Team 16.6

TOXİC COMMENTS CLASSİFİCATİON SYSTEM

2025

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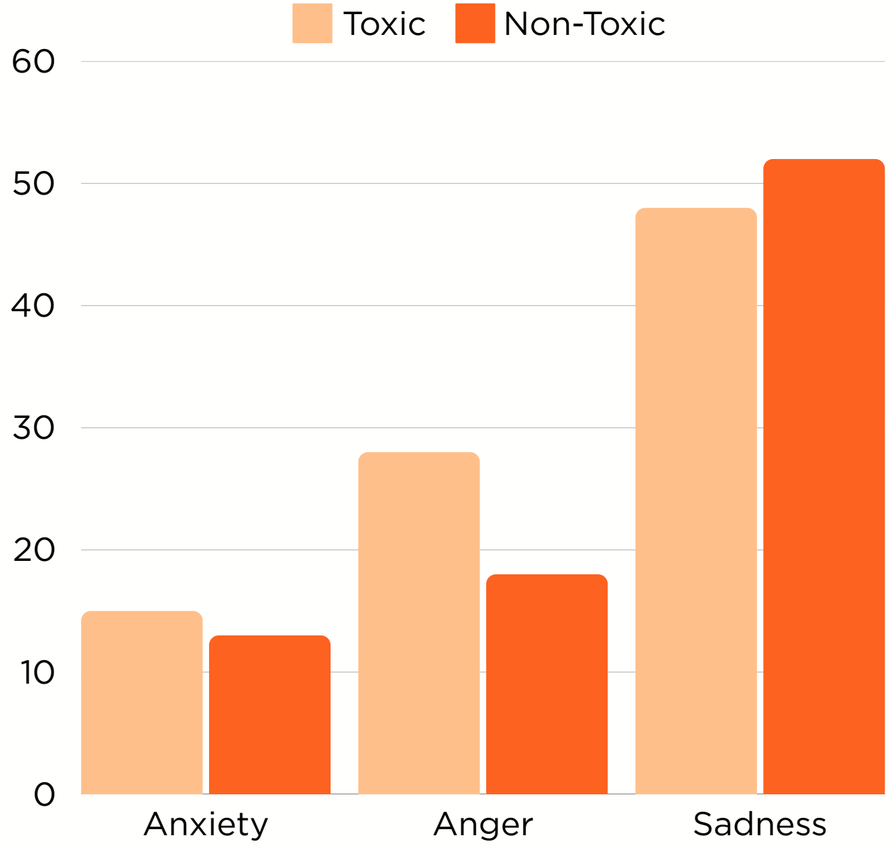
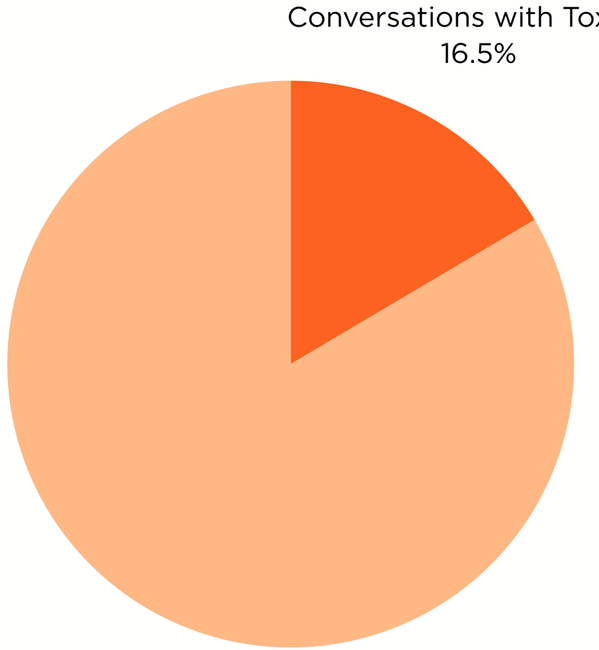
Why is it important?

Emotional Reaction to Toxicity





Distribution of Conversations with and without Toxicity

Sadness, Anger, or Anxiety: Twitter Users' Emotional Responses to Toxicity in Public Conversations (Research)

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Project idea

In the modern era of social media, toxicity in online comments poses a significant challenge, creating a negative atmosphere for communication. From abuse to insults, toxic behavior discourages the free exchange of thoughts and ideas among users.

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What problem do we solve?

This program uses machine learning to detect and classify toxic language in online comments, helping to create a safer and more respectful online space.

