Object Oriented programming and software engineering – Lab 1

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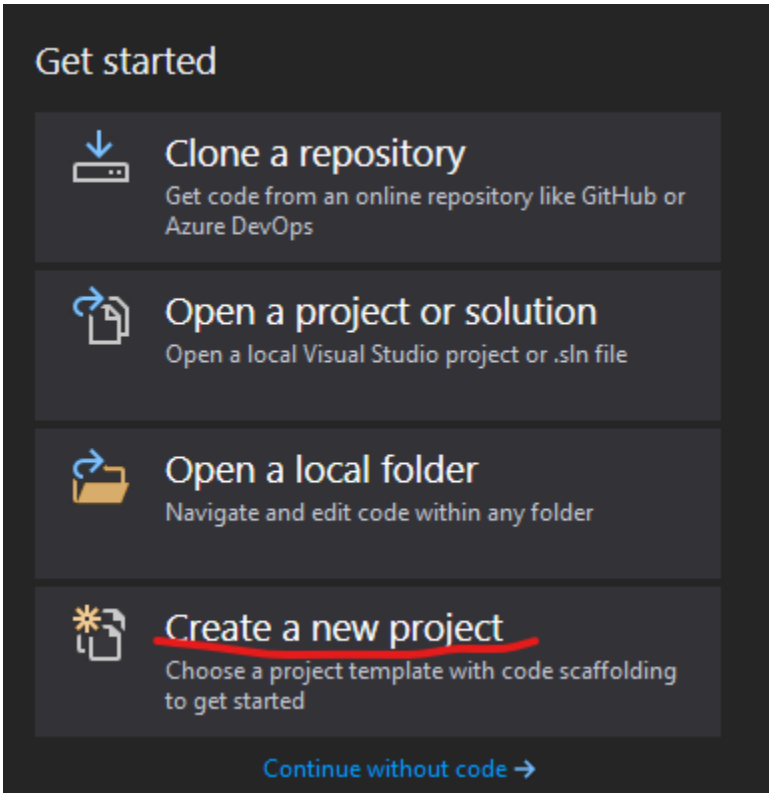
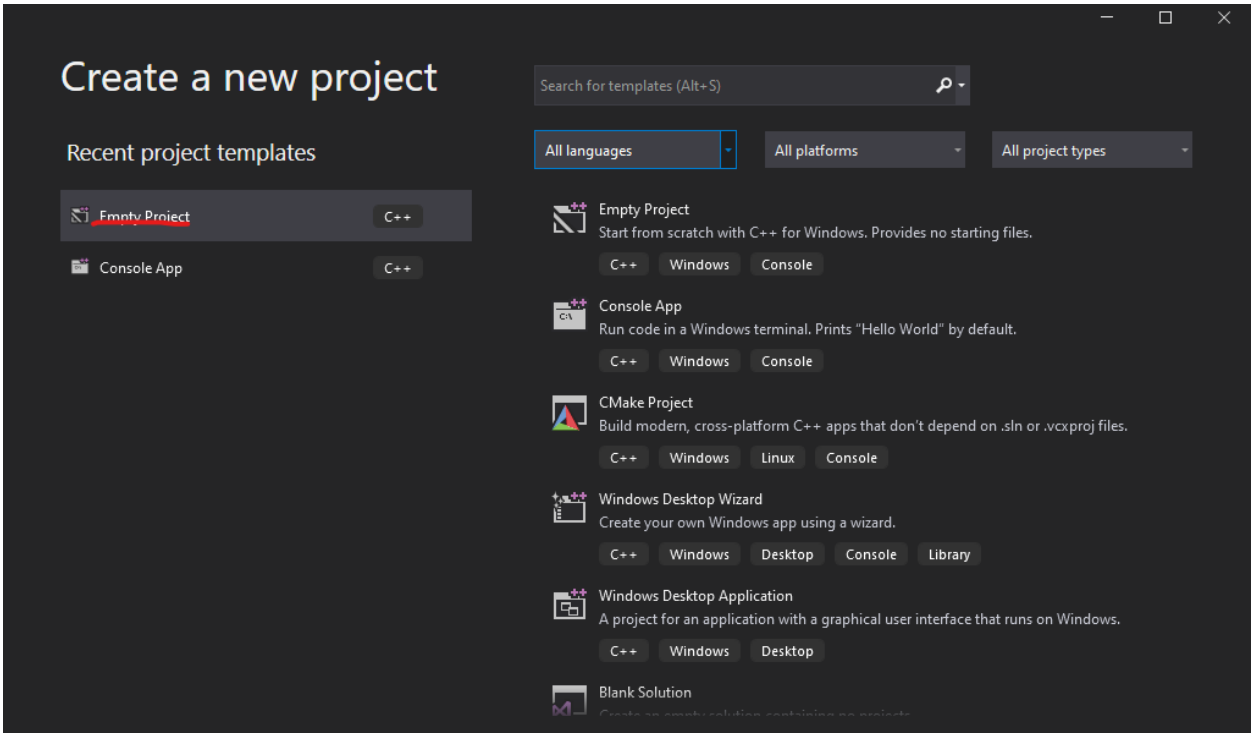
1. Download and install Microsoft Visual Studio Community:
Visual Studio 2022 Community Edition – Download Latest Free Version

