**Quiz 4**

1. If I had 1% missing values in one of my key numerical columns, which is highly correlated with my dependent variable (that I am predicting). I create 3 datasets, take following actions:
   1. Dataset 1: Deleted the rows with the missing values
   2. Dataset 2: Replaced the missing value with average (mean) for that column/feature
   3. Dataset 3: Replaced the missing value with mode (most repeated value) for that column/feature

Then I ran my favorite Tensorflow Decision Forest (regression algorithm) on each of the above data sets, following were the results

1. Dataset 1: MSE = 1000,000
2. Dataset 2: MSE = 1,100,000
3. Dataset 3: MSE = 900,000

Which is the best result?

1. Can I do something different with my datasets, assuming that I am not happy with the results above?
2. **Imputation Using Median**: Unlike mean, the median is not influenced by outliers. For numerical data, replacing missing values with the median can sometimes lead to better model performance, especially in skewed distributions.
3. **Predictive Imputation**: Use a machine learning algorithm to predict the missing values based on other variables in your dataset. This can be more accurate than mean, median, or mode imputation, as it considers the relationships between variables. Regression models, k-nearest neighbors (KNN), or even more complex models can be used for this purpose.
4. **Interpolation and Extrapolation**: For time-series data, interpolation (filling values within the range of the data) or extrapolation (extending the data range) can be used to estimate missing values based on nearby data points.
5. NONE OF THE ABOVE
6. ALL OF THE ABOVE
7. Choose the best 2 answers below:
   1. Neural Nets and Deep Learning algorithms are exactly the same
   2. Deep learning is an extension of Neural Nets
   3. The main difference between neural networks and deep learning is the level of complexity and depth.
8. Is transformer an Neural Net?
   1. True
   2. False
9. Is Tensorflow simulator good to learn key concepts? <https://playground.tensorflow.org/>
   1. No it is only for demo purpose
   2. Yes, it can be used as a good tool to clear your concepts
10. Can we differentiate between human and machine essays using AI/ML?