4. Comparing K-means and EM

Generate analogous plots to K-means using your EM implementation. Note that the EM algorithm can also get stuck in a locally optimal solution. For each value of K, please run the EM algorithm with seeds $0, 1, 2, 3, 4$ and select the solution that achieves the highest log-likelihood. Compare the K-means and mixture solutions for $K = [1, 2, 3, 4]$. Ask yourself when, how, and why they differ.

Reporting log likelihood values

1/1 point (graded)

Report the maximum likelihood for each K using seeds $0, 1, 2, 3, 4$:

$\text{Log-likelihood}|_{K=1} =$ -1307.2234317600937 ✔

$\text{Log-likelihood}|_{K=2} =$ -1175.7146293666792 ✔

$\text{Log-likelihood}|_{K=3} =$ -1138.8908996872672 ✔

$\text{Log-likelihood}|_{K=4} =$ -1138.6011756994853 ✔

Submit You have used 1 of 20 attempts

✔ Correct (1/1 point)

Analysing plots

1/1 point (graded)

Which of the following sentences are true? (Check all that apply)

- [x] In the case K=1, the mixture parameters and point assignments are the same for both methods
- [x] In the case K=2, both methods have simlilar parameters and point assignments
- [ ] In the case K=3, the k-means solution accounts for point density better than EM
- [x] In the case K=4, the k-means solution equally spaces the clusters to minimize distortion cost

✔

Submit You have used 1 of 3 attempts

✔ Correct (1/1 point)

Discussion

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Topic: Unit 4 Unsupervised Learning (2 weeks) :Project 4: Collaborative Filtering via Gaussian Mixtures / 4. Comparing K-means and EM

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? Analysing plots 3

Does anyone understand what options 3 and 4 mean? "Account for point density", "Equally space clusters to minimize distortion cost"

This is useful and you can even open the notebook in google colab 1

https://jakevdp.github.io/PythonDataScienceHandbook/05.12-gaussian-mixtures.html this as well https://jakevdp.github.io/PythonDataScienceHand...