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CS330 Team Programming Assignment Write-Up

This programming assignment proved to be somewhat of a challenge. At first, we came up with somewhat naive solutions to the problems given, found out more efficient ways of solving those problems, and then implemented them accordingly. Our first challenge and instance of this was constructing the initial chart for question 4a. In the beginning we programmed it to look for every combination of sums by using slices of the given list. We then realized all we had to do was calculate the first row then use that to compute the next and the next. After that, the programming seemed a bit trivial but there were some subtle details and special cases we had to involve to consistently get correct output. Indexing was the toughest part of this programming assignment, it was difficult to keep track of indices, especially when utilizing a 2D chart in the process. During the tests, our algorithm got better results than the KK algorithm, but the KK algorithm wasn’t always off by much. As the numbers grew larger, it became more of a burden to compute since the space complexity would grow drastically. The farther the gap from the middle in the chart, the less efficient our algorithm would be. Our algorithm can compute maximum numbers of 1000, 10000, and 100000 relatively quickly but once we get to 10^6 it becomes too slow. 10^6 took about 30 mins to compute. My computer also crashed at one point, not sure if it was because the RAM was being used up or not.