



Team 16.6

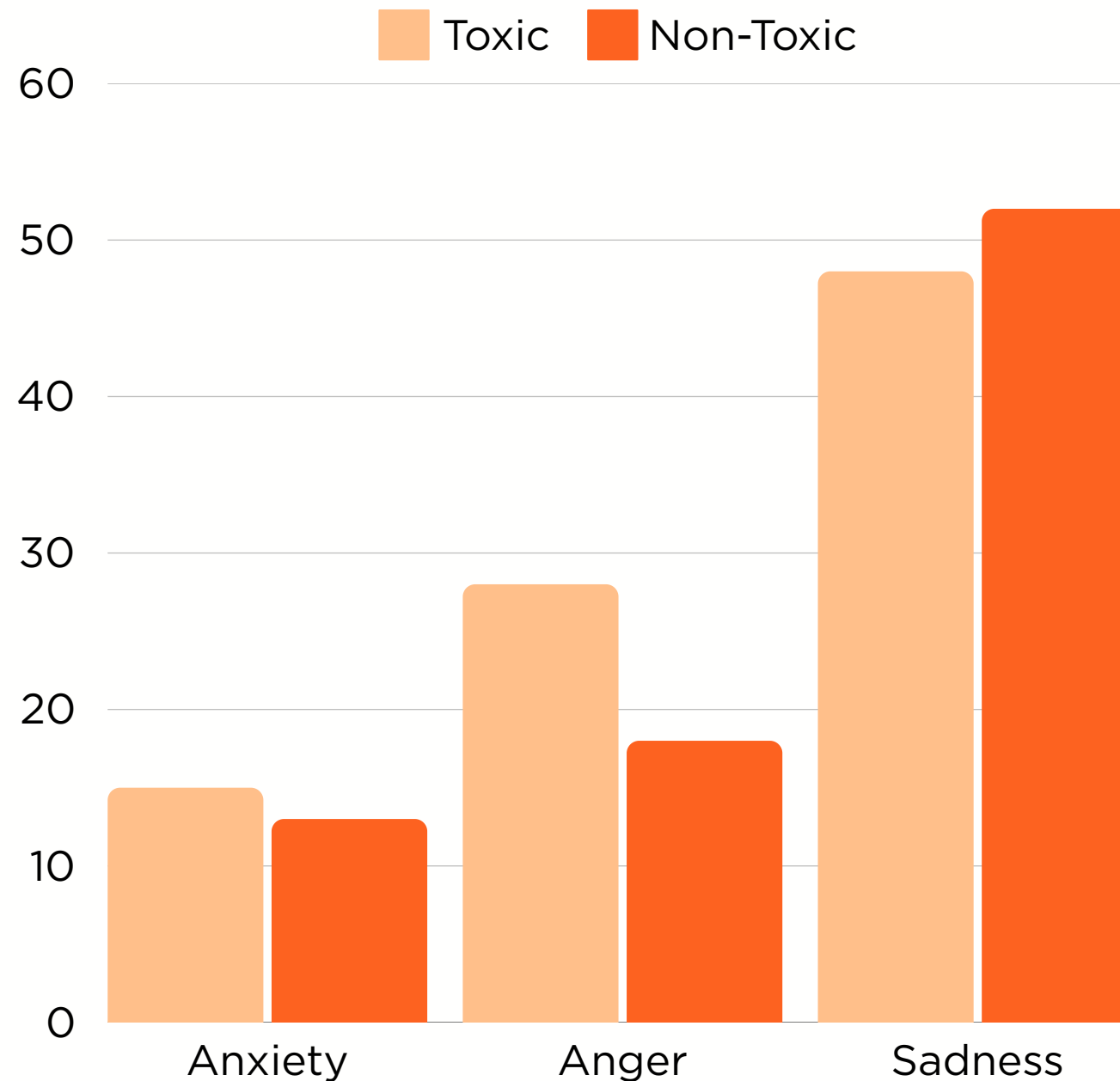
TOXic COMMENTS CLASSiFICATION SYSTEM

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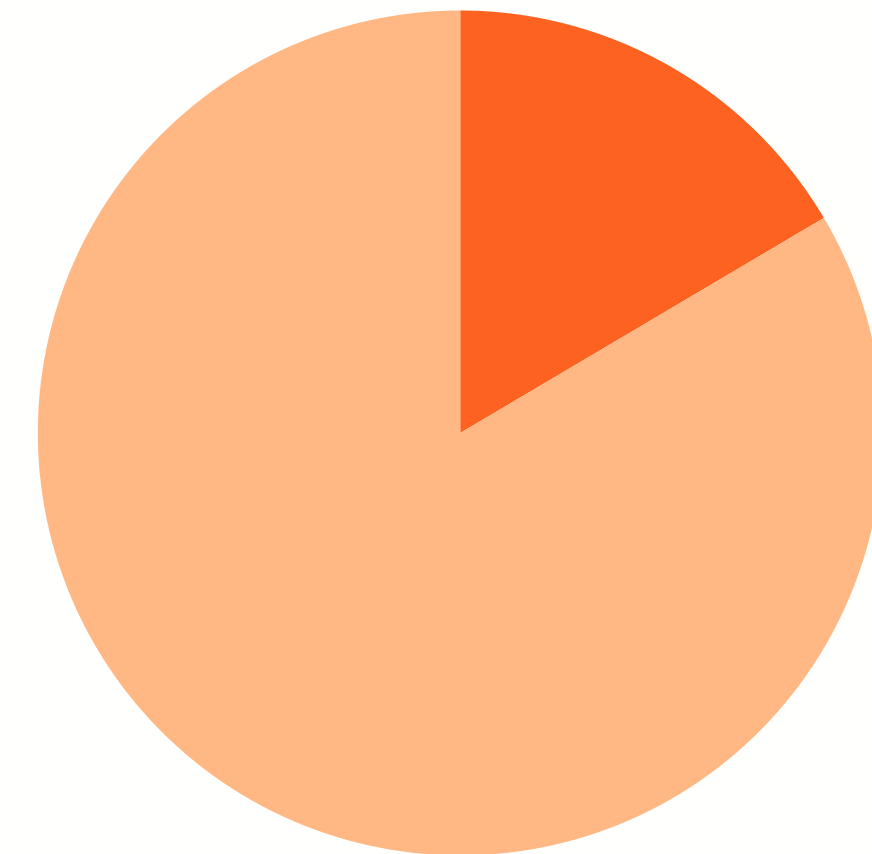


Why is it important?

Emotional Reaction to Toxicity



Conversations with Toxicity
16.5%



Conversations without Toxicity
83.5%

Distribution of Conversations with and without Toxicity

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



Project idea

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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.





What problem do we solve?

