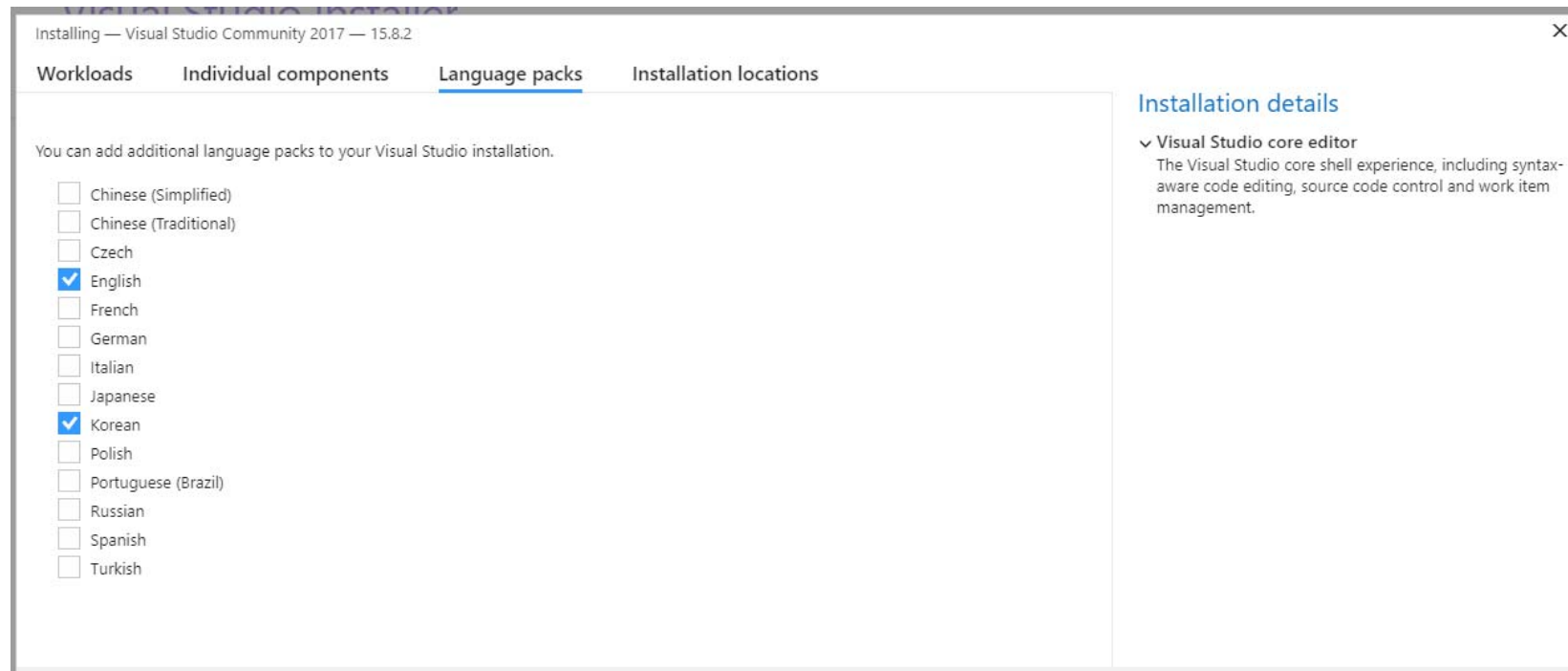
- Installation details



- Select the installation details.

C Program Installation on Windows

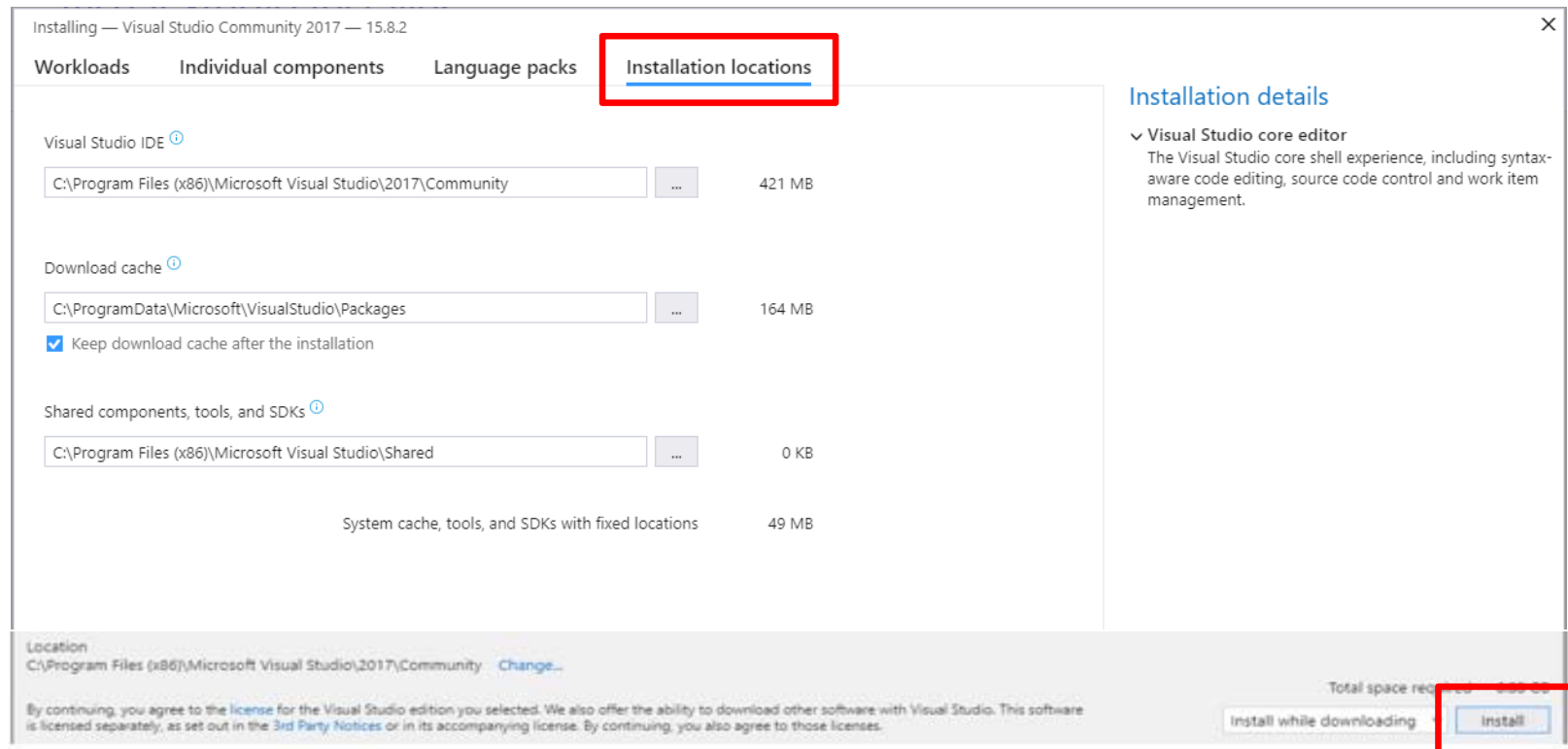
- Installation details



- Select the language you want to use.

C Program Installation on Windows

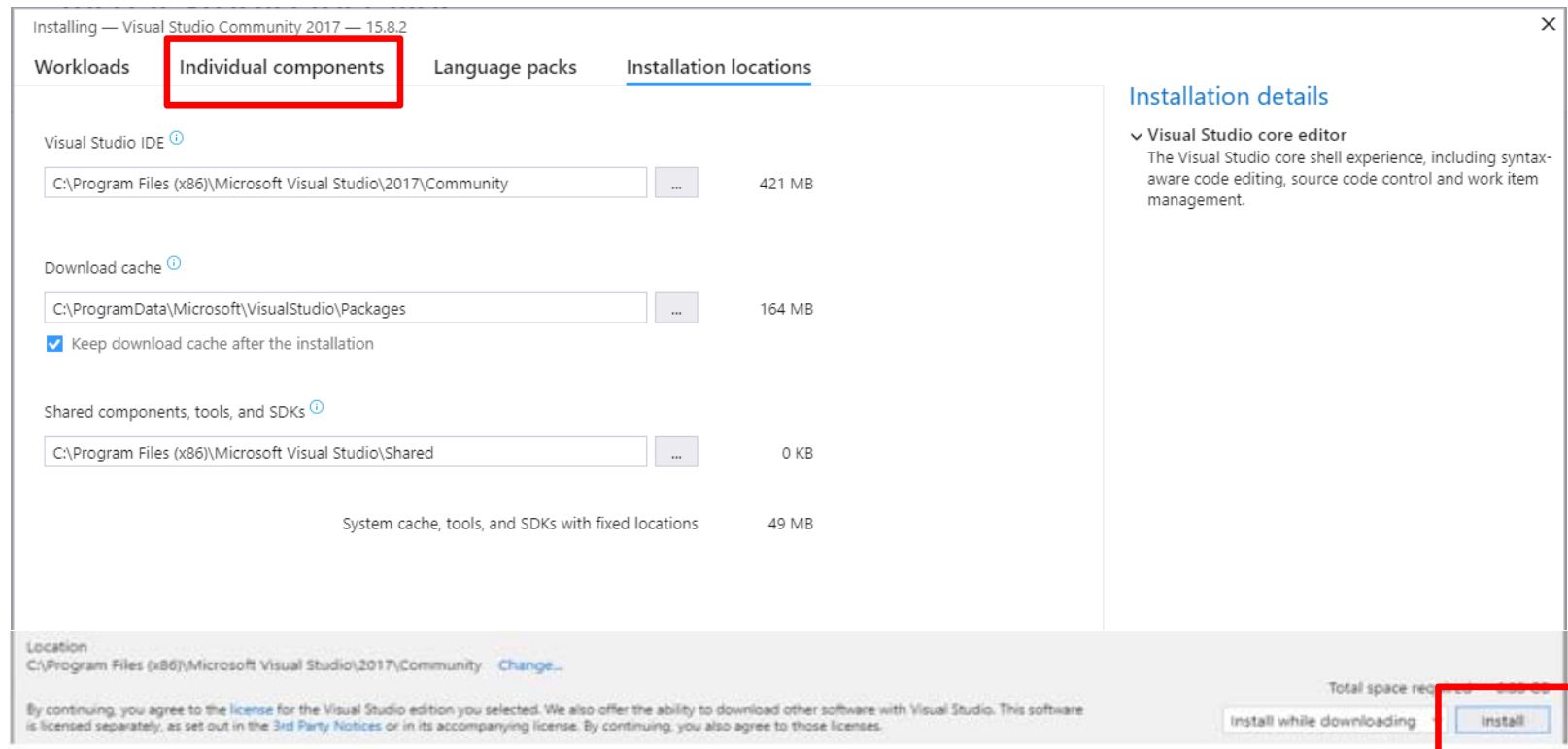
- Installation details



- Select the installation locations.
- Recommend using the default location.

