4. Computational Complexity of K-Means and K-Medoids

Exercises due Apr 19, 2023 08:59 -03 Completed

Computation Complexity of K-Means and K-Medoids

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Computational Complexity of K-Means

1/1 point (graded)
Remember that the K-Means algorithm is given by

1. Randomly select $z_1, \ldots, z_K$
2. Iterate
    1. Given $z_1, \ldots z_K$, assign each $x^{(i)}$ to the closest z_j, so that

$$\text{Cost}\left(z_1, \ldots z_K\right) = \sum_{i=1}^{n} \min_{j=1,\ldots,k} \left\| x^{(i)} - z_j \right\|^2$$

Submit You have used 1 of 2 attempts

Computational Complexity of K-Medoids

2/2 points (graded)

Remember that the K-Medoids algorithm is given by

1. Randomly select
2. Iterate
    1. Given , assign each to the closest , so that
    2. Given find the best representative

    is minimal.

What is the complexity of step 2.1?

Submit You have used 2 of 3 attempts

Discussion

Topic: Unit 4. Unsupervised Learning (2 weeks) :Lecture 14. Clustering 2 / 4. Computational Complexity of K-Means and K-Medoids

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- When it will be known ?
  We were told that we'll receive the mid-term results 2 days after it finishes. Did anyone get any grades ? ?
- k-medoids complexity
- Complexity of K-Medoids
- Where comes K for complexity of K-medoids step2.2?
  There will only be n(n-1)/2 pairs for all possible points combinations. Therefore, I think even the most naive w
- Why is there an extra n for the Big O Notation for k medoids as compared to k means?
  Why is there an extra n for the Big O Notation for k medoids as compared to k means? I could not get it.
- why is step 2.2 for k-means O(nkd)?
  ...d for dimensions →check, k for k times calculation z_i →check, but inside the sum of each z_i I see on aver
- Step 2(2) computational complexity of K-means
- K-Medoids Algorithm
  Hi, just wanted to clarify the initialization step (Step 1) for the K-medoids algo. It's different from previous se

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