**Assignment 3 Report**

**Game Loop Structures**

**-**The ball will start moving as soon as the program is run.

**-**The ball always has the same starting position but different velocity each time the program is run/restarted.

**-**Added in Keybinds:

* **1**: sets the FPS to 60.
* **2**: sets the FPS to 120.
* **3**: uncaps the FPS.
* **R**: restarts the simulation (resets the ball’s position and velocity).
* **ESC**: exits the program.

**Design Choices/Techniques Applied**

-Framerate Independence

* Ball’s movement is based on ‘deltaTime’

-Framerate Governing

* Limit the FPS to 3 different presets: 60 FPS, 120 FPS, and Uncapped.

-Breakpoint Handling

* ‘deltaTime’ is capped in order to prevent sporadic and weird ball’s movement.

**Challenges Encountered**

-I was going to use SDL3 and SDL3-ttf as the main libraries since I’ve been using it for our Game Engine project but the way how library is linked in Visual Studio was really weird, so I changed to Ray Lib since it’s easier to embed inside the project.

-Originally, a resizable window functionality was implemented but it wrecked the collision of the ball so that was removed.

-At first, the debug overlay’s positions were really off so that was fixed briefly (just took me a while to notice).

-Some instances were whenever the program is run, the ball is just stuck at the starting position until “R” is pressed then the ball moves.

-Initially, “R” command doesn’t work quite correctly, it only reset the ball to its “last known position” instead of ACTUALLY restarting the program/simulation.

**Results**

A grey rectangular object with a red dot

AI-generated content may be incorrect.