Data Science Intern at Data Glacier

Project: Hate Speech Detection using Transformers (Deep Learning)

Week 7: Deliverables

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1.Project Lifecycle & Deadlines

Weeks	Date	plan

Weeks 07	May 18, 2022	Problem Understanding Research hate speech detection techniques. Analyze the problem and define the scope.
Weeks 08	May 25, 2022	Data Cleaning and Normalization. Preprocess the tweets by removing noise (e.g., URLs, special characters). Handle missing data, if any. Normalize the text data.
Weeks 09	June 1, 2022	Representation Learning
Weeks 10	June 8, 2022	Model Building & Training
Weeks 11	June 14, 2022	Performance Evaluation & Reporting
Weeks 12	June 21, 2022	Model Deployment & Inference
Weeks 13	June 30, 2022	Documentation & Submission

2. Problem Description · **Objective:**

- Develop a model to detect hate speech in tweets using deep learning techniques, specifically Transformers.

- **Definition of Hate Speech:**
  - Any communication that attacks or uses derogatory or discriminatory language against a person or group based on religion, ethnicity, nationality, race, color, ancestry, sex, or other identity factors.
- **Data Source:**
  - A labeled dataset of tweets where `label` is 0 or 1 (0 for non-hate speech, 1 for hate speech), and `text_format` contains the original tweets.

3. Business Understanding

- **Importance of Hate Speech Detection:**
  - Ensures safer online communities by identifying and mitigating hate speech.

- Supports social media platforms in enforcing policies against harmful content.

- **Potential Applications:**
  - Content moderation on social media platforms. ○ Automated reporting of harmful content. ○ Enhancing user experience by filtering out hate speech.

4. What type of data do we have:

A dataset contains 3 features:

1. Id
2. Label
3. Text

Id feature datatype is integer and it contains the tweet Id.

Label is an integer of 0 and 1 and it represents if the text is negative or positive.

Text is a string feature ant it contains the text of tweet.

5. Approaches to clean the data:

Using libraries like pandas and re could help us to clean and normalize the dataset

6. Problems:

we need to remove special characters and remove all the unnecessary things like:

1. Punctuation
2. URLs
3. @tags

Punctuation: it is important to remove the punctuation because is not important.
We remove that using regular expressions.
URLs: because we are working on hate speech detection app, we need to give only the text.
@tags: we remove @tags using regular expressions