Universidad Nacional Autónoma de México

Facultad de Ingeniería

Materia:

Computación grafica e interacción humano-computadora

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Grupo:

05

Entregable:

Proyecto Final(Manual de usuario)

In this manual, the operation of the software that allows the 3D recreation of the Billy and Mandy cartoon will be documented. It will explain how to interact with the furniture, as well as how to activate special events in real-time. Additionally, the navigation controls to interact with the scenery will be indicated.

## Technology used

- C++ Programming Language

- Graphics API: OpenGL 3.3
- Window and input management: GLFW and GLEW
- Mathematics: GLM (OpenGL Mathematics)
- 3D Model Loading: Assimp
- Texture Loading: SOIL2 / STB Image
- 3D Modeling: Blender 4.0 (Modeling, UV Mapping and Animation)
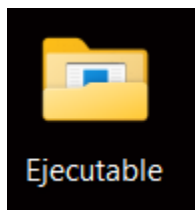- IDE: Microsoft Studio 2022

## System Requirements:

To have a better experience, take into account having the following:

-Operating System: Windows 10 or Windows 11

-Graphics Card: Compatible with OpenGL 3.3 or higher.

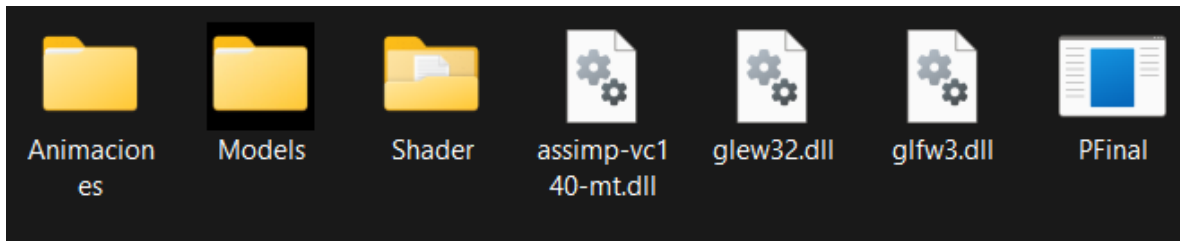-Files: Complete project folder (do not move the executable out of the main folder).

## Program Execution

The software does not require installation so you only have to comply with the following steps:
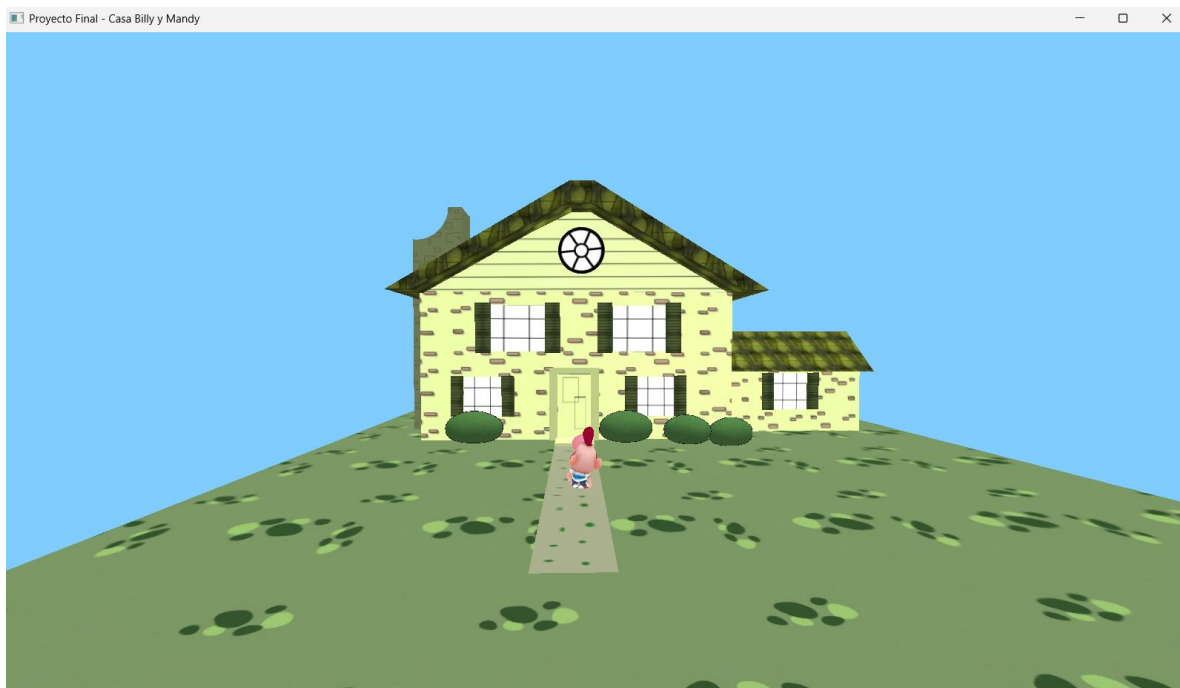
1.-Locate the folder "Ejecutable"

