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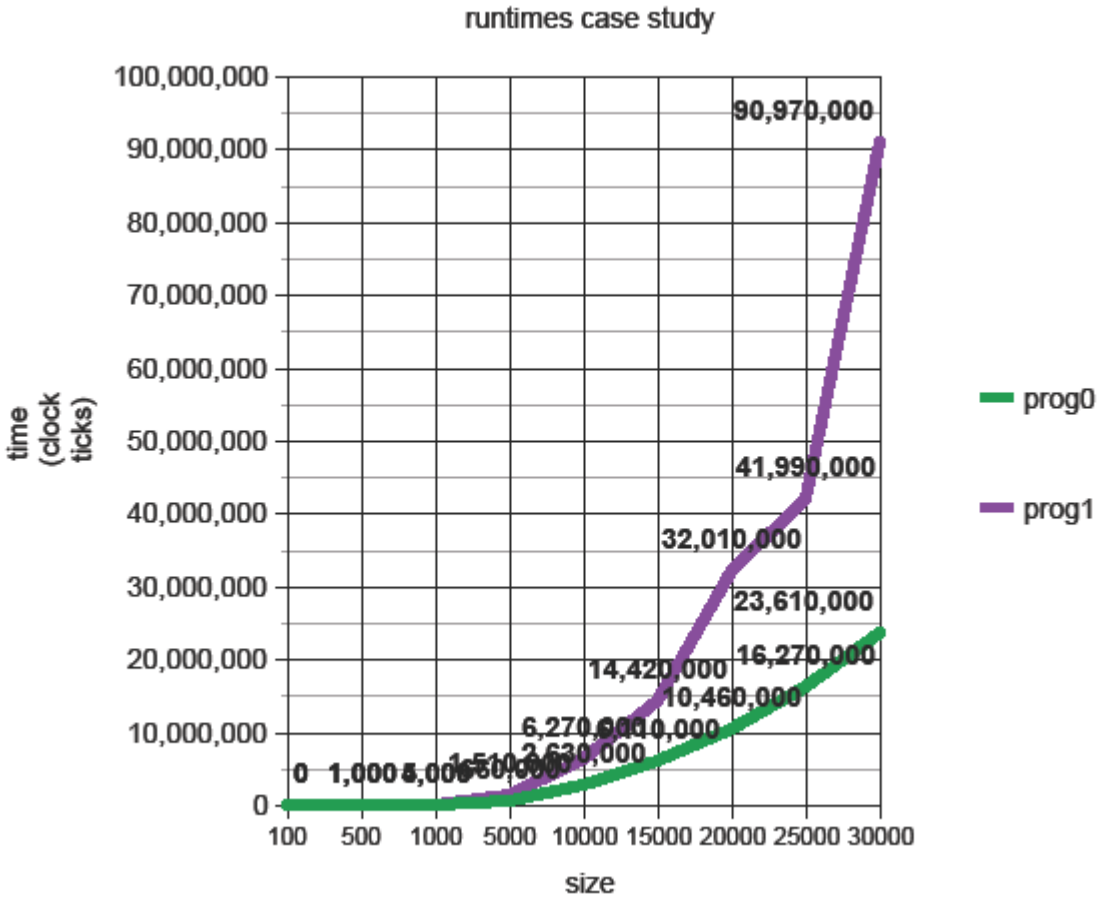
Case Study



What we can see is that Prog0 is faster than prog1. They are appeared to be equivalent up until a certain point around 5000. These two programs were almost identical except for one key line. While on did the multiplication horizontally on the array the other did it what appeared to be vertically. What I believe the key to my findings is that accessing parts of the array in memory that are next to each other is what speed up the prog0. This is an example of spatial locality since the loop accesses all of the same array in one cycle of the inner loop. Prog1 thus lost time to the jumping around

in memory by constantly switching the array it was traversing. Thus I conclude that the architecture and design favored the contiguous locations in memory.