**Programming Project Report**

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**Problem Statement:**

The goal of the programming assignment was to make it rain cats and dogs by using texture mapping and some of the things we have learned previously like drawing and rotating cubes. The only input of the program is the images of the cats and dogs which are stored in the assets/ directory. The program would output a beautiful display of cubes of cats and dogs falling from the top of the screen to the bottom at random locations, at random speeds, and of random sizes. No specific error handling was required but I’d assume that the program cannot error by itself and has to run correctly to be complete.

**Design:**

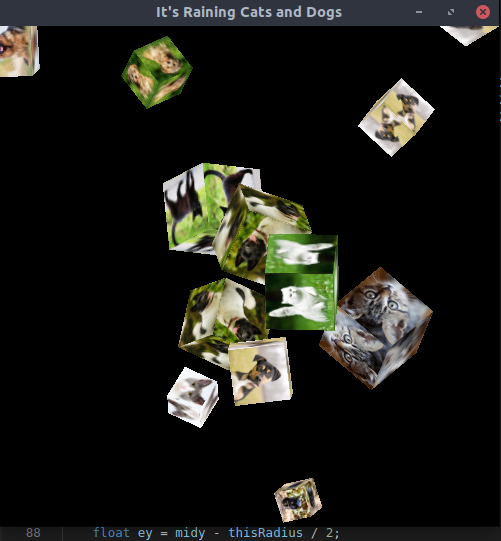
I decided to make multiple arrays to store all of the cube data like location, rotation, speed, etc. These arrays were the length of however many cubes there were and when updating and drawing the cubes all I had to know was which of the cubes in the array I was on and could easily get all of the information. Using structs would have been better but I couldn’t be bothered to refactor at the time. The only data structure that I used were arrays and the only algorithm I used was the one I had used previously to display a cube based on its radius and x,y,z location.

**Implementation:**

My implementation process went as follows: Draw a cube, rotate that cube, make it fall, randomize all of the aspects of the cube, then apply texture mapping onto the cube to show the images of cats and dogs randomly. I started with the code that I had used for the angry brick assignment. I had to extend this code to work for multiple bricks and change the physics s we just wanted it to rain bricks and didn’t need the mouse input and all of that. It took me about 4-5 hours to complete the assignment from start to finish.

**Testing:**

I tested the program by running it and observing the results. The normal inputs to the program are just the images of cats and dogs. There were not any special cases that needed to be considered. Everything worked as expected and accomplishes all of the requirements for the assignment.



**Conclusions:**

The result of the assignment was a fully function cats and dogs cube raining machine that met all of the requirements, meaning that this project was a success. If I were to do this project again, I would utilize structs to make everything much cleaner and not have to rely on array indexes to determine which data belongs to which cube. This took me approximately 4-5 hours to complete, I was storing my texture in integers and couldn’t figure out why my colors were all messed up for the longest time.