Performance Report: Assignment 5

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PC Specs:

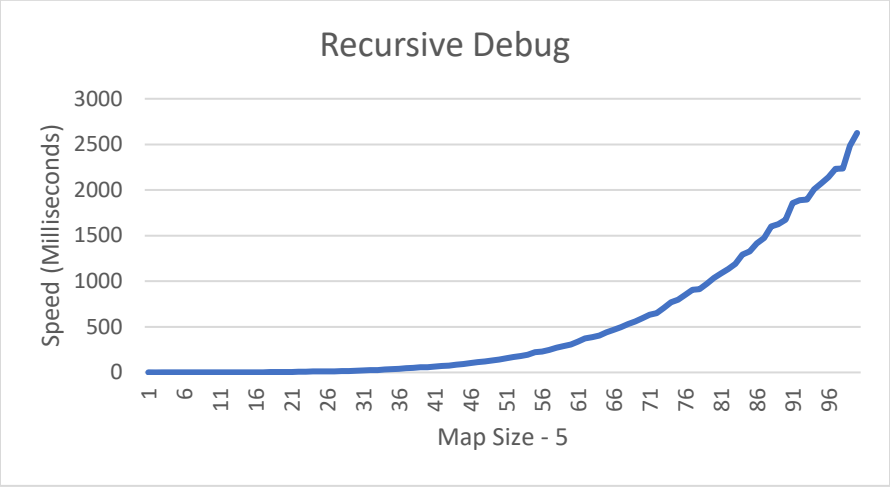
Processor	AMD Ryzen 7 5700G with Radeon Graphics	3.80 GHz
Installed RAM	16.0 GB (15.8 GB usable)	
System type	64-bit operating system, x64-based processor	

Authors's note: The x-axis is about half the map size, so 100 on x is a 200x200 map

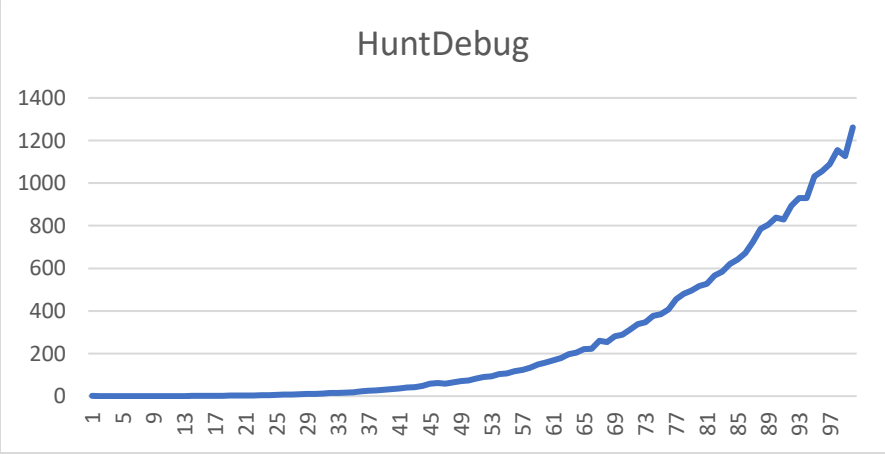
PRE-IMPROVMENTS RESULTS:

DEBUG MODE:

Recursive Algorithm:

