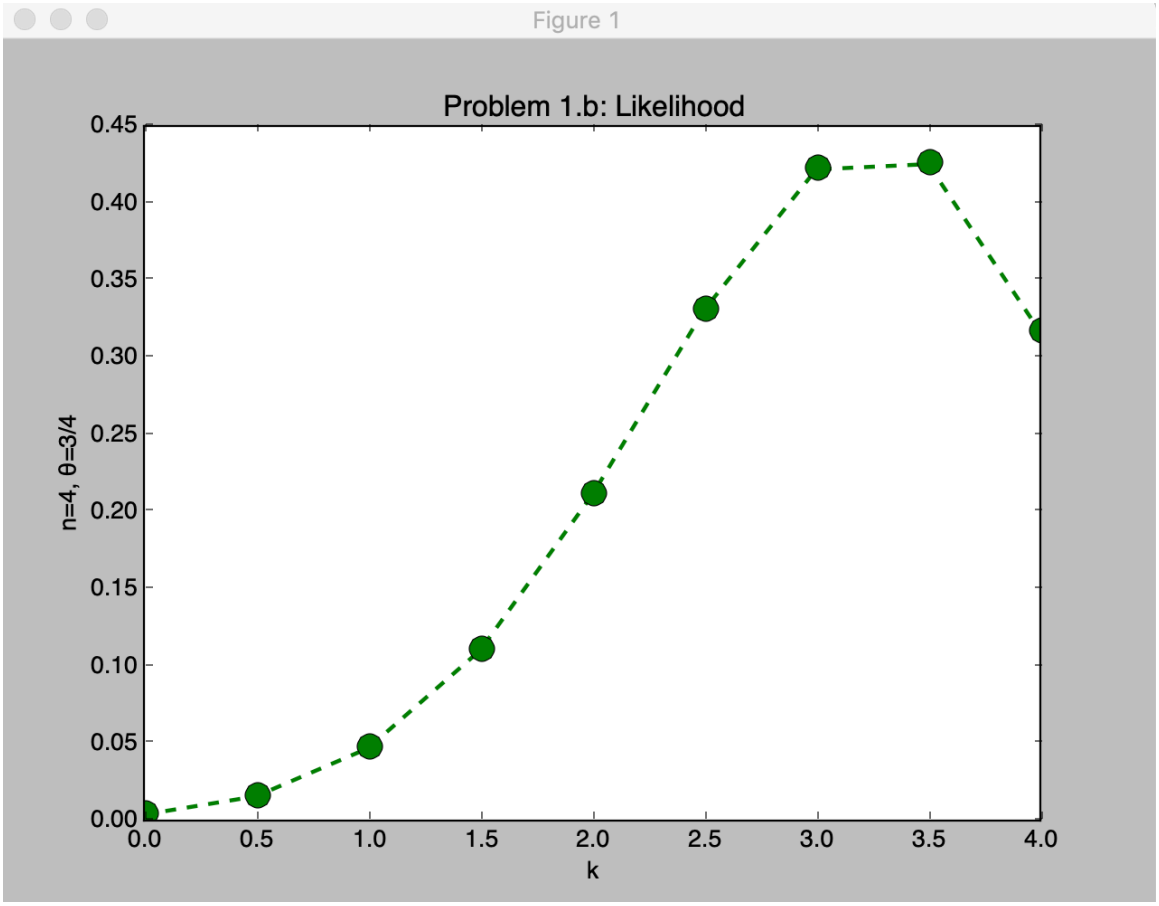
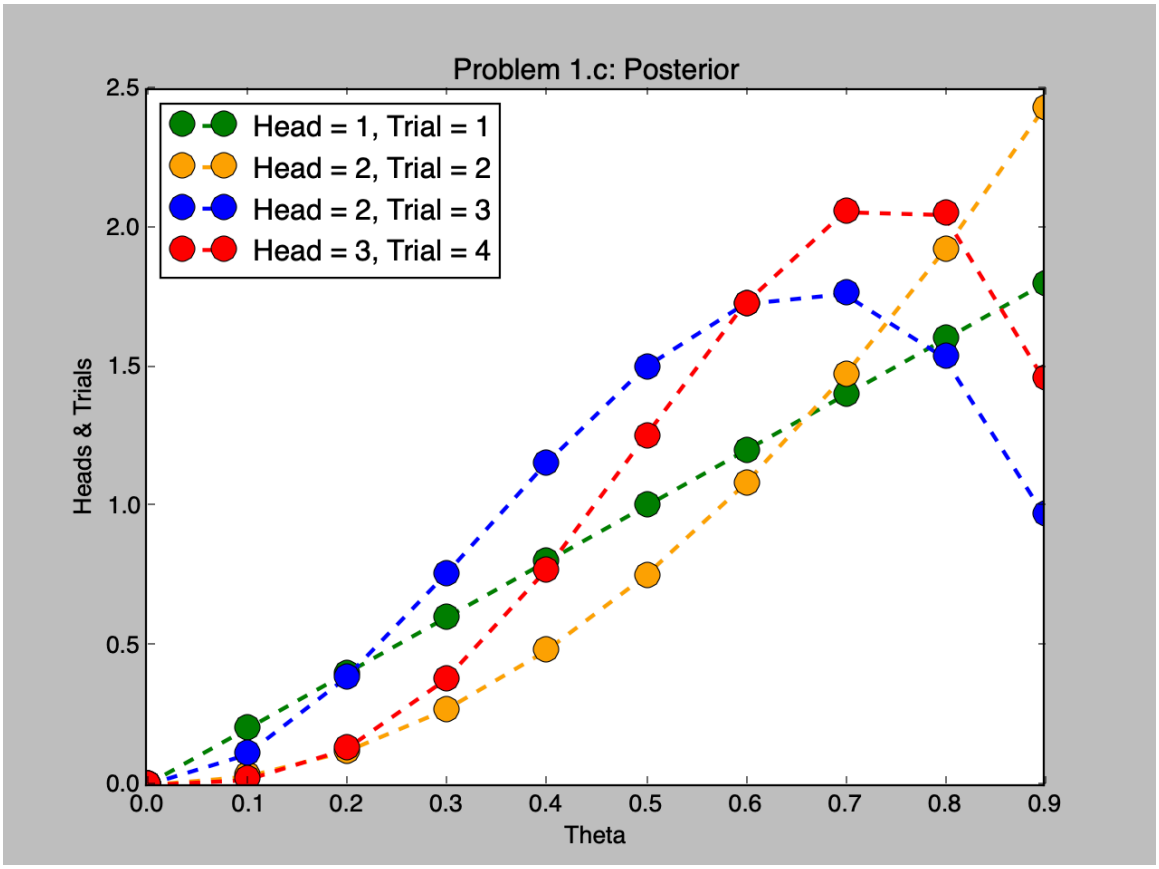
Huvra Mehta (HSM20)
Homework 5