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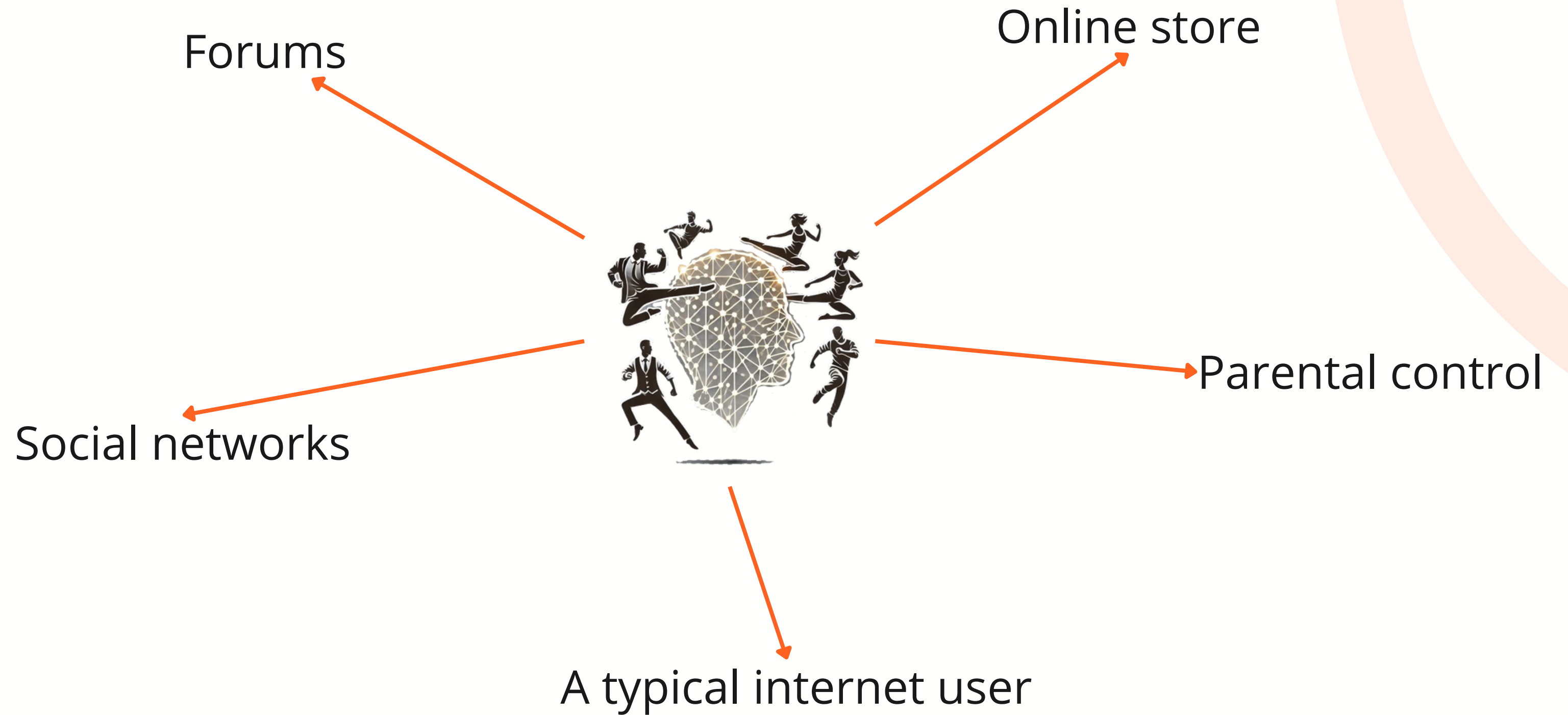
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This program uses machine learning to detect and classify toxic language in online comments, helping to create a safer and more respectful online space.



