- n points, d dimensions
- k centroids
- k-means assignment
  - exhaustive: $O(nk)$
  - ANN: e.g., $O(n \log k)$
  - lookup: $O(n)$ time
    $O(2^d)$ space
- what if $d > 20$?
- our solution: $O(n)$ time
  $O(k^2)$ space