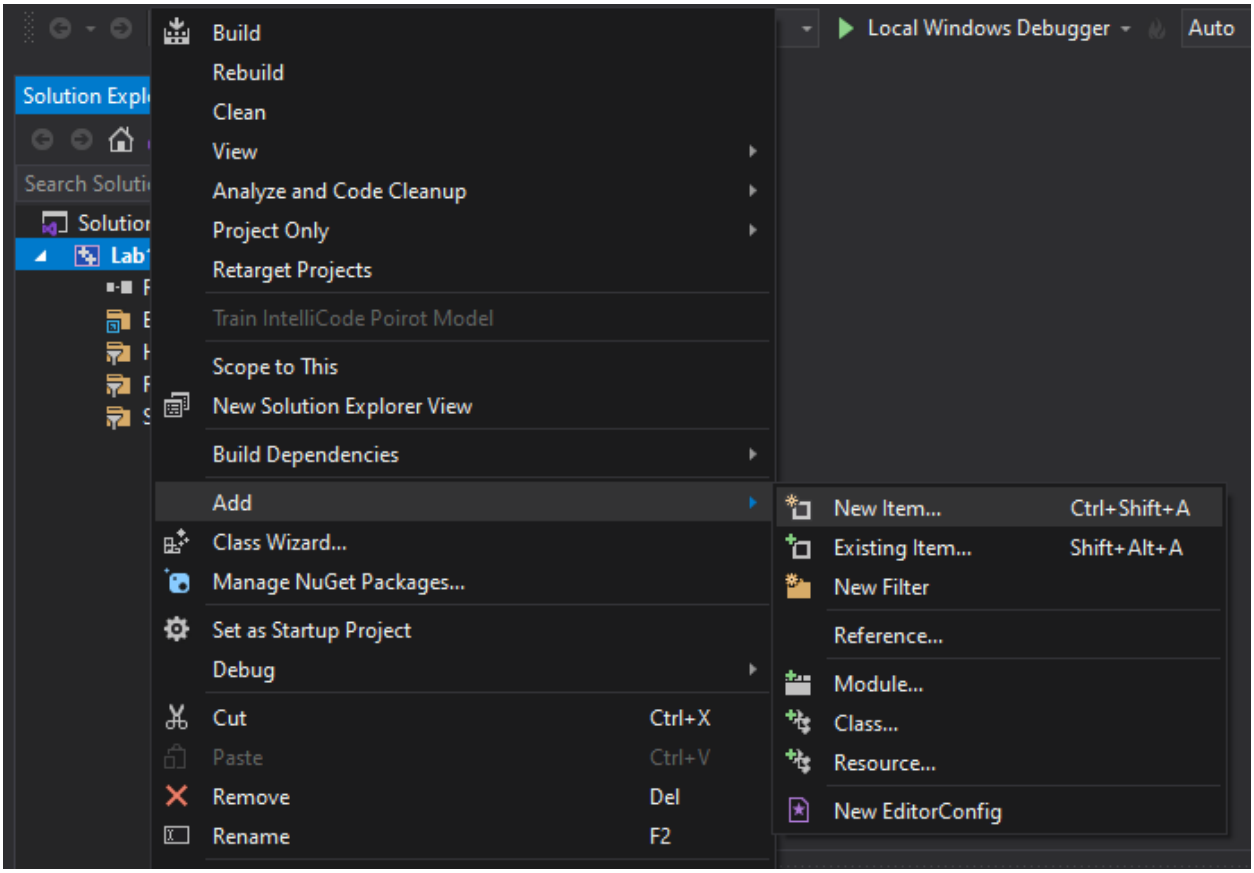
2. During the installation, online C++ compiler to start writing programs: Online C++ Compiler - Programiz. Save code from your programs – it will be needed later.