Target audience



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GO

IT

Functionality and technology



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



kaggle



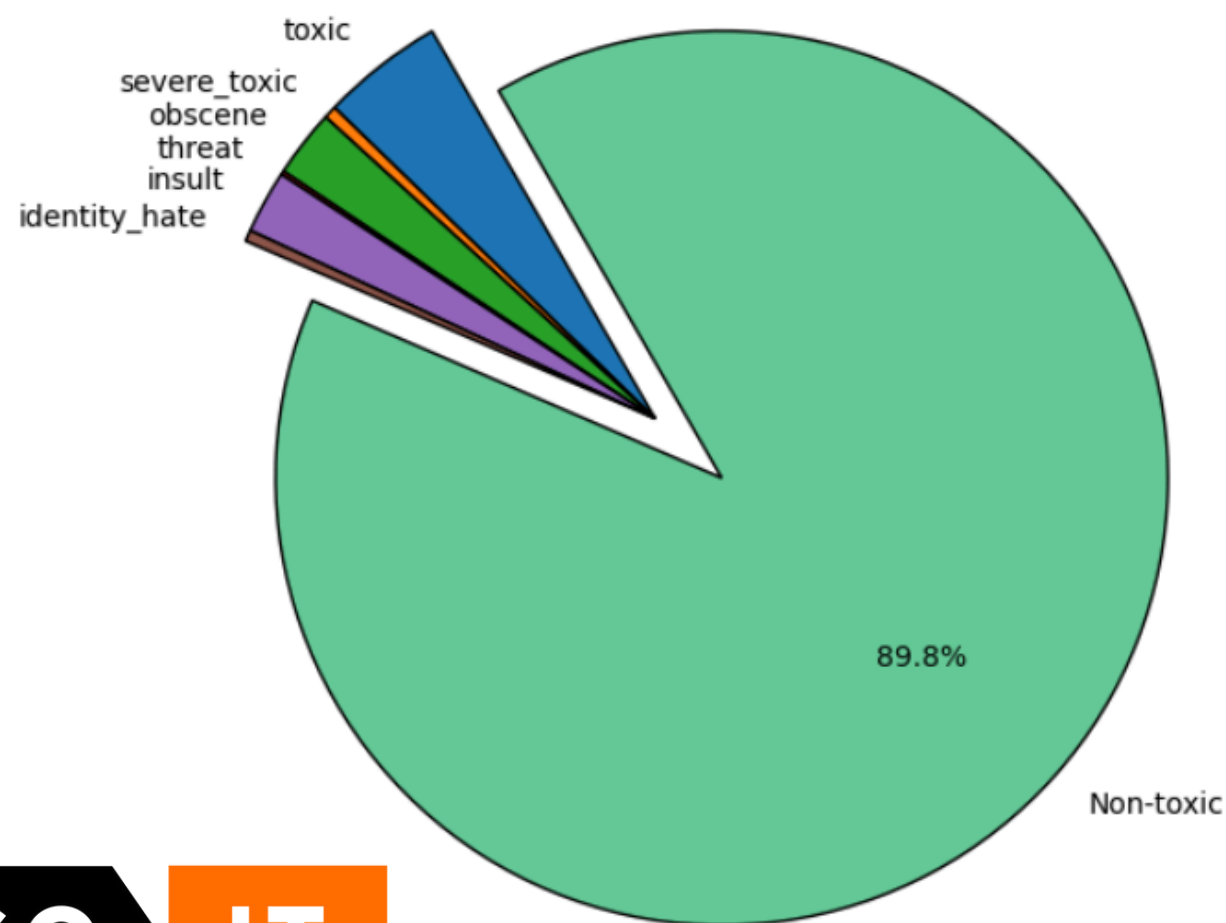
Toxic Comment Classification

