4. Comparing K-means and EM

Project due Apr 26, 2023 08:59 -03 Completed

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

Reporting log likelihood values

1.0/1.0 point (graded)

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

$\textbf{Log-likelihood}|_{K=1} =$ -1307.2234 ✔

$\textbf{Log-likelihood}|_{K=2} =$ -1175.7149 ✔

$\textbf{Log-likelihood}|_{K=3} =$ -1138.8915 ✔

$\textbf{Log-likelihood}|_{K=4} =$ -1138.8910 ✔

Submit You have used 2 of 50 attempts

Analysing plots

1.0/1.0 point (graded)

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

Note: This question is the multichoice version of the free-text question: “Compare the l solutions for $K = [1, 2, 3, 4]$. Ask yourself when, how, and why they differ."
In order to answer this, you should look at the plots side by side, either by adapting the together or by simply saving the plots as you go. For each value of K, ask yourself whe are similar or different. If they are different, why are they different?

Hint: What are we optimizing for in each case? What are we plotting? In the case of K-m with EM, can these really be called clusters? What is EM optimizing for?

Now, write a descriptive paragraph of your observations as if it were part of a report fo were going hand this back for us to grade. Try matching your paragraph with the optio 't match, then we wouldn't have given you full credit for this question.

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