Name : Salman AlMaskati

	Doc	Text	Category
Training	1	Congratulations you are selected	Good
	2	Congratulations you won lottery	Spam
	3	You can travel for free	Spam
	4	Good Night! You are welcome	Good
Test	5	You lottery travel travel	?

Use Naïve Bayes Algorithm to predict the class for Doc5.

Solution.

Number of words in good = 9
Number of unique words in spam = 8
P(Good) = 2/4
P(Spam) = 2/4

P(You | Good) = 2+1 / 9+7 = 3/16
P(Lottery | Good) = 0 +1 / 9+7 = 1/16
P(Travel | Good) = 1/16

P(you | Spam) = 2+1 / 9+8 = 3/17
P(Lottery | Spam) = 1+1 / 9+8 = 2/17
P(Travel | Spam) = 1+1 / 9+8 = 2/17

P(Good | Doc5) = 2/4 * 3/16 * 1/16 * (1/16)^2 = **0.00002288**
P(Spam | Doc5) = 2/4 * 3/17 * 2/17 * (2/17)^2 = **0.000143**

Using Naïve Bayes Algorithm Document 5 belongs to class spam.