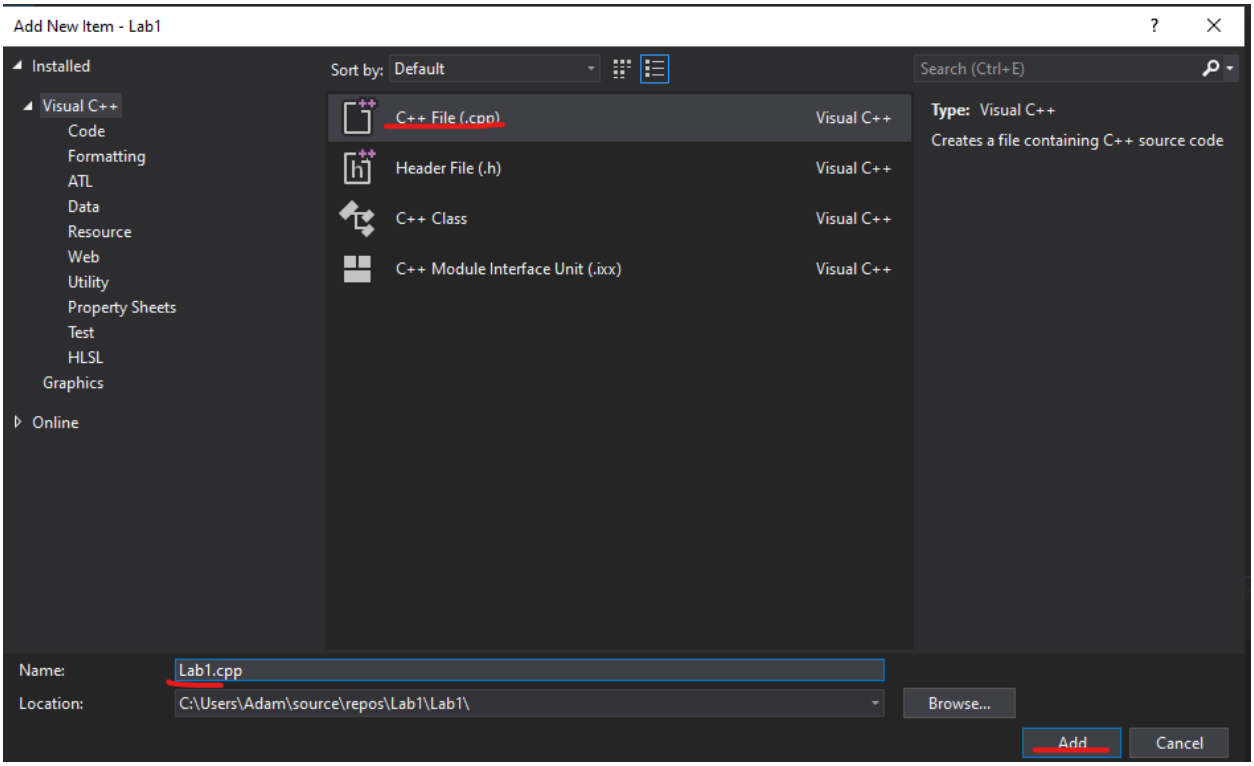
Remember not to refresh the page, so that your code does not get lost.

