Lab 7 - Text Classification

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Lab Manual

Task: Text Classification

You are given two dataset consisting of social media posts. Each dataset is split into train and test sets. Each post has multiple categories of labels. For the HASOC dataset, the three categories of labels are (a) binary labels of offensive or not offensive, (b) Multiclass labels where offensive are further classified into types of offensive content and (c) Whether the offensive posts are targeted or untargeted insults. For the OLID dataset, the labels are: (a) binary labels of offensive and not offensive, (b) Whether the offensive posts are targeted or untargeted insults, (c) Whether the targeted offensive posts are targeting individuals or groups. Further details of the two datasets are available here: HASOC and OLID. For OLID dataset, you are given a clean text field, where prpeprocessing is already performed. You can chose to use either the clean text or the original text.

The task is to implement a simple naive bayes classifier for tasks (a) and (b) of HASOC and task (a) of OLID.

General Steps to be followed:

1. Data loading
2. Data Preprocessing (whatever steps from below that are applicable)
3. Train naive Bayes classifier using train set
4. Evaluate on the appropriate test set.

Evaluation

Given the class imbalance, macro-averaged R, P and F-scores will be used as evaluation metrics. You may use existing implementation for evaluation from standard libraries like Scikitlearn or Scipy.

Challenge

- Teams of two compete for the best Macro-averaged F1-score.
- Teams also need to report the classwise R,P and F1-Score for verification.
- Only use naive bayes method, but no restriction on improvements like feature selection or smoothing methods.
- Top 3 Teams each for HASOC task (a) and (b) and OLID task (a) get 5 points each. The second teams for each of these subtasks get 3 points each. The same team can not get points from multiple tasks.

How to participate:

- Report to the TAs when you have a new score.
- Top scores will be displayed publicly (like in a leaderboard)
- At the end of the lab submit your working code and labels in google classroom along with the evaluation scores.
- If code is found to be plagiarised, or fail to produce scores as claimed by the team, there will be a penalty.

Note: The use of LLMs is allowed for understanding some of the concepts above. However, directly using code generated by LLMs is not allowed. Any LLM generated code will make you ineligible for the challenge.