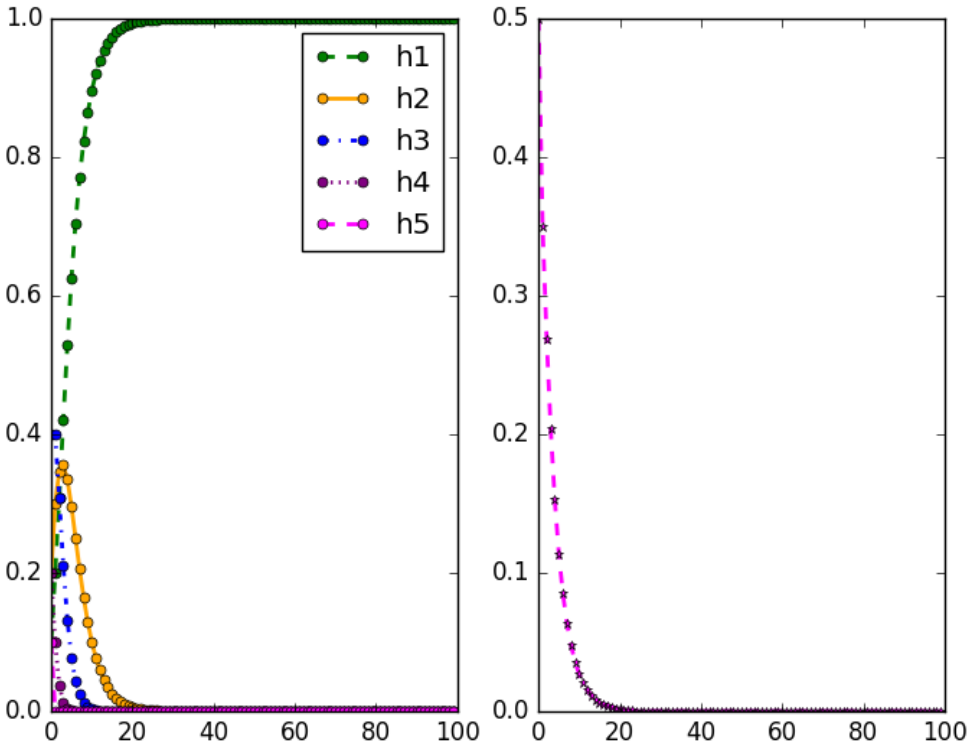
Problem 1b



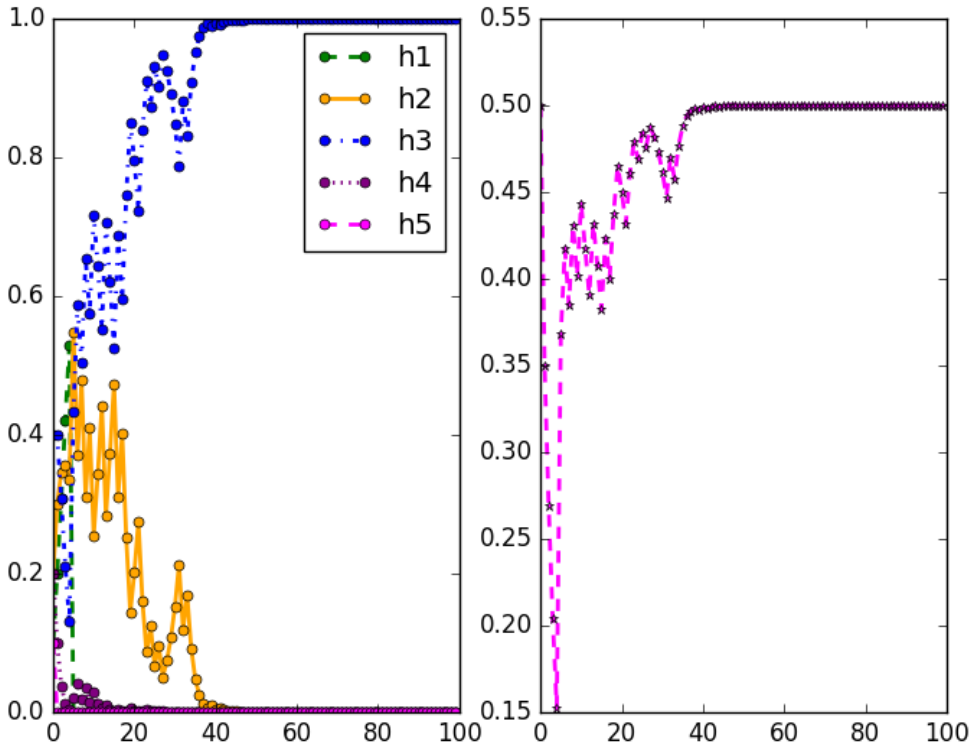
Problem 1c



