

## ColumbiaX: CSMM.102x Machine Learning

Help



- Machine Learning Course: Getting Started
- Week 1
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Lecture 15 The EM Algorithm for Maximum Likelihood, Missing Data

Lecture 16 Mixture Models, Gaussian Mixtures

#### Week 8 Quiz

Quiz due Apr 11, 2017 05:00 IST

Week 8 Discussion Questions

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# Week 8 Quiz

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# Checkboxes

1/1 point (graded)

Check all probabilistic models.

- logistic regression
- support vector machines
- K-means
- Bayes classifiers
- Decision trees



Submit

You have used 1 of 1 attempt

✓ Correct (1/1 point)

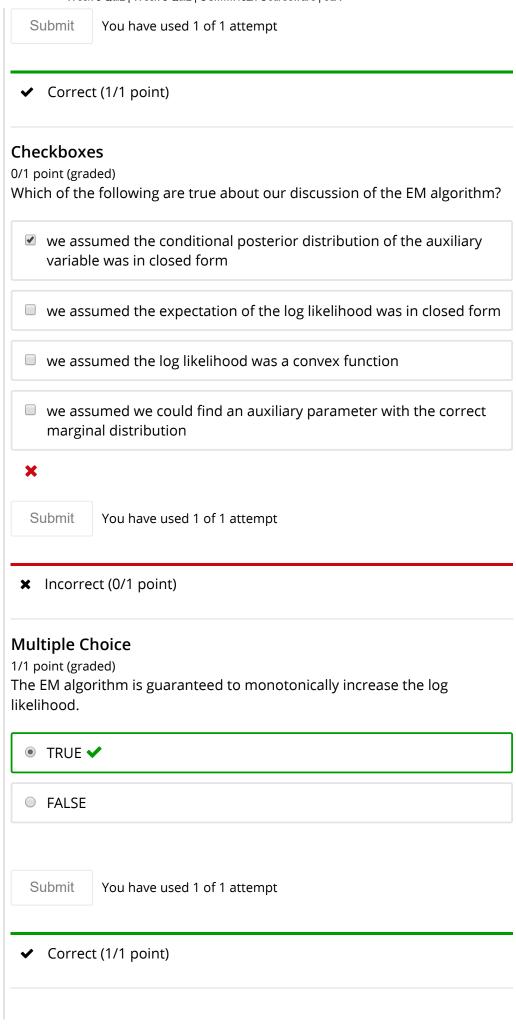
### Checkboxes

1/1 point (graded)

Check all that are true about the KL divergence between distributions  $m{q}$  and  $m{p}$ .

- $\quad \square \ \, KL(q\|p) = KL(p\|q)$
- $ightharpoonup KL(q||p) \geq 0$
- $extbf{$\square$} KL(q||p) \leq 0$





Multiple Choice  1/1 point (graded)  The EM algorithm is guaranteed to find the global optimal solution of the log likelihood.
O TRUE
● FALSE ✔
Submit You have used 1 of 1 attempt
✓ Correct (1/1 point)
Text Input  2/2 points (graded)  A clustering model assigns each data point to only one cluster, while a clustering model splits data points across clusters.  The word for the first blank is:
hard
The word for the second blank is:
soft ✓
Submit You have used 1 of 1 attempt
✓ Correct (2/2 points)
Multiple Choice  1/1 point (graded)  A mixture model represents the distribution of a data set as a weighted combination of simpler distributions.
● TRUE ✔
O FALSE

Submit You have used 1 of 1 attempt Correct (1/1 point) Checkboxes 1/1 point (graded) Check all true statements about (1) K-component mixture models and (2) Kclass Bayes classifiers. (1) is a supervised model, while (2) is an unsupervised model (1) is an unsupervised model, while (2) is a supervised model the cluster assignments in (1) correspond to the class assignments in (2) both have closed form solutions without the need for an iterative algorithm Submit You have used 1 of 1 attempt Correct (1/1 point) Checkboxes 1/1 point (graded) The maximum likelihood EM algorithm for the Gaussian mixture model will automatically learn an "appropriate" number of clusters for the data set by not assigning any data to the unnecessary clusters. TRUE FALSE Submit You have used 1 of 1 attempt

✓ Correct (1/1 point)

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