Manual
Tecnical

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Group 11

Objetiv

Apply and demonstrate the knowledge acquired during entire course

Description

I create a facade and a space that can be real or fictitious and present reference images of said spaces for their recreation 3D in OpenGL.

The Project must contain:

• Animations: the project must have 5 animations where 3 are simple and 2 complex

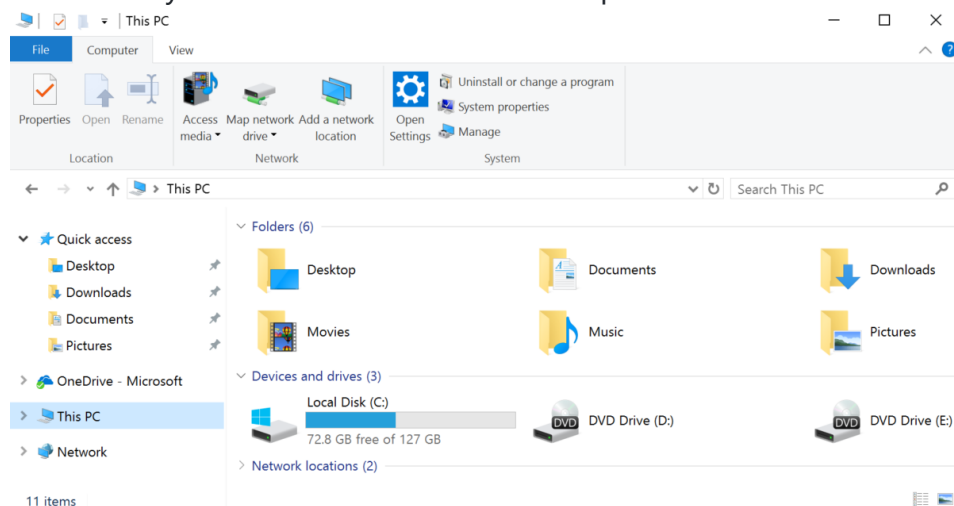• Virtual space against the reference photo

• Executable File

Instructions

Step 1: before the instalation

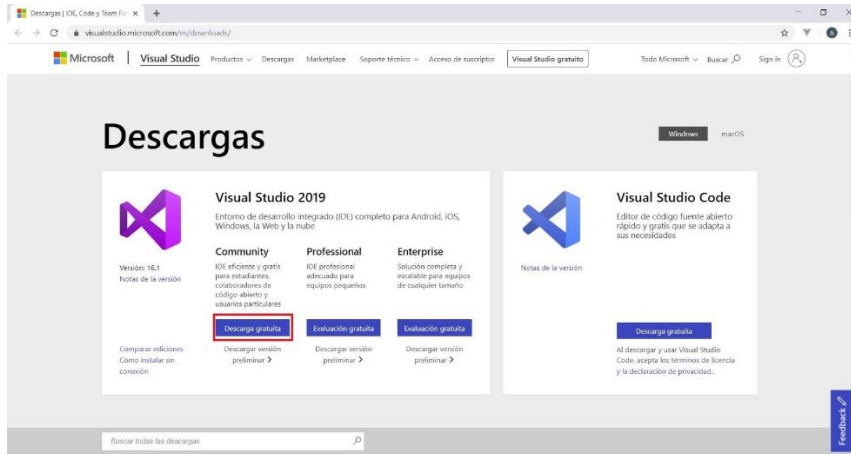Check that our PC is ready for us to install Visual Studio 2019.

Open «This PC» in file explorer .

