An Example of Text Clustering with $k$-Means

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Given a set of five points \{1, 2, 3, 4, 5\} on an axis, what clusters will the $k$-means clustering algorithm (with $k=2$) produce, if 4 and 5 are chosen as the two initial seeds?

Please use Euclidean distance. For example, the distance between points 2 and 5 is 3.
// k-means (k=2)

**Step (1)**
centres: 4 and 5
clusters: \{1, 2, 3, 4\} and \{5\}

**Step (2)**
centres: 2.5 and 5
clusters: \{1, 2, 3\} and \{4, 5\}

**Step (3)**
centres: 2 and 4.5
clusters: \{1, 2, 3\} and \{4, 5\}

Done!