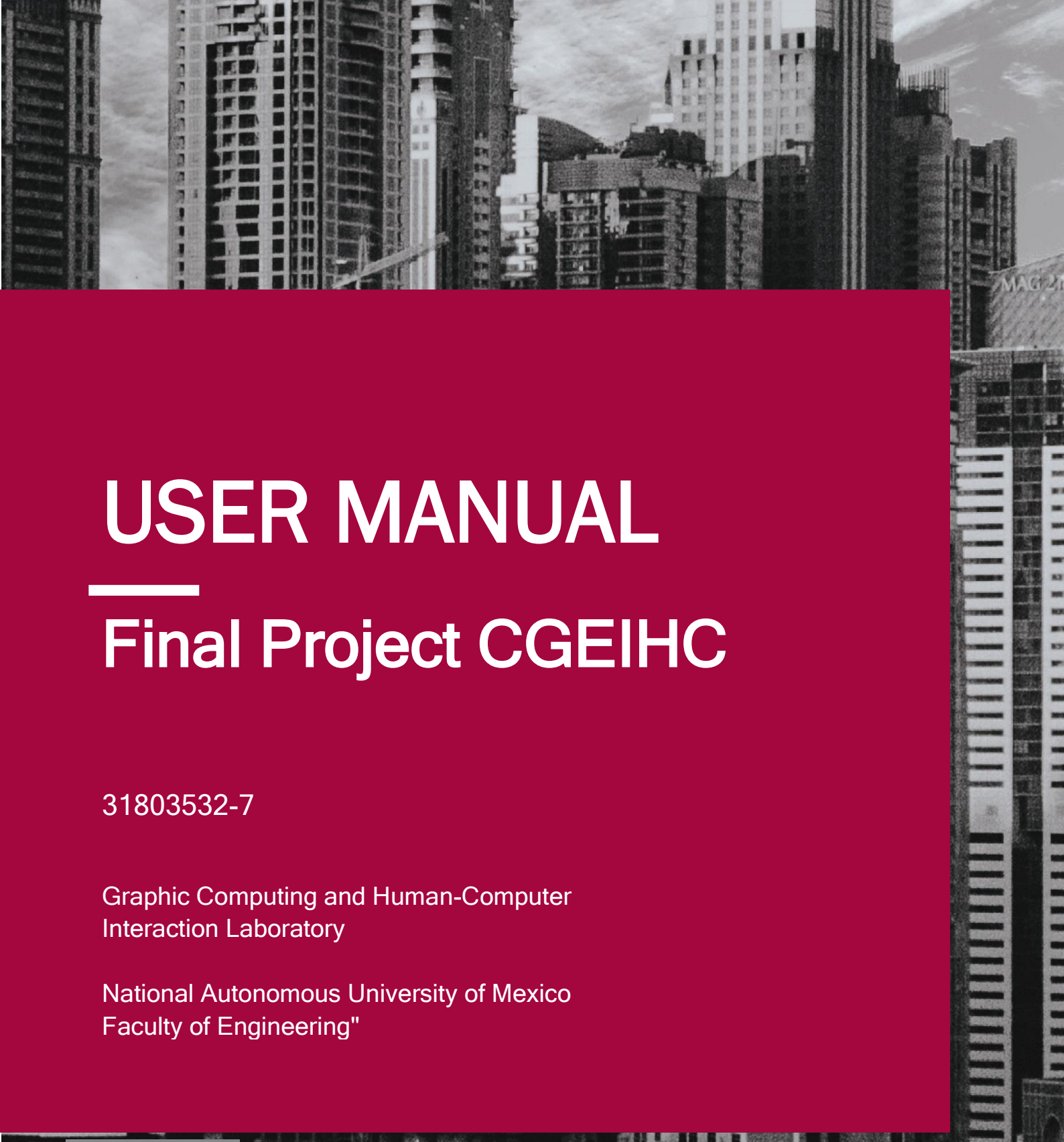


USER MANUAL

Final Project CGEIHC

31803532-7

Graphic Computing and Human-Computer Interaction Laboratory

National Autonomous University of Mexico
Faculty of Engineering"

DevDream
SOVUTONS

Table of Contents

Introduction

The objective of the manual

This manual aims to facilitate the learning and usage process of the software, enabling users to understand its functions, features, and available options.

Software Overview

Recreation of a facade in OpenGL with 7 different objects, which should closely resemble the reference image used.

Installation

System Requirements

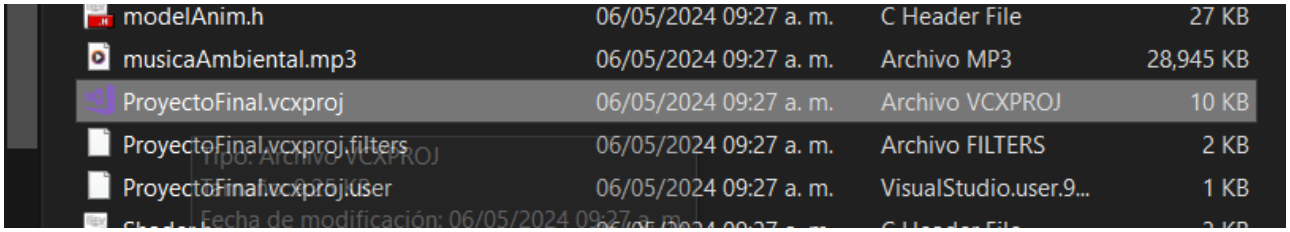
Minimum	Recommended
Operating System Windows 10 de 32 o 64 bits (version 1703)	Operating System Windows 10/11 de 32 o 64 bits
CPU Intel Core i3-3225 a 3,3 GHz	CPU Intel Core i5-7300U a 3,5 GHz, AMD Ryzen 3 3300U or equivalent
Memory 8 GB de RAM	Memory 16 GB de RAM or higher
GPU Intel HD 4000 on PC; AMD Radeon Vega 8	GPU NVIDIA GTX 960, AMD R9 280 or equivalent GPU compatible with DX11