Make sure you have more than 30 GB of space available on a drive

Step 2: Donwload

Go to https://visualstudio.microsoft.com/es/downloads/ Select the version Visual Studio 2019 or 2022. Click in donwload (ommunity version is free)
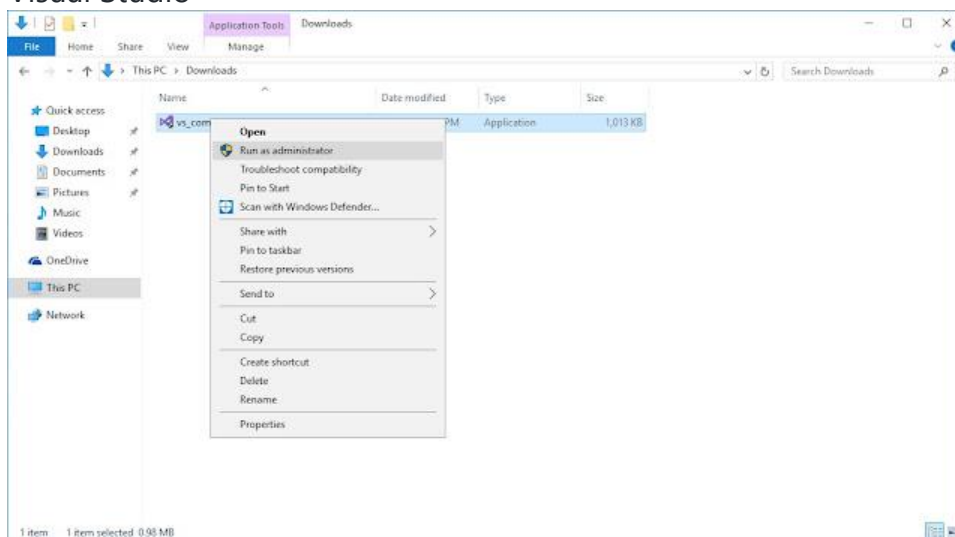
Ahora ya nos aparece el archivo descargado, en algunos navegadores quizás sea necesario usar "Guardar como".
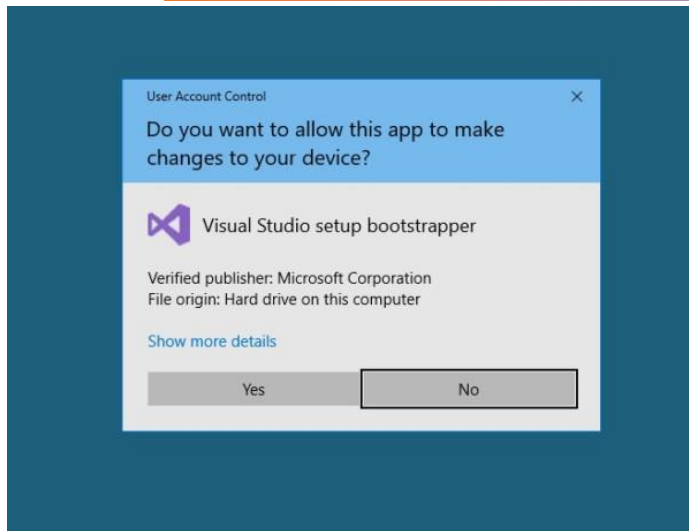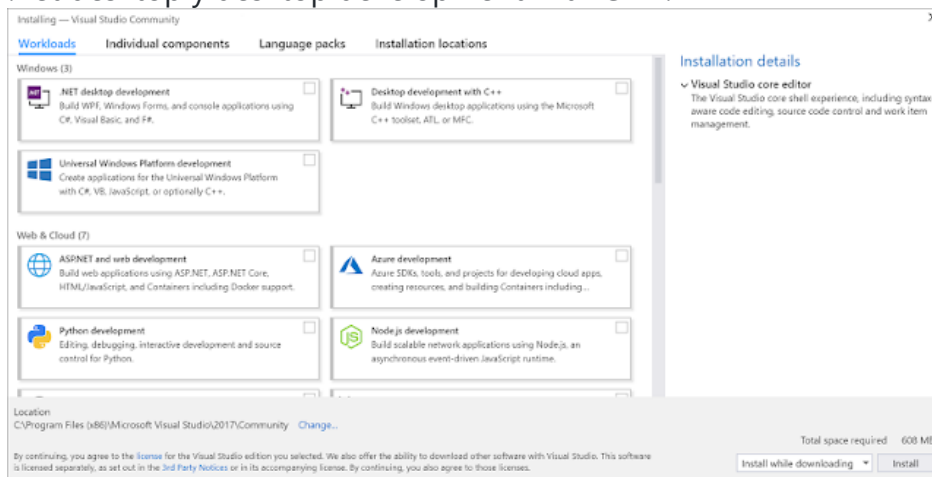

Step 3: Install

Run the bootstrapper file to install the Visual Studio Installer. This new lightweight installer includes everything you need to both install and customize Visual Studio

Haga clic para ejecutarlo.

Select the workload you want in the Visual Studio Installer. In this case you need .net desktop y desktop development with C++.
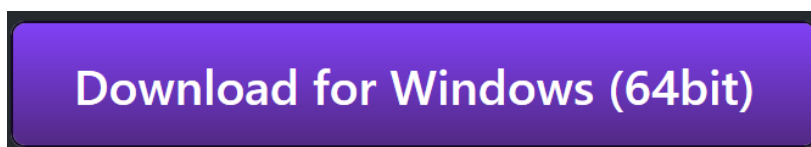

Perform the installation and wait until it is finished.
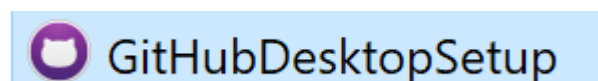Step 4: Donload
Start developing

Step 5: Install GitHub Desktop

1. Visit the download page for GitHub Desktop.
2. Click Download for Windows.
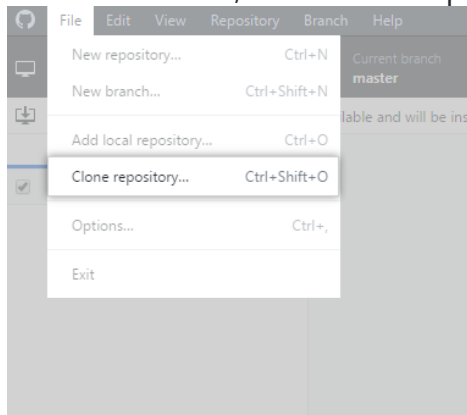3. The Download for Windows button

4. In your computer's Downloads folder, double-click the GitHub Desktop setup file.
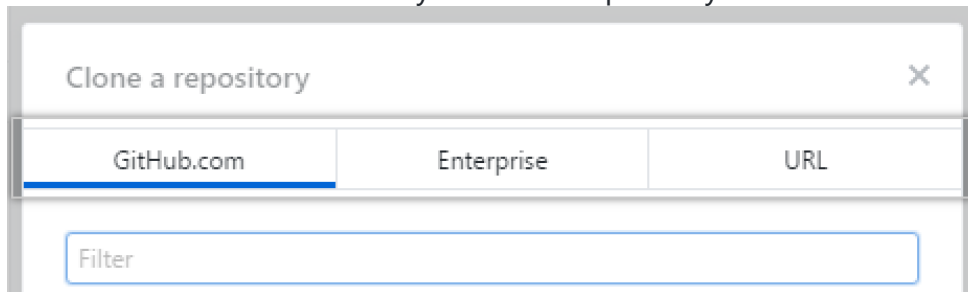5. The GitHubDesktopSetup file

6. GitHub Desktop will launch after installation is complete.Step

6: Cloning and forking repositories from GitHub Desktop

In the File menu, click Clone Repository.