C Program Installation on Windows

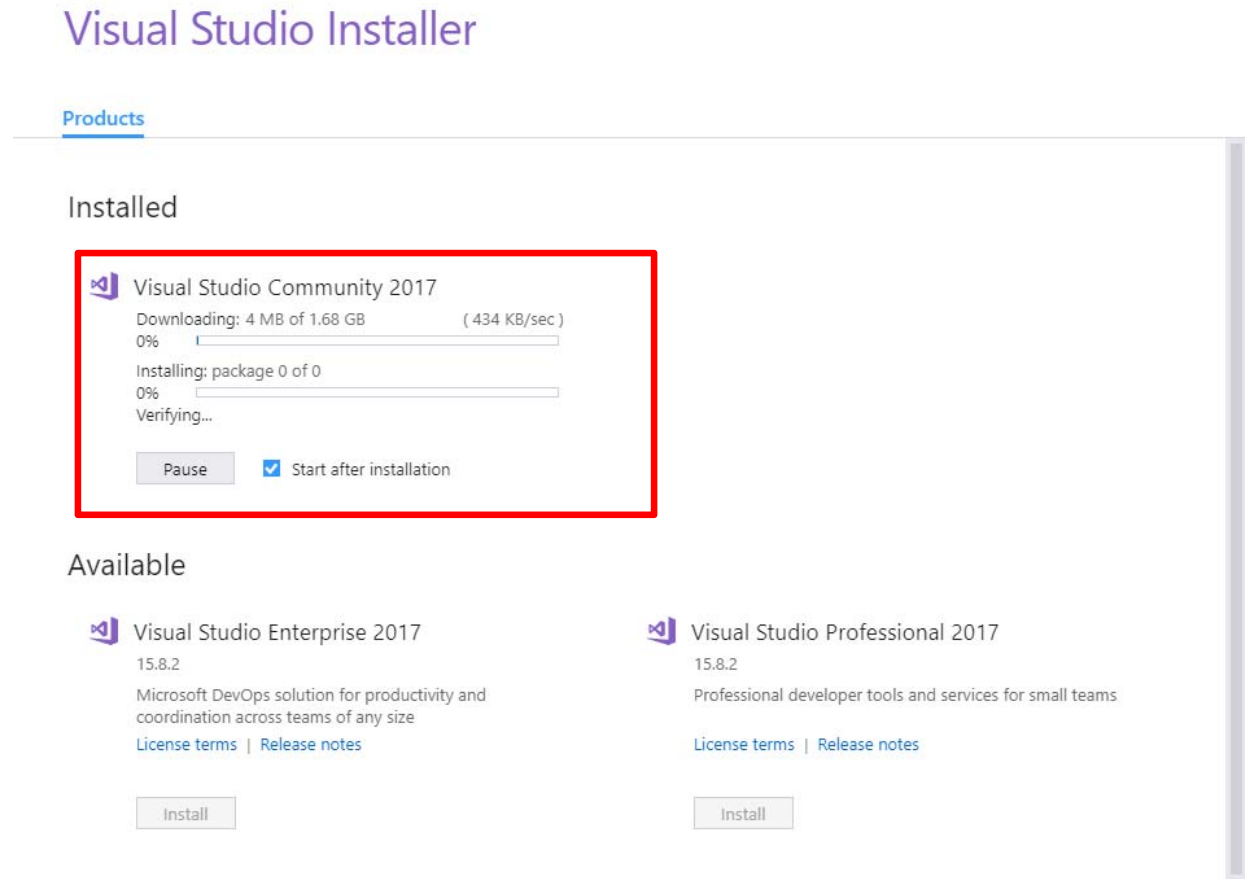
- Installation details



- Recommend skipping the individual components parts.
- Click the installation button.

C Program Installation on Windows

- Installation



- See the process of the installation


C Program Installation on Windows

- Installation

Visual Studio Installer

Products

Installed

 Visual Studio Community 2017

Downloading: 1.55 GB of 1.68 GB (10 MB/sec)

91%

Installing: package 26 of 374


1%

Microsoft.VisualStudio.Connected

Pause

☒ Start after installation

Available


 Visual Studio Enterprise 2017

15.8.2

Microsoft DevOps solution for productivity and coordination across teams of any size

[License terms](#) | [Release notes](#)

Install

 Visual Studio Professional 2017

15.8.2

Professional developer tools and services for small teams

[License terms](#) | [Release notes](#)