Step-by-Step Installation Process

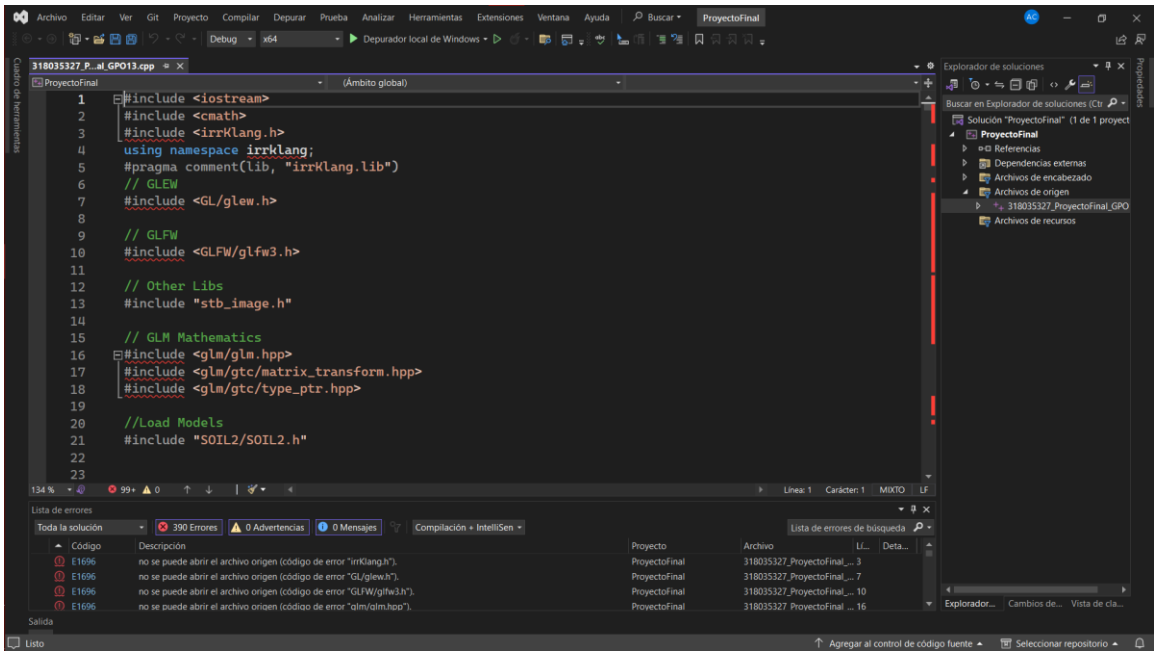
Alternative 01

NOTE: For the proper functioning of the project, it is required to have a development environment such as Visual Studio, at least in version 2022. If the version is lower than this, the content of the repository may not be executable.

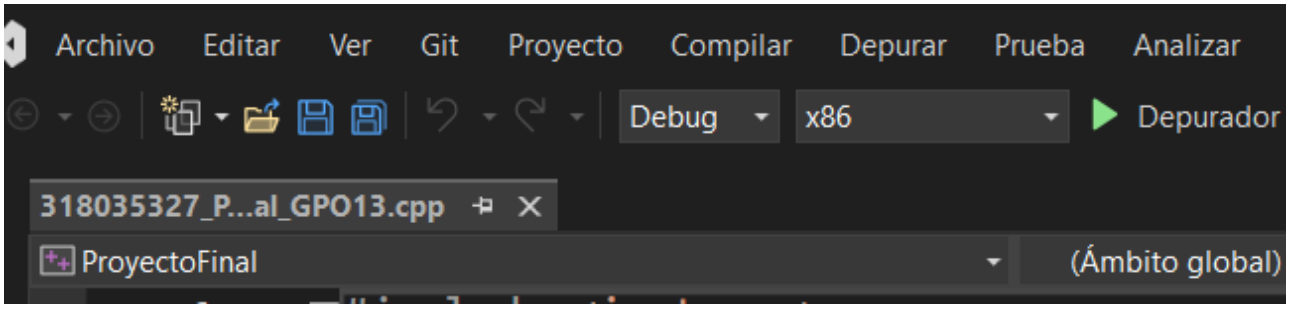
Download all the files contained in the repository and execute the following file.



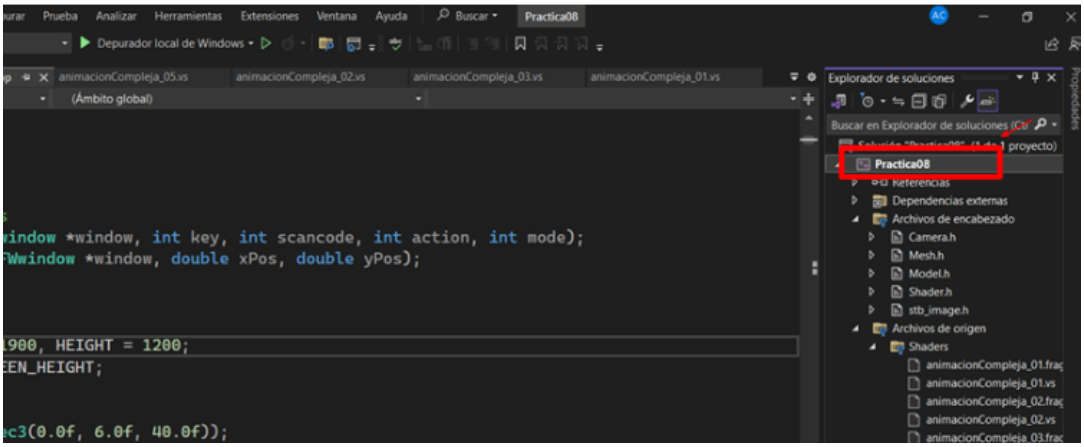
A window similar to the following will open.

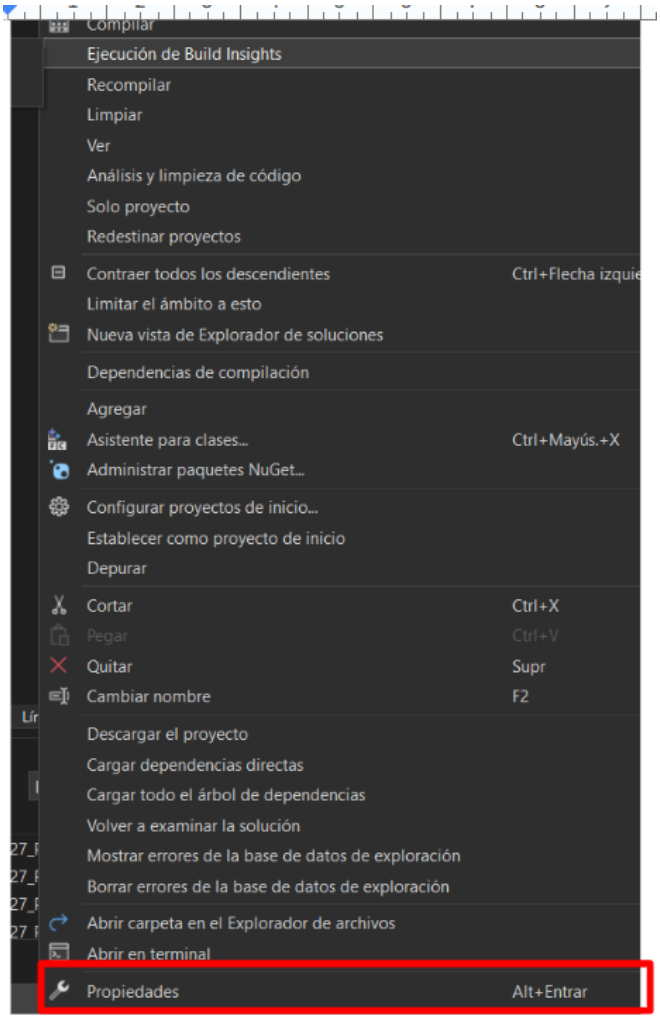


Verify that in this section it says x86 and not x64.