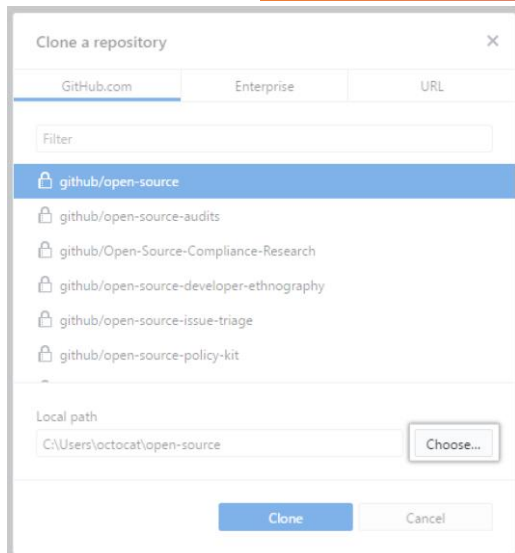Click the tab that corresponds to the location of the repository you want to clone. You can also click URL to manually enter the repository location.

Choose the repository you want to clone from the list.
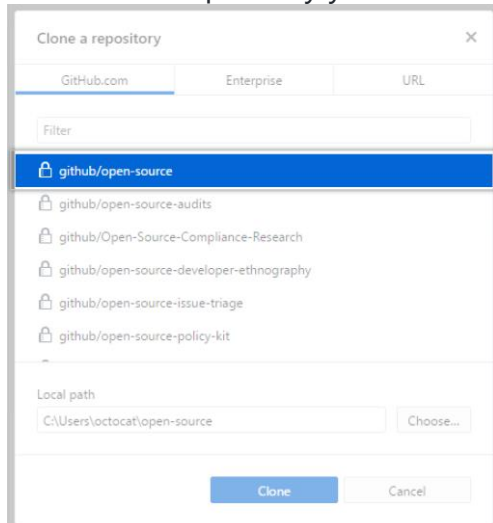
Click Choose... and navigate to a local path where you want to clone the repository.

Click Clone.
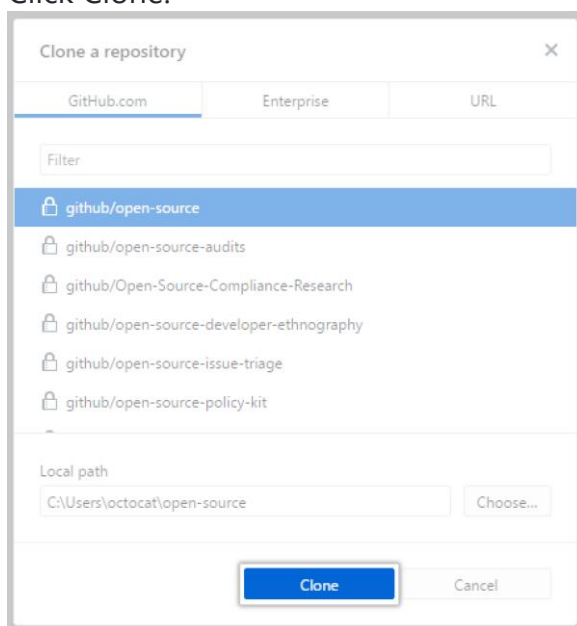
Step 7: Configuración del proyecto

