600086 Lab Book

# Week 2 – Lab 8 A simple Particle animation in CUDA

Date: 24th Mar 2022

## Exercise 1. Draw a box without front wall.

### Question1: adjust the code from lab 7 so that you have an open box drawn to the sscreen

### Solution:

I added in a set of 5 spheres that will make up the box they are very large making the curvature barely noticeable at our current scale.

Text

Description automatically generated

### Test data:

N/A

### Sample output:

A screenshot of a computer

Description automatically generated with low confidence

### Reflection:

none

### Metadata:

### Further information:

## Exercise 2. Free motion animation

### Question1: implement code to allow the particle to rotate about the centre of the box

### Solution:

Added a device wide global variable named tick



Changed the sphere to be drawn to the following



This moves the ball every time the image is rendered due to the tick variable being incremented

### Test data:

n/a

### Sample output:

Chart, funnel chart

Description automatically generated A screenshot of a computer

Description automatically generated with low confidence Chart, funnel chart

Description automatically generated

### Reflection:

### Metadata:

## Exercise 3. Ball-box walls collision animation

### Questions:

1. Modify the previous code to give the sphere a velocity and bounce off of the walls of the box
2. Implement a code change that will make the ball change colour after a collision.

### Solution:

1. I first defined some global variables for the sphere to track its movement

Text

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I then modified the create world kernel to move the ball and check for collisions with the walls

Text

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The collision is calculated by working out if the distance between the spheres position adjusted for the radius is intersecting with the wall position adjusted for the wall radius

### Test data:

N/A

### Sample output:

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| --- | --- |
| Ref | output |
| 1 | A screenshot of a computer  Description automatically generated with medium confidenceChart, funnel chart  Description automatically generatedA screenshot of a computer  Description automatically generated with low confidence |
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