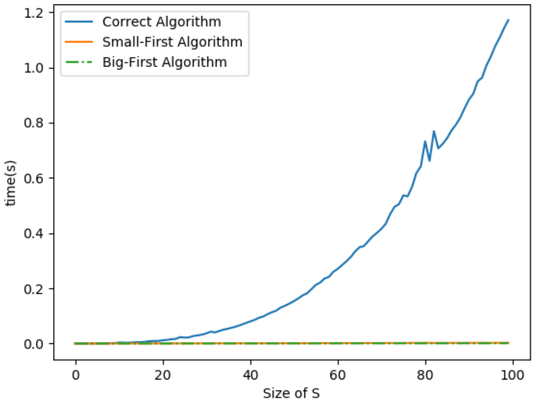
The algorithm is test in cases where the size of S ranges from 0 to 100, and in the set the elements are just $1, 2, 3, ...len(S)$. Because in this problem n is also a factor that will influence the time, in every case n is set to be $\lfloor \frac{sum(S)}{2} \rfloor$

And the result is shown in the graph below:



It is the time to perform 50 same algorithm repeatedly. It can be seen that the proper algorithm is much more time-costing than the two other algorithms. It is obvious since the correct algorithm has a $O(len(s) \times n)$ time complexity where the other two only need $O(nlogn)$.

Because in some cases the big-first and small-first algorithm could also give us correct or nearly correct solutions, we can sometime use these two when time efficiency is highly needed.