Open Visual Studio, now select Open a proyect or solution
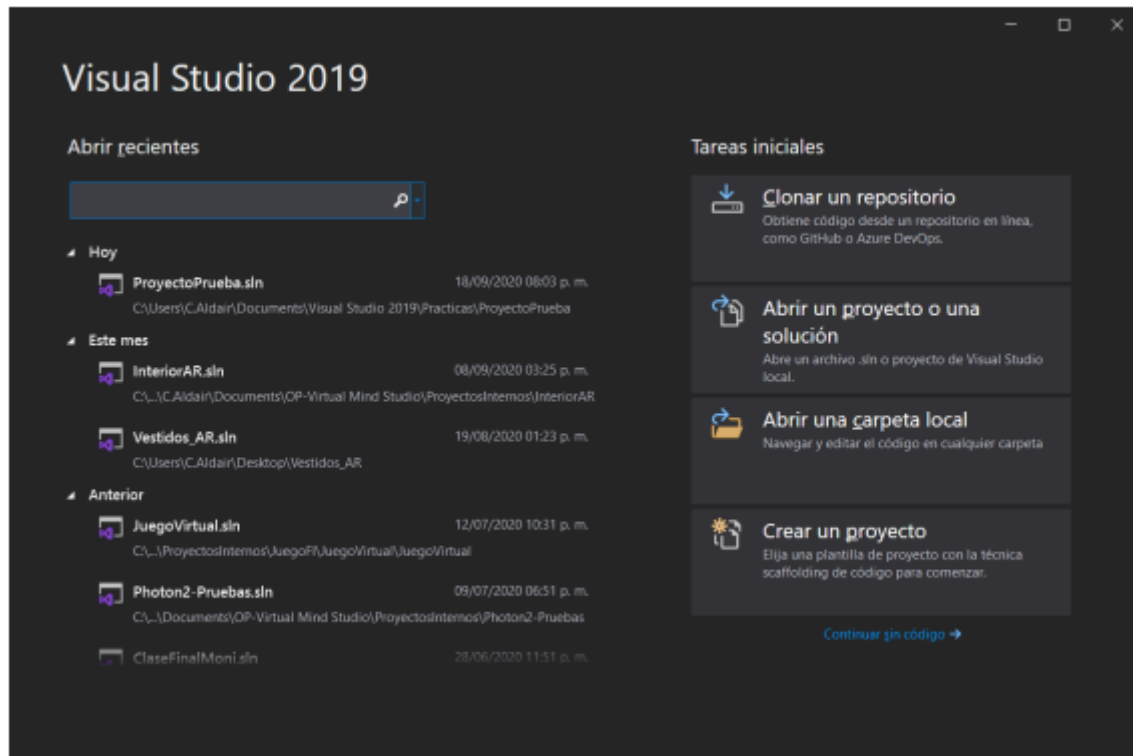
Go to the folder where the Project is located, which is cloned from Github.
Click in ProyectoFinal.sln to open the Proyect
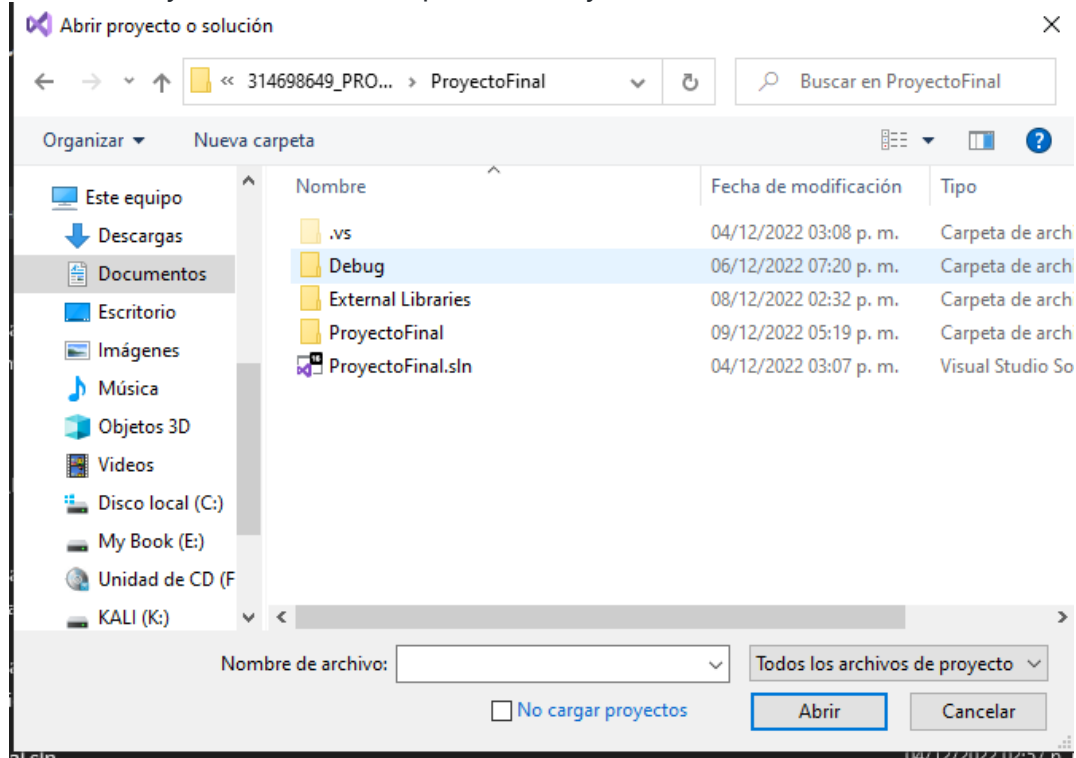
Always verify that at the top you work on an x86 architecture, his architecture is more optimal when sending the information to the GPU.
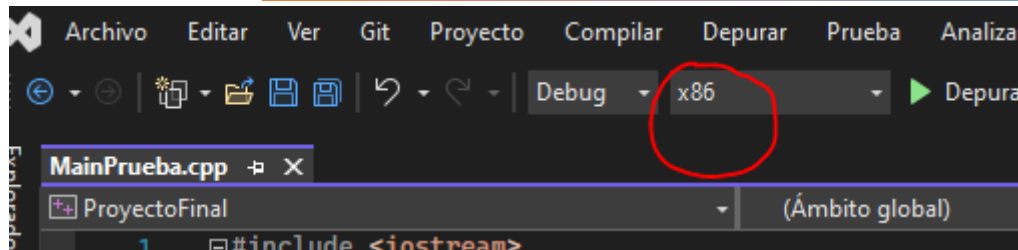
In the Visual Studio menu bar select Project/Proyecto y vayan la opción Propiedades, tal como lo indica la imagen. Go the Properties option, as indicated in the image.
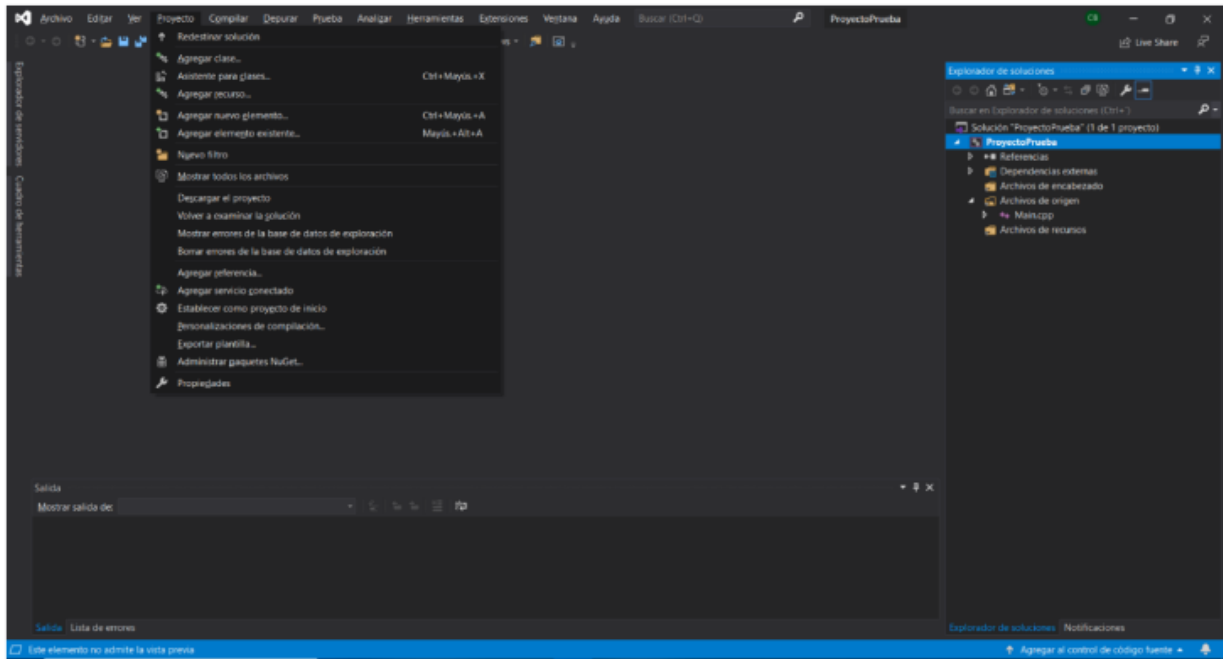
A new window should appear. At the top of this window appears Configuration/Configuration and next to it a drop-down list, in which they must be select All Configurations/ Settings
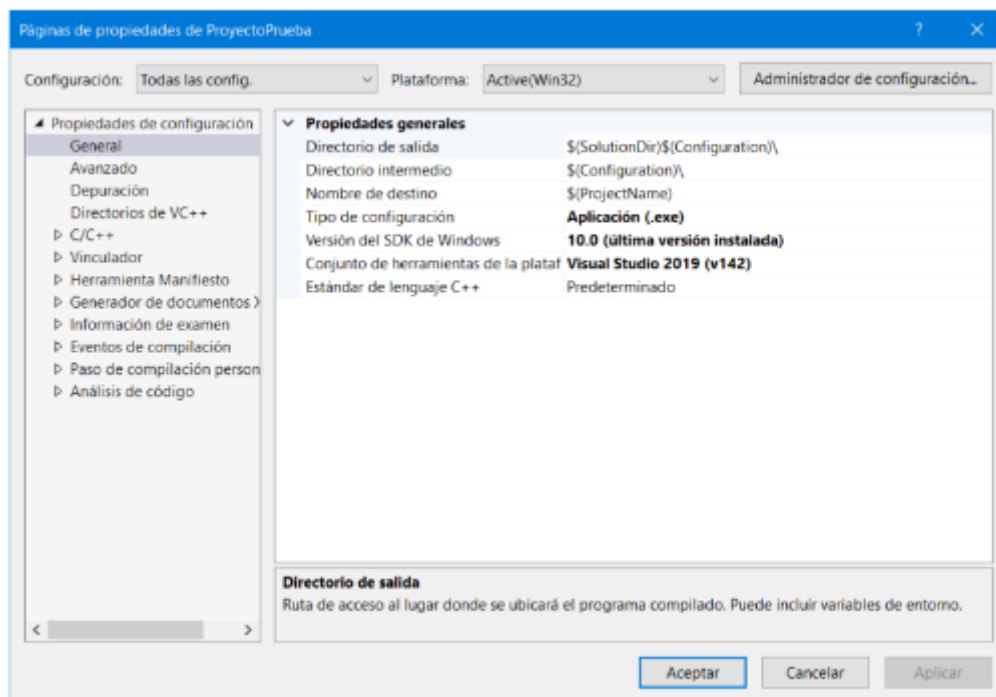
Go to Configuration Properties, next to C/C++, and select General.