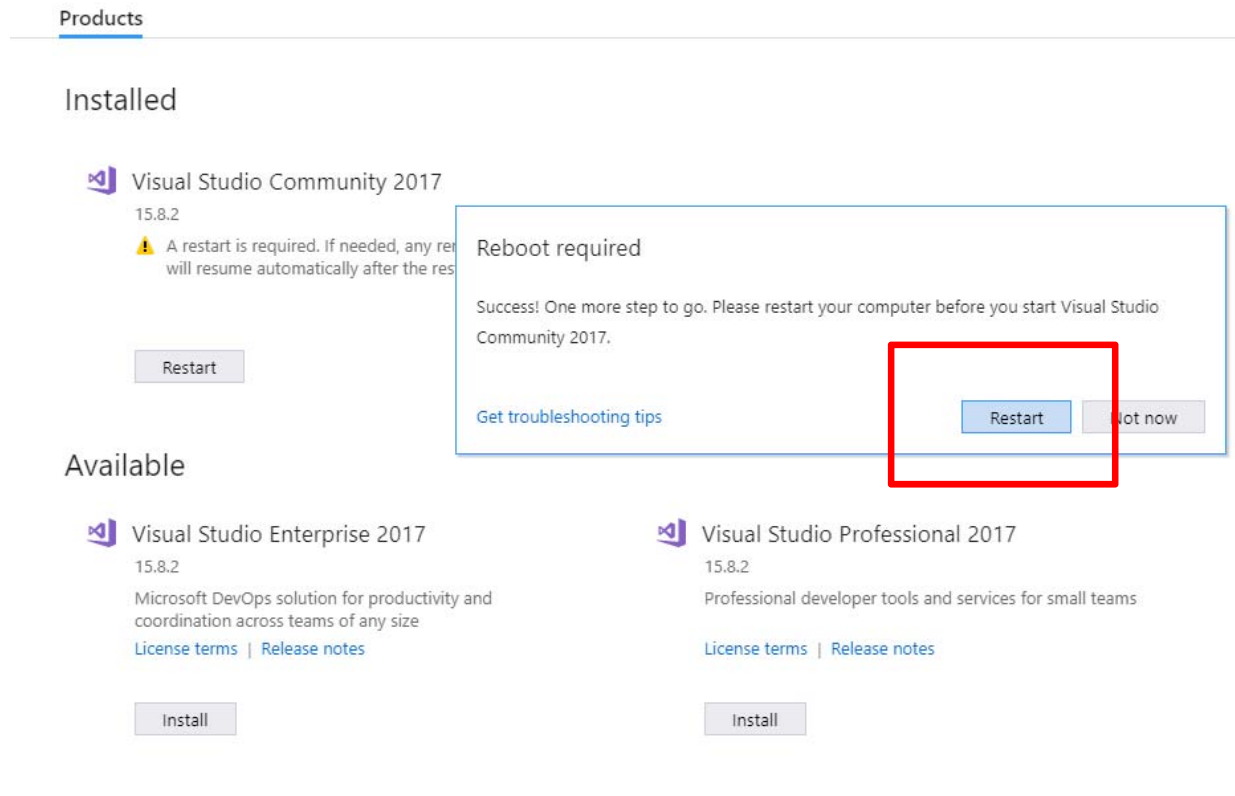
Install

- See the process of the installation

C Program Installation on Windows

- Restart your computer

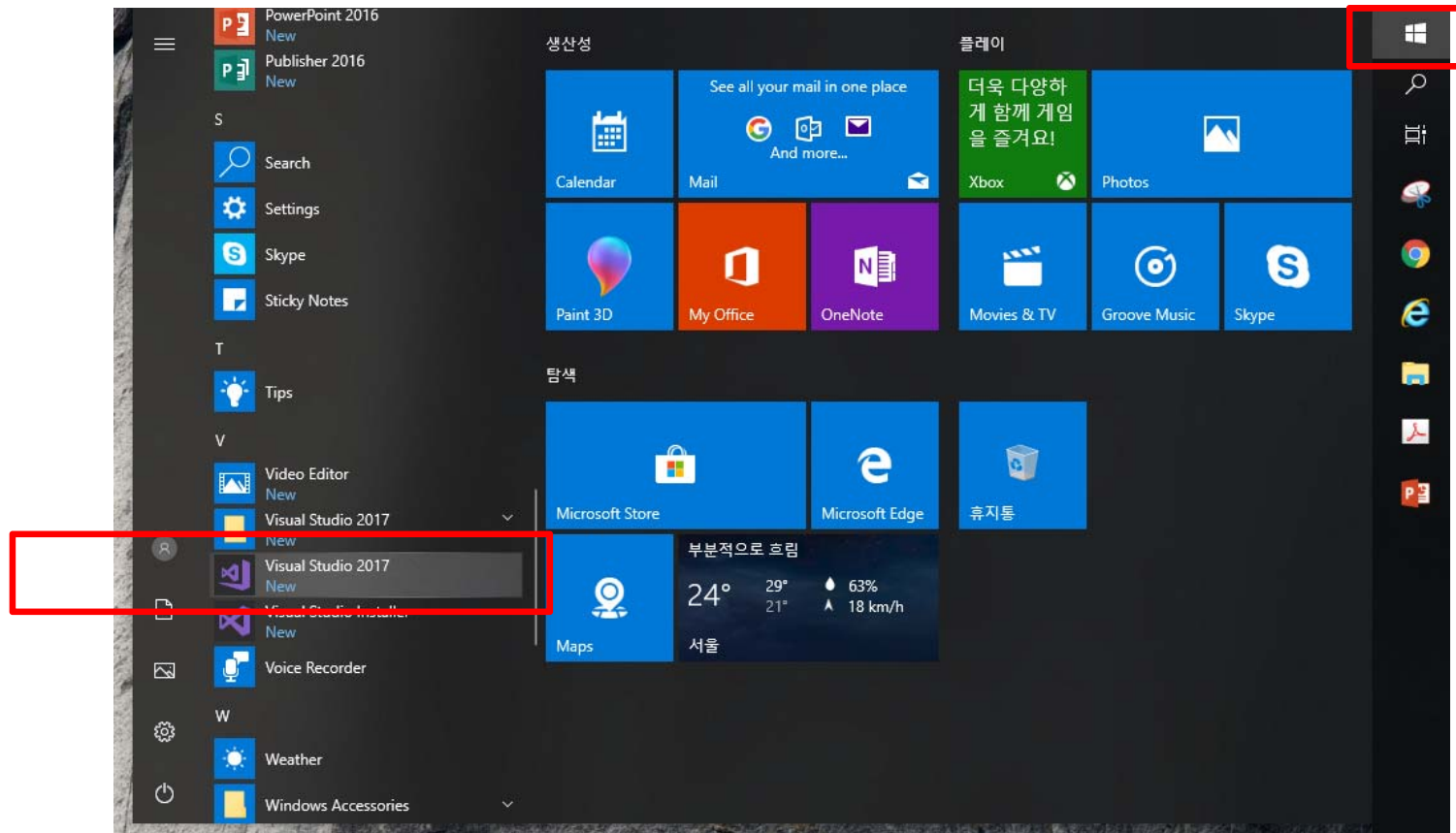
Visual Studio Installer



- Restart your computer after the process of the installation is complete.
- Click the restart button.

C Program Installation on Windows

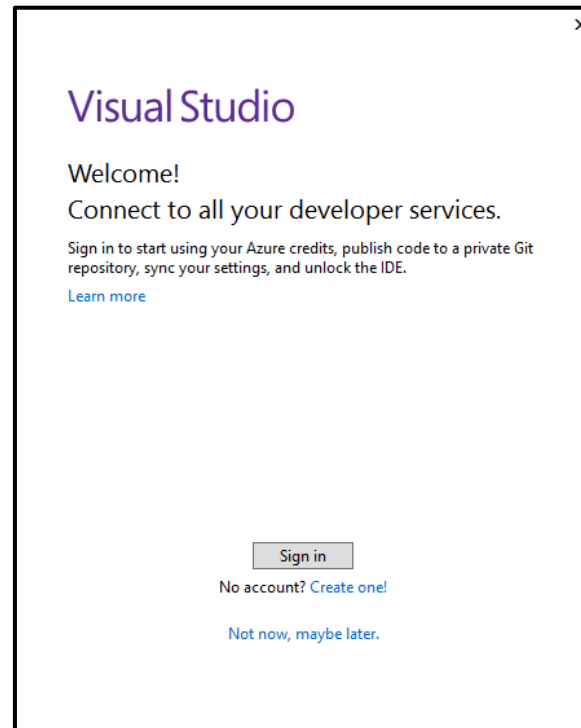
▪ Check the Visual Studio Installation



- Click the Windows button.
- Scroll down and search for the Visual Studio **2019**.
- Click the Visual Studio 2019

C Program Installation on Windows

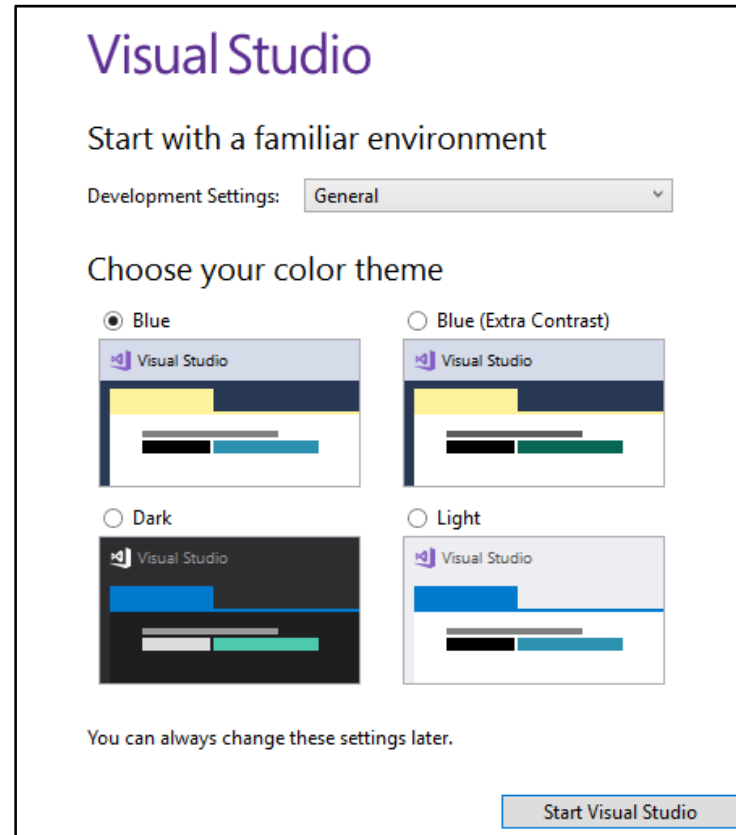
- Account & Sign in



- Directly sign in if you have an account for Microsoft Visual studio
- Create an account and sign in.

C Program Installation on Windows

- Set the development environment



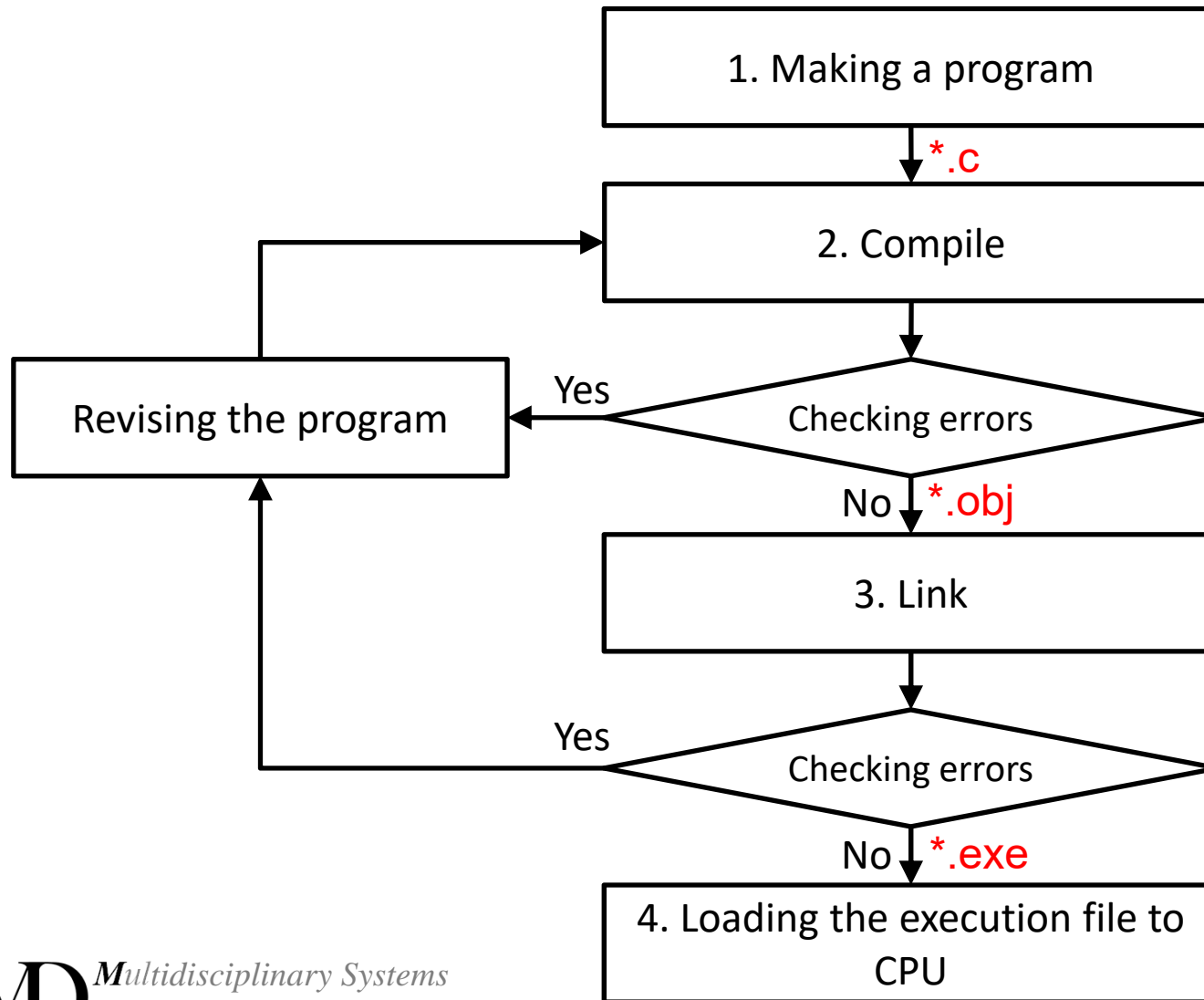
- Choose the development environment such as color.
- Complete the Installation of the Visual Studio for learning C language through all of these processes.

