1. What were the accuracy and confusion matrix for your model?

   The accuracy is 0.9578.

   Confusion Matrix and Statistics
   Reference
   Prediction 0 1
   0 4496 89
   1 548 9950
   Accuracy : 0.9578
   95% CI : (0.9544, 0.9609)
   No Information Rate : 0.6656
   P-Value [Acc > NIR] : < 2.2e-16
   Kappa : 0.9029
   Mcnemar's Test P-Value : < 2.2e-16
   Sensitivity : 0.8914
   Specificity : 0.9911
   Pos Pred Value : 0.9806
   Neg Pred Value : 0.9478
   Prevalence : 0.3344
   Detection Rate : 0.2981
   Detection Prevalence : 0.3040
   Balanced Accuracy : 0.9412
   'Positive' Class : 0

2. Using the confusion matrix, calculated the percentage of spam messages erroneously classified as ham and ham messages erroneously classified as spam. Are the percentages equal? Often times, one type of error is preferably for a business or user. In this case, it would be worse for an important email to end up in the spam folder than for a spam message to end up in the inbox.

		Reference	
Prediction		0	1
	0	4496	89
	1	548	9950

   Total ham messages: 4496 + 548 = 5044
   the Percentage is spam messages erroneously classified as ham: (548 / 5044) * 100 = **10.86%**

   total spam messages: 89 + 9950 = 10039
   the Percentage is ham messages erroneously classified as spam: (89 / 10039) * 100 = **0.89%**