Challenge dataset

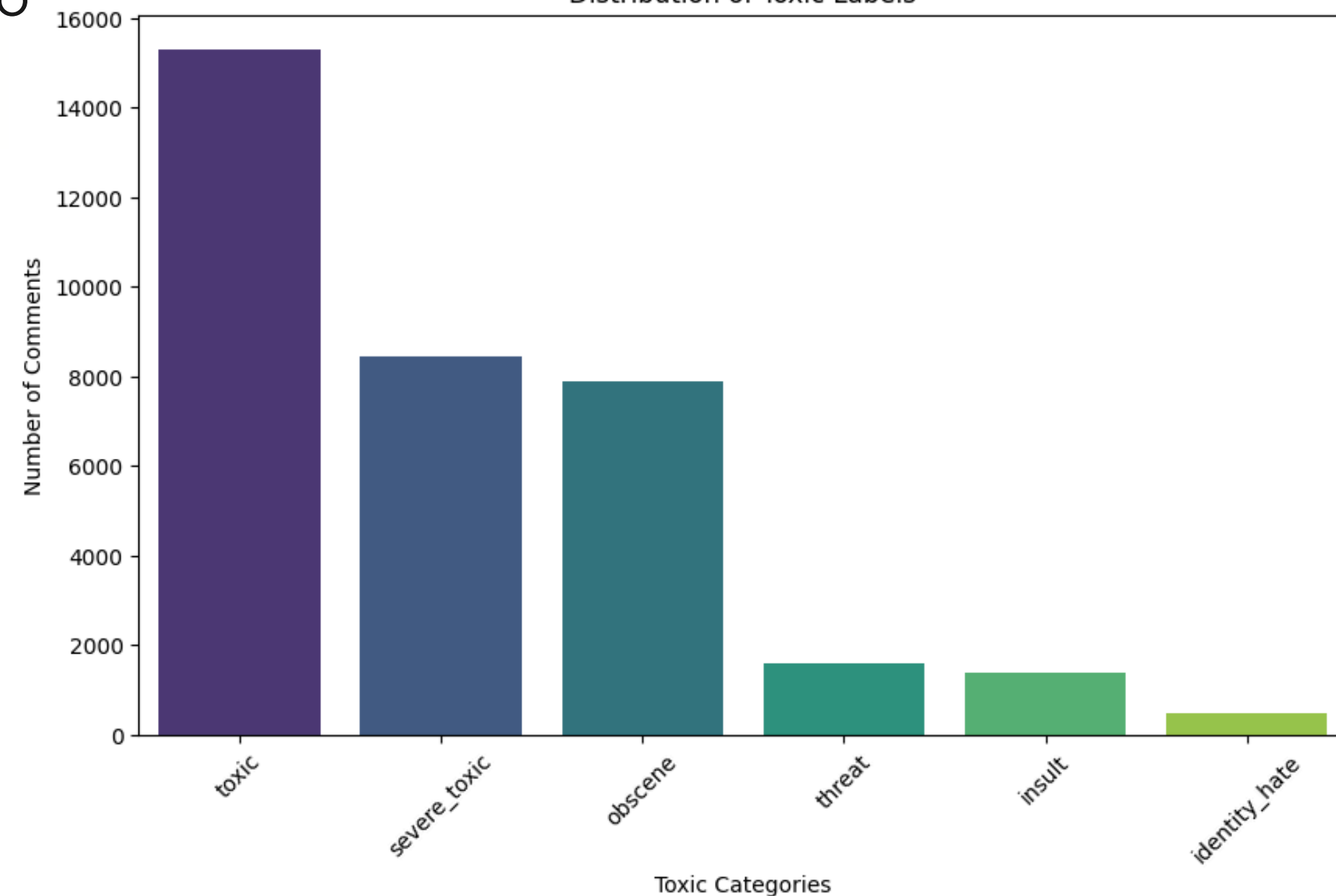


Exploratory Data Analysis of dataset show imbalance of classes in the ratio of 1 to 10 (toxic/non-toxic).

Distribution of Toxic Categories and Non-Toxic Comments
All toxic categories 10.2%



