USER MANUAL

UTILIZATION OF SHADERS ALGORITHM TO SIMULATE A 3D ISOMETRIC GAME

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Utilization of Shaders Algorithm to Simulate a 3D Isometric Game

An Undergraduate Thesis
Presented to the Faculty of the
College of Information and
Communications Technology
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La Paz, Iloilo City

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Computer Science

by
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Disclaimer

This software project and its corresponding documentation entitled: “Utilization of Shaders Algorithm to Simulate a 3D Isometric Game” is submitted to the College of Information and Communications Technology, West Visayas State University, in partial fulfillment of the requirements for the degree, Bachelor of Science in Computer Science. It is the product of our own work.

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Getting Started

I. INTRODUCTION

The 3D isometric game developed by the researchers is intended to be used as a testing platform for assessing the effectivity and efficiency of the shaders algorithm that was also developed by the same team of researchers. With the aim of providing a better comparative analysis, the game has been designed to include a toggleable key that allows the user to switch on and off the application of shaders to the game environment, thus enabling a direct comparison between the two different states of the game.

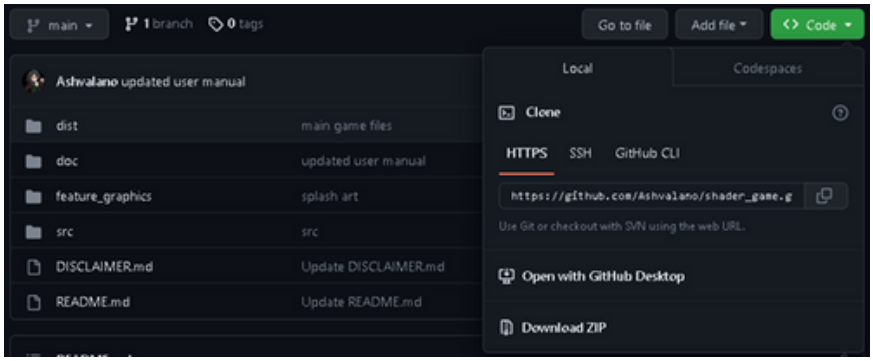
II. SYSTEM MINIMUM REQUIREMENTS

Operating System:	Windows 7 and above
Processor:	1.8GHz Dual-Core CPU
Memory:	512MB
Graphics:	Integrated Graphics compatible with DirectX 11 and above
Storage:	200MB available space

III. INSTALLATION

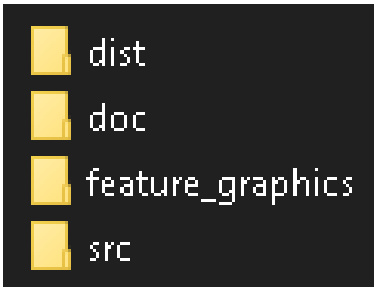
USER INSTALLATION

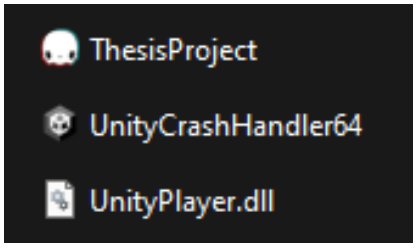
1. Download the game by following this link:
   https://github.com/Ashvalano/shader_game