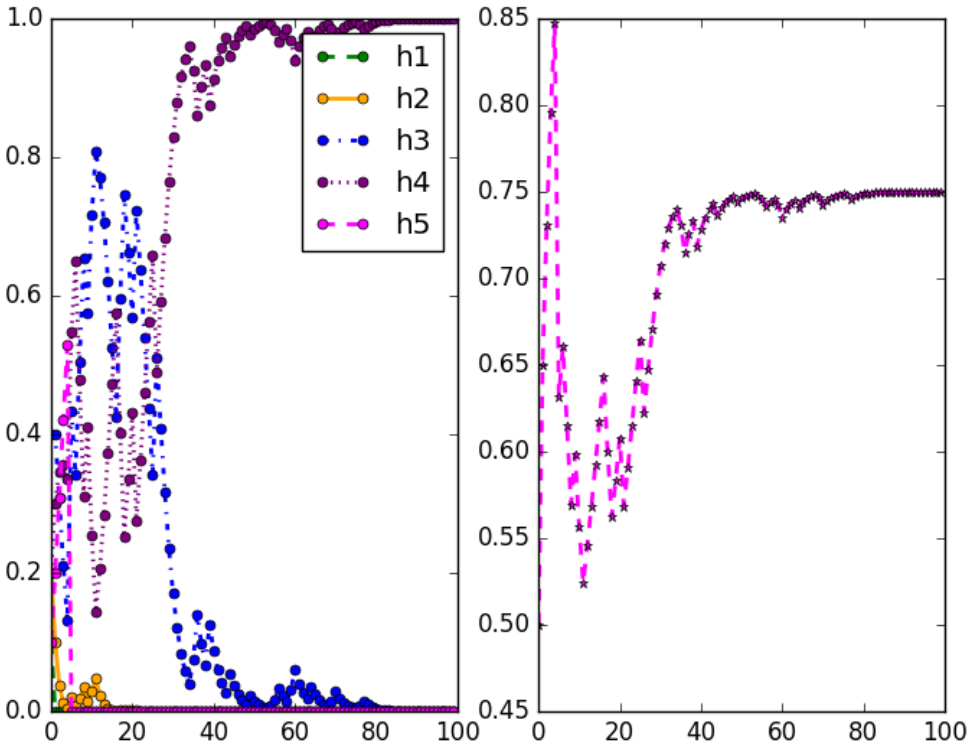
Problem 2a:
Each plot shows at what point we can tell which bag we are currently in.