C Programming Process

- Theory
- Practice

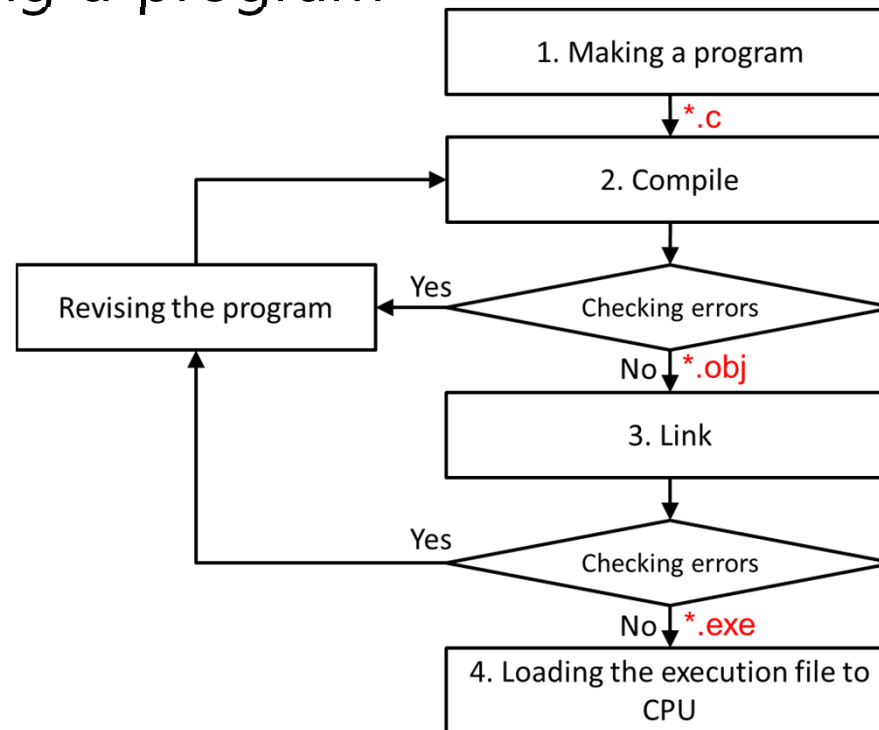
C Programming Process

- Flowchart of the C Programming Process



C Programming Process

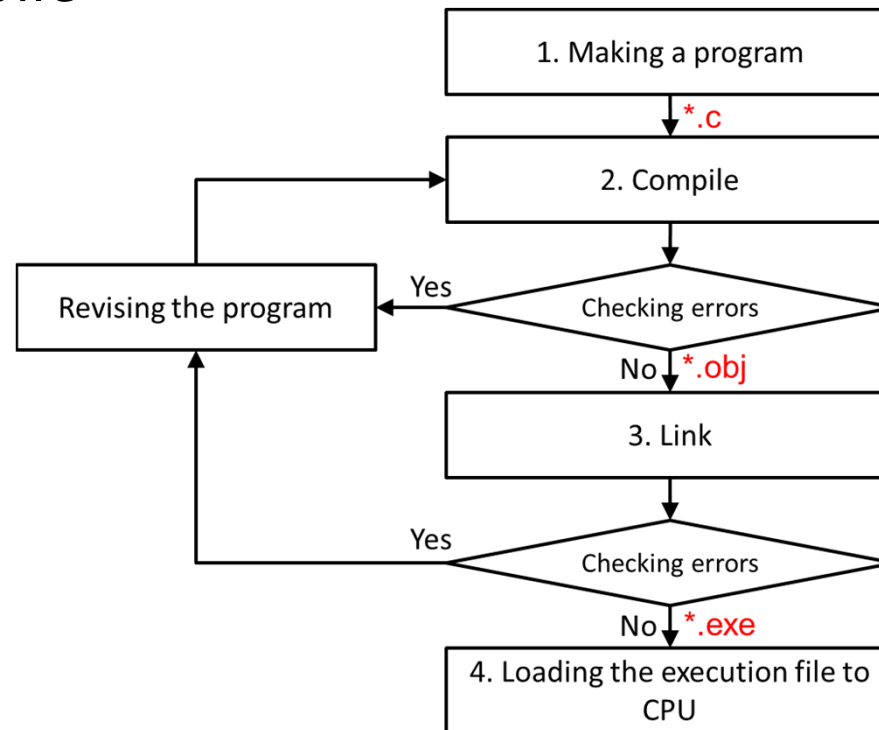
- 1. Making a program



- First, A programmer makes a program.

C Programming Process

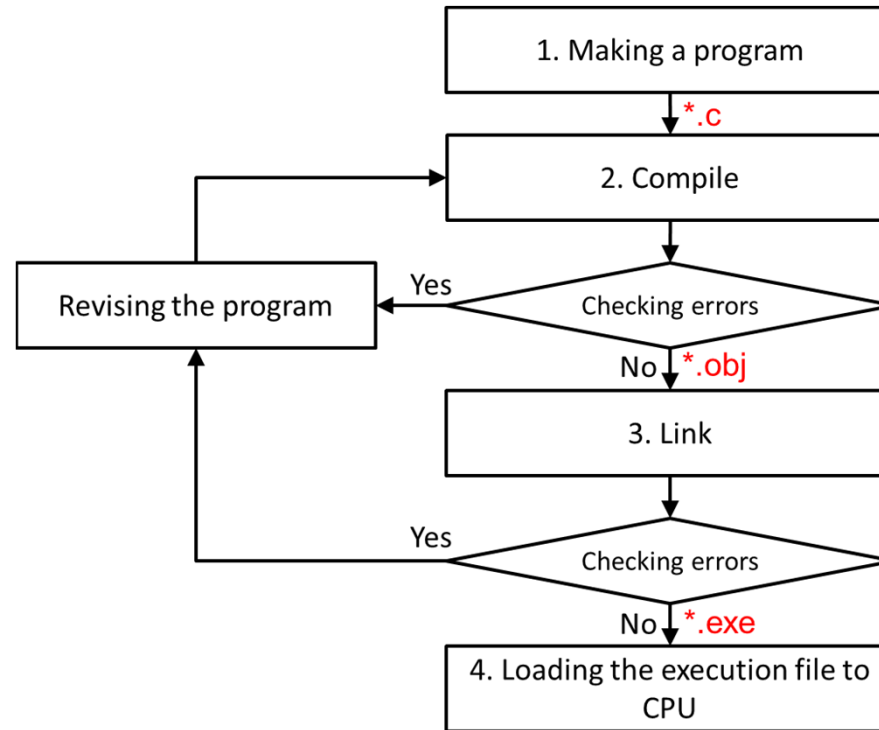
■ 2. Compile



- The compiler compiles the program and checks the program errors.
- If the program has the errors, the compiler will ask you to revise the program.
- But, If not, the compiler makes the object file of the program.

C Programming Process

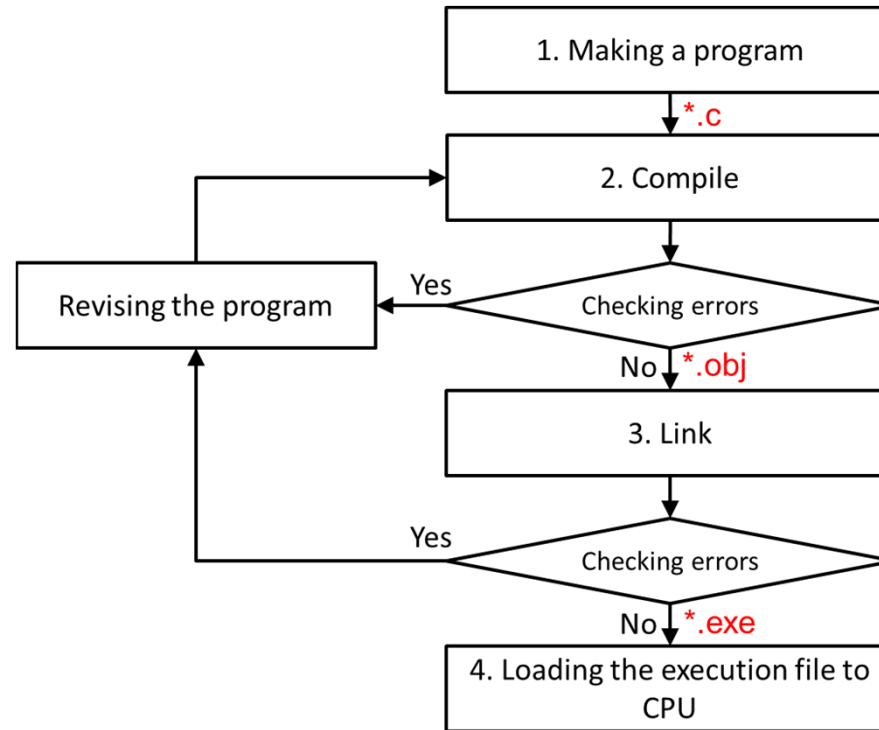
■ 3. Link



- The linker combines between the object file made by the compiler and standard library functions.
- In this process, if the error doesn't check, the linker makes the execution file.

