# Quiz 5

**1.**
**Which of the following statements is true for k-NN classifiers**

| | |
|---|---|
| ○ | The classification accuracy is better with larger values of k |
| ○ | The decision boundary is smoother with smaller values of k |
| ◉ | k-NN does not require an explicit training step |
| ○ | The decision boundary is linear |

**2.**
**What is the best approach to solve this question:**

> **What is the average weekly salary of all female employees under forty years of age?**

| | |
|---|---|
| ○ | Supervised learning |
| ○ | Unsupervised clustering |
| ◉ | Data query |

**3.**
**A company has build a kNN classifier that gets 100% accuracy on training data. When they deployed this model on client side it has been found that the model is not at all accurate.**

**Which of the followings could be the reason:**

| | |
|---|---|
| ○ | None of these |
| ◉ | It is probably a overfitted model |
| ○ | It is probably a underfitted model |

**4.**

**Considering the following training set of m = 4 training examples:**

| x | y |
|---|---|
| 1 | 0.5 |
| 2 | 1 |
| 4 | 2 |
| 0 | 0 |

**Consider the linear regression model $h_\theta(x) = \theta_0 + \theta_1 x$.**

**What are the values of $\theta_0$ and $\theta_1$ that you would expect to obtain upon running gradient descent on this model? (Linear regression will be able to fit this data perfectly.)**

| | |
|---|---|
| ○ | $\theta_0 = 1, \theta_1 = 0.5$ |
| ○ | $\theta_0 = 0.5, \theta_1 = 0$ |
| ◉ | $\theta_0 = 0, \theta_1 = 0.5$ |
| ○ | $\theta_0 = 0.5, \theta_1 = 1$ |

**5.**

**For which of following tasks might K-means clustering be a suitable algorithm?**

| | |
|---|---|
| ○ | Given historical weather records, predict if tomorrow's weather will be sunny or rainy |
| ◉ | Given a set of news articles from many different websites, find out what topics are the main topics covered |
| ○ | Given sales data from a large number of products in a supermarket, estimate future sales for each of these products. |