Preparation for Practical Classes

Notes for a Course in Computer Graphics
University of Minho
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3D API: OpenGL (Linux, MacOS, Windows); Programming language: C/C++

Please install before class:

Linux:

Before trying to install the required packages it is advisable to run:

```
sudo apt-get update
```

- cmake e cmake-qt gui

```
sudo apt-get install cmake
sudo apt-get install cmake-qt-gui
```

- CLion https://www.jetbrains.com/student/ (optional) – a C++ IDE
- freeglut

```
sudo apt-get install freeglut3-dev
```

Note: If it fails to compile freeglut try:

```
cd /usr/include/X11/extensions
sudo ln -s XI.h XInput.h
```

- Check OpenGL version – glxinfo | grep "OpenGL" – (sudo apt-get install mesa-utils)

Windows

- Cmake https://cmake.org/
- VS https://www.visualstudio.com/vs/community/
  - Don't forget to install C/C++ package

MacOS

Some tips for MacOS, kindly prepared by João Luís Martins:

- download and install CMake
  - https://cmake.org/download/
- download and install
  - https://dl.bintray.com/xquartz/downloads/XQuartz-2.7.11.dmg
- After installing XQuartz renew session;

– Install freeglut (HomeBrew required)

```
brew install freeglut
```

Testing the Installation

1. Windows

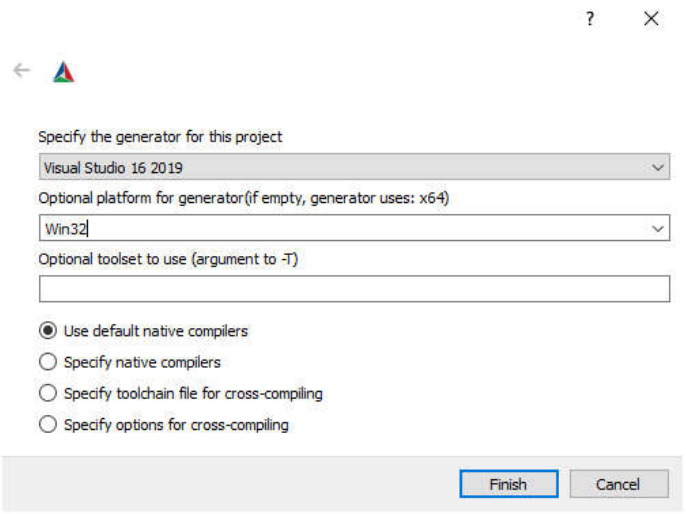
Open CMake

- Where is the source code: point to the code folder included in the zip you downloaded.

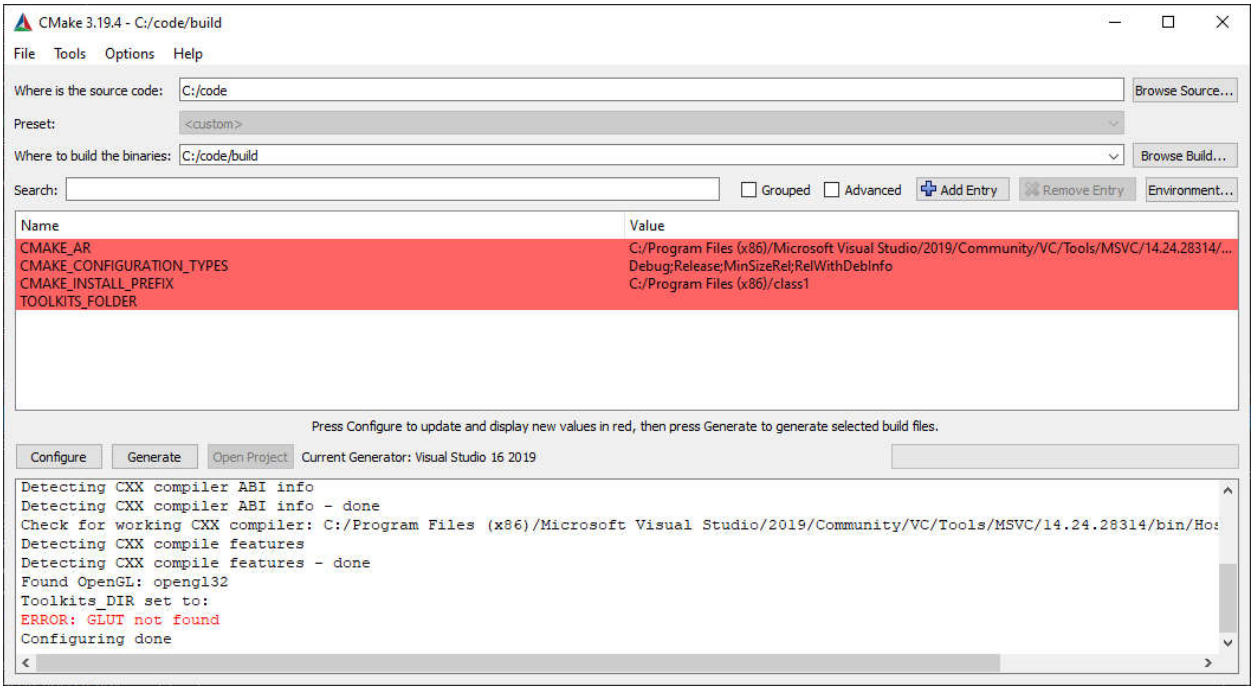
- Where to build the binaries: point to a folder named “build” inside the code folder.