C Programming Process

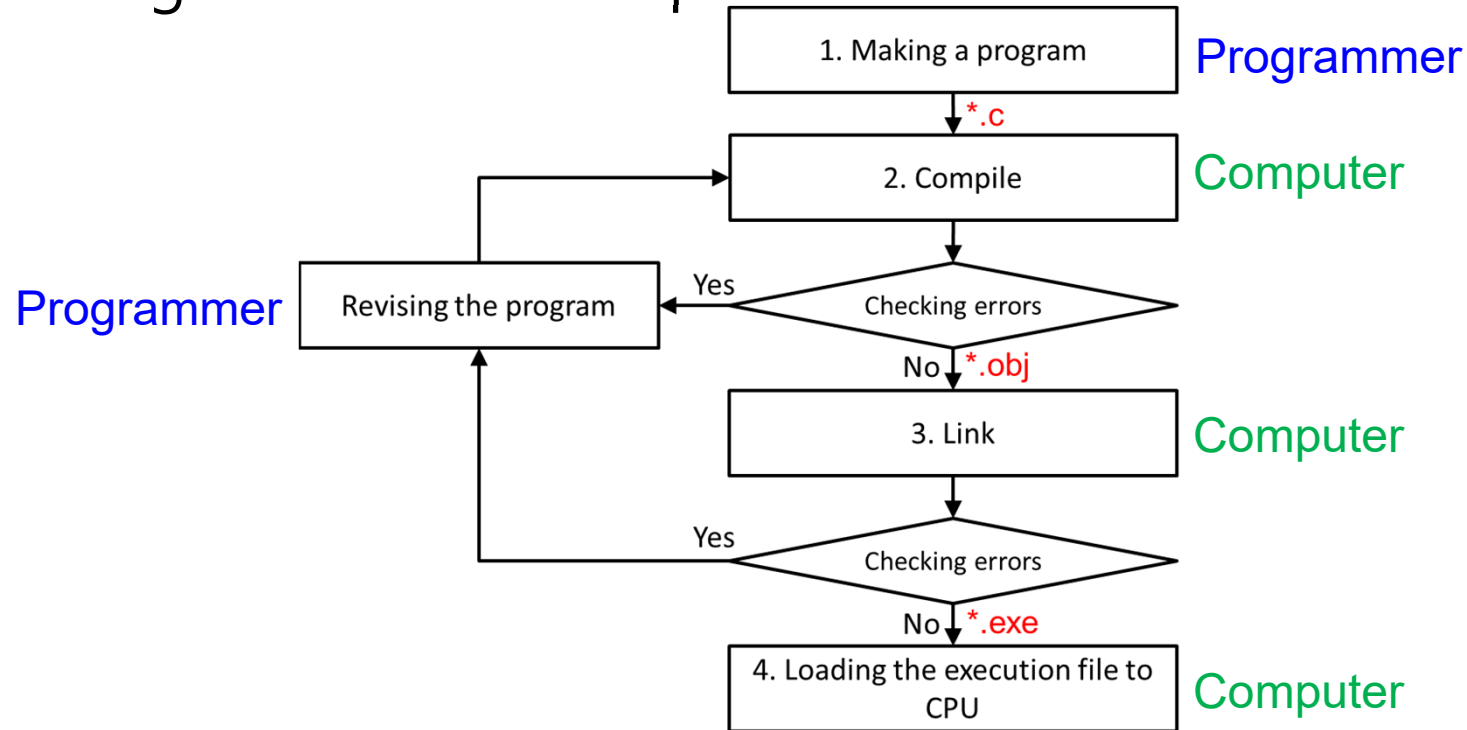
■ 4. Loader



- Finally, The Loader uploads the execution file to CPU (Central Processing Unit is a device that decode and execute instructions).
- Through this process, you can check the results.

C Programming Process

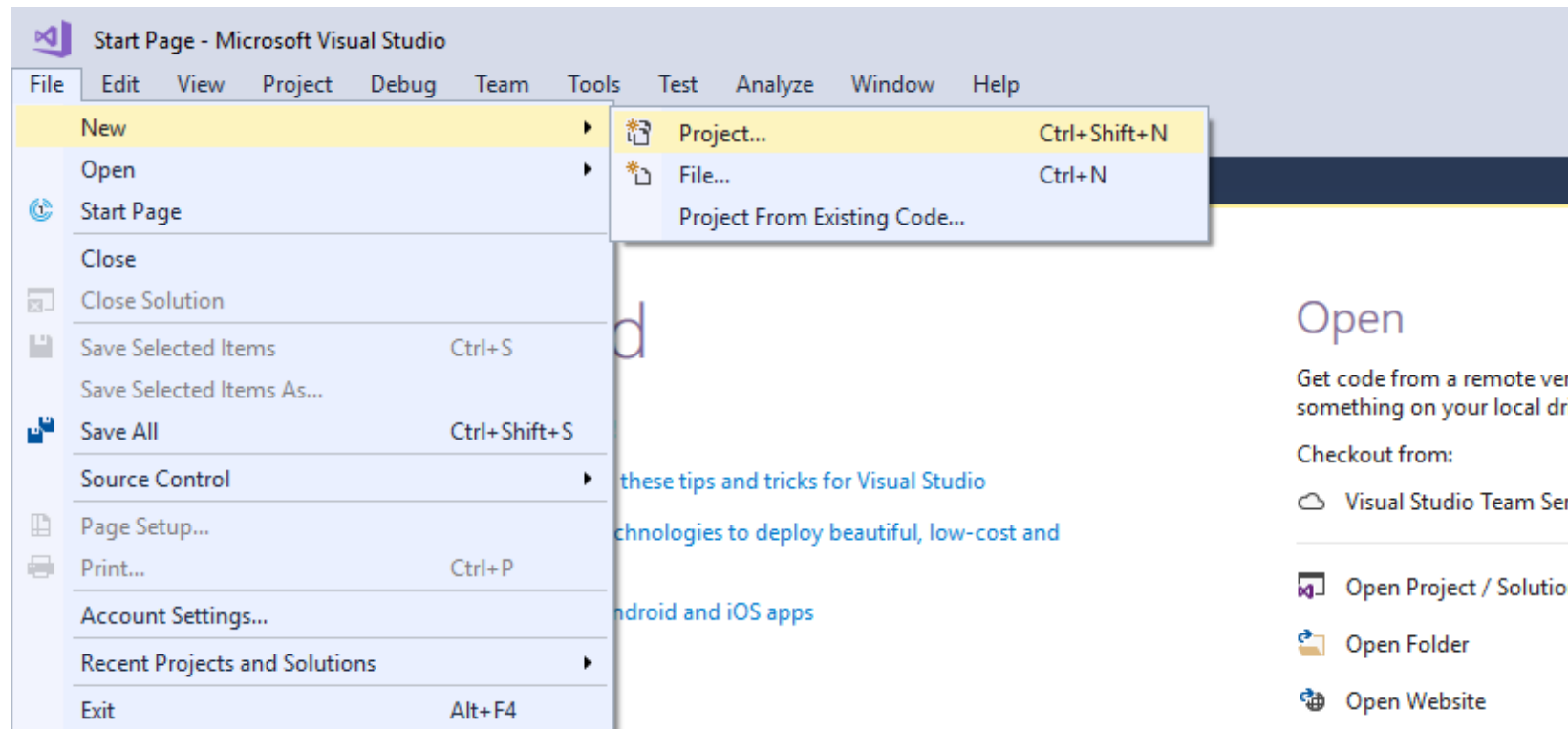
■ Programmer VS Computer



- The programmer makes a program and revises the errors.
- The other works are conducted by the computer.