On the right side of this window a list with two columns should appear, select the first field and left click and select edit.
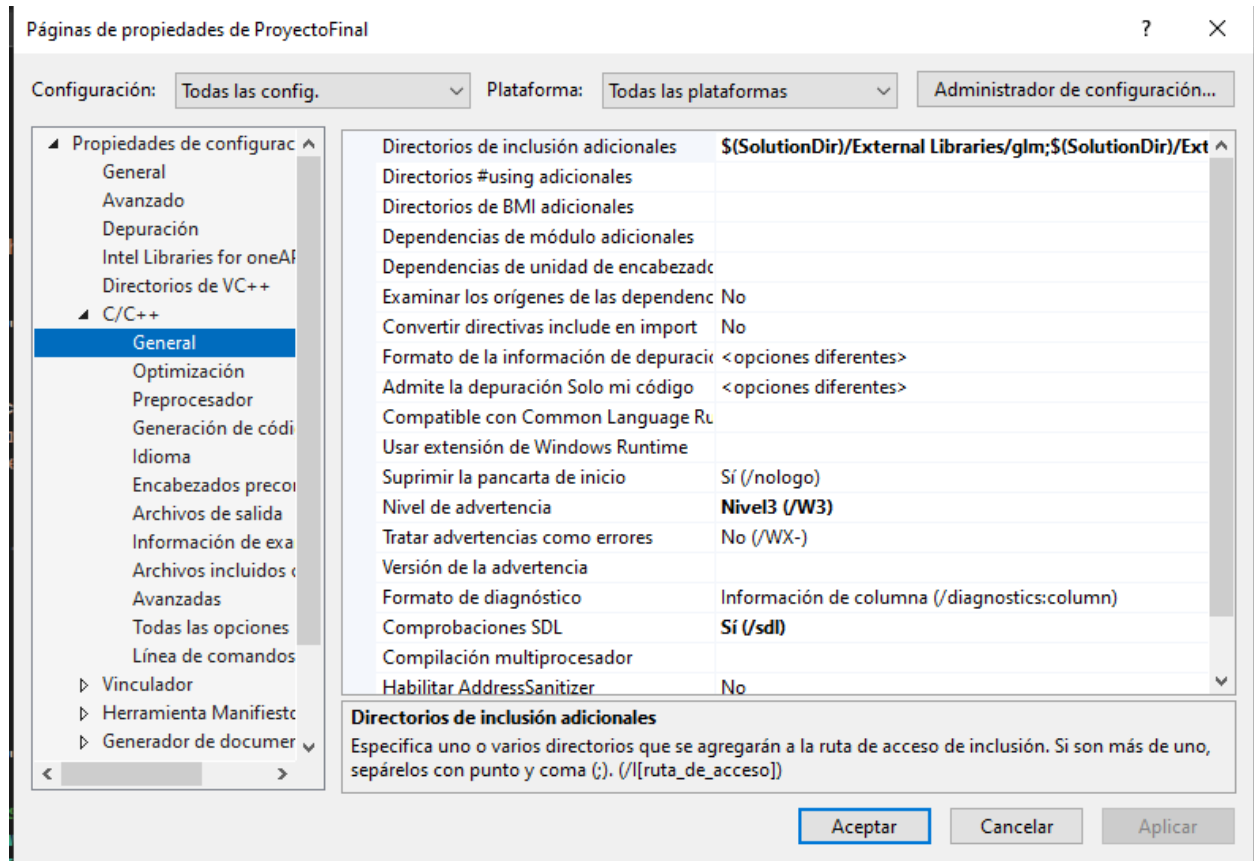
Select in the new window and put this lines
$(SolutionDir)/External Libraries/glm;
$(SolutionDir)/External Libraries/assimp/include;
$(SolutionDir)/External Libraries/GLFW/include;
$(SolutionDir)/External Libraries/GLEW/include;
%(AdditionalIncludeDirectories)
Click in Accept
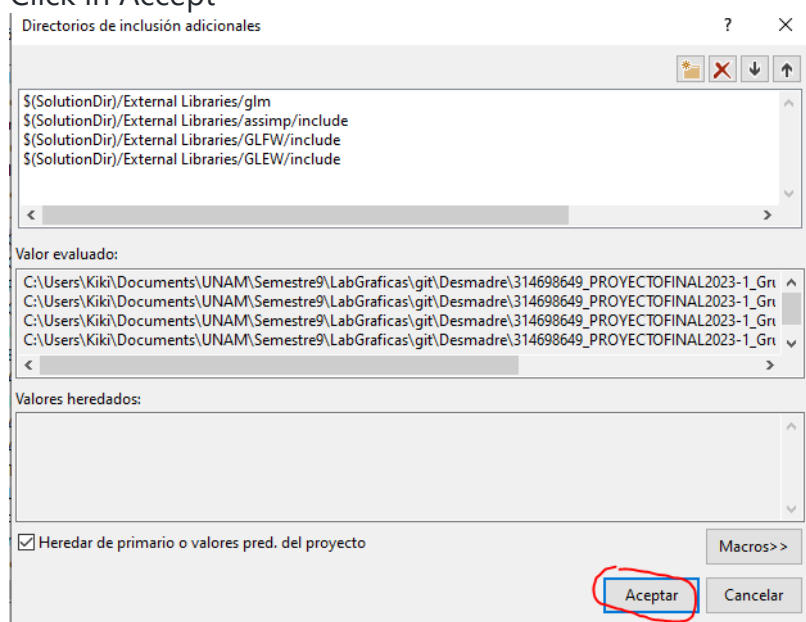
Select Linker/Vinculador, Next General.
Select n the right side Additional Library Directories, left click and select edit

