

COP 290 - Assignment 1

Screensaver of N balls

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1 Implementation

In this app, we are implementing a '3-D Screensaver' consisting of N balls. In the app, you can change the velocities of balls, move in front and back, enable gravity, and increase the number of balls. The software required for running the app are:

- g++
- Open-GL Libraries(Free-glut)
- p-threads library on C++

2 How to Use

2.1 Start the app

In order to run the Screensaver for first time, type the command `make execute num_threads=n` in Linux terminal after changing to project directory, where n^* denotes the number of balls.

* The maximum number of balls allowed is 30

If you want to execute it again, first remove `execute` and `compile` files from the project, using `rm execute compile` and again run `make execute num_thread=n`.

2.2 Controls

During execution, various parameters can be controlled with the help of Keyboard Buttons. These include:

- `↑` and `↓` Keys – To cycle through the balls selected for controls. Initially no ball is selected. The selected ball turns white in colour.
- `?` key – To clear the selection of balls.

- **← and → keys** – To change the velocity of selected ball. ←key for increasing and → key for decreasing velocity.
- **w and s** – To move front and back in box, i.e, in the Z direction.
- **g** -To enable gravity in the ball. Each ball will then experience an acceleration in downward direction.
- **+** – Inorder to increase the count of balls currently present on the screen. The count can only be increased till 30.
- **Space key** – To pause the app. The balls and moving terrain will be paused. Again pressing **Space** key will start the app again.

The app will open in Fullscreen. Pressing **Esc** button will exit the mode and return to windowed mode.