3. After the Microsoft Visual Studio is installed, create a new project and add C++ file to it.

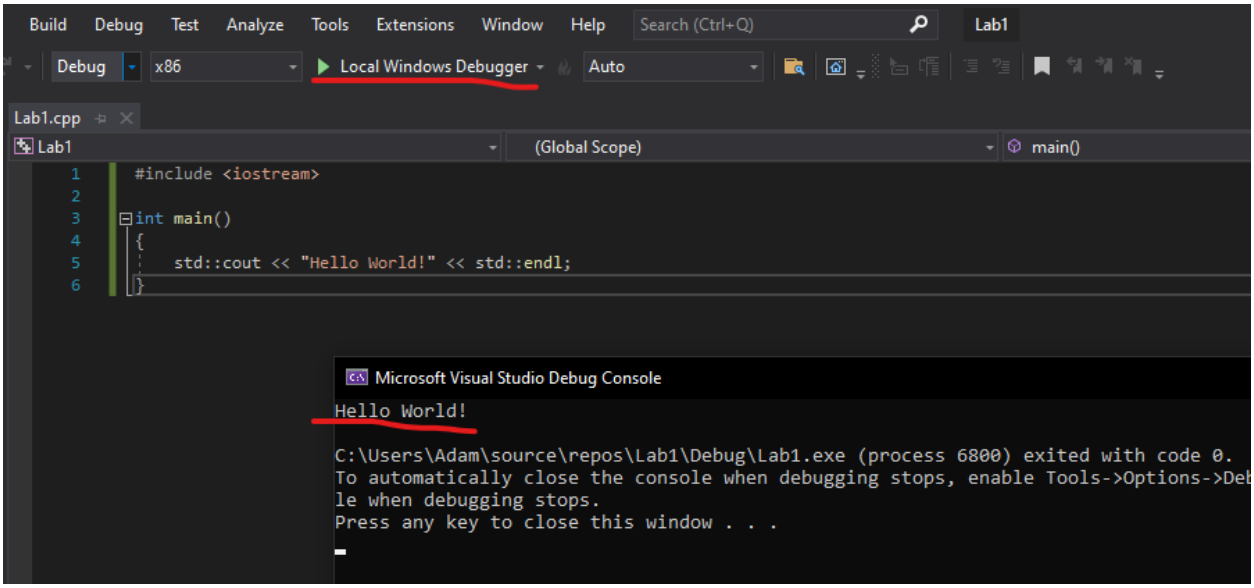



Create a new project
Search for templates (Alt+S)
Recent project templates
Empty Project C++
Console App C++
All languages
All platforms
All project types
Empty Project
Start from scratch with C++ for Windows. Provides no starting files.
C++ Windows Console
Console App
Run code in a Windows terminal. Prints "Hello World" by default.
C++ Windows Console
CMake Project
Build modern, cross-platform C++ apps that don't depend on .sln or .vcxproj files.
C++ Windows Linux Console
Windows Desktop Wizard
Create your own Windows app using a wizard.
C++ Windows Desktop Console Library
Windows Desktop Application
A project for an application with a graphical user interface that runs on Windows.
C++ Windows Desktop
Blank Solution

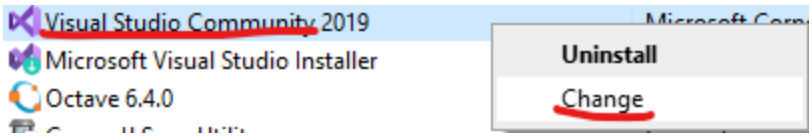

Local Windows Debugger
Auto
Build
Rebuild
Clean
View
Analyze and Code Cleanup
Project Only
Retarget Projects
Train IntelliCode Poirot Model
Scope to This
New Solution Explorer View
Build Dependencies
Add
Class Wizard...
Manage NuGet Packages...
Set as Startup Project
Debug
Cut Ctrl+X
Paste Ctrl+V
Remove Del
Rename F2
New Item... Ctrl+Shift+A
Existing Item... Shift+Alt+A
New Filter
Reference...
Module...
Class...
Resource...
New EditorConfig