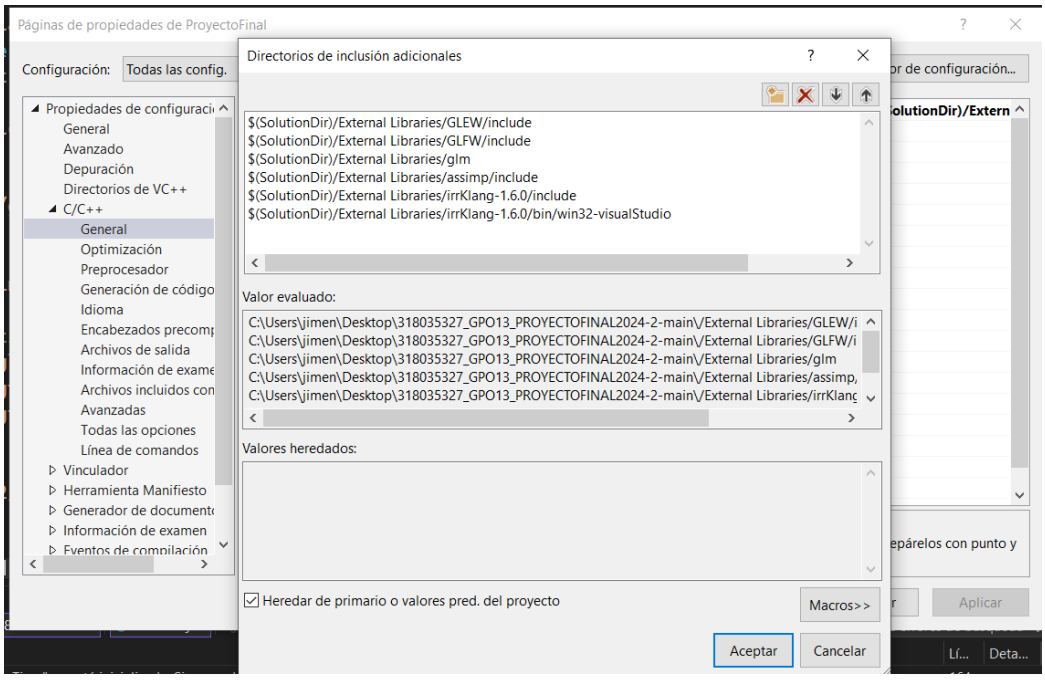
It's important to verify that the settings defined for the proper functioning of the project have been maintained. To access these settings, right-click on the box where the name of our project is displayed, and the following options will be displayed. From these options, select the 'Properties' option.



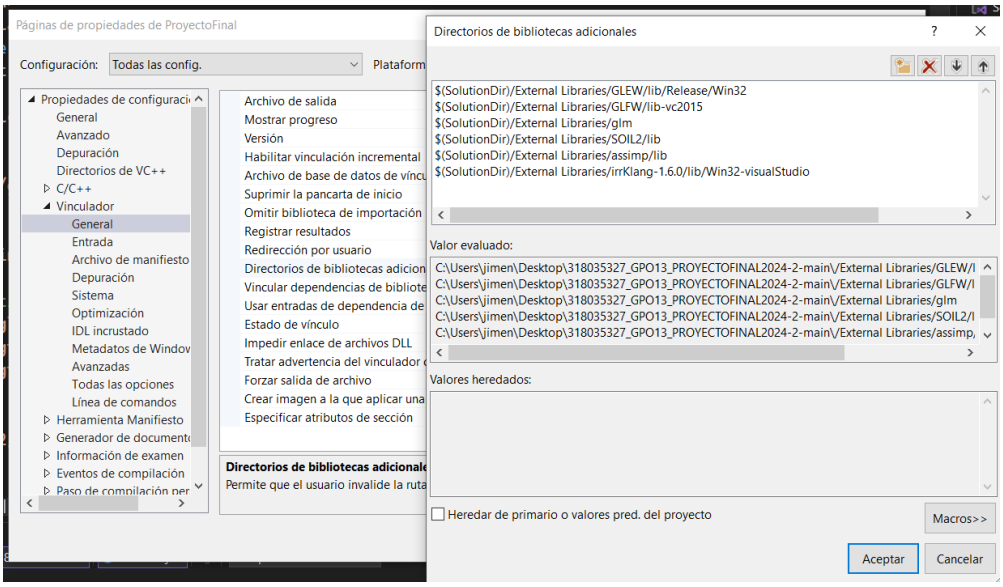


If the settings are not maintained, the names that should be placed in each section will be provided.

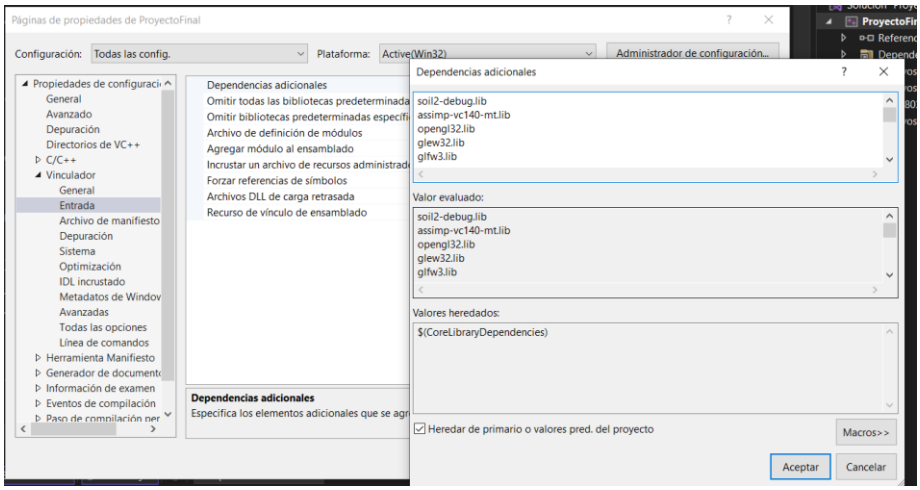
C/C++ -> General -> Additional Include Directories