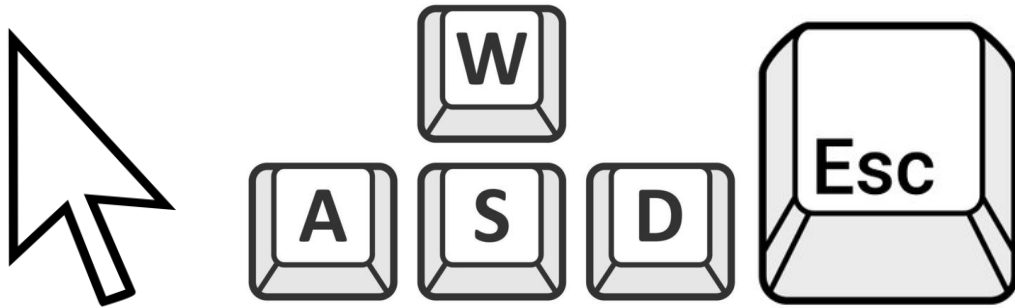2.-Open the folder and look for the file "PFinal"



It is important not to separate this file from the rest, since without them its visualization will not be possible

3.-Click on the file and a 1600x900 pixel window will open showing the house facade

**4. Controls and navigation**
The environment is controlled through the keyboard and mouse.

The mouse pointer will work like a camera similar to a first-person video game place the pointer in the direction of the angle you wish to visualize.
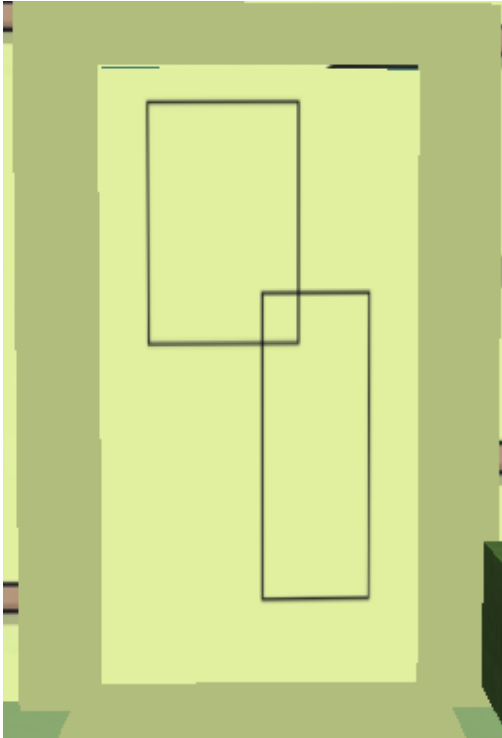
The letters WASD will serve as controls for movement in the camera, with which with the W key you will advance, with the A key you will move to the left, with the D key you will move to the right and finally with the S key you will go back. Finally, with the ESC key the program is interrupted immediately.