2. Extract the zip file using a file archiver tool of choice such as WinRar or 7-zip

3. In the “dist” folder, locate and run ThesisProject.exe to launch the game

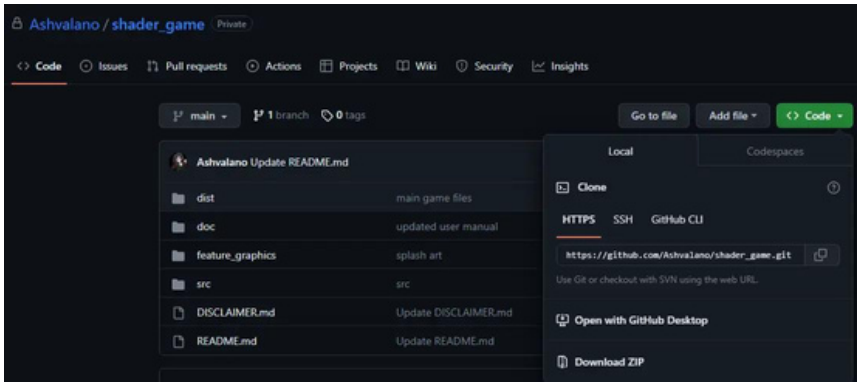




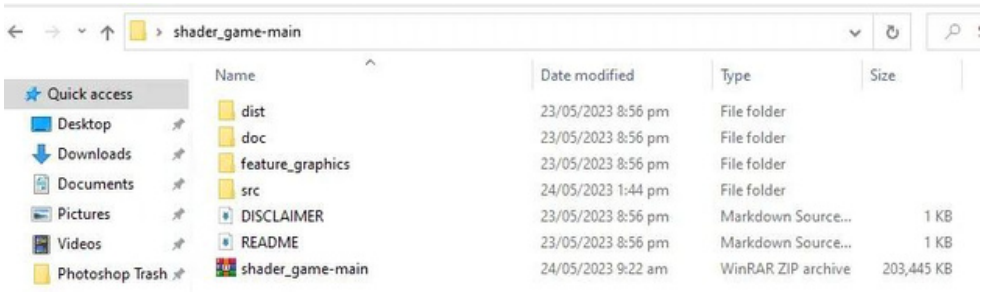
DEVELOPER SETUP AND INSTALLATION

Setting up the game development environment:

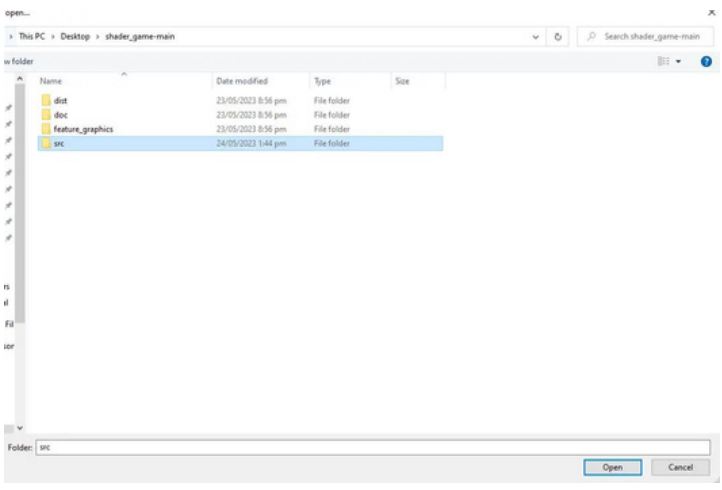
1. Download the game files by following the link below:
   https://github.com/Ashvalano/shader_game



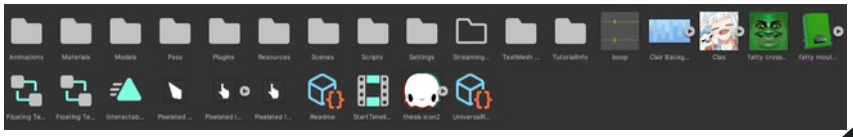
2. Create a folder and extract the ZIP contents into the folder

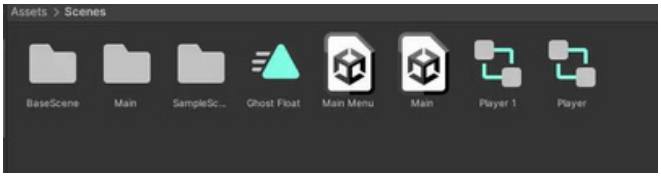


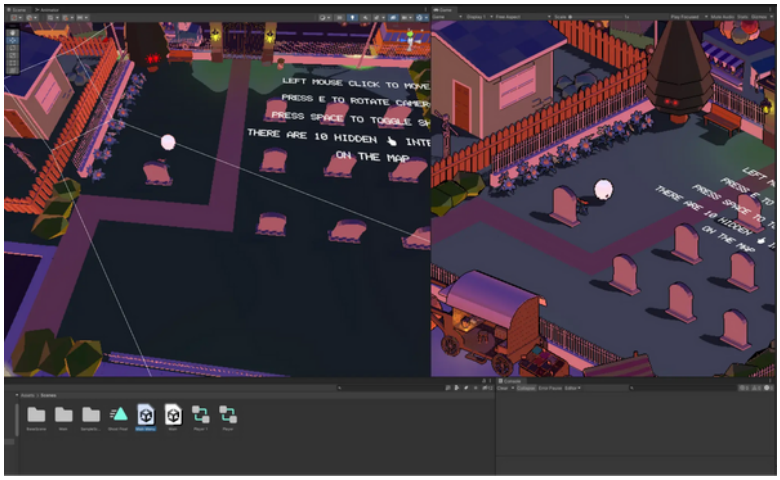
3. Open Unity Hub, go to the Projects tab, click on Open, and choose the src folder as the directory



