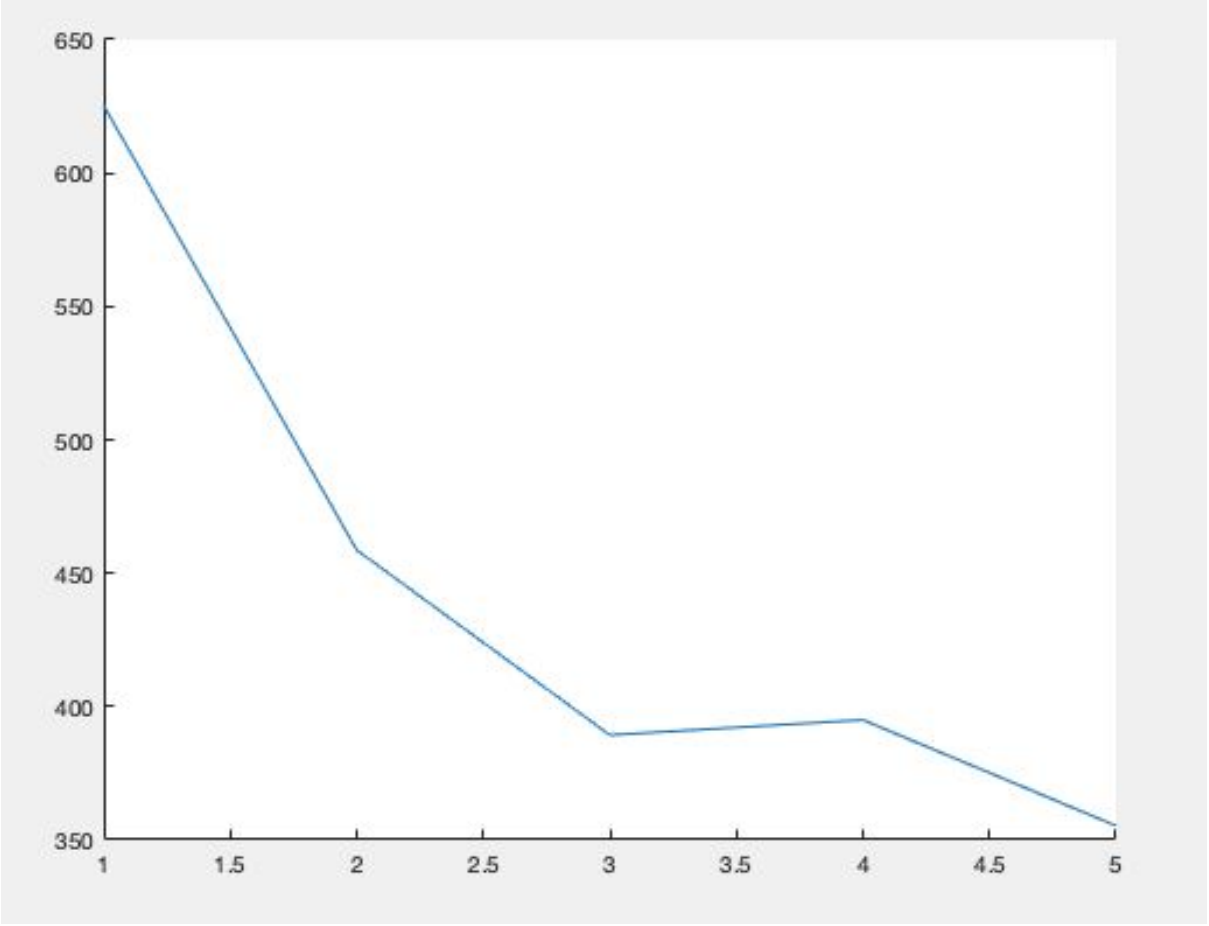
COMP 409 A1 performance plot with explanation
Liu, Yanhan
260797917

1. Performance Plot

width = height = 512; k = 200;
x - the number of threads
y - time cost (ms)