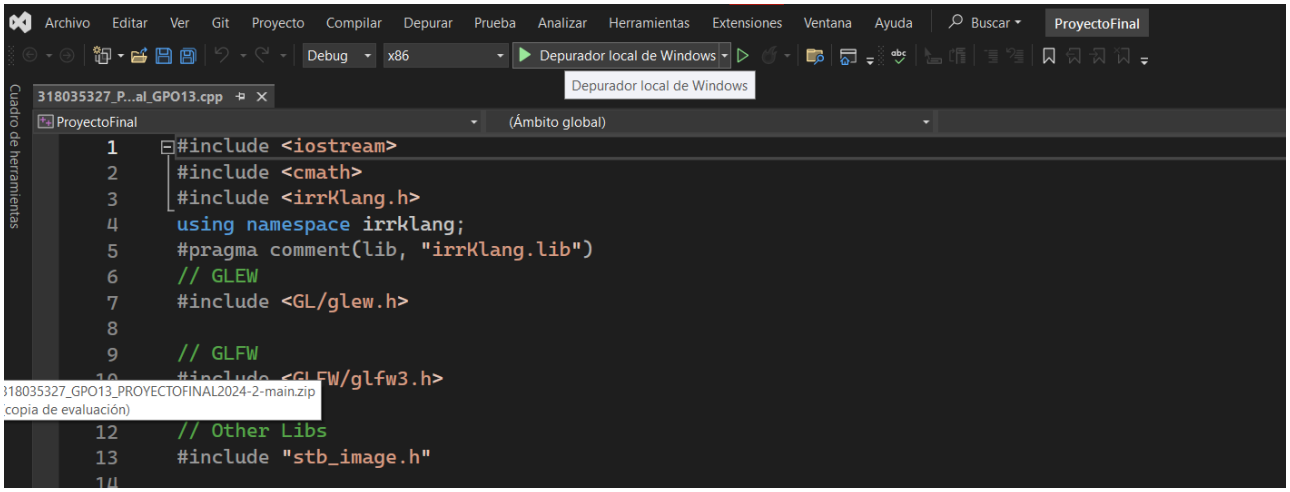
Linker -> General -> Additional Library Directories



Linker -> Input -> Additional Dependencies

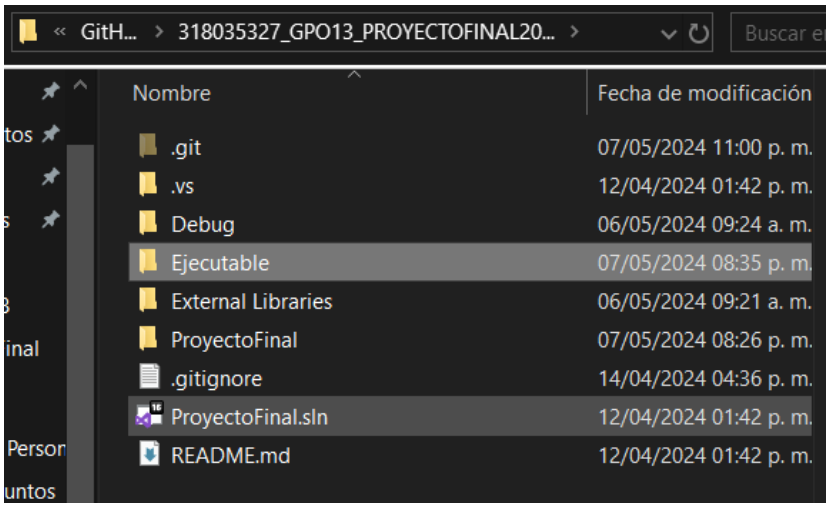


If the settings are correct, proceed to select the option 'Windows Local Debugger' to proceed with running the project.



Alternative 02

For this option, you only need to download the folder called Ejecutable, which contains the repository, and simply press the executable. The only downside to this option is that the animations are faster.



First Steps

User Interface Navigation

Key	Operation
W o ↑	Move forward
A o ←	Move to the left
S o ↓	Move backward
D o →	Move to the right
Space bar	Animation 01
1	Animation 02
2	Animation 03
3	Animation 04
Z	Animation 05
X	Animation 06
C	Animation 07
V	Animation 08
B	Animation 09
N	Animation 10
M	Animation 11
ESC	Close project
MOUSE	Move the view

Descriptive Keyboard Image

Main functionalities

Description of the main functions of the software

Below are the described functionalities or animations of the project.

Simple Animation 01

Three animations are grouped together based on the same logic, which consist of:

- Opening the doors of the house entrance
- Opening the lower doors of the bookshelf
- Opening the door of the desk followed by the door of the safe

Simple Animation 02

This animation involves picking up a book, rotating it to see the cover, and tilting it for easier observation.

Simple Animation 03

This animation involves simulating the floating of the star (Special item in the context of Genshin Impact).

Complex Animation 01

This animation groups 3 types:

- Simulating the movement of a candle flame.
- Simulating the flames of a fireplace.
- Simulating the flames of a stove.