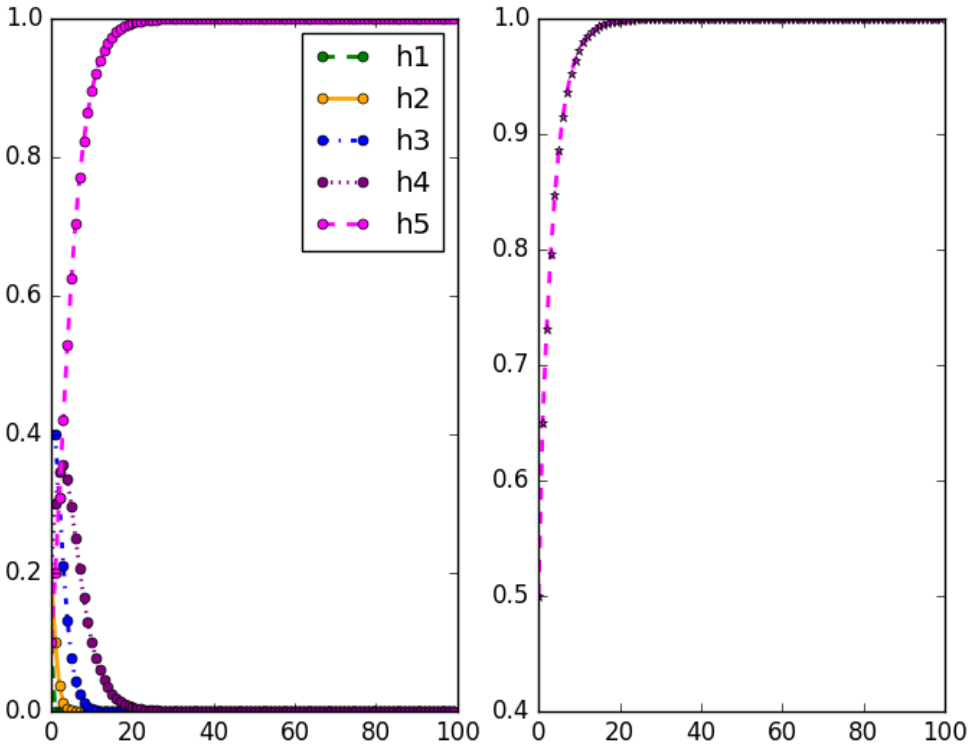
I can tell this is bag 1 where there are only cherries because h1 rises to 1 while the rest fall to 0. At the same time the likelihood that the next candy will be lime quickly falls to 0 in the second graph.



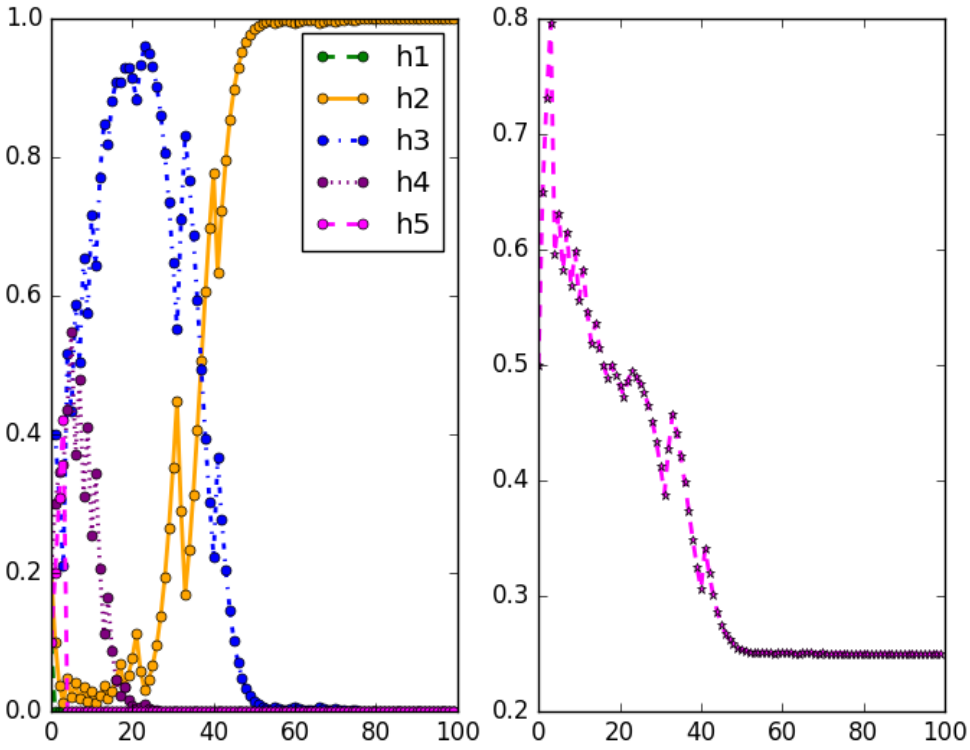
I can tell this is bag 3 where there are 50-50 lime and cherry because h3 rises to 1 at around the halfway point while the rest fall to 0. At the same time the likelihood that the next candy will be lime is at 50% in the second graph.



I can tell this is bag 4 where there are 75-25 lime and cherry because h4 rises to 1 at around the 25th data point while the rest of the hypothesis eventually fall to 0. Interestingly it is H3 (the hypothesis were there are 50-50 lime and cherry) which lasts the longest, potentially because there was an even split of cherry and lime in the beginning of the data set based on how it was shuffled. At the same time the likelihood that the next candy will be lime is at 75% in the second graph.