Press “Configure”.

The following window opens. Fill the fields as in the image below. Note: select your version of Visual Studio. Also, make sure Win32 is selected.



Press Finish.

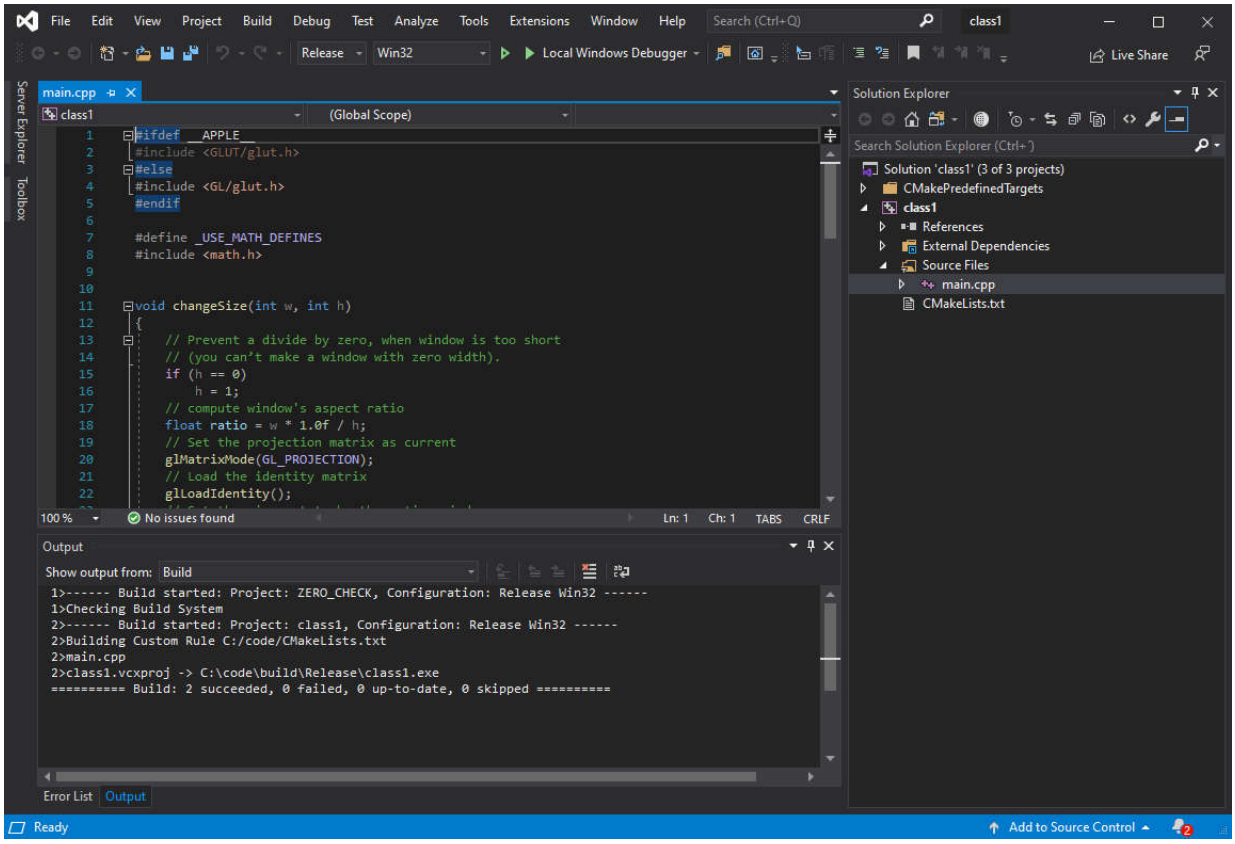


CMake can't find our toolkits folder. Press "TOOLKITS_FOLDER and point to the folder "toolkits" (download from "Practical Classes" folder in "Contents" folder from blackboard).