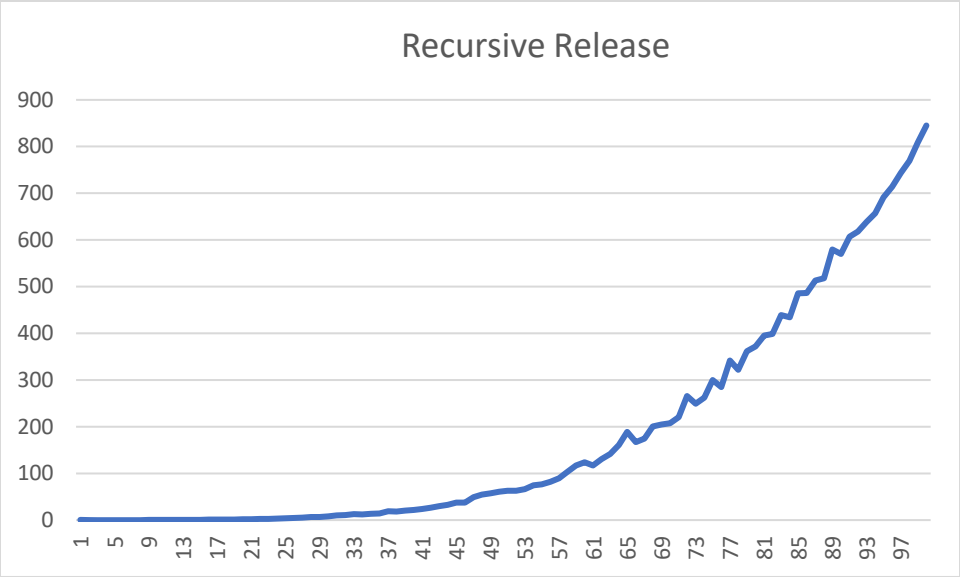


Hunt-Kill Algorithm :

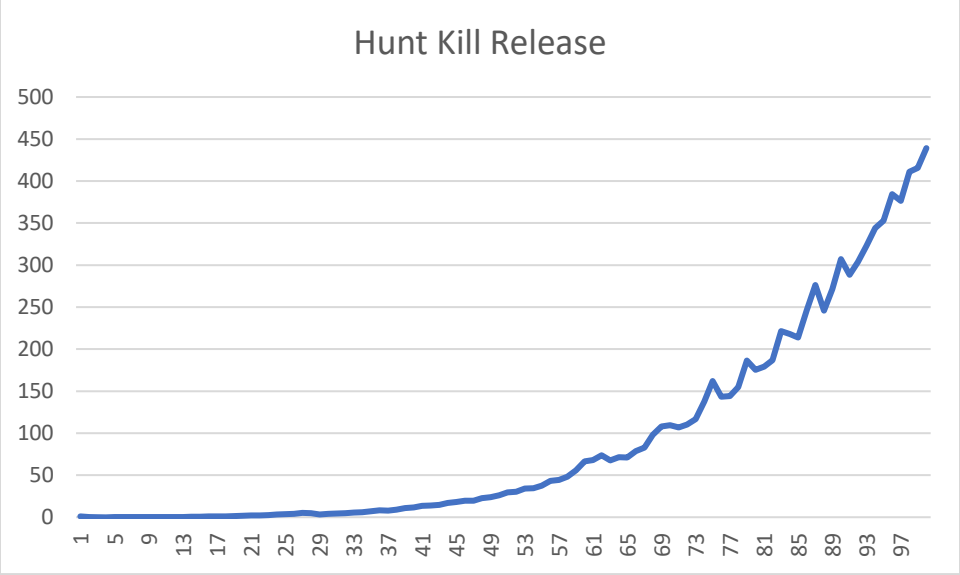


RELEASE MODE :

Recursive Algo :



Hunt-Kill Algorithm :



As each algorithm grows in the size of maps they need to generate, they increase in time exponentially. Release mode for each is roughly 3 times faster than in Debug mode. To my surprise, the recursive algorithm Is slower than the hunt and kill algorithm, which shouldn't be happening, so any improvements will be focused on speeding up the recursive algo.

