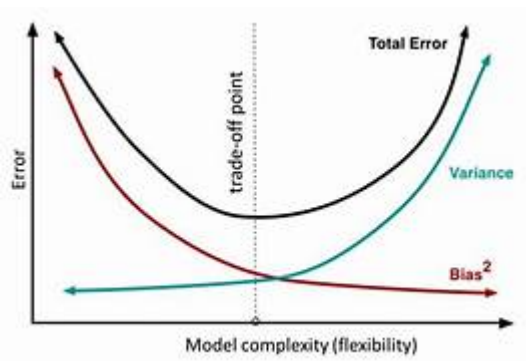1. Bias Variance
2. Hyper Parameters
3. CNN Vs RNN
4. What is Your Role in the Project
5. Normalization - High Values
6. Accuracy
7. Confusion Matrix
8.
9. Second Largest Element for the Random list

Bias Variance ¶

1. Model Underfitting - High Bias

- We are getting low training accuracy.
- We need to add more data and important features.
- We need to increase the training time by adding more epochs.

2. Model Overfitting - High Variance

- There is a gap between training and test accuracy.
- We need to add regularization and perform feature importance analysis.
- We need to reduce the epochs and add dropout and regularization.

3. Model should balance both - Bias and Varianc

Hyper Parameters

1. Each model has some parameters - We need to fine-tune them with respect to the given dataset.
2. This process is done through Grid Search CV and Random Search CV.
3. Grid Search CV is computationally expensive but gives better results.
4. Random Search CV is faster, but the results are moderate.

CNN Vs RNN

1. CNN - Convolutional Neural Network

- Handles images and considers the following layers:
- Convolution, filters, padding, striding, normalization
- ReLU activation

2. RNN - Recurrent Neural Network

- Handles text, speech, or time series data and considers the following layers:
- RNN, LSTM
- tanh activation

Normalization - High Values

1. Normalization - Normalizes values to fall within the range -1 to 1 or 0 to 1, removing units.
2. Makes computation easier and speeds up convergence.
3. In ANN and CNN, it helps in addressing vanishing gradients and gradient explosion.

Accuracy

1. Accuracy - The ratio of correctly classified records to the total number of records, expressed as a percentage.

Confusion Matrix

1. It is a table showing the actual class and predicted class counts.
2. For binary classification, one axis represents the actual class, and the other axis represents the predicted class.
3. For binary classification, rows represent the actual class, and columns represent the predicted class.
4. It represents the count of each classification.
5. Based on this table, we can calculate accuracy, precision, recall, and F1-score.

Second Largest Element for the Random list

In [6]:

```python
import numpy as np
def find_second_largest_ele(l):
    '''second largest ele in the list'''
    second_largest = largest = -np.inf
    for ele in l:
        if ele > largest:
            second_largest = largest
            largest = ele
        elif ele > second_largest:
            second_largest = ele
        else:
            pass
    return second_largest

if __name__ == "__main__":
    lst = [1,4,2,6,7,9,10,100,99]
    print(find_second_largest_ele(lst))
```

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