Select in the new window and put this lines
$(SolutionDir)/External Libraries/glm;
$(SolutionDir)/External Libraries/SOIL2/lib;
$(SolutionDir)/External Libraries/assimp/lib;
$(SolutionDir)/External Libraries/GLEW/lib/Release/Win32;
$(SolutionDir)/External Libraries/GLFW/lib-vc2015;
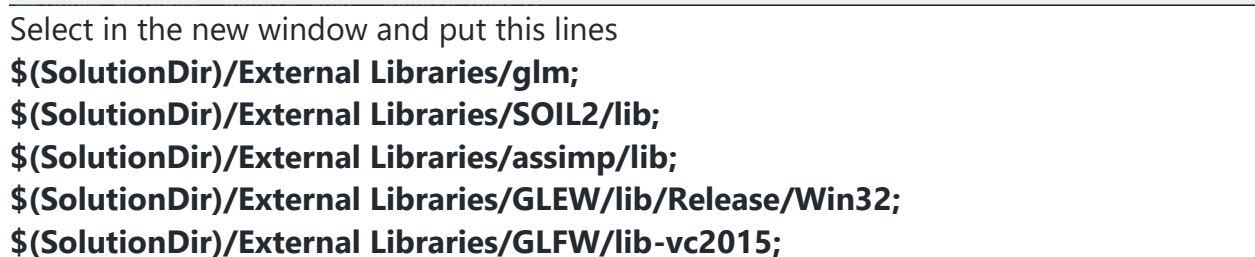
In the Input go to additional dependencies and add
opengl32.lib;glew32.lib;glfw3.lib;assimp-vc140-mt.lib;soil2-debug.lib;
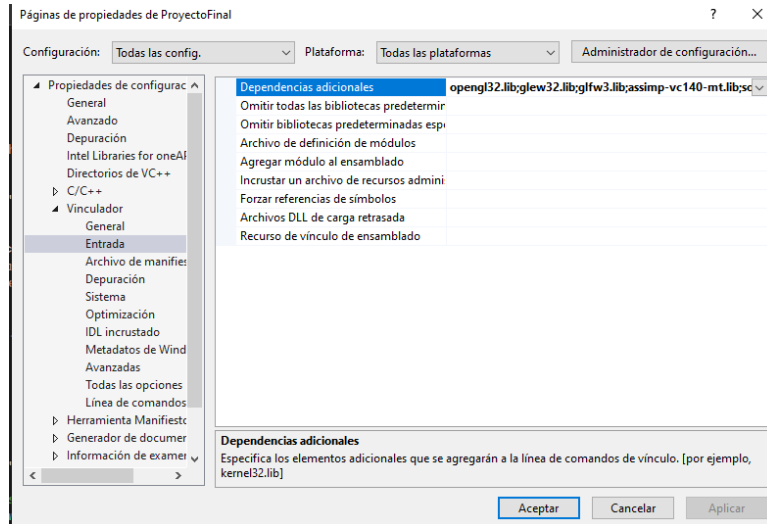
Click in the apply button and then the OK/Accept button.