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Target audience

Forums

Online store

Social networks

Parental control

A typical internet user

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Functionality and technology

- Python
- PyTorch
- BERT
- Kaggle
- Streamlit
- Docker

kaggle

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Toxic Comment Classification Challenge dataset

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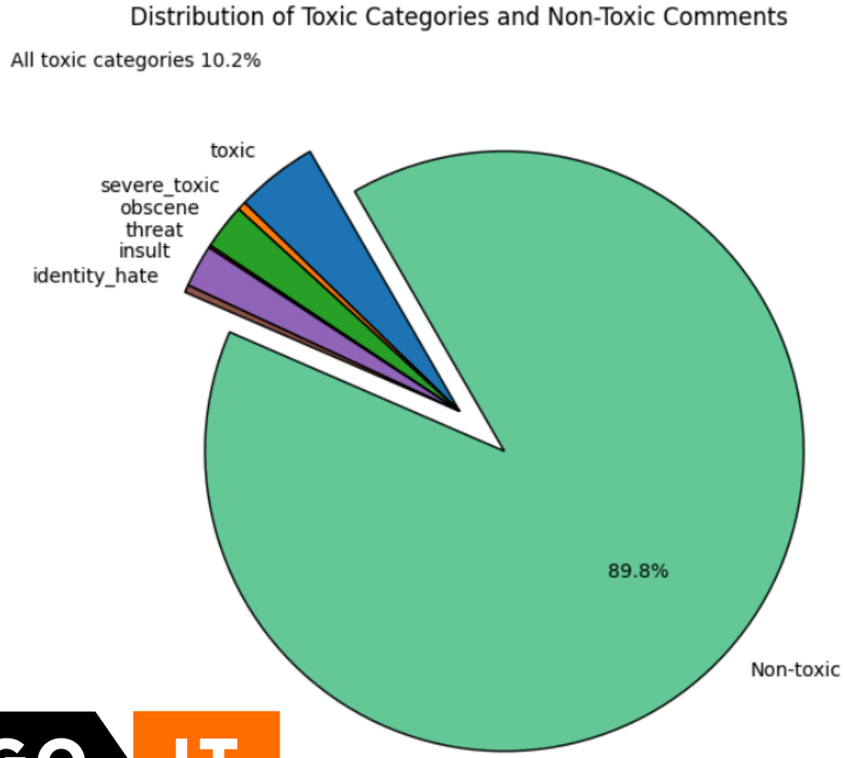
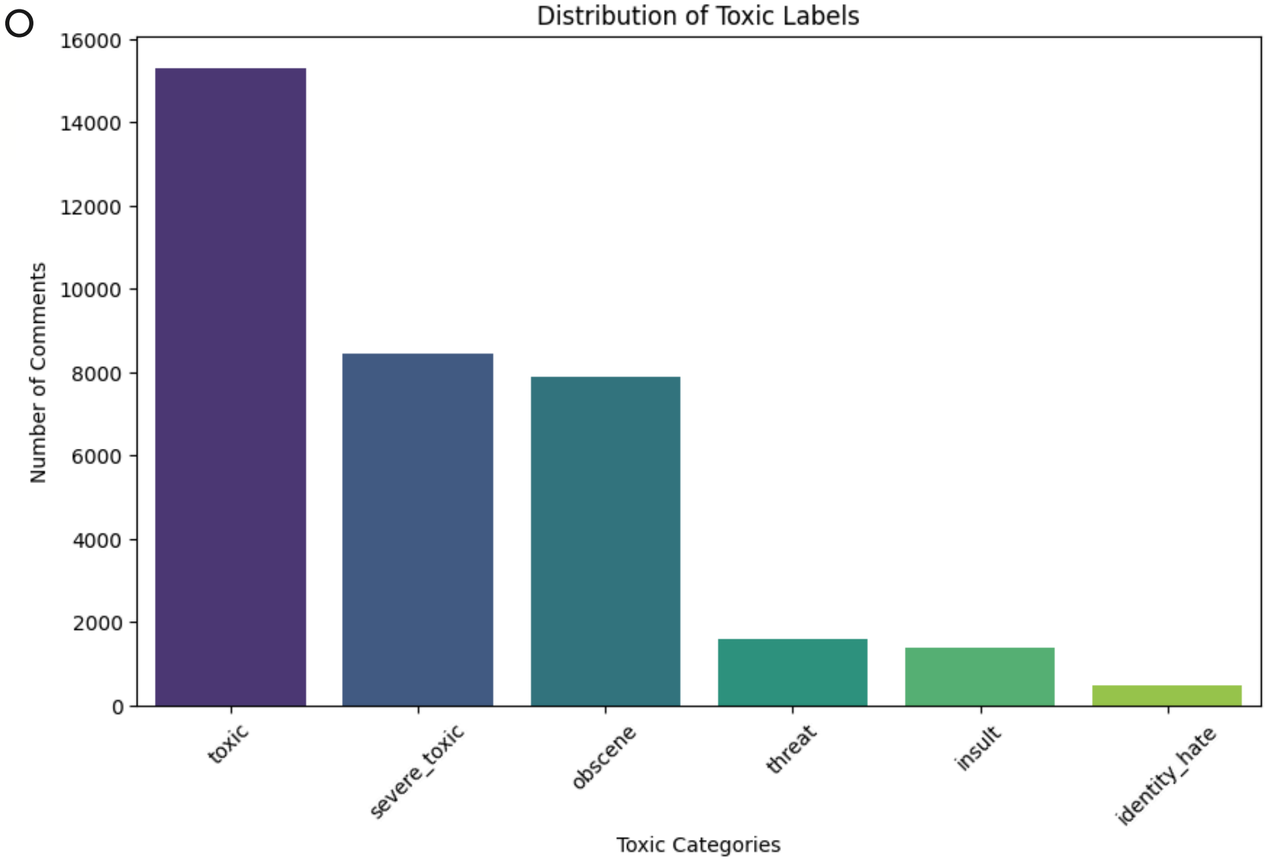
Exploratory Data Analysis of dataset show imbalance of classes in the ratio of 1 to 10 (toxic/non-toxic).