C Program Installation on Windows

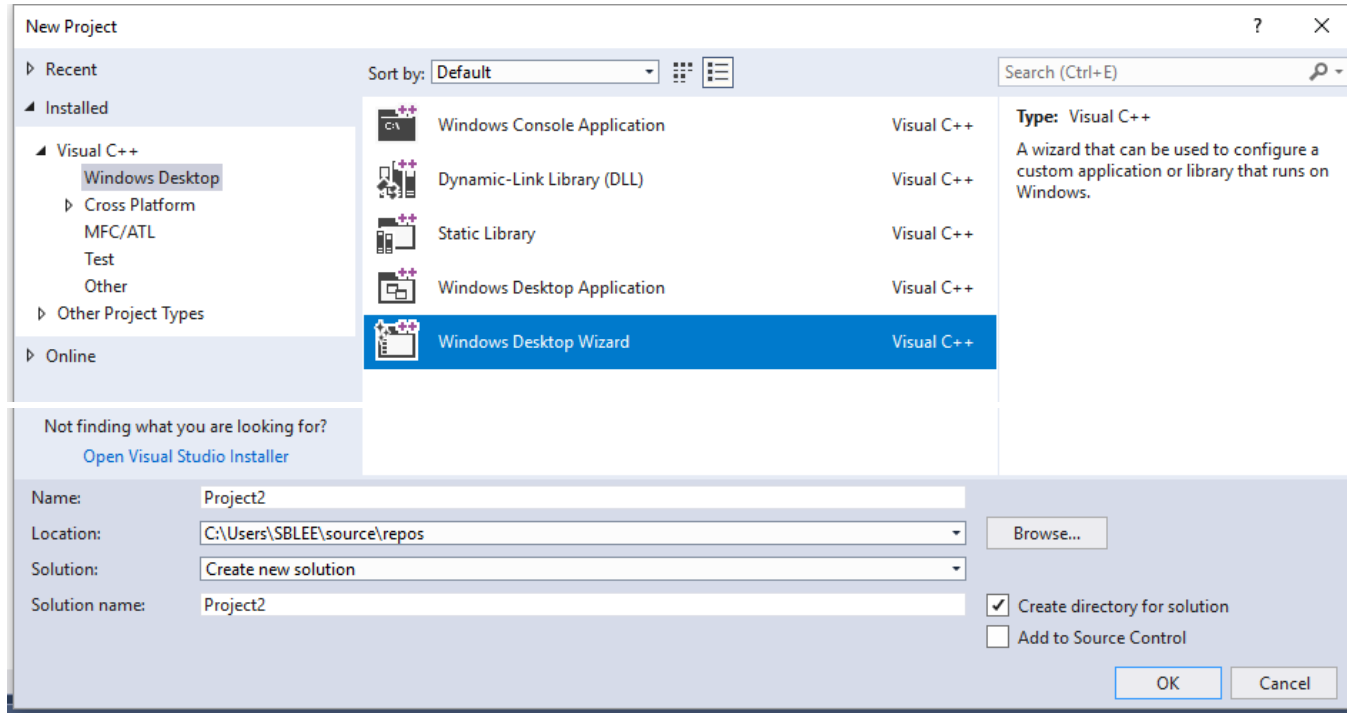
- Making a program



- Open the Visual Studio 2019.
- Make the solution and project

C Program Installation on Windows

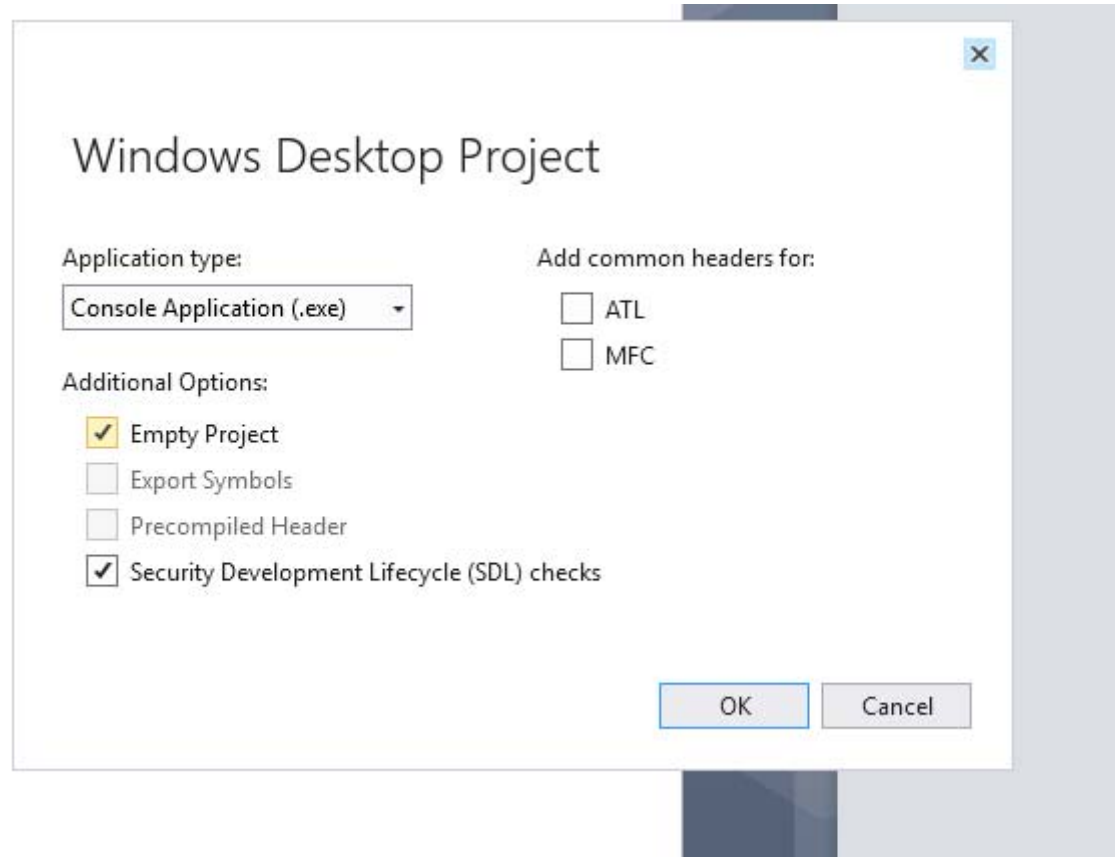
- Making a program



- You should choose the “Window Desktop Wizard” in the Visual C++ in VS Community 2017.
- Write the name of the project and select the location.
- Click the OK button.

C Program Installation on Windows

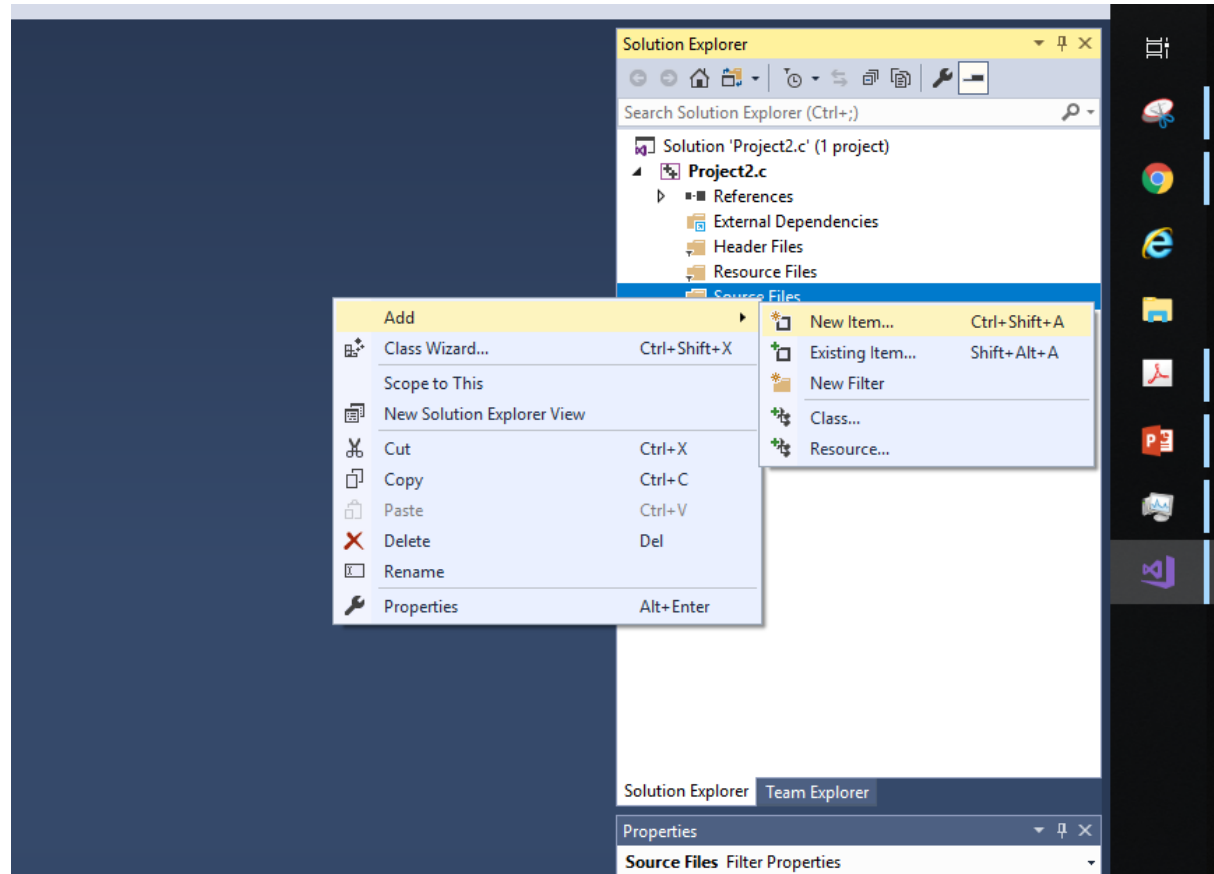
- Making a program



- You should check the empty project.
- Click the OK button.
- The Computer creates the solution and project for C programming.

C Program Installation on Windows

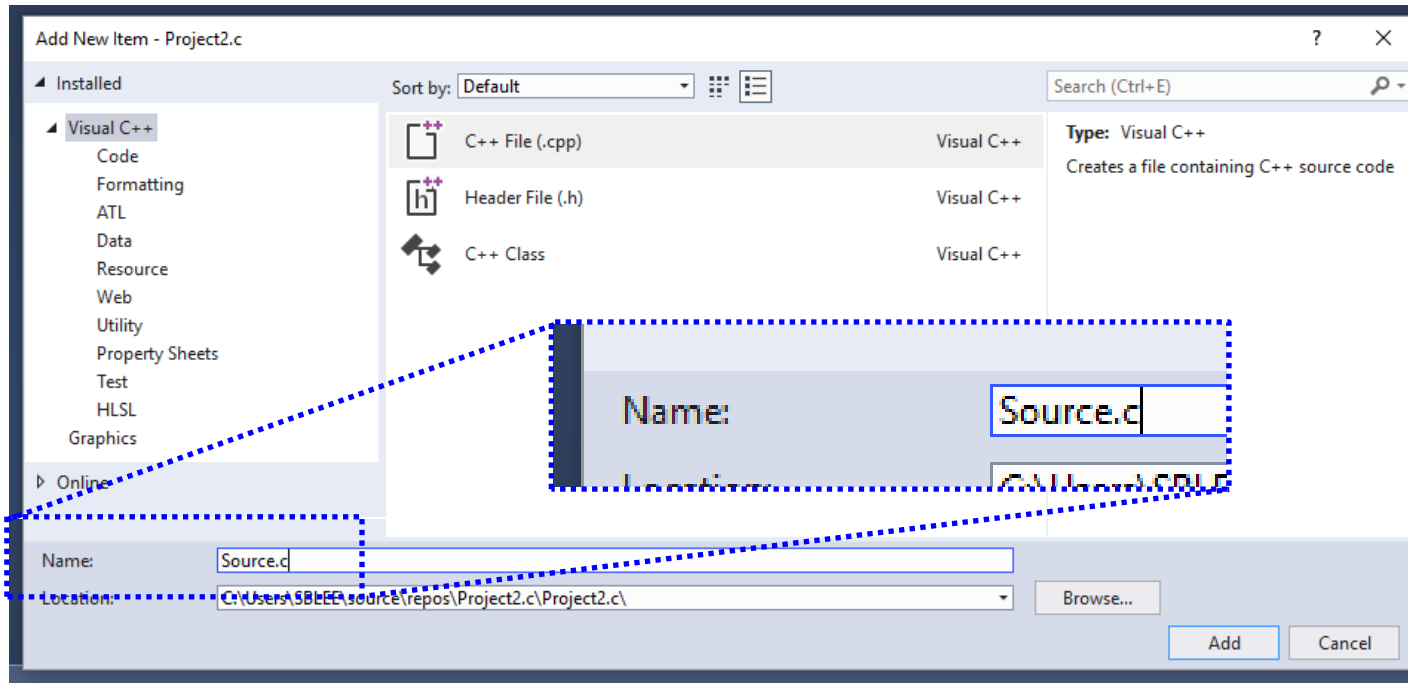
- Making a program



- Find the source files in the solution explorer.
- Click the right mouse button on the source files.
- And select the Add and New Item.