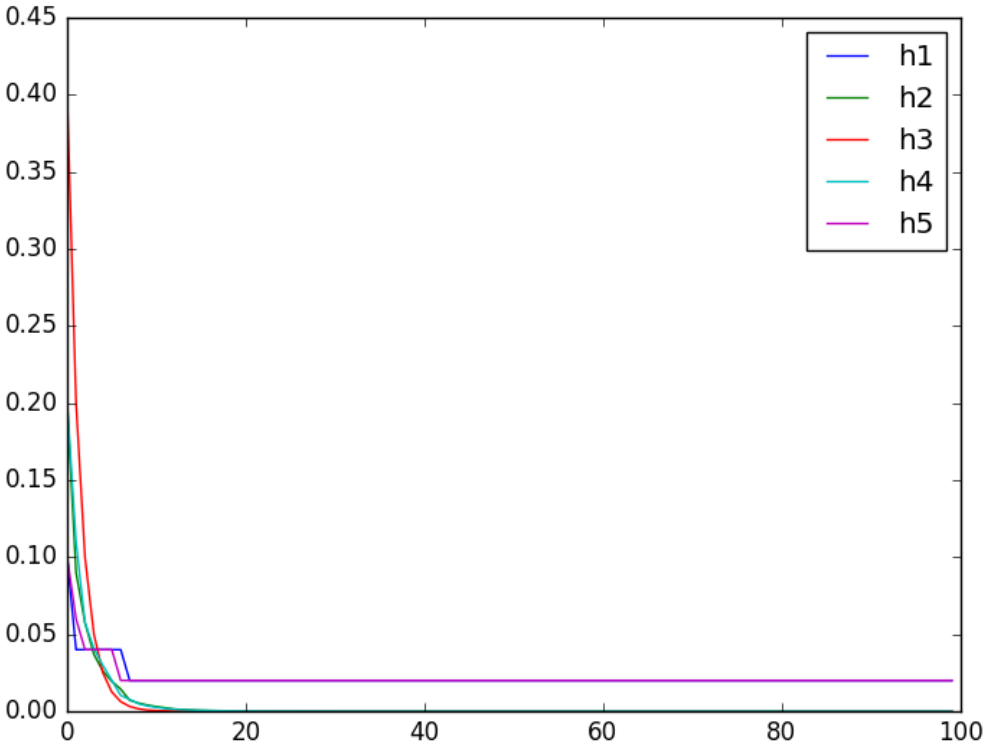


I can tell this is bag 5 where there are only limes because h5 rises to 1 while the rest fall to 0. At the same time the likelihood that the next candy will be lime quickly rises to 1/100% in the second graph.

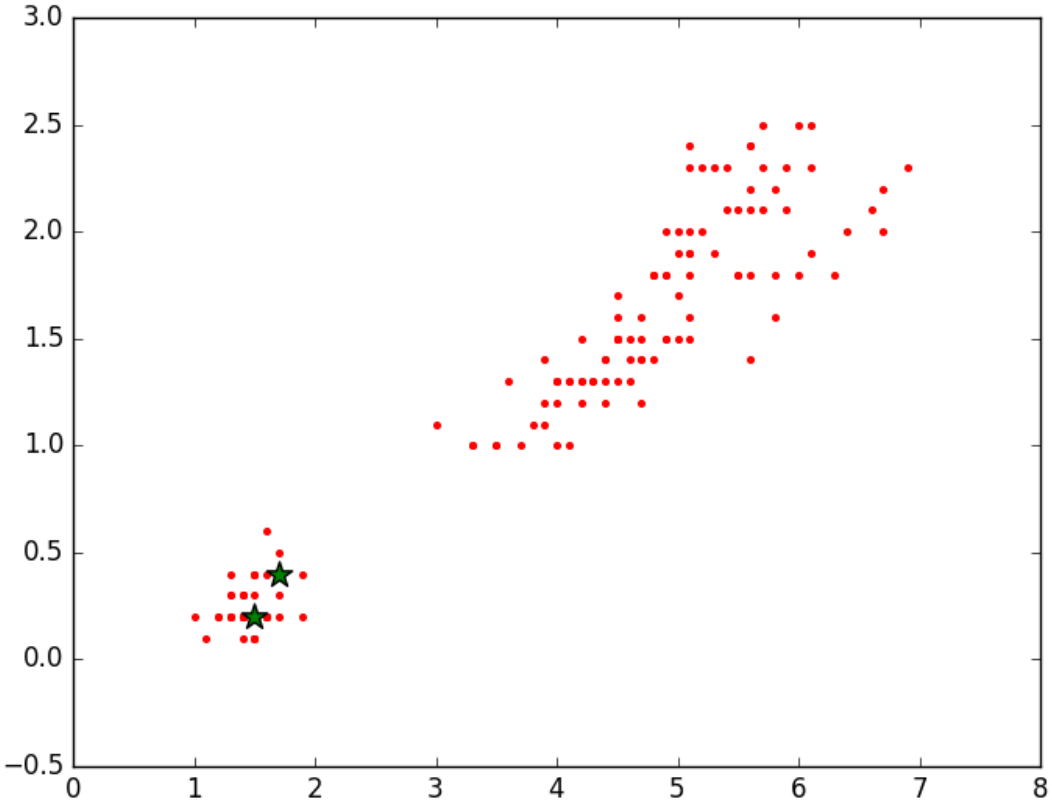


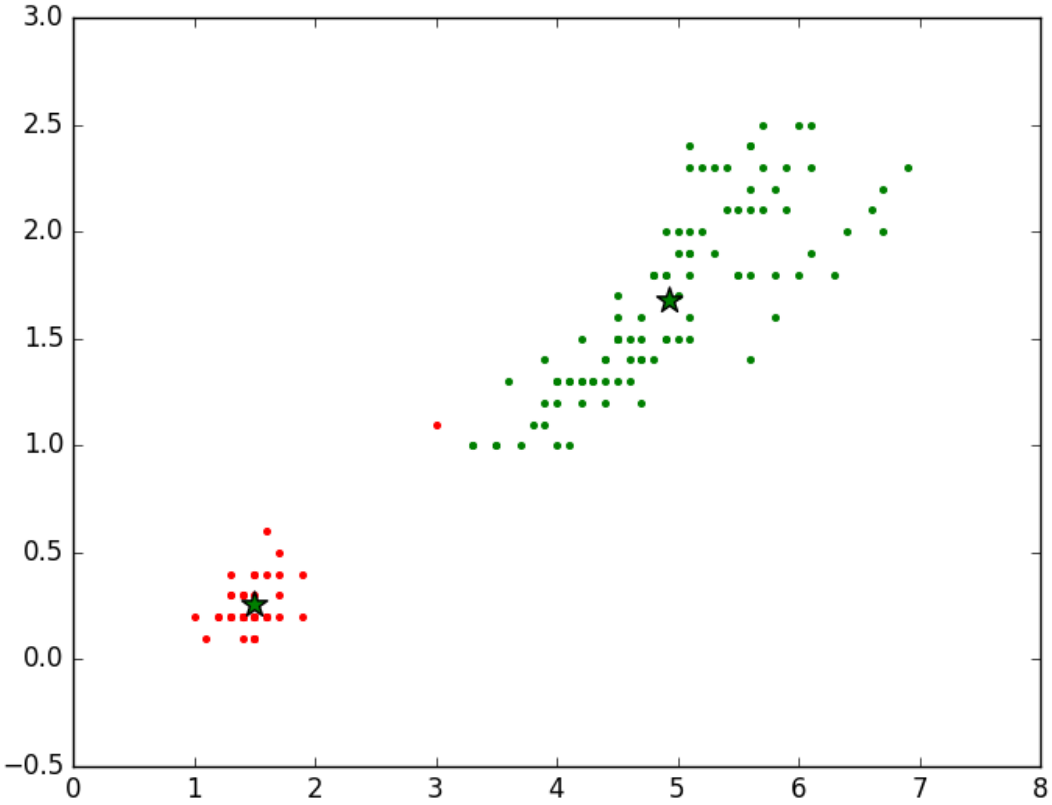
I can tell this is bag 3 where there are 25-75 lime and cherry because h2 rises to 1 at around the 50th data point while the rest of the hypothesis eventually fall to 0. Interestingly it is H3 (the hypothesis were there are 50-50 lime and cherry) which lasts the longest, potentially because there was an even split of cherry and lime in the beginning of the data set based on how it was shuffled. At the same time the likelihood that the next candy will be lime is at 25% in the second graph.

