

n = number of points
 k = number of clusters
 d = dimensionality of the data
 i = number of iterations until convergence
 k -means complexity: $O(nkdi)$
Master theorem: Solves $T(n) = aT(n/b) + f(n)$

$$T_{aggl}(n) = T\left(\frac{n}{2}\right) + nkdi$$

$$T_{aggl}(n) = T\left(\frac{n}{2}\right) + \frac{n^2di}{2}$$

$$T_{div}(n) = 2T\left(\frac{n}{2}\right) + nkdi$$

$$T_{div}(n) = 2T\left(\frac{n}{2}\right) + 2ndi$$