

Project Title	Deep Learning for Comment Toxicity Detection with Streamlit
Skills take away From This Project	Deep Learning, Model Development and Training, Model Evaluation and Optimization, Streamlit Web App Development, Model Deployment, NLP
Domain	Online Community Management and Content Moderation

Problem Statement:

Online communities and social media platforms have become integral parts of modern communication, facilitating interactions and discussions on various topics. However, the prevalence of toxic comments, which include harassment, hate speech, and offensive language, poses significant challenges to maintaining healthy and constructive online discourse. To address this issue, there is a pressing need for automated systems capable of detecting and flagging toxic comments in real-time.

The objective of this project is to develop a deep learning-based comment toxicity model using Python. This model will analyze text input from online comments and predict the likelihood of each comment being toxic. By accurately identifying toxic comments, the model will assist platform moderators and administrators in taking appropriate actions to mitigate the

negative impact of toxic behavior, such as filtering, warning users, or initiating further review processes.

Business Use Cases:

- 1. Social Media Platforms:** Social media platforms can utilize the developed comment toxicity model to automatically detect and filter out toxic comments in real-time.
- 2. Online Forums and Communities:** Forums and community websites can integrate the toxicity detection model to moderate user-generated content efficiently.
- 3. Content Moderation Services:** Companies offering content moderation services for online platforms can leverage the developed model to enhance their moderation capabilities.
- 4. Brand Safety and Reputation Management:** Brands and advertisers can use the toxicity detection model to ensure that their advertisements and sponsored content appear in safe and appropriate online environments.
- 5. E-learning Platforms and Educational Websites:** E-learning platforms and educational websites can employ the toxicity detection model to create safer online learning environments for students and educators.
- 6. News Websites and Media Outlets:** News websites and media outlets can utilize the toxicity detection model to moderate user comments on articles and posts.

Approach:

- 1. Data Exploration and Preparation:**
 - Load and explore the dataset.
 - Perform text preprocessing (cleaning, tokenization, stopword removal, vectorization).

2. Model Development:

- Train a deep learning model for toxicity detection.
- Experiment with architectures like LSTMs, CNNs, or transformer-based models (BERT).
- Store the trained model for deployment.

3. Streamlit Application Development:

- Build an interactive UI using **Streamlit** to allow users to enter comments and receive toxicity predictions in real-time.
- Display data insights, model performance metrics, and sample test cases in the Streamlit dashboard.
- Provide options to **upload a CSV file** for bulk predictions.

Results:

A **real-time interactive toxicity detection web application** that enhances online content moderation

Technical Tags:

Python, Deep Learning, Neural Networks, NLP, Model Training, Model Evaluation, Streamlit, Model Deployment

Data Set : [DataSet](#)





Project Deliverables:



1. **Streamlit Application:** An interactive web app where users can input text and get toxicity predictions.
2. **Deployment Guide:** Instructions on how to set up and deploy the Streamlit application.
3. **Source Code:** Complete Streamlit-based Python code for model inference and visualization.
4. **Video**

Timeline:

The project timeline spans one week, encompassing tasks such as data preprocessing, model development and training, deployment, documentation, testing, evaluation, and finalization.

Reference:

Project Live Evaluation	 Project Live Evaluation
EDA Guide	 Exploratory Data Analysis (ED..
Capstone Explanation Guideline	 Capstone Explanation Guideline
GitHub Reference	 How to Use GitHub.pptx

<p>NLP- Text Classification, NER, Text summarization, Topic Modelling(Tamil)</p>	<p> Project Excellence Series: Gui..</p>
<p>NLP-Text Classification, NER, Text summarization, Topic Modelling(English)</p>	<p> Project Excellence Series: Gui..</p>