C Program Installation on Windows

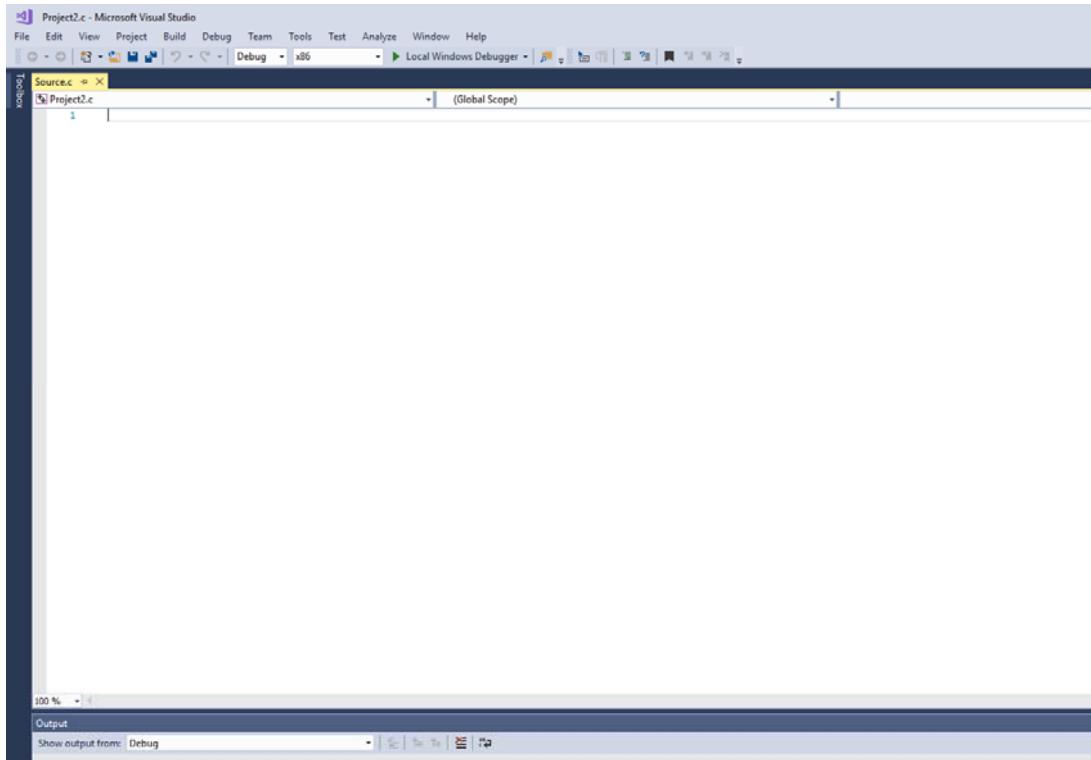
- Making a program



- Select the C++ Files.
- Write the Name with extension .c and select the location.
- After finish them, click the Add button.

C Program Installation on Windows

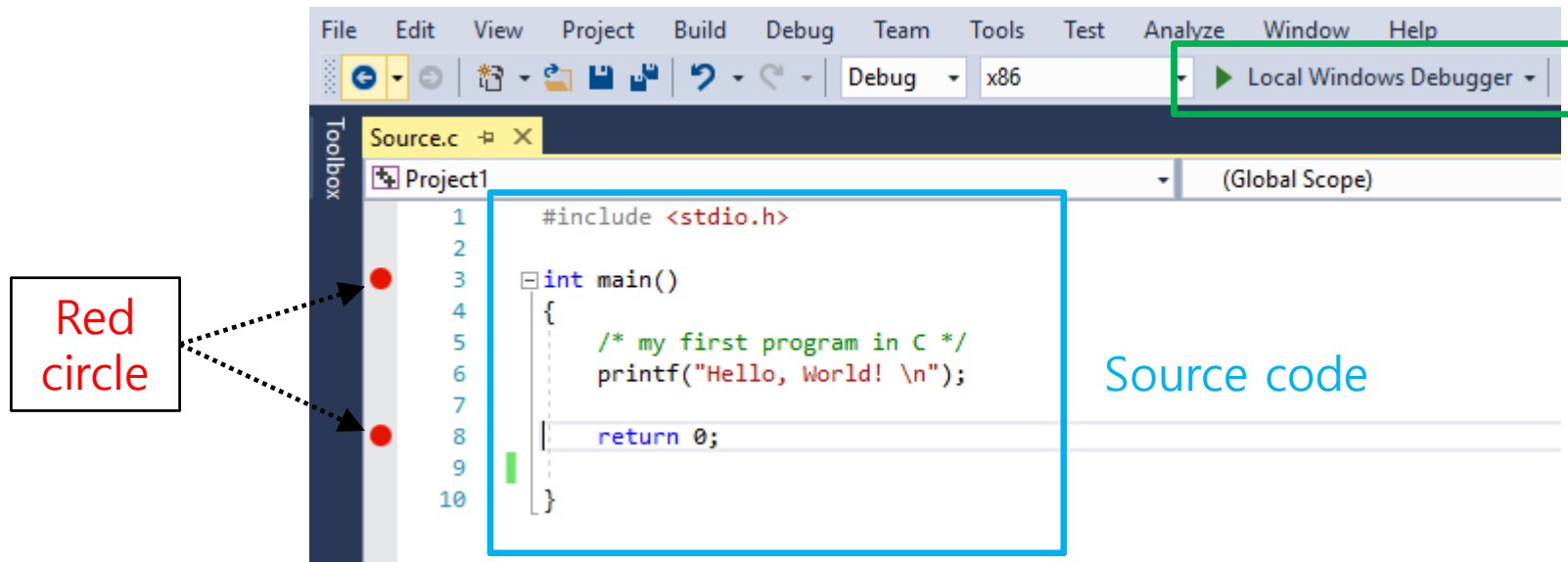
- Making a program



- The Windows is changed to write your program.
- Through this process, the basic environment you can make your program is ready.

C Program Installation on Windows

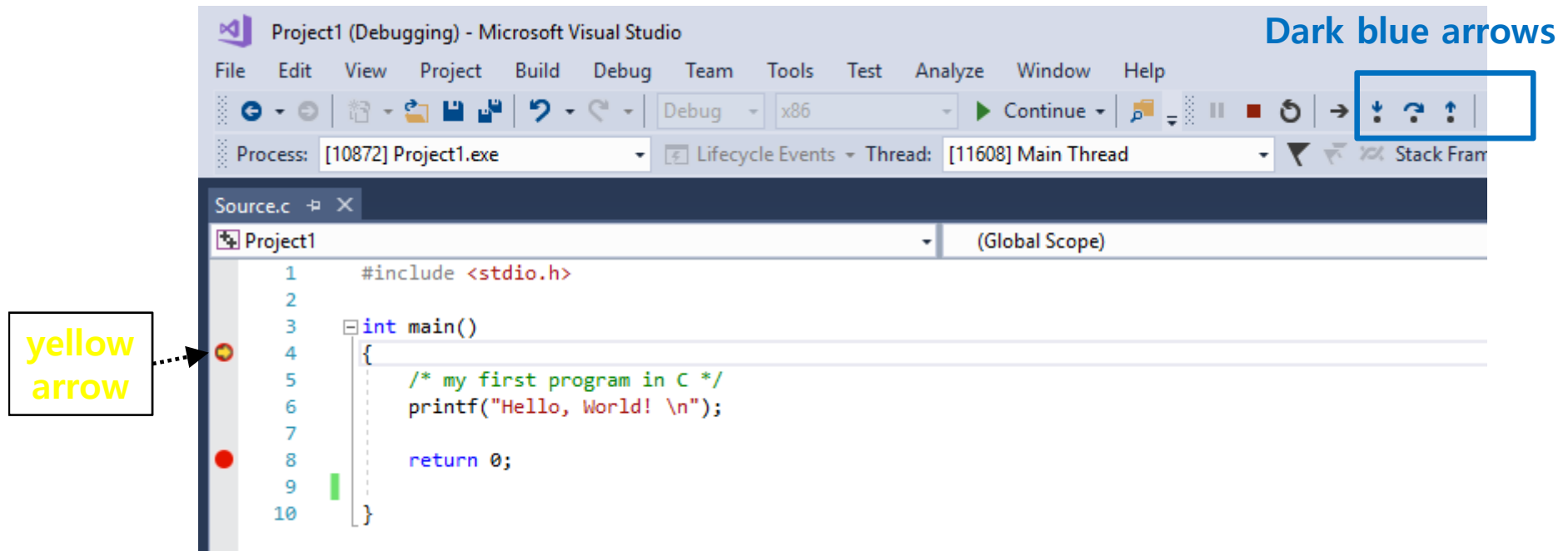
▪ C Hello World Example



- Write the above **source code** in your source file (or window).
- Click the left mouse button on the gray bar. Then, the **red circle** will be created on the gray bar.
- And then, click the **Local Windows Debugger** button in order to execute your program.