Complex Animation 02

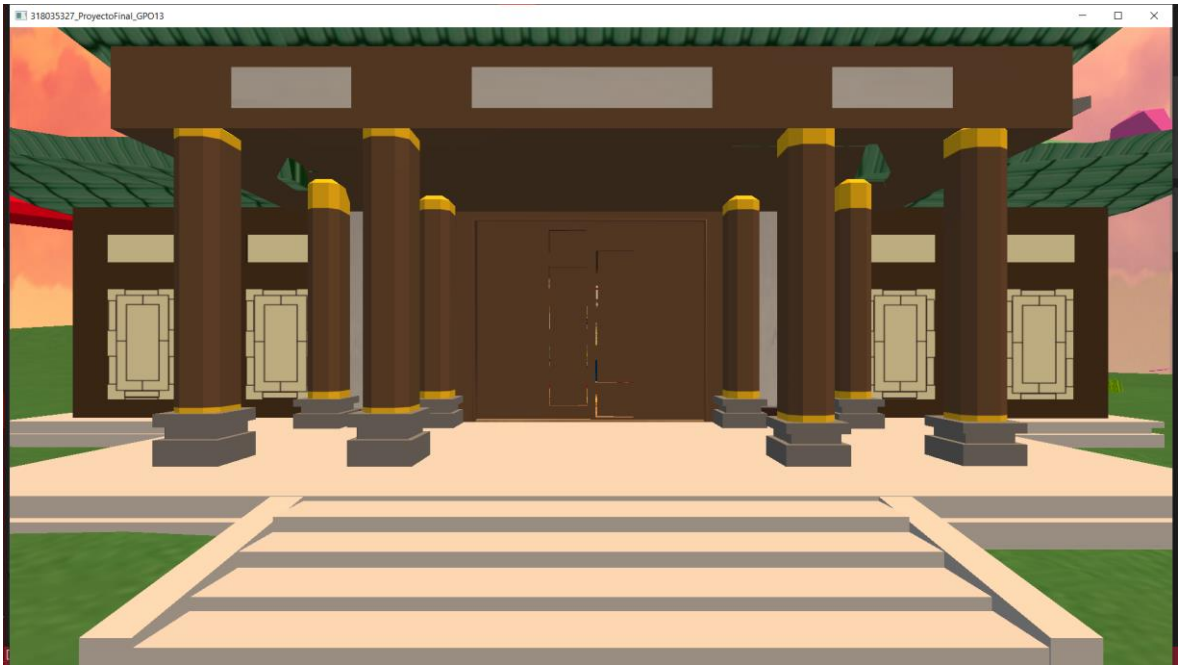
This animation consists of 3 phases:

- When the stove flame is ignited.
- The movement of the oil begins, simulating that it is frying chicken legs.
- Smoke appears for added ambiance.

Detailed instructions for using each function.

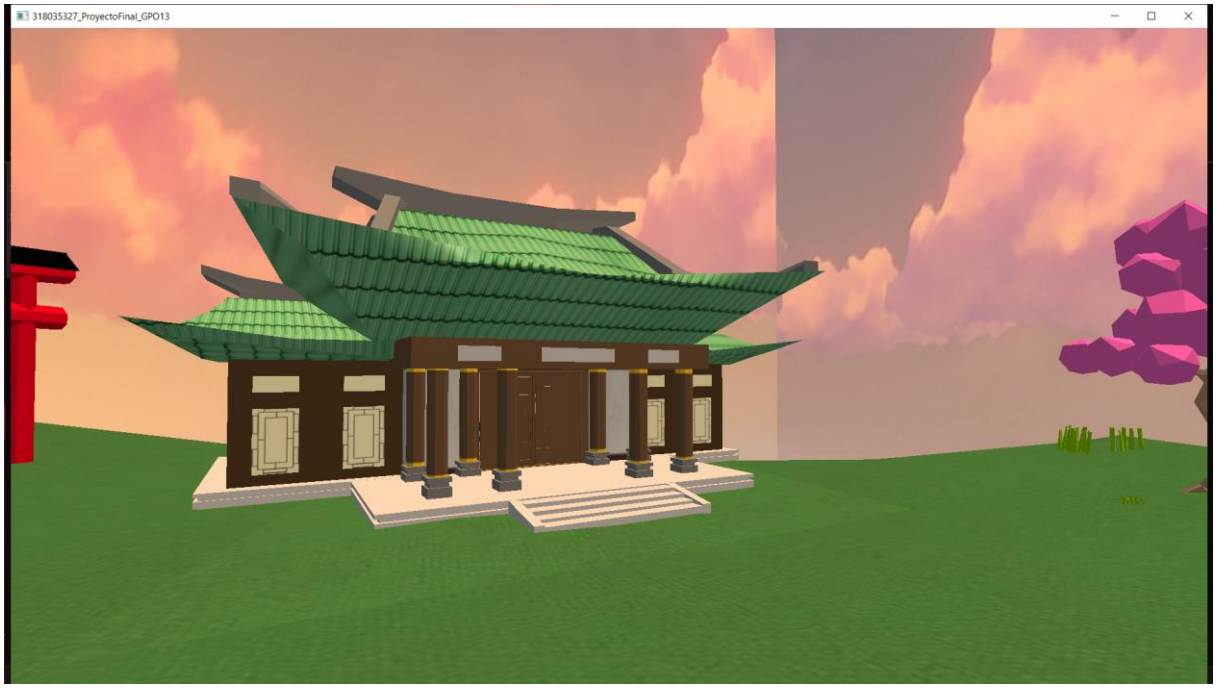
Navigation through the environment

To navigate through the environment, we will use the following view as a reference once the project is executed:



With the help of the mouse without moving from the place, we can change the view:

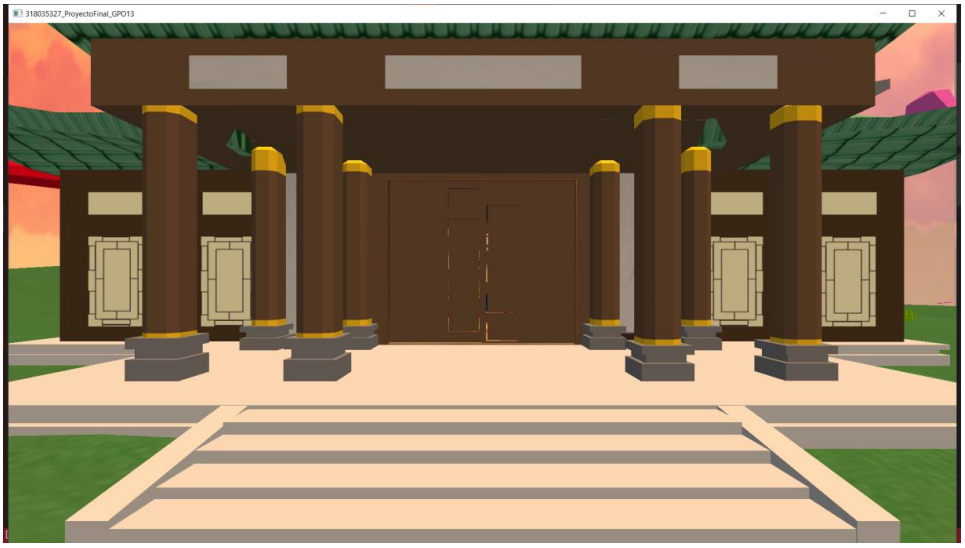
We will move around the environment using the A-W-S-D keys or the arrow keys on your keyboard:



