

Email ID	Sender	Domain	Contains "Offer"	Contains "Free"	Contains "Discount"	Is Spam?
1	gmail.com	Yes	No	No	No	No
2	yahoo.com	Yes	Yes	No	Yes	Yes
3	gmail.com	No	No	Yes	Yes	Yes
4	outlook.com	Yes	No	Yes	Yes	Yes
5	yahoo.com	No	Yes	No	Yes	Yes
6	gmail.com	Yes	Yes	Yes	Yes	Yes
7	gmail.com	No	No	No	No	No
8	outlook.com	Yes	No	No	No	No
9	gmail.com	No	Yes	No	Yes	Yes
10	yahoo.com	Yes	Yes	Yes	Yes	Yes
1. Calculate the prior probabilities, spam and not spam						
P(spam)=	Number of spam emails/Total number of e mails			0.7	// =7/10 //	
P(not spam)=	Number of not spam emails/Total number of emails			0.3	// =3/10 //	
2. Use the Naive Bayes classifier to predict whether a new email from gmail.com that						
contains "Free" but no "Discount" is spam or not						
Calculate Likelihoods						
Likelihoods	Spam	No Spam				
gmail.com	0.428571429	0.666666667				
"offer"	0.571428571	0.666666667				
no "offer"	0.428571429	0.333333333				
"free"	0.714285714	0				

no "free"	0.285714286	1				
discount	0.571428571	0				
no "discount"	0.428571429	1				
Predict new Email						
Probability of spam mail=	0.7*0.428*0.714*0.428		0.091836735			
Probability of no spam mail=	0.3*0.66*0*1		0			
The new email is more likely to be spam						