Clos the windows that open and you are back in Visual Studio. Congratulations, you have set up Visual Studio to work and see the project!

Compilation

At the top we click on
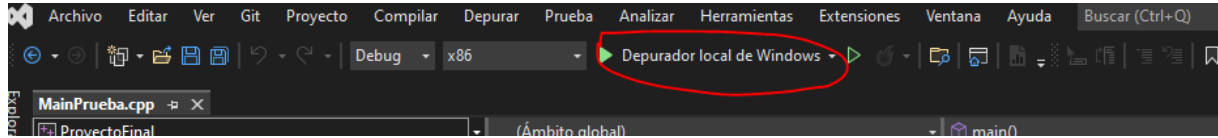
The following windows will appear

Wait until the Proyect start
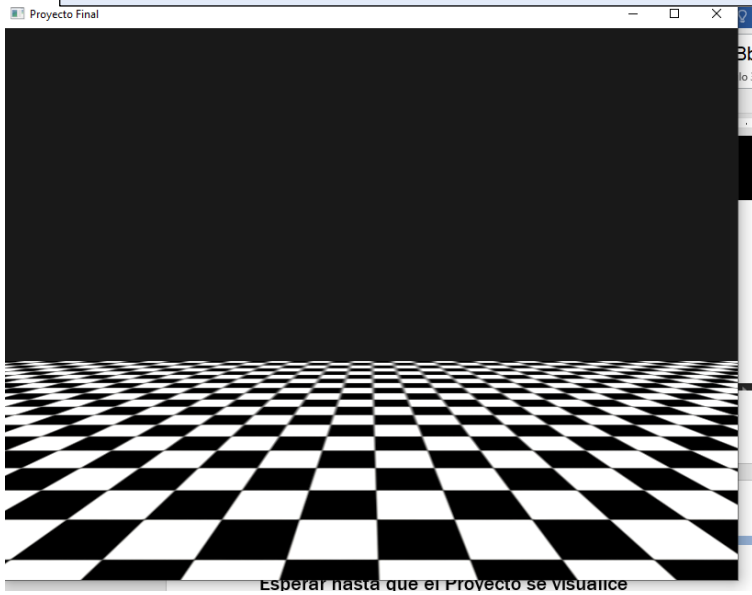
Move mouse to the right
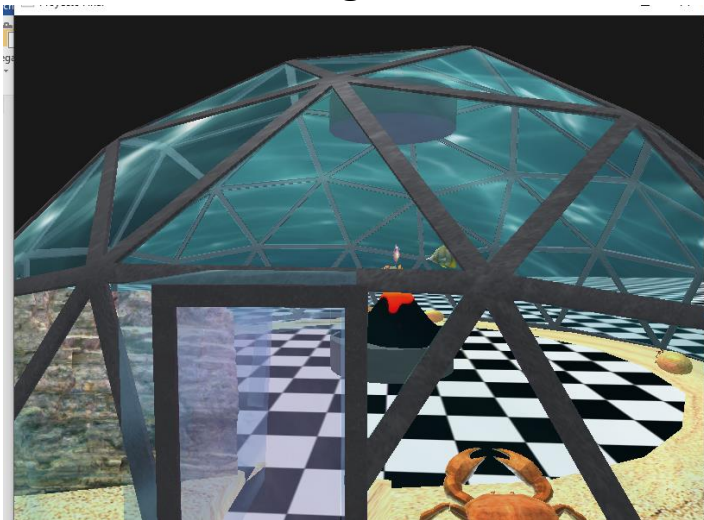
Progress