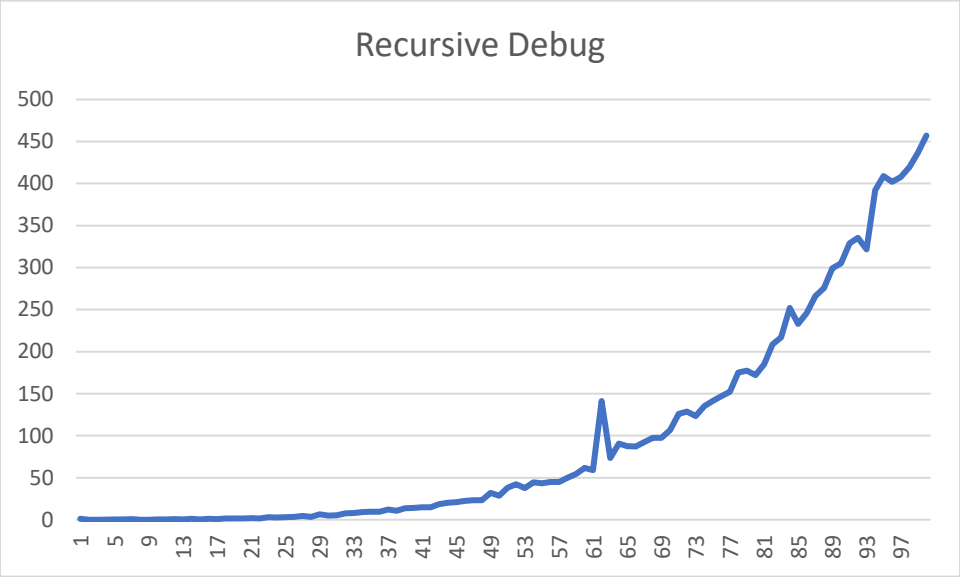
For each algo, I suspect the big(o) complexity to be O(N^3)

POST-IMPROVMENTS RESULTS:

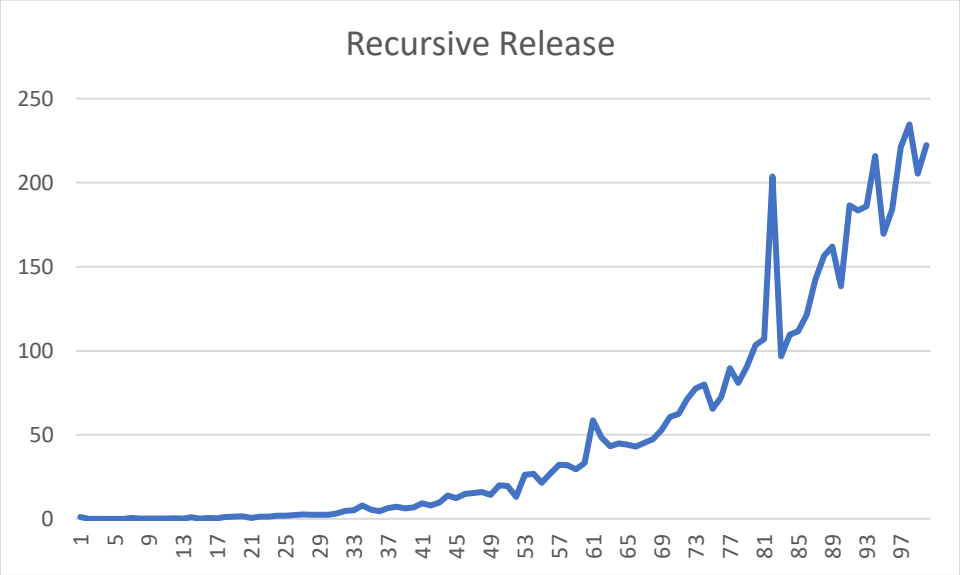
The first thing I did was analyse the Recursion Algorithm, and I found one spot that can be optimized. Instead of looping through each of the possible directions one by one to determine if any of them were

suitable for waling, i used the Parallel.ForEach method to check all 4 at the same time. Since the check are being done, 100s of times in recursion process, parallization here can be a huge time save

Debug Mode:



Release:



Massive improvements can be seen, with the release speed of the recursive model being 4x faster than before