

## Program Structures and Algorithms Sec -8

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**Task:** Solving 3-SUM using the *Quadrithmic*, *Quadratic*, and (bonus point)

*quadraticWithCalipers* approaches.

### Explanation:

The advantage of the quadratic over quadrithmic approach is that, instead of using two for loops on a sorted array to find all possible pairs of sums of two numbers and then trying to find the complement of the sum using a binary search, we can just fix one value, iterate left from one step ahead, iterate right from the end, and check whether the sum is zero, less than zero, or greater than zero, and move the a variable accordingly. By just iterating through the array twice, we may decrease the time complexity and eliminate the need for a binary search.

Compared to Cubic we are using three for loops for cubic the time complexity will be  $n^3$ .

# ScreenShot:

