# Sentiment Analysis Assignment Report

### 1 - Executive Summary

*Write your executive summary here. An executive summary is essentially a brief write-up that summarizes the complete assignment. This includes your understanding of the data and the problem statement, the approaches that you took to satisfactorily solve the problem, and the results of the assignment.*

### 2. Data Understanding and Preparation

#### 2.1 - Data Description

*Write a brief description of the data here.*

#### 2.2 - Data Preparation using NLP techniques

*Describe your data preprocessing and preparation steps here. This includes all the data processing methods you executed till the point where you began building your first model. Include the following:*

* *Tokenization and Stopword removal*
* *Stemming and Lemmatization*
* *Tf-Idf conversion*

### 3 – Conventional ML Model

#### 3.1 – Model Building

*Describe the model building process for your conventional ML model here.*

#### 3.2 – Model Evaluation

*Report the performance of the different machine learning models here.*

### 4 – Deep Learning Model (FCFNN)

#### 4.1 - Data Preparation

*Describe your data preparation steps for making the input data suitable for the neural network model. Specifically discuss regarding the Sparse Tensor transformations that you did.*

#### 4.2 - Basic Neural Network Model

*Describe the performance of your basic FCFNN. Feel free to report the performance data frame you created in your code notebook here.*

#### 4.3 - Hyperparameter Tuning

*Describe the hyperparameters you tuned the model on and the corresponding performance results here. Use the following table to report your results.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Model Architecture** | **Number of Trainable Parameters** | **Mean Training Accuracy** | **Mean Validation Accuracy** |
|  |  |  |  |
|  |  |  |  |

### 5 - Final Model

*Describe the structure of your final optimal model here, including its network architecture and the learning rate you used to train the model. Also, report the testing accuracy of this model.*

### 6 - Way Forward

*Write down the final insights you gained from the assignment here and what you think you could do to improve the model’s performance even further here.*