Animation 01

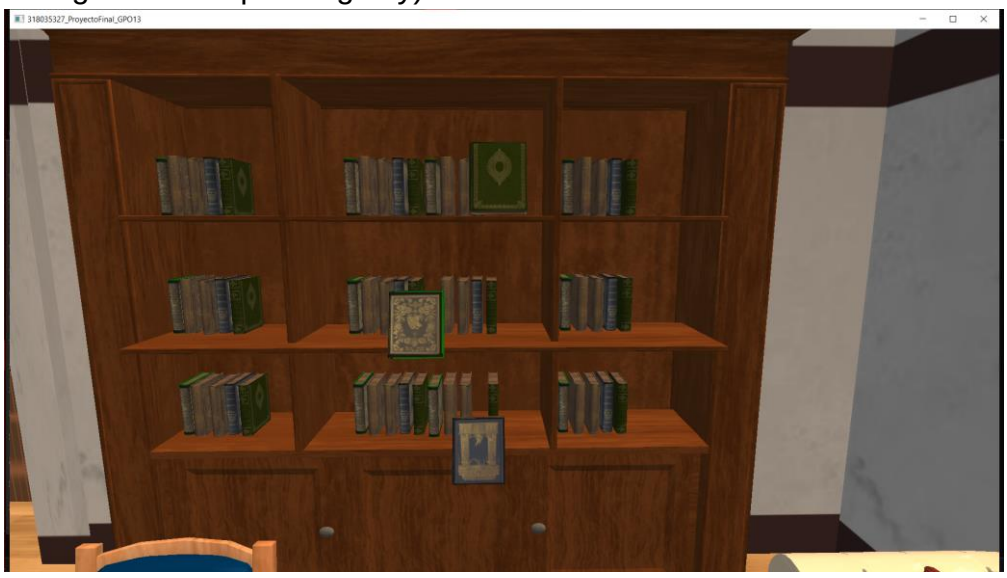
As the first animation, pressing the space bar will open the main doors of the house.

Similarly, you can close the doors by pressing the same key.



Animation 02,03 and 04

The task involves taking 3 books from each level of the bookshelf (you can pick up each one by pressing the corresponding key) to observe them:



Similarly, by pressing the corresponding keys, the books are put back.

Animation 05 and 06

It involves opening the lower doors of the bookshelf (they can be opened independently) where you can observe the objects stored in those drawers.

Similarly, pressing the corresponding keys closes the doors.

Animation 07

The task involves opening the desk door, then opening the door of the safe located inside.

Upon pressing the corresponding key, they close again.

Animation 08

This animation consists of lighting the fireplace fire.

By pressing the same key, the fire will be extinguished.

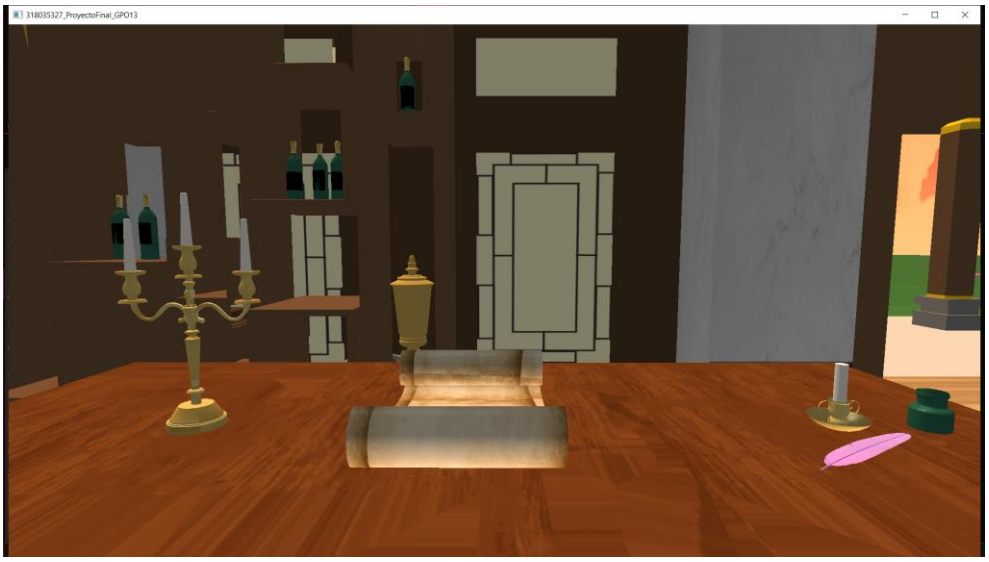
Animation 09

Returning to the safe, you can see a star which, upon pressing the corresponding key, will begin to move, simulating that it is floating.

Animation 10

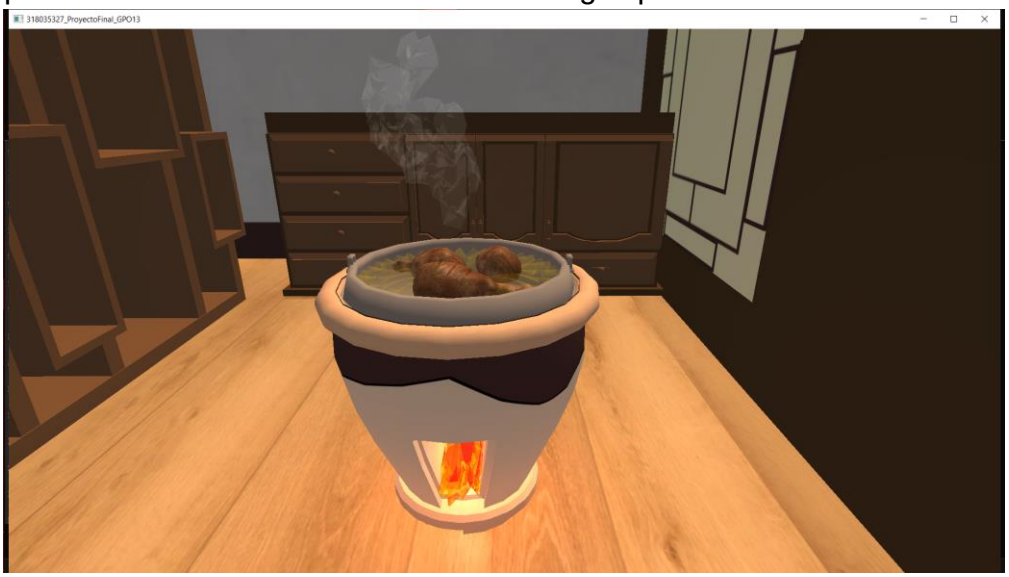
Animation responsible for lighting the candles on the candlesticks and present candle by pressing the corresponding key.

Pressing the same key will extinguish the candles.