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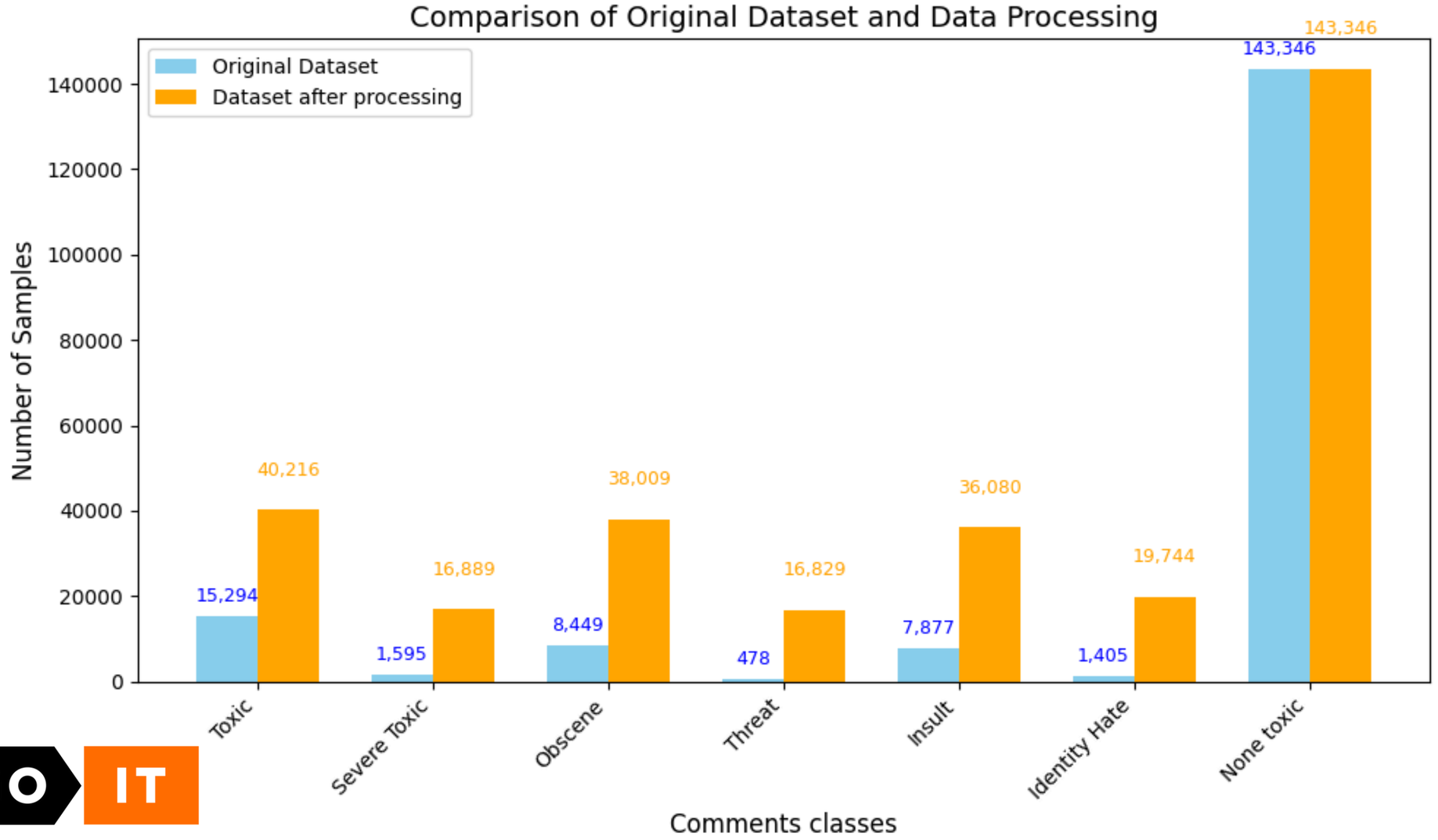
Dataset