Problem 2c



Extra Credit:
Kmean(2)

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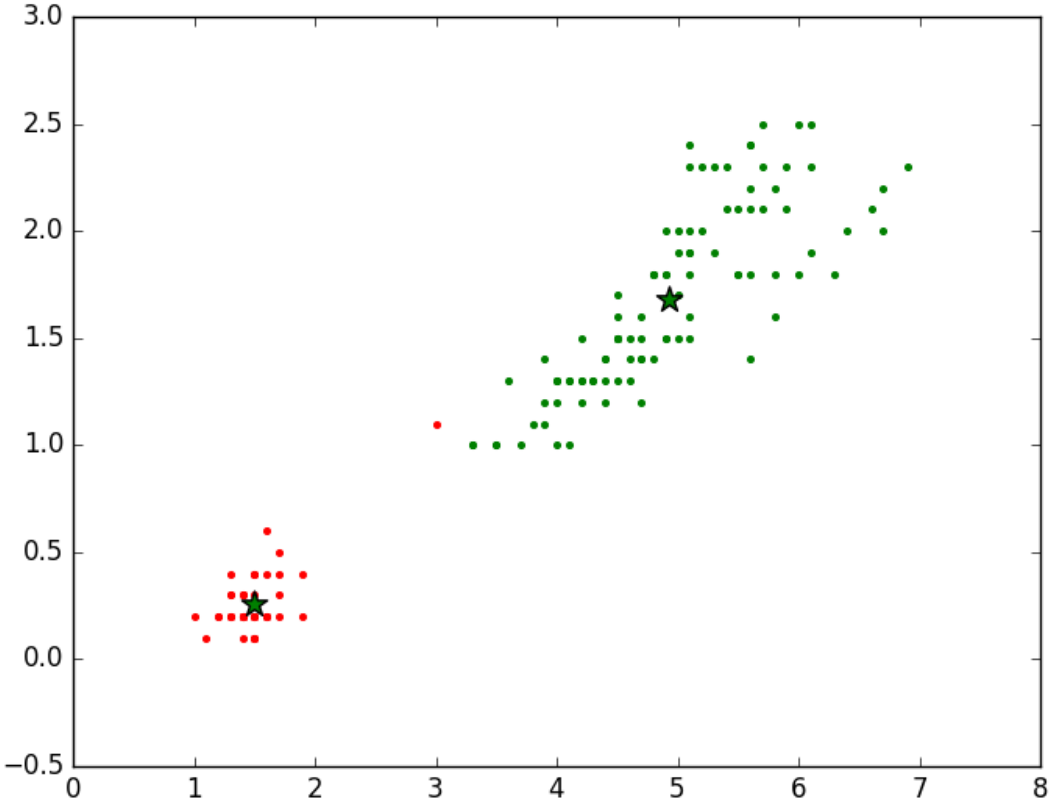
8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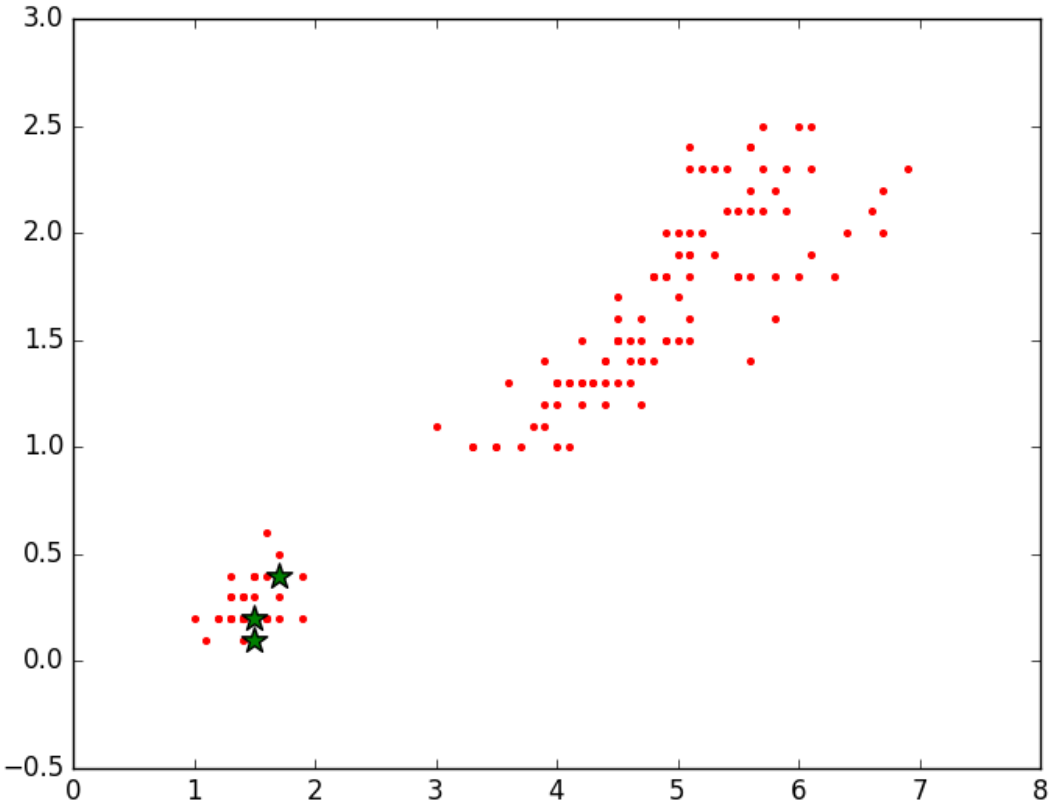
Count: 4