Animation 11

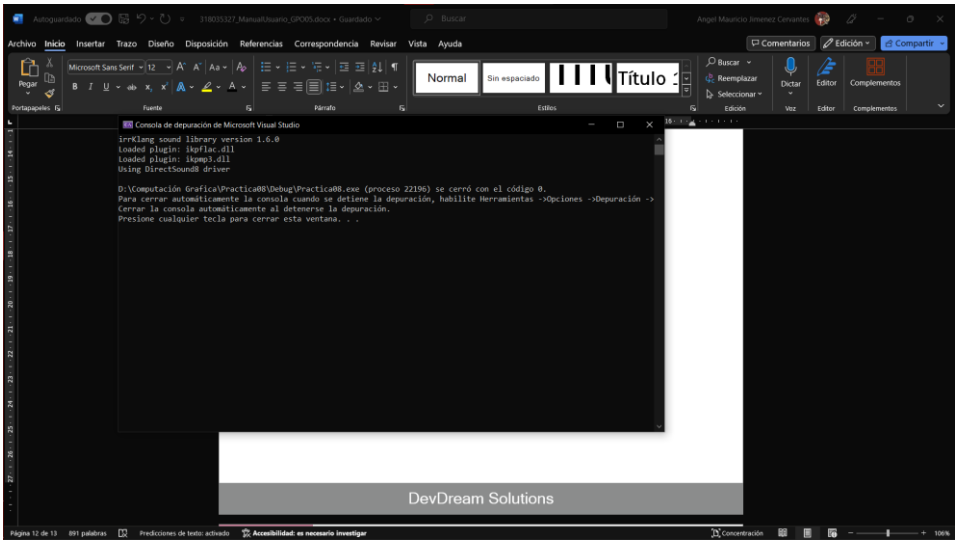
It is the most complex animation as when the stove flame is ignited, the oil starts boiling, and the typical smoke that comes out when cooking is present.



By pressing the same key, you can turn off the stove.

Execution Exit

To close the program, simply press the Esc key.



Customization

Preferences Configuration

Execution Window Configuration

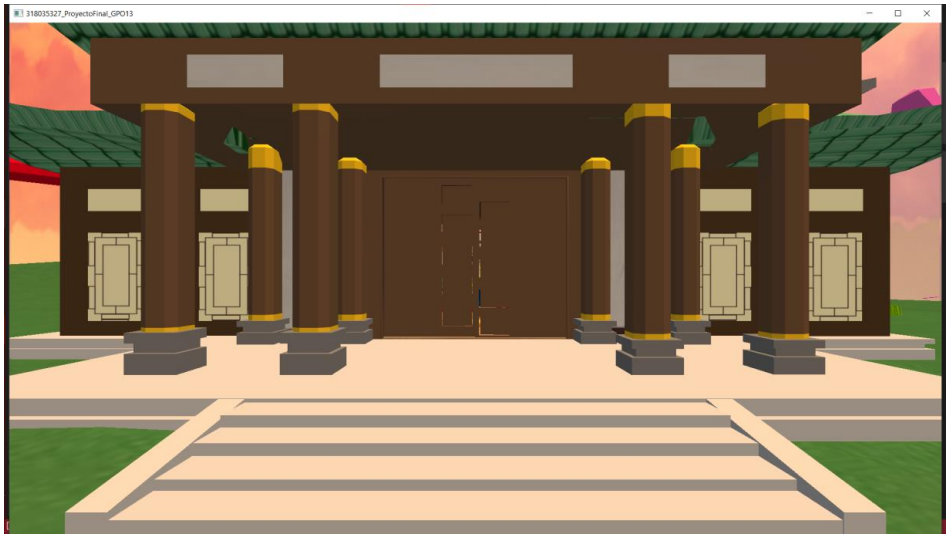
You could modify the size of the execution window if you chose the alternative 01 of installation. By default, the option comes with a size of 1900 x 1200 for better observation of the environment:

In line 38 of the file 318035327_ProyectoFinal_GPO13:

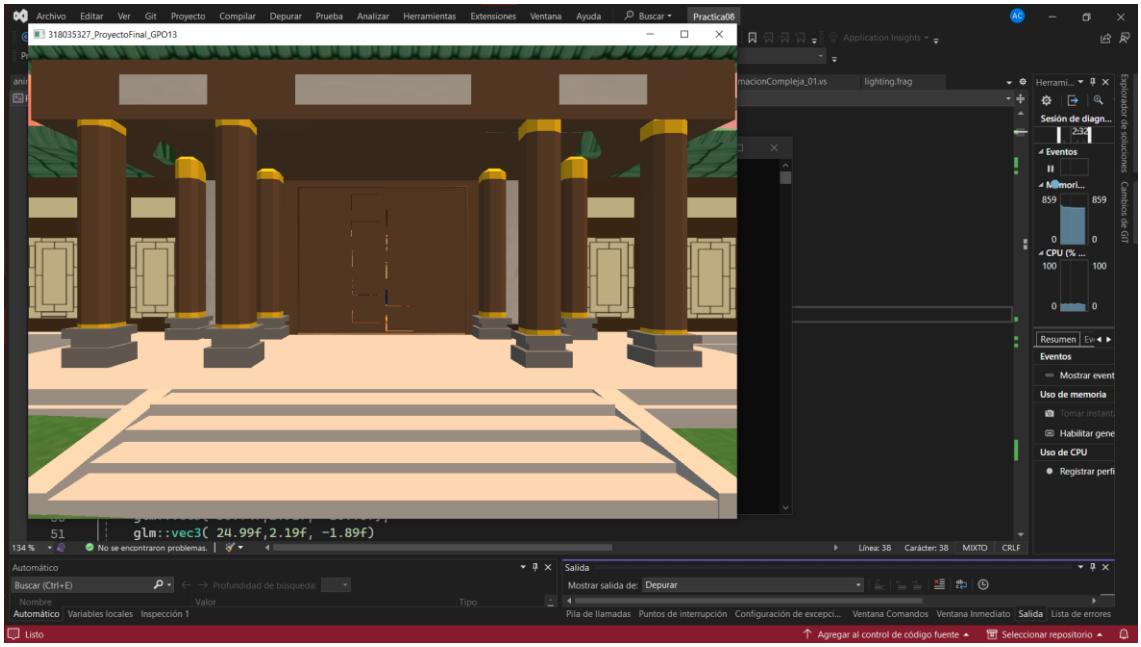
```
36
37      // Window dimensions
38      const GLuint WIDTH = 1900, HEIGHT = 1200;
39      int SCREEN_WIDTH, SCREEN_HEIGHT;
```

"You can modify those values leaving a difference of 500-700 between the WIDTH and HEIGHT variables.

