Programming Assignment 3 – Randomized Selection Algorithm with Multiple Pivots
Diptendra Nath Bagchi (NetId: dbagchi2)

In this programming assignment, we ran the randomized selection algorithm with multiple pivots (from 1 to 15) to see the benefits/limitations of running it for different numbers of pivots.

The motivation to check the run time experimentally was the last week's assignment where we found the mathematical formulation of the running time and it pointed in the direction that the run time of the algorithm could be reduced by increasing the number of pivots.

But, the result of the experiment is a bit counterintuitive because the run-time for higher number of pivots is similar to the run-time of the algorithm with just one pivot. The result that the Prof. showed in the class was also along the same lines – where he mentioned that there is no significant benefit of choosing higher number of pivots than one as it does not translates into lower run-time.

One of the learnings for this assignment has been to see how the mathematical results be interpreted differently unless we perform experiments to check the validity of those formulations.

Linear Regressor Slope for Mean- and Std-Dev vs. #Pivots