C Program Installation on Windows

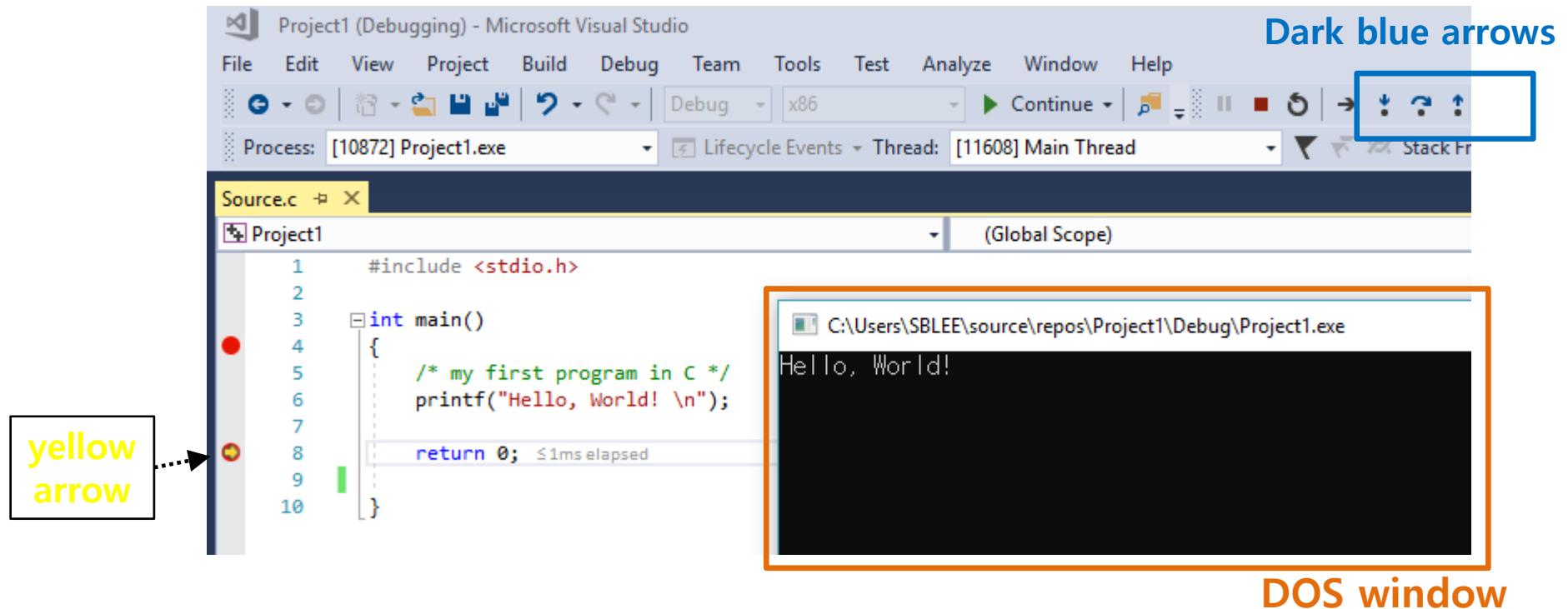
▪ C Hello World Example



- The window is changed like this.
- The yellow arrow indicated that the program is conducted until here (i.e. the compiler decode the code until here).
- The dark blue arrows are used to allow the compiler to move to the next code.

C Program Installation on Windows

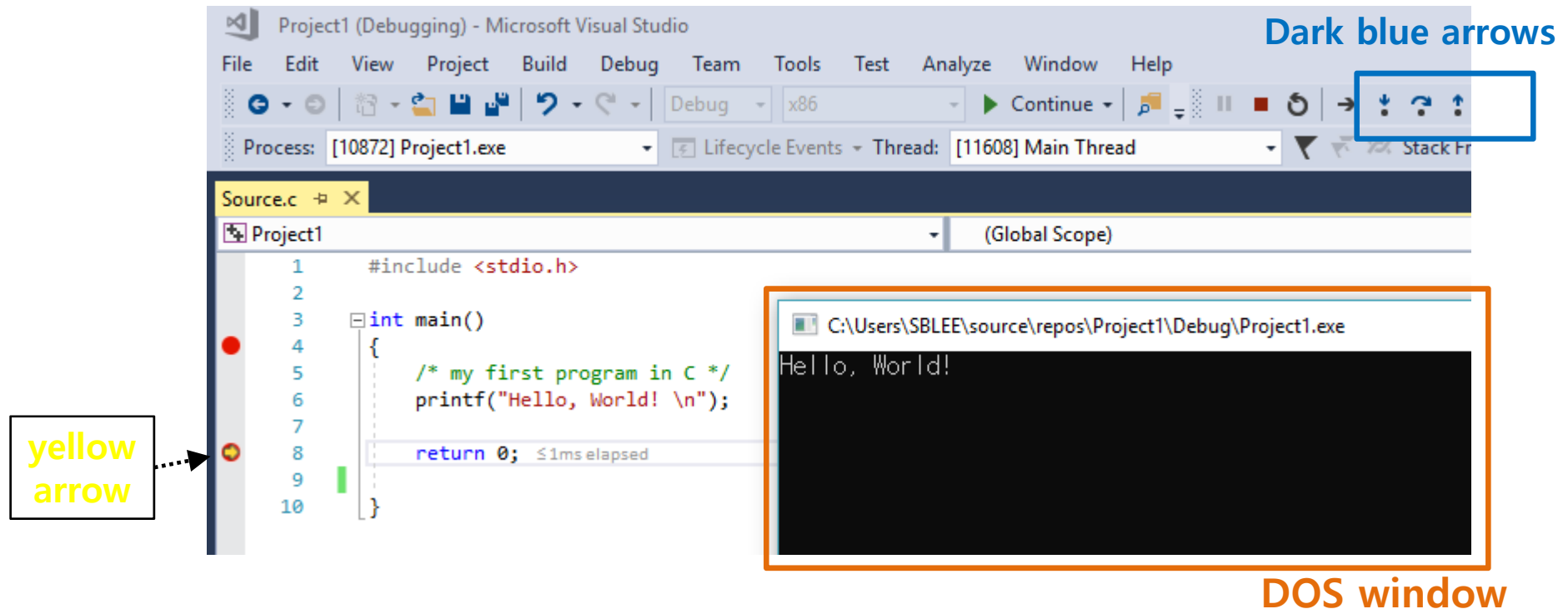
■ C Hello World Example



- If you click the dark blue arrow, the yellow arrow goes down.
- The **printf** function outputs the "Hello world" on the DOS window.
- The output of the phrase "Hello world" on the DOS window is the execution result of this program.

C Program Installation on Windows

■ C Hello World Example



- As you click the dark blue arrow, the yellow arrow goes down.
- The **printf** function outputs the phrase of "Hello, world!" on the DOS window.
- The output of the phrase of "Hello, world!" on the DOS window is the result of the execution of this program.
- Through this step-by-step process, you can debug and revise your code.IV.

C Program Installation on Windows

- Conclusion

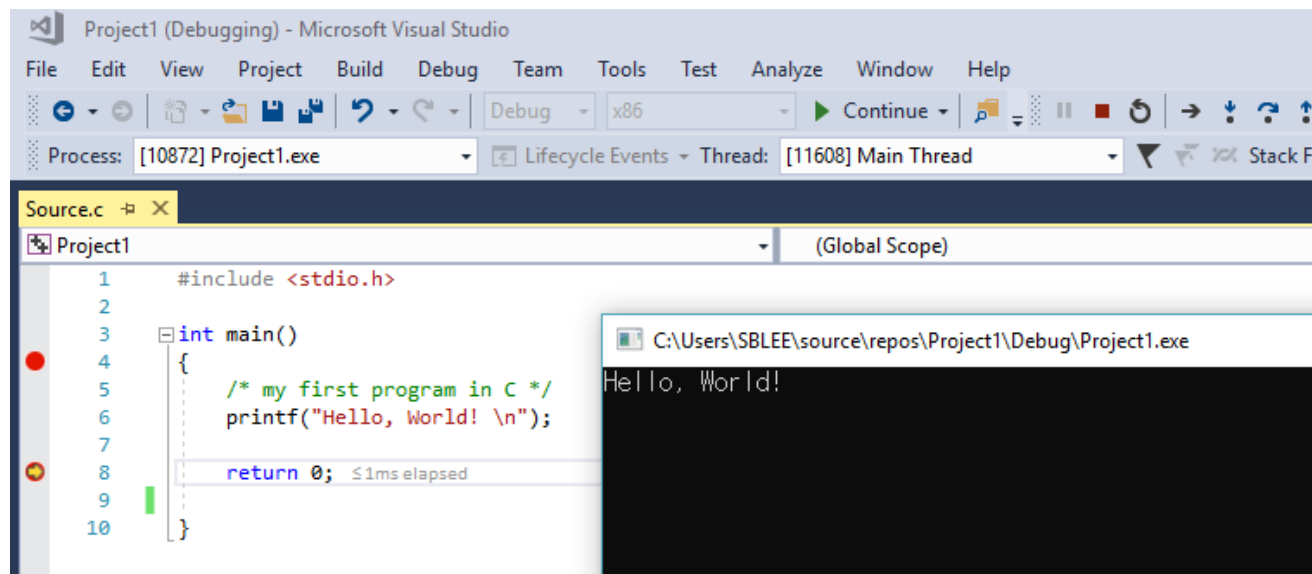
- We learned the installation method of the Visual Studio Community on Windows.
- We learned the basic of creating a program and debugging it.

Future works (in Self-coding class)

- Practice

Self-coding class

- Install the Visual Studio Community.
- Review and Practice the contents covered in the lecture class.
- Submit the following images or results, that is the result of the execution of the examples, as your homework.



The screenshot displays the Microsoft Visual Studio IDE in a debugging state. The title bar reads 'Project1 (Debugging) - Microsoft Visual Studio'. The menu bar includes File, Edit, View, Project, Build, Debug, Team, Tools, Test, Analyze, Window, and Help. The toolbar shows various debugging icons, and the status bar indicates 'Process: [10872] Project1.exe' and 'Thread: [11608] Main Thread'. The 'Source.c' file is open, showing the following code:

```
1  #include <stdio.h>
2
3  int main()
4  {
5      /* my first program in C */
6      printf("Hello, World! \n");
7
8      return 0;
9  }
```

The output window, titled 'C:\Users\SBLEE\source\repos\Project1\Debug\Project1.exe', displays the result of the program's execution: 'Hello, World!'.

Homework guideline

E-mail title: 1st homework in C language class by 2019***** (your student ID)↵

↵

File title: 1st homework in C language class by 2019***** (your student ID)↵

↵

File extension: docx or doc (MS word file)↵

↵

Essential information required in the file (docx):↵

Title ↵	1 st homework in C language class↵			↵
Student ID (Author) ↵	↵	Date ↵	↵	↵

↵

Example. ↵

1. Problem definition↵
 - A. Explain the solution. ↵
2. Problem definition↵
 - A. Explain the solution. ↵
3. Problem definition↵
 - A. Explain the solution. ↵
4. Problem definition↵
 - A. Explain the solution. ↵

Thank You

(seungbeop.lee@gmail.com)