Ahmedabad University

CSE 523 Machine Learning

Progress Report:

Toxic Comments Classification

Group Details:

NaN-Prediction Pending

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Tasks performed in the week:

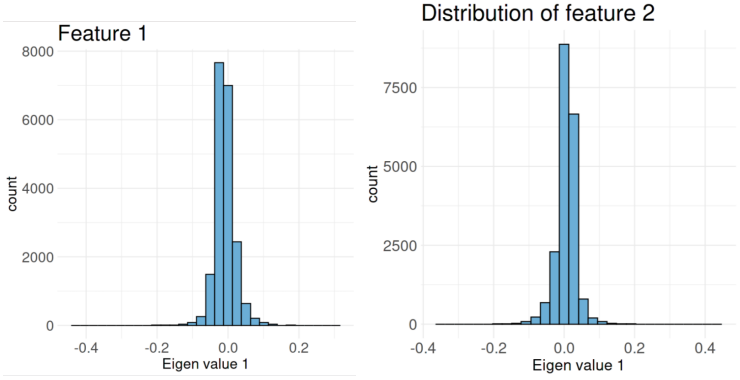
- After doing some literature review, we took 5 eigenvalues as our integral input features.
- We train and test our models using various ML models: (Base models: Linear Discriminant Analysis, Quadratic Discriminant Analysis and Logistic Regression Other models: Random forest classifier, KNN).

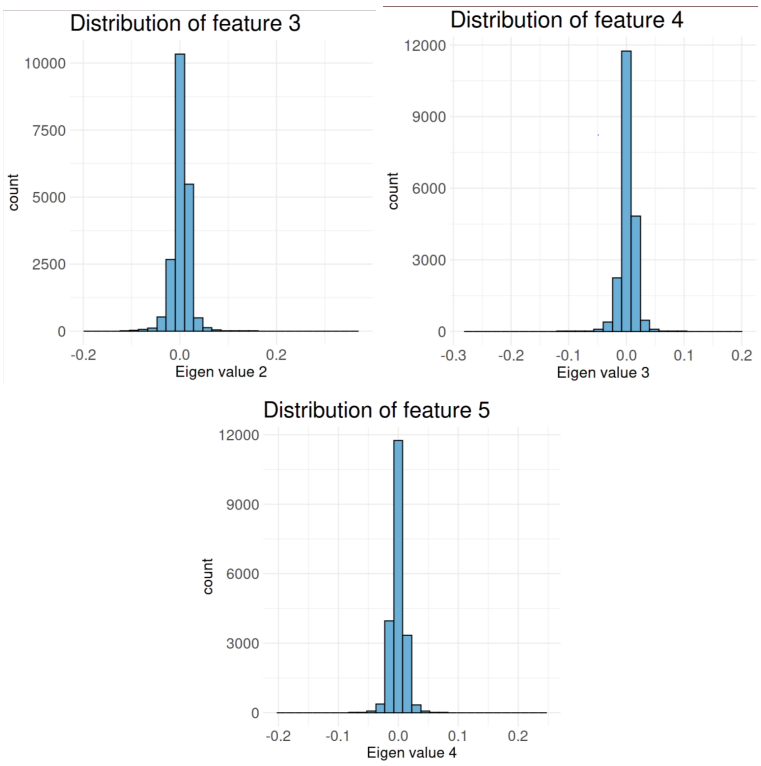
Outcomes of the tasks performed:

- We were able to understand the core applications and interpretations of our base models, learn different approaches to vectorize the given text data without entering the domain of NLP and learn to pre-process real-time big-data.
- It is quite evident from the AUC under ROC score that the models do not have high accuracy.

Model	AUC	F1 Score
RFC	0.5717	0.1674
QDA	0.6071	0.2031
KNN	0.5455	0.1784
LDA	0.5731	0.1777
LR	0.5271	0.1776

Models and Metrics





Tasks to be performed in the upcoming week:

- Hyper parameter fine tuning of all the linear and non- linear classifiers, including varying and cross validating different numbers of eigenvalues.
- Change the dimension of input data and use of different matrices for dimension reduction.
- Also, select randomized train data and see how the accuracy varies due to variation in the distribution of input data.

References:

1.“Toxic comment classification challenge,” Kaggle. [Online]. Page 15 Available: https://www.kaggle.com/c/jigsaw-toxic-comment-classification- challenge/data. [Accessed: 20-Mar-2022].

2. K. M. Lhaksmana, D. T. Murdiansyah, and N. S. Azzahra, “Toxic Comment Classification on SocialMedia Using Support Vector Machine and Chi Square Feature Selection,” View of toxic comment classification on social media using support Vector Machine and Chi Square feature selection. [Online]. Available: http://socj.telkomuniversity.ac.id/ojs/index.php/ijoict/article/view / 552/316. [Accessed: 20-Mar-2022].

3. G. Xiang, B. Fan, L. Wang, J. I. Hong, and C. P. Rose, Detecting Offensive Tweets via Topical

Feature Discovery over a Large Scale Twitter Corpus. [Online]. Available: https://www.cs.cmu.edu/ lingwang/papers/sp250-xiang.pdf. [Accessed: 20-Mar-2022].
4. Van Rossum G, Drake Jr FL. Python tutorial. Centrum voor Wiskunde en Informatica Amsterdam, The Netherlands; 1995. Available: https://www.python.org/
5. Wickham H. ggplot2: Elegant Graphics for Data Analysis. Springer- Verlag New York. ISBN 978-3-319-24277-4, 2016. Available: https://ggplot2.tidyverse.org
6. R Core Team (2019). R: A language and environment for statistical¿ computing. R Foundation for Statistical Computing, Vienna, Austria.¿ Available: https://www.R-project.org/.