We start planning on October 9 2022.
First I start to learn th use of git to be able to upload the progress of the project.
For models were searched on the internet

Some dates were moved because the animations were seen at the end of the laboratory, as well as the 2 weeks of "Paro" (stop activities in the University) that affected us in the school calendar

## Dates and activity

Link Diagram Gantt

https://docs.google.com/spreadsheets/d/1cvuTPeUvA1EZqjk47JgO25Hqxma0-5iDhEB031Whs0M/edit?usp=sharing
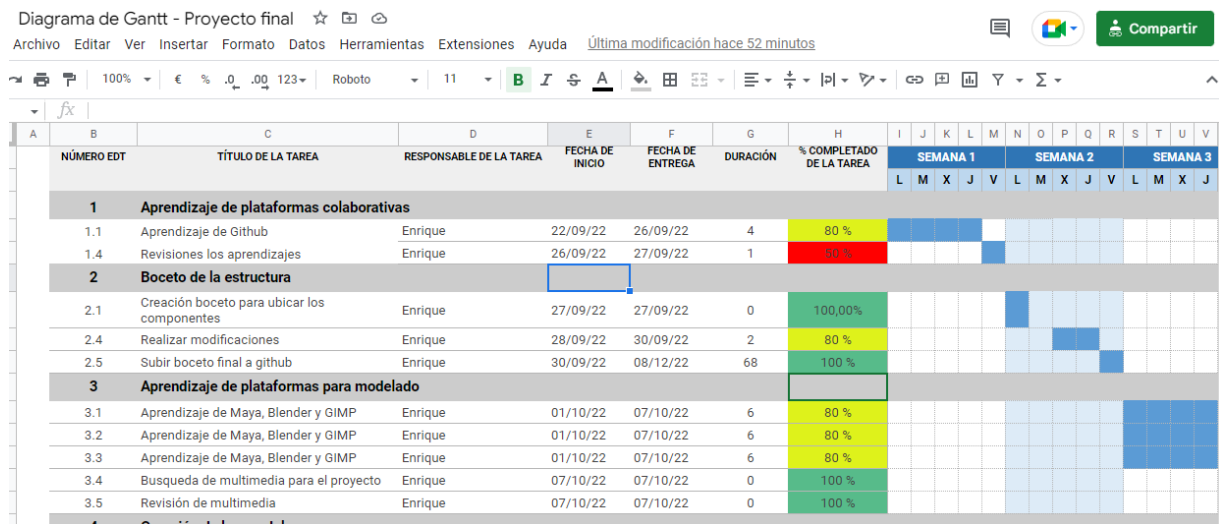
Code documentation

Folder Description

Shader	Description	Models
lighting	Describe the properties of a surface (such as alpha color and normal), and a Lighting Model computes the lighting interaction.	Crab, Roca, Pared, Domo, pecera, puerta, Fishes, corales, chest
anim	Shader For use the animation of Bones	Human

Variable Description

Tip	Variable	Description
float	rotC	Ratote of Crab
float	UpC	Maximum value of the Crab feets
float	DownC	Minimun value of the Crab feets
float	Pinzas	Maximum and minimun value for Crab
float	rotKit	Angle of rotation for the Puffer fish
float	rotTapa	Rotetion for Chest Cover
float	Abrir	Open and Close the door
float	r	Radio of the circle
float	Radio	Calculate the angle for the circumference
float	movY	Movement of the Fishes Up and down
float	movKitX	Movement for the coordinates in X for Puffer fish
float	movKitZ	Movement for the coordinates in Z for Puffer fish
float	rotDI1	Movement keyframe feet #1 left and right Crab
float	rotDI2	Movement keyframe feet #2 left and right Crab
float	rotDI3	Movement keyframe feet #3 left and right Crab
float	rotDI4	Movement para el keyframe feet #4 left and right Crab
float	rotHands	Movement hands Crab
float	rotInc	Calculate the Movement de rotDI1
float	rotInc2	Calculate the Movement de rotDI2
float	rotInc3	Calculate the Movement de rotDI3
float	rotInc4	Calculate the Movement de rotDI4
float	rotInc5	Calculate the Movement de rotDI5
int	turnangle	Calculate angle for rotate
bool	myanim	Activate light
bool	circuito	Activate animation Puffer fish y Fishes en el volcán
bool	recorrido1	Activate animation Puffer fish
bool	recorrido2	Activate animation Puffer fish
bool	recorrido3	Activate animation Fishes
bool	recorrido4	Activate animation Fishes
bool	recorrido5	Activate animation to open the Chest cover
bool	recorrido6	Activate animation to close the Chest
glm::vec3	LightP2	Light value
glm::vec3	LightP3	Light value

Animation

Animation	Model	Description
Chest	Chest	Press key C to open Chest cover Press key V to close Chest cover
Puffer fish	Puffer fish	Movement circular with rotation X and Z of a circle
Fishes	Fishes en el volcán	Movement up and down
Crab	Crab	Movement keyframes
Human	Human	Animation of bones

Conclutions

In this project, the models load their textures correctly, as well as the animations.

It should be noted that the complex of the animations had to be done very quickly due to the delivery of this project.

The implementation of different types of lighting is done according to the reflection of the direction light. To obtain the direction, the reflection was obtained with the light and the normal of each model.