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CS 480

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PA10: Pinball

Project Control:

Down Arrow: Launch Ball

Left Arrow: Left Paddle

Right Arrow: Right Paddle

N: New Game

B: Change Ambient Light Value

I: Zoom In

K: Zoom Out

J: Orbit Counterclockwise

L: Orbit Clockwise

U: Move Camera Up

O: Move Camera Down

A: Select an object so that individual object lighting parameters can be adjusted

S: Cycles the currently selected objects specular brightness.

D: Cycles the currently selected object's diffuse brightness.

F: Cycles the currently selected object's shininess value.

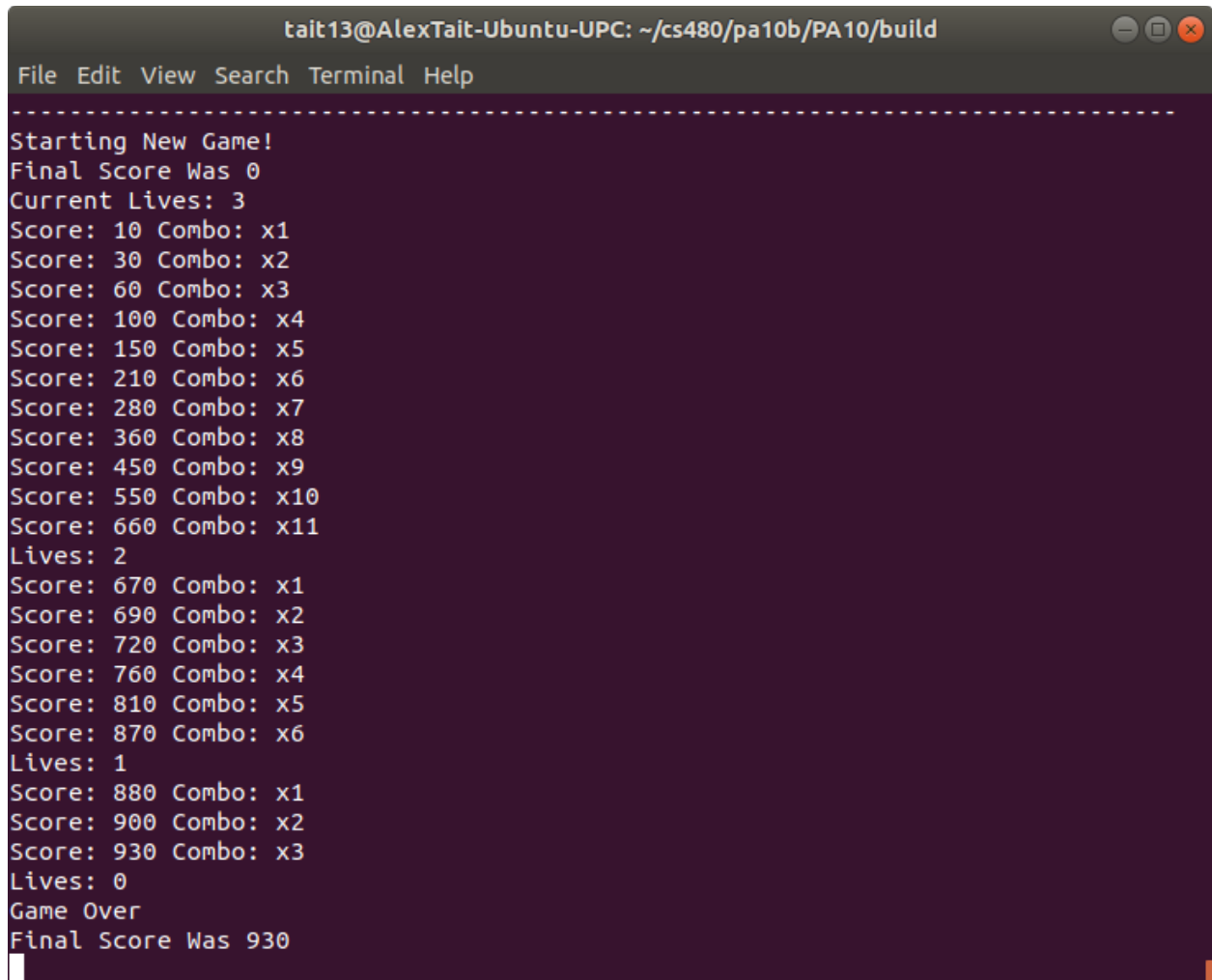
Extra Credit opportunities implemented:

-None

Pinball Game Initial Position



Score Output for Single Game Played

A terminal window with a dark purple background and white text. The window title is 'tait13@AlexTait-Ubuntu-UPC: ~/cs480/pa10b/PA10/build'. The menu bar shows 'File Edit View Search Terminal Help'. The output text is as follows:

```
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Starting New Game!
Final Score Was 0
Current Lives: 3
Score: 10 Combo: x1
Score: 30 Combo: x2
Score: 60 Combo: x3
Score: 100 Combo: x4
Score: 150 Combo: x5
Score: 210 Combo: x6
Score: 280 Combo: x7
Score: 360 Combo: x8
Score: 450 Combo: x9
Score: 550 Combo: x10
Score: 660 Combo: x11
Lives: 2
Score: 670 Combo: x1
Score: 690 Combo: x2
Score: 720 Combo: x3
Score: 760 Combo: x4
Score: 810 Combo: x5
Score: 870 Combo: x6
Lives: 1
Score: 880 Combo: x1
Score: 900 Combo: x2
Score: 930 Combo: x3
Lives: 0
Game Over
Final Score Was 930
```

Dependencies, Building, and Running

This project requires Assimp and ImageMagick. Other than that,

There are no additional dependencies besides the graphics related libraries.

- `sudo apt-get install libglew-dev libglm-dev libsdl2-dev libassimp-dev libmagick++-dev libbullet-dev`

Building and Running

CMake is used to build this project.

The user must run the project by running ./Pinball in the console.

CMake Instructions

- The building of the project is done using CMake.
- mkdir build
- cd build
- cmake ..
- make
- ./Pinball

Issues

- Spotlight does not follow the ball
- Flippers were difficult to implement properly until we used Convex Hull Shapes
- Pinball would often glitch through walls until we changed the ball to Continuous Collision Detection and increased interpolation values.

What we would change if given more time

- Improve Lighting
- Make a slide for ball to travel up

- Make a leaderboard/store highscores
- Make plunger model move

What Was Changed From Wednesday

- Paddles were changed to Convex Hull Shapes with kinematic objects instead of using hinge constraints with dynamic objects to allow for smoother movement and better collisions.
- Pinball board and layout changed.
- Interpolation changed to lower chance of ball phasing through objects.
- Ball changed to Continuous Collision Detection to lower chance of ball phasing through objects.
- Scoring method updated to include Combo multiplier.
- Game over methods updated to stop fast collisions with bottom of board from taking more than one life away.
- General physics parameter tweaking to make the game run smoother.