# Interaction with environment objects:

You can interact with different objects in the environment if you wish to interact with the doors press keys 1, 2 or 3 to open or close each of the doors that the house contains

With key 1 the animation of opening or closing of the entrance door of the house is generated:

With key 2 the animation of opening or closing of the living room door is generated:

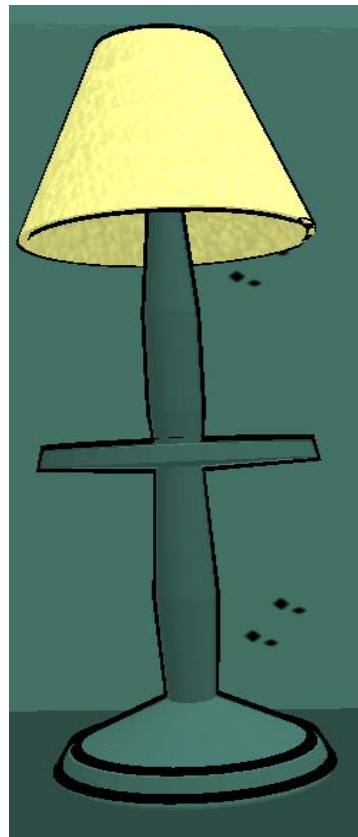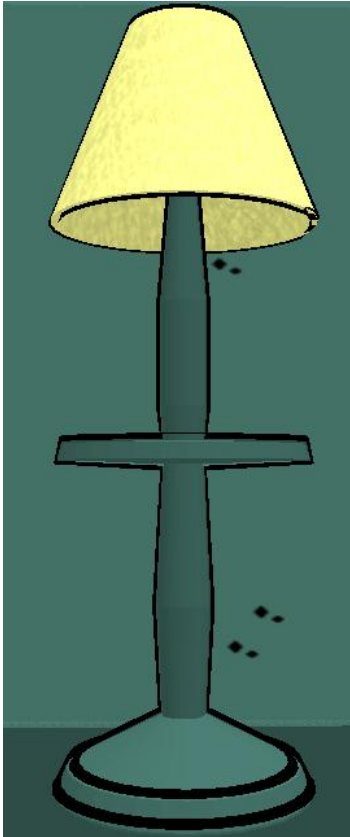With key 3 the animation of opening or closing of the bathroom door is generated:
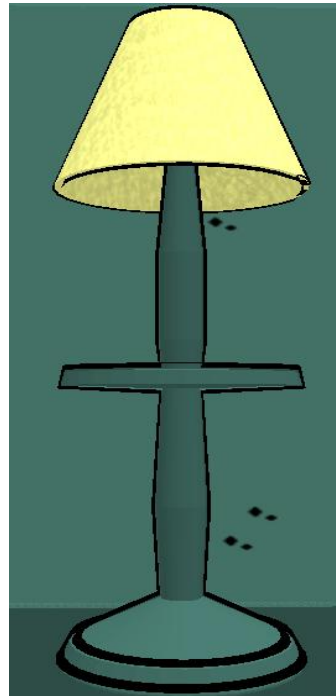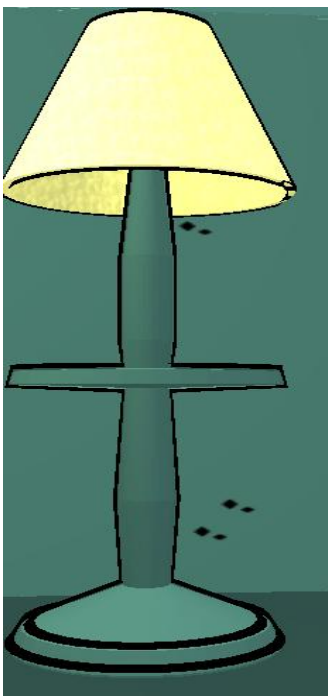


