

Snake Game
Using Opengl
3D Computer Graphics & Visualizations

CSCI 452 Project

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I.

Introduction:

Snake game is the game that we all used to play while we were young with the old Nokia phone. Snake is the reference to the predator which search for his prey all over his land to hunt it and eat it. For example, you can keep crawling all over the map or the land to try to eat your prey without biting yourself accidently and die, you might also crash to a collider or a wall. They are also a reference to getting out of your safe zone where you can become an easy target for the other predators.

II.

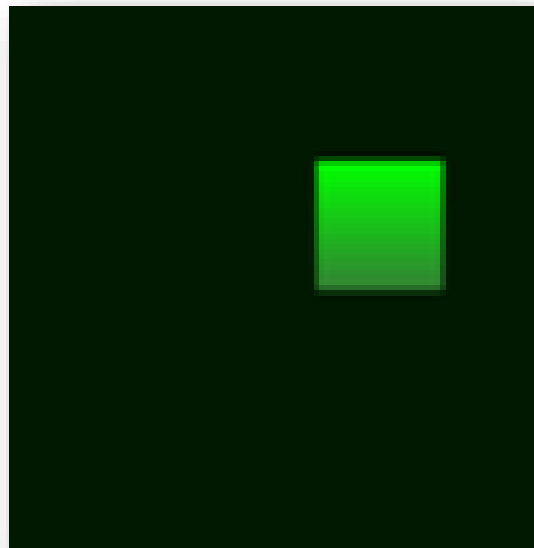
Methodology:

The programming language that used in this project was c++. Opendgl and freeglut packages were used in dealing with the Quads and the colors and

implementing the graphical map. This part is going to illustrate some important concepts which had been used in this project.

New Prey Function:

A random function within the map boundary to make sure the prey respawns after it's eaten by the snake in a specific boundaries.

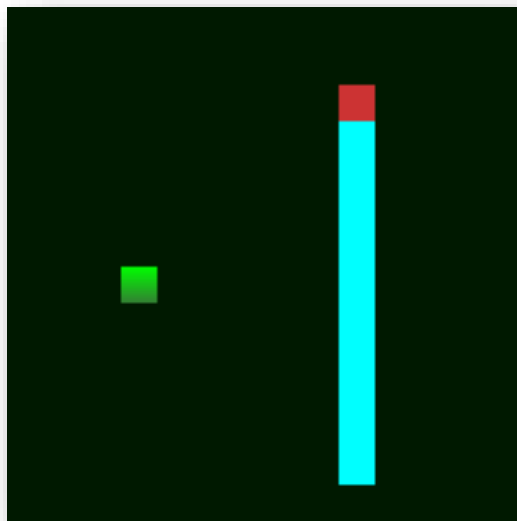


Erase Function:

In the Erase Function We paint the color of the map again in Quads, so it appears like the snake tail is following its head.

Redraw Function:

In this function we paint again the snake body in Quads. To make the snake feels like it's moving in the head direction to make sure the body keeps following the head.



Check Strangled Function:

In Check strangled function we check if the snake crashed into any of his body parts including the tail and if it happens then the game is over.



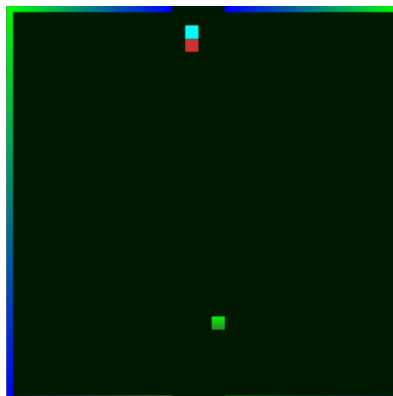
Display Text Function:

This function Displays any text written after the game is ended or if the snake died. And it shows whether the game is over by losing or a congratulation text if you won.



Boundary Function:

In boundary function we change the visual appearance of the map or the land boundaries starting from the color to the shape of the map walls.



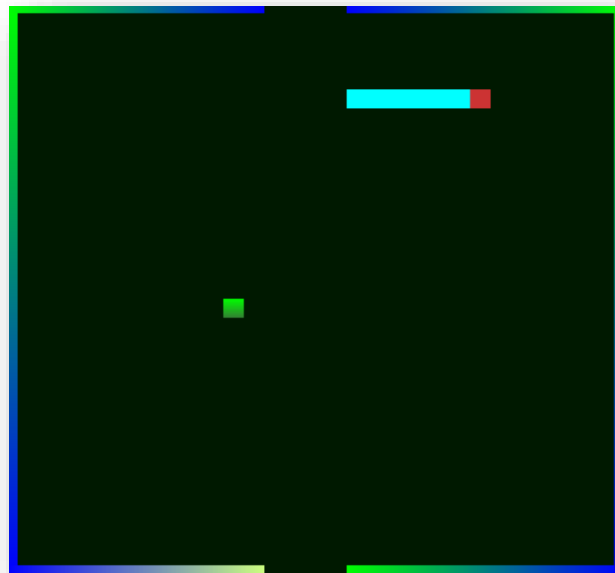
My keyboard Function:

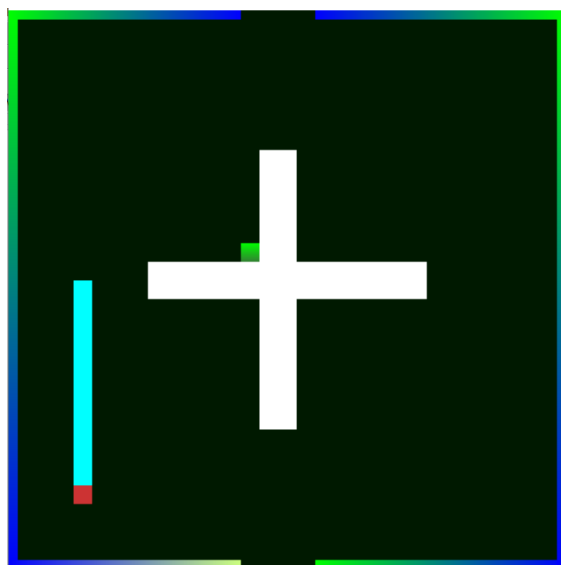
In my keyboard function, we make the snake moves by the keyboard arrow keys. With each arrow with the known direction.

III.

Results:

This is the final result after applying the previous functions together with other final touches to create the known snake game:





IV.

Conclusion and Discussion:

Snake game is a small PC game that offers a new entertaining and fascinating experience for its users, and it revolves around a moving Snake controlled by the player trying to eat its preys and pass a different challenging levels.

V.

References

<https://www.khronos.org/registry/OpenGL-Refpages/gl4/html/glReadPixels.xhtml>

<https://docs.microsoft.com/en-us/windows/win32/opengl/glvertex2f>

<https://docs.microsoft.com/en-us/windows/win32/opengl/glvertex2i>