

# Memory Retention - Statistical Methods in AI

## Quiz 1

1. When you increase the portion of Training Data gradually after each round of training, does:

- Training Error Increase/Decrease? Why?
- Testing Error Increase/Decrease? Why?

2. Given the data:

$x$	$y$
-1	2
1	-1
2	-1

linear regression :

- (a)  $y = \beta_0$  Find  $\beta_0$
  - (b)  $y = \beta_1 x$  Find  $\beta_1$
3. What changes do you suggest for IDF Document-Document algorithm and Doc-Phase algorithm? Why?
4. List at least 3 challenges faced by the k-NN algorithm and propose a solution to each.
5. Draw the decision tree for the following boolean expressions:

$$a \wedge b$$

$$a \vee b \vee c$$

6. In k-means clustering, is it possible for a cluster to become empty after a round of clustering ? Justify with an example