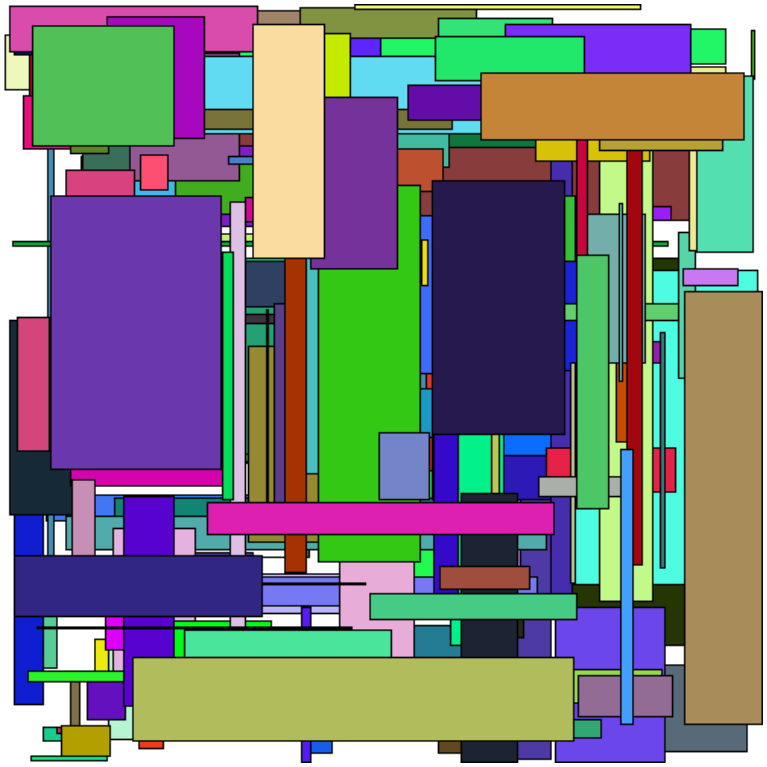


Speed-up Explanation:

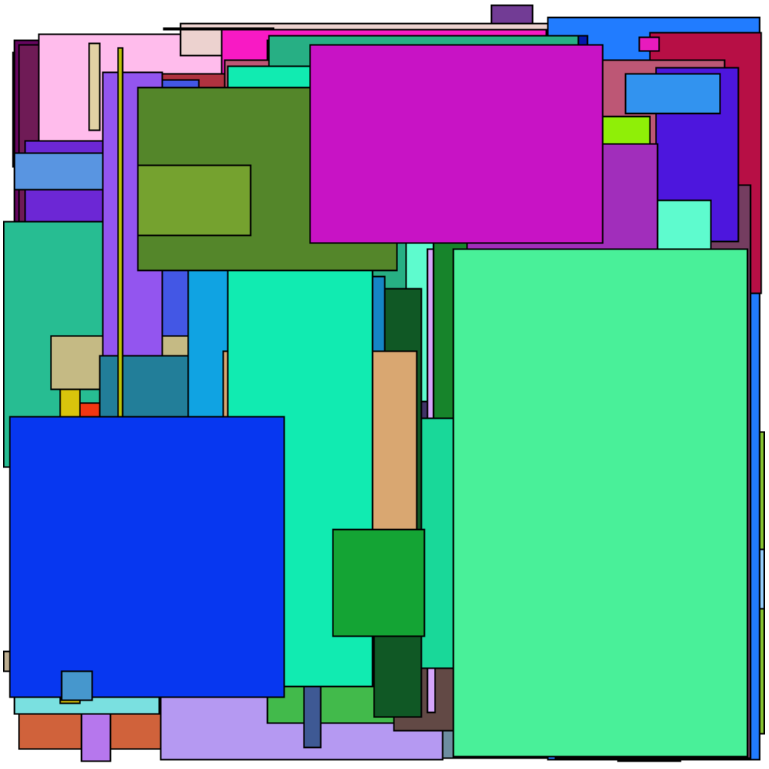
a) As the number of threads increases, their parallel work can efficiently decrease the time cost of the program, as long as the number is not too large. Because if the number of threads exceeds the number of rectangles, it will actually slow down the process rather than speed up.

b) When checking if the random position and size overlaps, more threads lead to smaller size of rectangles in general, which makes drawing time for each rectangle decrease since we draw the rectangle pixel by pixel then larger size means longer time to draw. This

tendency can be shown by two images below, each with fixed n,w,h and different numbers of threads.



java 500 500 10 180



java 500 500 2 180