

The output shows that the algorithm's runtime is close to  $n^2$ , or is polynomial. The program, by master method looks like it is probably close to  $n^{\log n}$ . This is partly since the program grows less than  $2^n$  and the program is built on two sigma functions, in runtime that is. Because of these two sigma functions it is hard to construct a working way to solve the runtime definitively, but it is in the ballpark of  $O(n^{\log n})$ , that is, some variable polynomial of some type.

This is expected, as the program doesn't iterate through every possible combination, but rather does all the permutations of a set, so it is also close to  $(n \ 3)P$ , but since some are not counted, that is when n = 1 in the set there are no sets that start in the highest value of pole length.

I found it interesting how some of the outliers are so disjoint with the original trend line, it almost seems like an external factor caused their separation, despite my trying to eliminate almost all factors that would affect the outcome.