KMean(3)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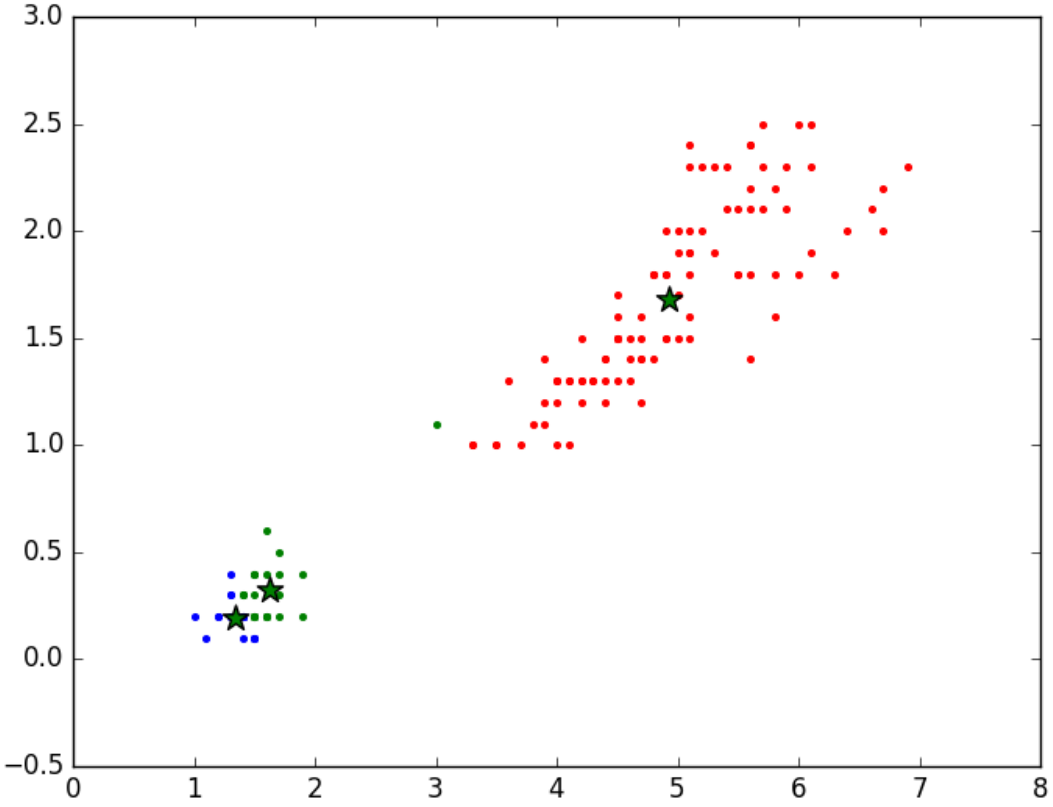
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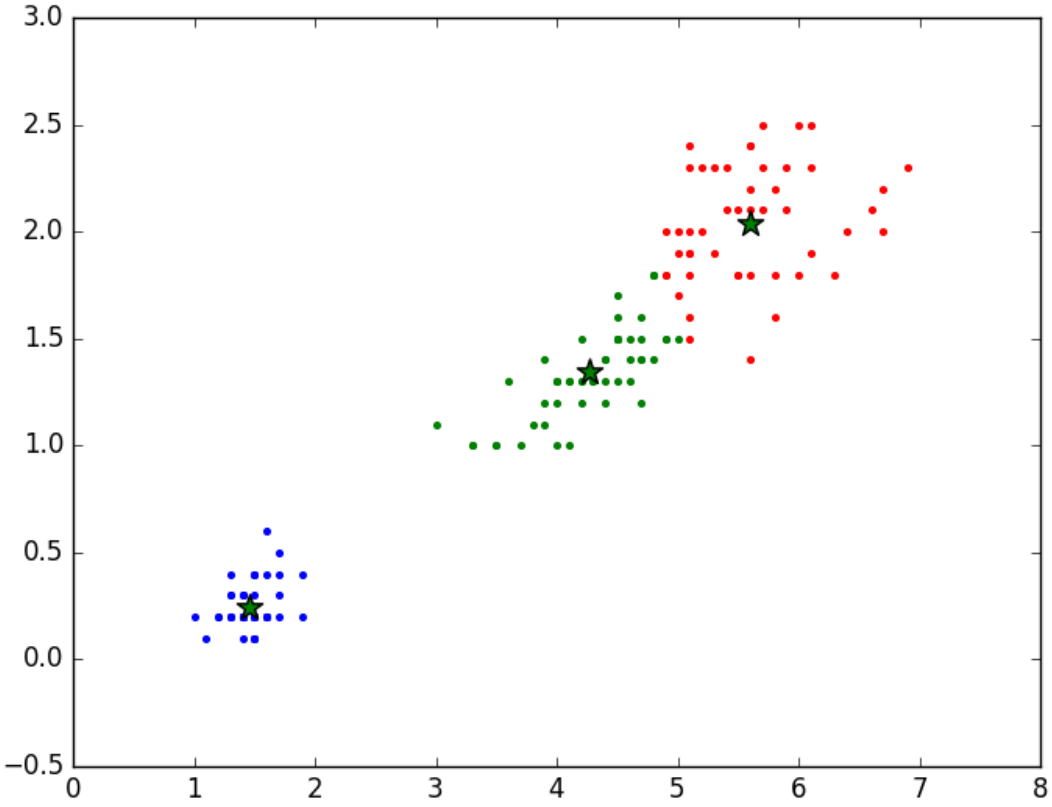
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