

## Unit II

S.NO	Question																		
1	Explain with an example on training and testing the naive Bayes with add-one smoothing																		
2	Illustrate Laplace smoothing with an example																		
3	Discuss Naive Bayes Classifiers?																		
4	<p>We are given the following corpus</p> <p>&lt;S&gt; I am Sam&lt;/S&gt;</p> <p>&lt;S&gt; Sam I am&lt;/S&gt;</p> <p>&lt;S&gt; I am Sam&lt;/S&gt;</p> <p>&lt;S&gt; I do not like green eggs and Sam&lt;/S&gt;</p> <p>Using a bigram language model with add-one smoothing, what is <math>P(\text{Sam}   \text{am})</math>? Include &lt;S&gt; and &lt;/S&gt; in your counts just like any other token.</p>																		
5	Compute the probability of sentences like I want English food or I want Chinese food in the Berkeley Restaurant Project corpus																		
6	Perplexity is the metric for evaluating language models. Discuss.																		
7	Write a short notes on and Interpolation.																		
8	<p>Assume the following likelihoods for each word being part of a positive or negative movie review, and equal prior probabilities for each class.</p> <table><tr><td></td><td>pos</td><td>neg</td></tr><tr><td>I</td><td>0.09</td><td>0.16</td></tr><tr><td>always</td><td>0.07</td><td>0.06</td></tr><tr><td>like</td><td>0.29</td><td>0.06</td></tr><tr><td>foreign</td><td>0.04</td><td>0.15</td></tr><tr><td>films</td><td>0.08</td><td>0.11</td></tr></table> <p>What class will Naive bayes assign to the sentence “I always like foreign films.”?</p>		pos	neg	I	0.09	0.16	always	0.07	0.06	like	0.29	0.06	foreign	0.04	0.15	films	0.08	0.11
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9	<p>Given the following short movie reviews, each labeled with a genre, either comedy or action:</p> <p>1. fun, couple, love, love comedy</p> <p>2. fast, furious, shoot action</p> <p>3. couple, fly, fast, fun, fun comedy</p> <p>4. furious, shoot, shoot, fun action</p> <p>5. fly, fast, shoot, love action and a new document D: fast, couple, shoot, fly compute the most likely class for D.</p>																		

	Assume a naive Bayes classifier and use add-1 smoothing for the likelihoods.
10	Discuss in detail about how to Train the Naive Bayes Classifier
11	Explain with an example about binarization for the binary naive Bayes algorithm
12	Discuss the difference between Laplace smoothing and Add-k smoothing.