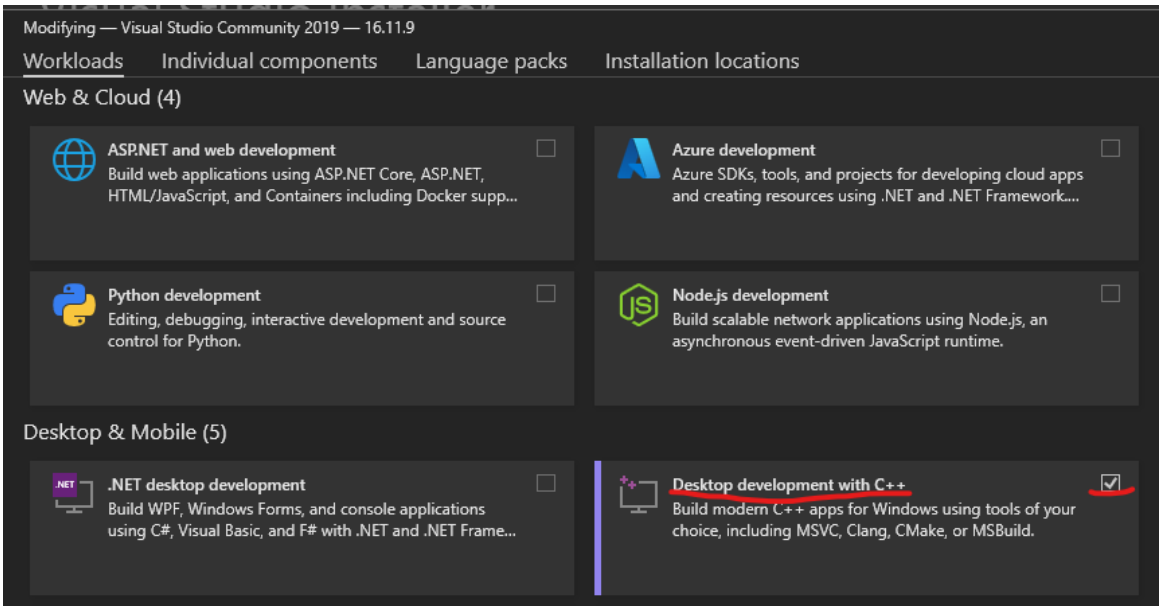
Then compile your file.



If your Visual Studio seems not to have C++ project to choose, open your **Windows Control Panel**, choose **Programs**, then press **Change** on Visual Studio Community.



Then make sure you have you have **Desktop development with C++** installed.



Alternatively, when using Dev C++ environment, to create a project and compile a file:

- File->New Project->Console Application
- Tools->Compiler Options
- Add "-std=c++11" command in "Add the following commands when calling the compiler" textbox
- Compile (F9)->Run(F10)
- (if Dev C++ not installed, download from Download Dev-C++)

4. Write a program with requirements (2 pts each)

- Software displays the list of provided products (at least five) with the amount of the stock. The user should be able to pick a product.
- After the product has been picked, the user should be able to input quantity of the purchase. If the quantity exceeds the stock amount, the user is asked to input a proper value into the program.
- After the transaction is finished, program returns to displaying the list of products with updated stock value.

- Program must be equipped with a secret code unknown to user. After inputting the code, the program should stop running.
- For the purpose of this program at least two functions must be used (additional to main() function).

Tips:

- use std::map to store data: e. g. map<string, int> products = { { "apple", 5 }, {"banana", 5}, {"pear", 5} };
- to iterate through map use iterator loop:

```
for (map<string, int >::const_iterator it = products.begin();it != products.end(); ++it)
{
    cout << it->first << " " << it->second << "\n";
}
```

*5. Write a function that will return (2 pts each);

- Area of a triangle. The function should return -1 if parameters sent to the function are invalid (non-integers or negative integers).
- Add a possibility to calculate rectangle area, depending on an additional argument in the function (e. g. string areaType = “triangle”/”rectangle”)

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*optional