**Individual Report**

**Member name:** [Avani Mundra](mailto:amudra@asu.edu)

**Evaluated by:** [Rahul Nayak](mailto:rrnayak@asu.edu)

**Date: 09/11/2023**

**Tasks Assigned:**

* Reviewed the paper ‘An approach to detect abusive content incorporating Word2Vec and Multilayer Perceptron’ in detail and drafted an in-depth report for the same.
* Evaluated [Yeshwanth Reddy Chennur](mailto:ychennur@asu.edu)’s individual progress report for the present week.

**Summary:**

* In the context of studying the project scope of leveraging machine learning models to detect suspicious activities in social media and associate information assurance and security with it, reviewed the research paper ‘An approach to detect abusive content incorporating Word2Vec and Multilayer Perceptron’ in detail and drafted an in-depth report for the same.
* The paper talks about several challenges in the area of text detection such as grammatically correct abusive sentences, difficulty in tracing racist comments, detecting implicit abusive text, and handling overlapping contents in classification.
* The approach to detect hateful and suspicious content in social media utilizes word embedding and compositional vector model for computing vectors of tweets.
* The methodology involves data preprocessing by removing urls, email-ids, stop words followed by adding CBOW word2vec model as an embedding layer.
* A multilayer perceptron artificial neural network is then applied on the compositional vector model to detect suspicious content in Twitter dataset.
* Several evaluation metrics including precision, recall, F1 score and accuracy have been used to compare and contrast Embedding Layer models (Bag of Words, Paragraph Embedding, CBOW + Bi-function) and classification model (Logistic Regression, Stochastic Gradient Descent, Recurrent Neural Network etc.)

**Outcome:**

Based on experimentation with various embedding and deep learning algorithms, the Word2vec embedding model along with MLP classifier showed best results with 86% accuracy and 0.84 F1 score. The future scope of the proposed model involves enhancing it with emotion based features.

**References:**

[15] S. Ghosal, A. Jain and D. K. Tayal, "An approach to detect abusive content incorporating Word2Vec and Multilayer Perceptron," *2022 IEEE Bombay Section Signature Conference (IBSSC)*, Mumbai, India, 2022, pp. 1-5, doi: 10.1109/IBSSC56953.2022.10037274.

**Evaluation of Report  
  
Evaluation by:** [Rahul Nayak](mailto:rrnayak@asu.edu) **Date:09/10/2023**

**Is the weekly member report complete with all the major result(s) of the paper(s)? If not, provide as many examples of the major result(s) missing in the written report as possible. (in bullet form). [within 100 words]**

* Yes the report is complete with all the major results of the paper.
* The report of the paper addresses challenges in text detection on social media, such as grammatically correct abusive sentences and implicit abusive text
* The report of the paper also discusses methodology involving preprocessing data, using CBOW Word2Vec as an embedding layer, and employing a Multilayer Perceptron (MLP) neural network for detection.
* In the report Evaluation metrics, including precision, recall, F1 score, and accuracy, compare different embedding layer models and classification methods

**Is each section of the guidelines sufficiently completed? If not, point out what is missing. [Normally within 40 words].**

* Yes, each section of the guidelines is completed according to expectations.

**Is the quality of this version of the written report satisfactory? If not, then why not? [Normally within 40 words]**

* Yes, The quality of this version of the report is satisfactory.

**Approved by:** [Krupaben Kothadia](mailto:kkothadi@asu.edu)

**Date: 09/11/2023**