

Project Report: Hate Speech Detection Using Transformers (Deep Learning)

Name: Rakshit Grover

University: University of Southern California

Specialization: NLP

Batch Code: LISUM35

Email: rakshitg@usc.edu

Country: United States

Date: AUGUST 18, 2024

Submitted to: Data Glacier

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Project Plan

Week 1 (August 18, 2024):

- Deliverables: Problem Statement, Data Collection, Data Report

Week 2 (August 25, 2024):

- Deliverables: Data Preprocessing

Week 3 (September 1, 2024):

- Deliverables: Feature Extraction

Week 4 (September 8, 2024):

- Deliverables: Model Building

Week 5 (September 15, 2024):

- Deliverables: Model Evaluation

Week 6 (September 22, 2024):

- Deliverables: Flask Development, Heroku Deployment

Week 7 (September 30, 2024):

- Deliverables: Final Submission (Report, Code, Presentation)

2. Problem Statement

Hate speech refers to any form of verbal, written, or behavioral communication that attacks or uses derogatory or discriminatory language against individuals or groups based on factors such as religion, ethnicity, nationality, race, gender, or other identity markers. This project aims to build a machine learning model that can detect hate speech in text using Python.

The task of hate speech detection is often treated as a sentiment classification problem. For this project, we will focus on classifying hate speech using Twitter tweets as our data source. By training the model on data typically used for sentiment classification, we can create an effective tool to identify tweets containing hate speech.

3. Business Understanding

Hate speech detection is essential for online platforms to maintain a safe and inclusive environment.

1. Market Need: With the rise of social media, hate speech has become more prevalent, requiring effective detection systems to foster positive engagement.
2. Brand Impact: Companies that fail to address hate speech risk damaging their reputation and losing users. Proactive measures enhance corporate responsibility and build community trust.
3. Regulatory Compliance: As regulations against hate speech tighten, effective detection helps organizations avoid legal issues and fines.
4. Operational Efficiency: Automating detection reduces the workload on human moderators, enabling faster responses to incidents.
5. Data Insights: A machine learning model provides valuable insights into user behavior, guiding policy adjustments and interventions.

This project addresses a critical societal issue while positioning businesses for success in a digital landscape.