Here's an example of the default window size:"



If a size of 1200 x 800 is configured:



Ambient Music Configuration

"This option is indifferent to the installation alternative you used. You will find a folder called 'Musica' where you can place the song you want. Preferably, place it in MP3 format.

Now, on line 153 of the file 318035327_ProyectoFinal_GPO13:"

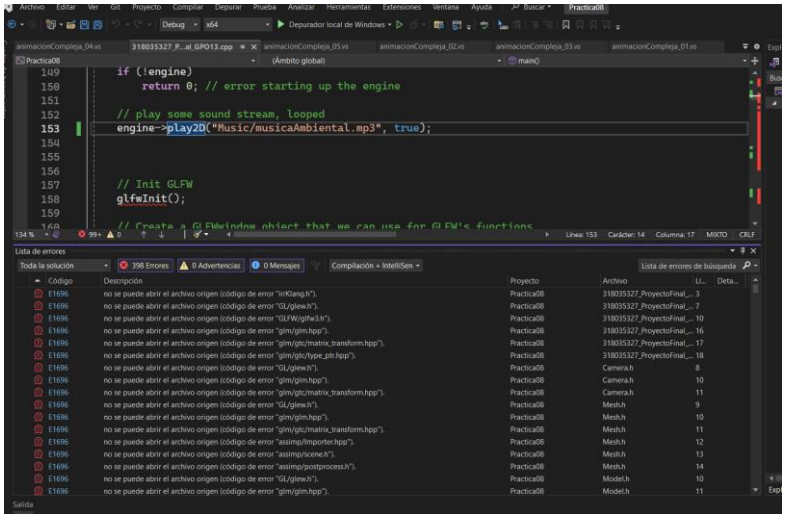
```
145  int main()
146  {
147      // start the sound engine with default parameters
148      ISoundEngine* engine = createIrrKlangDevice();
149      if (!engine)
150          return 0; // error starting up the engine
151
152      // play some sound stream, looped
153      engine->play2D("Music/musicaAmbiental.mp3", true);
154
```

Enter the name of your file.

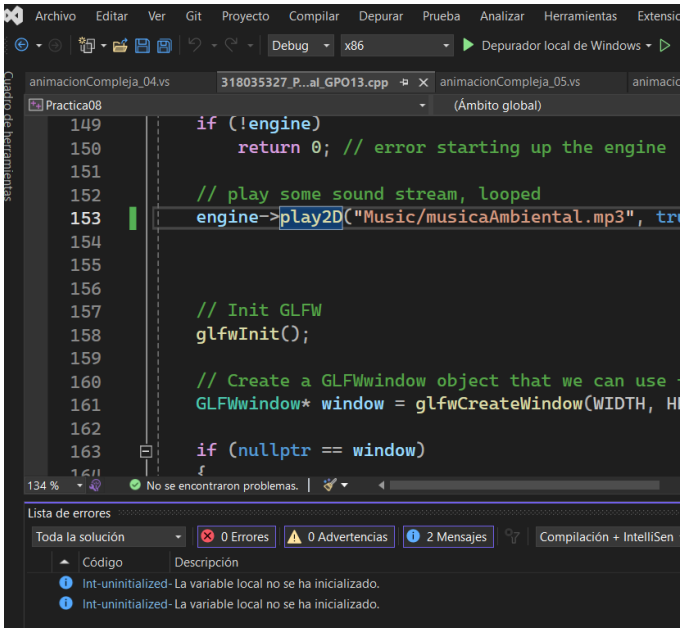
Troubleshooting

Resolution of Common Issues

If you chose installation alternative 01 and encounter the following errors:



Modify the box located next to the execution button where x64 is changed to x86 because the project is on a x32 version.



Additional Resources

Technical Support

Any problems or questions, send us an email to the following address: alatus30@gmail.com

Additional Documentation

If you want to delve deeper into this project, you can go to the project's GitHub and download the technical manual or request it from the email above.

A QR code to the project's repository

Glossary

- **WIDTH:** Refers to the horizontal measurement of an entity, area, or screen. In the context of graphic programming, especially in OpenGL, it is used to specify the horizontal dimension of objects, images, or windows. For example, in a 3D graphics application, the width of the window can be defined as the number of horizontal pixels it occupies on the screen.

- **HEIGHT:** It's the vertical measurement of an entity, area, or screen. Similar to WIDTH, in the context of graphic programming, it is used to specify the vertical

dimension of objects, images, or windows. For example, in a game development environment, the height of a screen can determine the vertical size of the game window.

- **GPU (Graphics Processing Unit)**: It is the hardware component specialized in graphics processing in a computer. The GPU is responsible for performing calculations related to graphics rendering, video acceleration, and other visual tasks. In 3D graphics applications like OpenGL, the GPU is essential for providing optimal performance when processing complex images in real-time.

- **Windows Local Debugger:** Refers to a debugging tool provided by the Windows operating system. This debugger allows developers to identify and fix errors in their programs during the development process. The Windows Local Debugger provides functions for examining the memory state, stopping program execution at specific points, and tracing the code execution flow, making it easier to identify and resolve issues.

References.

(s.f.).
Bing. https://www.bing.com/ck/a?!&&p=43a3b9a2514ce64bJmltdHM9MTcxNDk1MzYwMCZpZ3VpZD0zNDkyNzZjMi00ZDhhLTY3MGYtMjYxZC02NDQ1NGNiODY2YjYmaW5zaWQ9NTUzMA&ptn=3&ver=2&hsh=3&fclid=349276c2-4d8a-670f-261d-64454cb866b6&psq=gpu+definición&u=a1aHR0cHM6Ly9jdWx0dXJhLWluZm9ybWF0aWNhLmNvbS9jb25jZXB0b3MvcXVlLWVzLWxhLWdwdS8&ntb=1

(s.f.).
Bing. https://www.bing.com/ck/a?!&&p=00183c5d2a71d159JmltdHM9MTcxNDk1MzYwMCZpZ3VpZD0zNDkyNzZjMi00ZDhhLTY3MGYtMjYxZC02NDQ1NGNiODY2YjYmaW5zaWQ9NTMzOQ&ptn=3&ver=2&hsh=3&fclid=349276c2-4d8a-670f-261d-64454cb866b6&psq=DEPURADOR+LOCAL+WINDOWS&u=a1aHR0cHM6Ly93d3cuaW9ub3MubXgvZGlnaXRhbGd1aWRlL3BhZ2luYXMtd2ViL2Rlc2Fycm9sbG8td2ViL2RlcHVyYWRvci8&ntb=1