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Problem Set #9 Questions

Question 1)

A combination of problems prevents the first solution from passing all the test cases. Either stack overflows from too many recursions, or timeouts. This is because you’re performing identical calculations over and over again in many cases, requiring deeper recursion and a greater runtime. Basically, there’s no memorization. Those previous calculations aren’t remembered.

Question 2)

The bottom up solution is faster than the top down solution. This is because in top down, there are a greater number of recursive calls, whereas in bottom up previously calculated steps are directly accessed.

Question 3)

All have the same time complexity of Ө(n) where n is the number of unique calculations done in the problem, since the time taken during each calculation is Ө(1).