Journal Report 7
10/14/19-10/25/19
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Daily Log

Detail for each day about what you researched, coded, debug, designed, created, etc. Informal style is OK.

Tuesday October 15

Tried to pack 10 objects, fixed several errors found in code that could have impacted error in the packing found last week. Didn't finish running by the end of class

Thursday October 17

Went through packing algorithm and changed the way objects were represented such as a representation of objects that were very pixelated was used to test rotations and a specified amount of pixelation was used for the final packing. Required several tests to see to what degree of pixelation was the most optimal. Modified method so that if the degree of pixelation specified is less than the default, then it is used over the default to test packings.

Monday October 21st

Tried to pack 5 objects, fixed several errors created by modifying the rotation method. Took all of period due to run time of code

Tuesday October 22nd

Using trigonometry, I programmed a method that scales widths of objects such that arrays representing images of rotations of objects have the correct width so that the object does not change size. Tried to pack 5 objects, didn't pack by the end of the period.

Thursday October 24th

I worked on changing my code from creating 27 rotations of each object to creating 81 rotations of each object. I began trying to pack 2 objects, however kept receiving an error that I tried fixing in several methods, with no success. Packing algorithm takes a long time to run each time because it takes a while to create representations of each rotation, which needs to be improved on in the future. Have begun brainstorming ways to do this.

Timeline

Date	Goal	Met
September 27th	I hope to figure out a method that efficiently finds the optimal rotation of an object by initially testing out several rotations of each object and then progressively gets closer to the optimal rotation through these tests, and begin work on it	I figured out that the best method for doing this is just by finding the optimal rotation for each object as you pack it, and any specific optimization algorithms would take too long
October 3rd	I hope to program the method found in the previous week	I did not program any method, but came up with several that would pack objects quickly and would be plausible
October 17th	I hope to be able to pack objects correctly and display an image of it	I haven't accomplished this yet
November 4th	I hope to be able to pack 10 objects in a single class period	
November 11th	I hope to be able to speed up my algorithm to the point that I can pack 40 objects in a class period	

Reflection

Progress for modifying the packing algorithm has been much slower than I anticipated, although I should have realized this when I was told I would likely not have time to do anything further this year. Most of my testing and debugging of my code has taken extremely long because my program takes a while to create rotations of all the objects and to pack them. I hope to speed this up in the future by using rotation matrices, but at this point I want to be able to at least pack rotations of objects.

Lately I have been experiencing an error where one of my methods has been placing objects into positions they can't be in. I would like to investigate this next week, as I could not find anything this week. I think this could be caused by the width adjustment method I found this week, as I didn't really investigate how it might affect other methods
Even though I couldn't achieve any pickings this week, my code has finished compiling during class, it just returned errors that forced me to keep fixing things to the point where I couldn't find a packing. At this point I think I can employ several speed ups to hopefully find a fairly quick way to pack objects with rotation by the beginning of November.
At this point, I may consider reprogramming several methods completely, as I think changed I made after initially making these methods may cause errors, so reprogramming them with my current packing method in mind would be extremely useful.