

Daily Log

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

Monday November 18th

Started working on modification in which many more “rotation states” were initially checked, to create better packings of elongated objects. Initially, I found an error - because I added more states to check, there weren’t enough rotations of each object being initially generated.

Tuesday November 19th

Thought of solutions for state problem. Because a lot of the code’s runtime was from generating rotations of objects, modified packing so that the same number of rotations are generated but more rotations are initially checked. Had to debug some more, as many of methods relied on using 27 rotations .

Thursday November 21st

Finished working on the increased initially checked rotations states modification. Produces better packings, but takes a lottttt longer.

Started working on speedups. In particular, I’m working on the algorithm checking many rotations with very pixelated forms of objects, before using more finely pixelated objects when zeroing in on the best rotations. This would decrease the run time for both packing objects and generating rotations.

Timeline

Date	Goal	Met
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 11th	I hope to be able to pack 10 objects in a single class period	I haven't been able to create correct packings yet, but given the current run time of my code this should be very achievable
November 18th	I hope to be able to pack objects correctly and have rotated objects be exactly the same size as the original object	I accomplished both
November 25th	I hope to be able to speed up my algorithm to the point that I can pack 40 objects correctly in a class period	I am able to do this
December 1st	I hope to be able to speed up my algorithm to the point that I can pack 100 objects correctly in a class period	
December 1st	I hope to be able to speed up my algorithm to the point that I can pack 100 objects correctly within 10 minutes	

Reflection

This week I made my first modification to my packing algorithm: changing the number of initially checked states to produce better rotations. I'm unsure whether this was actually a modification worth making, as it drastically increased the run time of my code, while I don't think it produces significantly better packings. Two packings are shown below, where the bottom packing is one from the original algorithm and the top one is from the modified version.



Right now I actually want to focus more on run time than packing efficiency, because realistically you don't need to use a program to determine how to pack only 20 objects, so my code needs to run well under double and triple digit numbers of objects. I plan on figuring this out more next week. Right now, my latest project is to improve pixelized forms of objects when the best rotation needs to be finely selected but you know what range it's in. I can use more pixelated objects for determining what the optimal rotation is generally "around".