4. Open the project file, open the Scenes folder, and open Main to open the game development environment







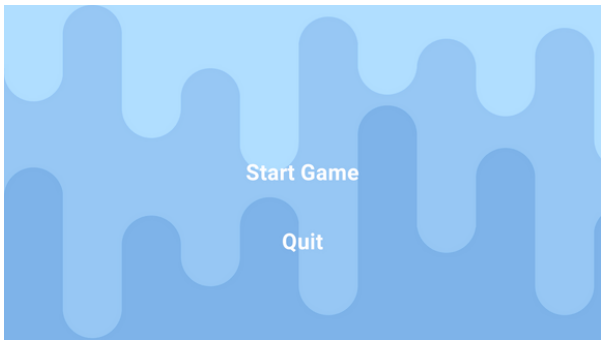
System Setup used for Development:

Processor:	Intel(R) Core(™) i7-10700 CPU @ 2.90 GHz 2.90 GHz
Installed Ram:	32.0 GB (31.9 Usable)
System Type:	x64-based processor
OS:	Windows 10 Pro 21H2
Graphics Card:	NVIDIA GeForce RTX 3060
IDE:	Visual Studio Code 1.78.2
Unity Editor Version:	2021.3.5f1

Usage

I. MENU SCREEN

Upon opening the game, you will be directed to the menu screen. Click on the Start Game to get started.



II. GAME ENVIRONMENT AND CONTROLS

Your character is controlled by left-clicking the mouse on the game environment. To toggle the shaders on/off, press the spacebar key on the keyboard. To pan and turn the camera, press the e key on the keyboard.

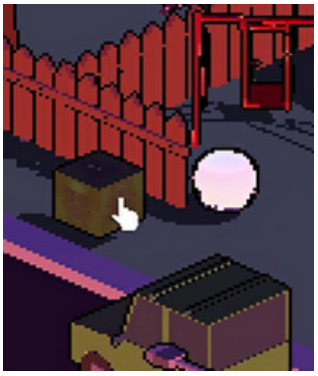
Shaders toggled on

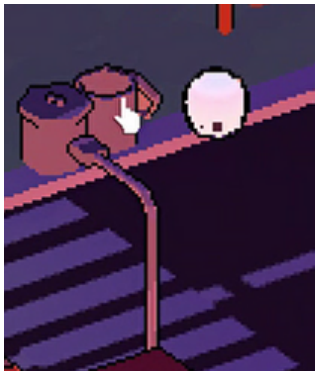
Shaders toggled off

The camera turned using the "e" key on the keyboard

III. INTERACTABLE OBJECTS

There are 10 different interactable objects that the player can find in the game. The mouse pointer changes when the player finds them.





IV. EXITING THE GAME

To exit the game, the player just needs to press the ESC key on the keyboard and then click Quit Game in the pause menu

Troubleshooting

DISPLAY PROBLEMS

When encountering display problems, the researchers recommend checking for an update on their system's graphics driver, then restarting the game.

FAQs (Frequently Asked Questions)

Q. ON WHAT PLATFORM CAN I PLAY THIS GAME? IS THIS AVAILABLE ON MOBILE AND PC?

- Unfortunately, the game is available only on PC.

Q. WHY IS THE GAME DROPPING FRAMES WHEN I TURN ON THE SHADERS?

- This is an intended feature as the lowered frame rate is for the purpose of emulating retro pixel games.

Q. WHY CAN'T I EXPLORE SOME PARTS OF THE ENVIRONMENT?

- Some parts of the game environment are in fact inaccessible, hence the obstacles that block the player (refer to the images below).

DEVELOPMENT TEAM

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