**Animation and event control**

The scenario has other animations that can be activated with the Keys:



For the movement of the lamp the M key is used, when pressing the key the lamp wobbles, while, if pressed again, the lamp returns to its position.
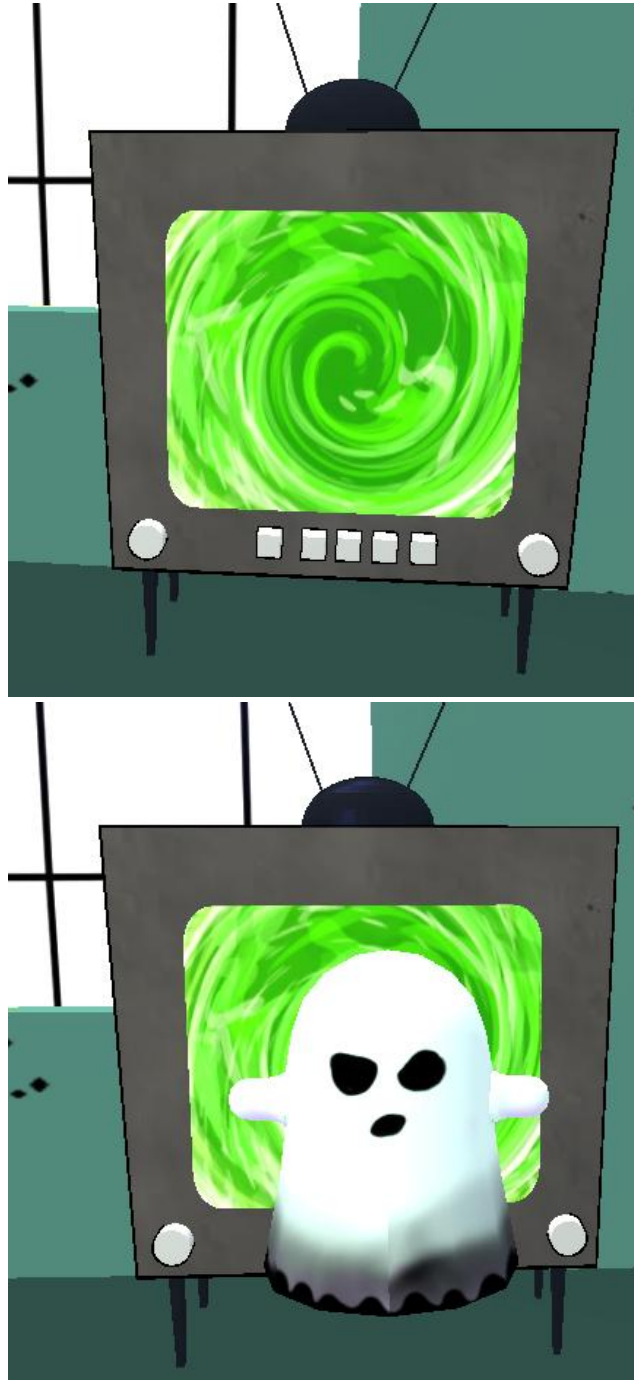
To turn the lamp on or off the N key is used:

If you wish you can activate both animations at the same time and observe how it wobbles with the light on.

If you use the P key you can observe how the television changes texture and a specter comes out of it, this animation can be reactivated once finished.

Additionally, if you wish you can observe the animation of Billy walking, who is located near the main door.



## Solution to common problems:

If the program does not open: ensure you are running the correct file, from inside the indicated folder and that it has the files glfw3.dll, glew32.dll and assimp-vc140-mt.dll present in the same folder.

Failure in textures: Ensure that the images and models folders are in the same executable directory.

The program needs to read the files to load the colors correctly.

Deficient movement: Ensure you are not running heavy programs in the background.