Press "Configure", and then press "Generate". The message "Generating done" should appear in the bottom of the window.

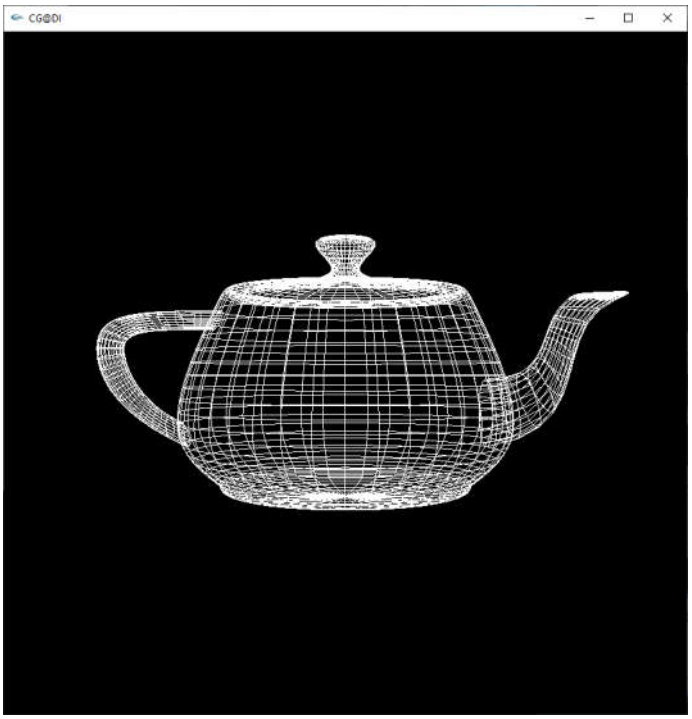
Press "Open Project" to open Visual Studio.

Inside Visual Studio:



Press the green arrow in the middle of the top toolbar.

A window should appear showing a wireframe teapot



2. Linux

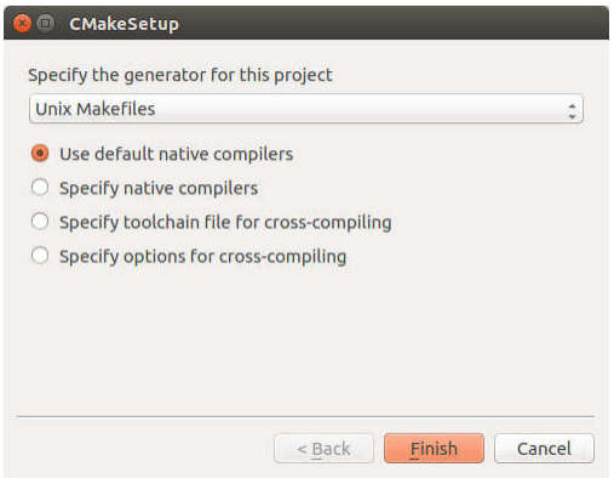
Open CMake from a terminal window: cmake-gui &

In the CMake window:

- Where is the source code: point to the code folder included in the zip you downloaded.

- Where to build the binaries: point to a folder named “build” inside the code folder.

Press “Configure”, a new window opens:



Press “Finish”

Back in the CMake window, press “Configure”.

If errors appear such as:

```
CMake Error: The following variables are used in this project, but they are
set to NOTFOUND.
Please set them or make sure they are set and tested correctly in the CMake
files:
GLUT_Xi_LIBRARY (ADVANCED) linked by target "class1" in directory …
GLUT_Xmu_LIBRARY (ADVANCED) linked by target "class1" in directory ...
```

Try : sudo apt-get install libxmu-dev libxi-dev

And press “Configure” again (this time there should be no errors)

Press “Generate”.

Go to the terminal window, change to the build folder and type: make class1

To run the app write: ./class1

A window should appear showing a wireframe teapot