after data oversempling



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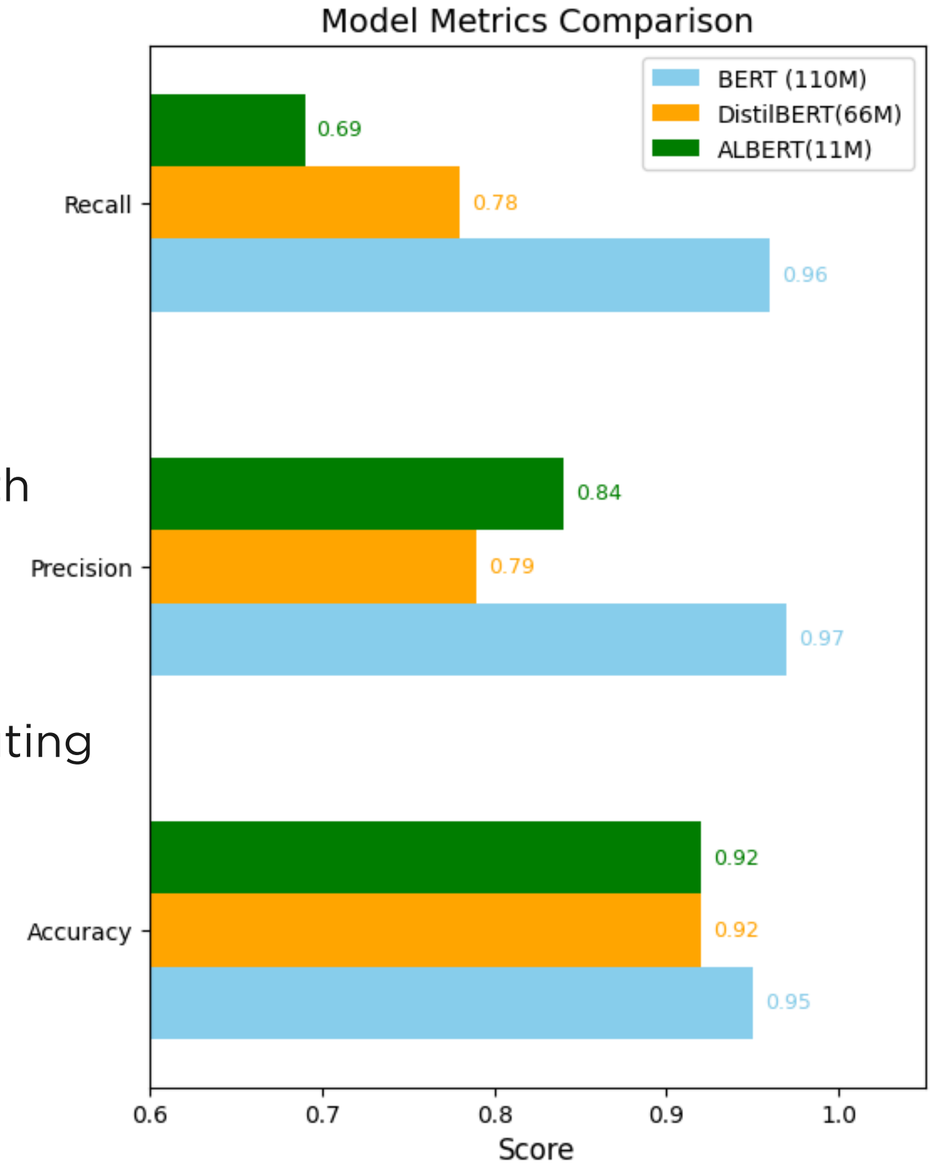
Machine learning

For train the models, we used tools:

- Loss Function: Binary Cross-Entropy with Logits
- Hyperparameter Tuning with Optuna
- AdamW opimizator
- CUDA(GPU compute) and Cloud computing use Kaggle



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Application user interface

Interface elements

- Ability to choose between three models
- Ability to input text from the keyboard
- Ability to upload a text file in *.txt format
- Visualization of data distribution by category

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Developed by Team 16.6

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Toxic Comment Classification system

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