Tony Diep
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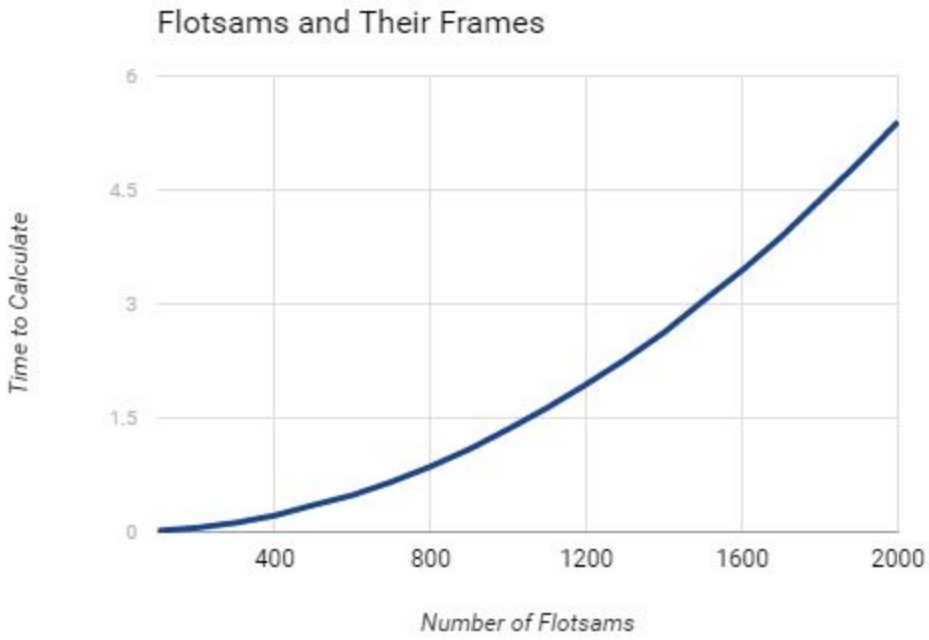
01/26/2017
2420
Timing Analysis
Ed Stephen Ancajas
I pledge that the work done here was my own and that I have learned how to write this program, such that I could throw it out and restart and finish it in a timely manner. I am not turning in any work that I cannot understand, describe, or recreate. I further acknowledge that I
contributed substantially to all code handed in and vouch for it's authenticity. (Tony Diep)



In our N-Body program, we analyzed the time the program took calculate the frames for each Flotsam plotted on the Star_Field. It seemed clear that as we increase the amount of flotsams drawn onto the Star_Field, the amount of time to calculate the frame for each Flotsam increases over time. So there is a linear (perhaps somewhat quadratic) relationship between the amount of flotsams and the time to calculate the frame. We were surprised that the graph had some quadratic pattern but this is likely because we used a computer with a high processor (Intel i7) and with good amount of RAM, so drawing immense amounts of flotsams (even including the vectors for each of them) isn't so much problematic. Thus, as each Flotsam was added to the program, some spot in memory in our laptop is reserved for each of the different Flotsams. We can also say that the size of the flotsams have some contributing factor because the bigger the Flotsams (and along with how many are drawn), requires more memory from the laptop. There is a slight issue in that our program is creating a lot of Geometry_Vector objects than necessary because all of the tools are already there. When creating a vector, there is no need to create more instance variables that represent a x coordinate and y coordinate.

It is also wise to note that the laptop does not only draw the flotsams onto the frame but also executes the repetitive calls of such methods like paintComponent() and

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update_screen_coordinates() (which is called iteratively in the Star_Field class). This means the program creates a bunch of stack frames and it is important for the laptop to be able to handle them. This will affect the time to calculate the frames for each flotsam as well as the laptop speed when doing the task.