Distribution of Toxic Labels

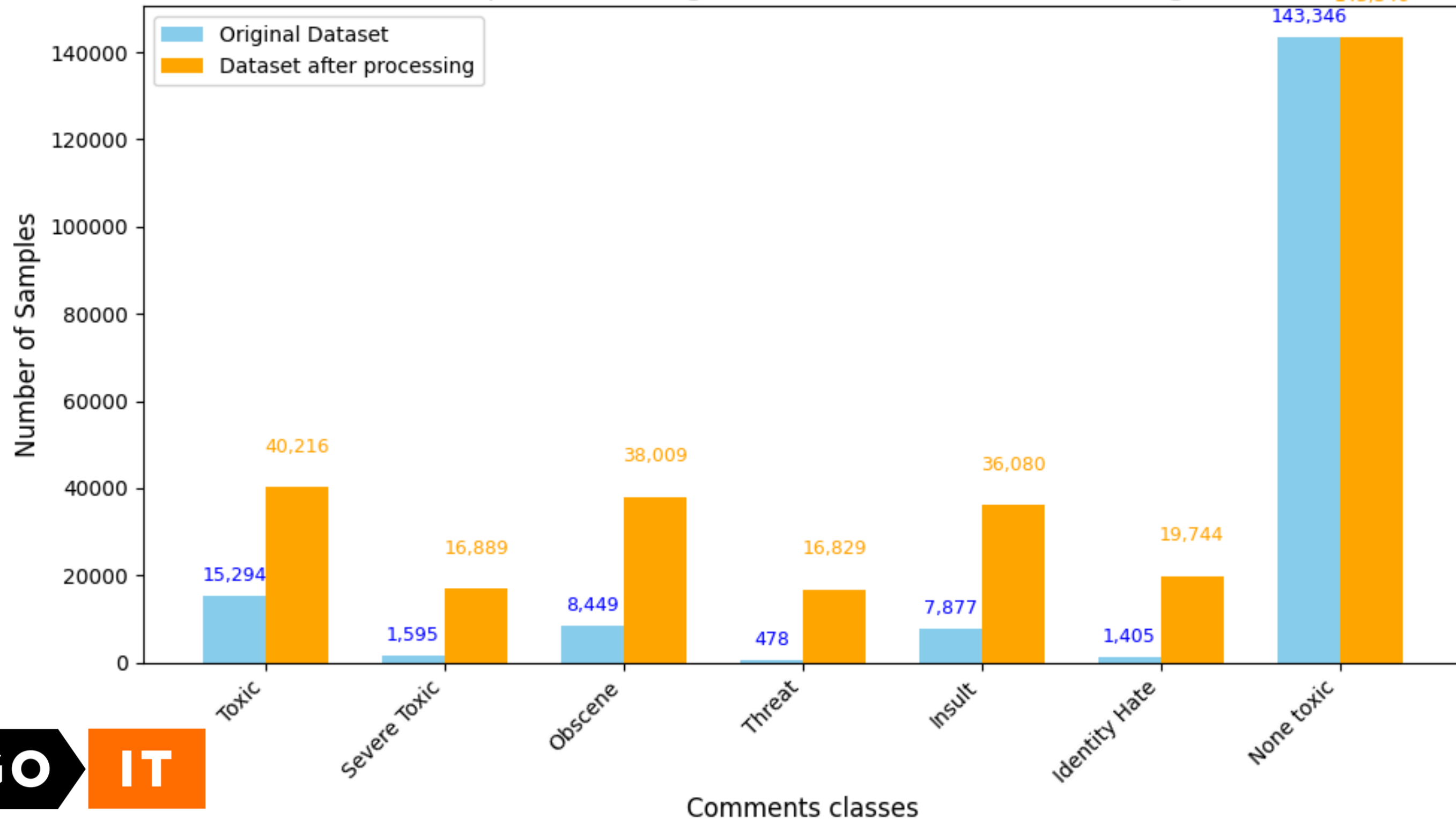


Dataset

after data oversampling



Comparison of Original Dataset and Data Processing



GO

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Machine learning



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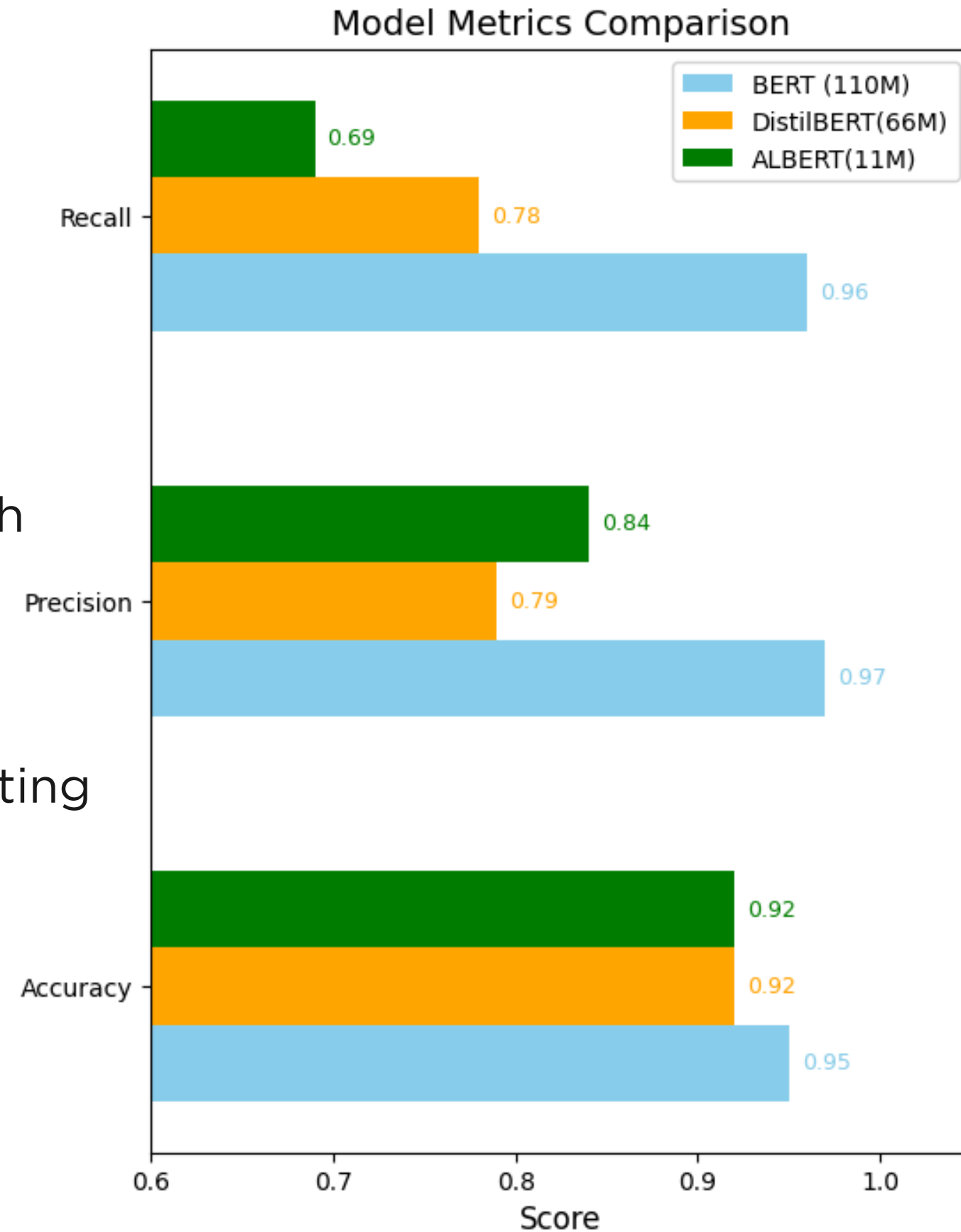
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For train the models, we used tools:

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



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

The screenshot shows a web application titled "Toxic Comment Classification System". It features a dark theme with a navigation bar at the top containing links for Home, Team, Metrics, and a prominent red "Classify" button. Below the navigation bar, there is a section for "Choose your model" with a dropdown menu currently set to "BERT". Underneath is a text input area labeled "Enter your comment here" containing the text "This f***king awesome!!!". Below the text input is a file upload section labeled "Upload your text file" with a "Drag and drop file here" area, a "Limit 200MB per file • TXT" note, and a "Browse files" button. At the bottom of the form, there is a checked checkbox for "Display detailed toxicity" and a "Classify" button. The final output at the bottom of the interface states "The overall comment is: toxic."

Developed by Team 16.6



Serhii Trush
Team Lead

Olena Mishchenko
Data Scientist

Oleksandr Kovalenko
SCRUM Master,
Backend Developer

Polina Mamchur
Creative Director,
SCRUM Master

Ivan Shkvyr
Backend Developer

Oleksii Yeromenko
Frontend Developer

Toxic Comment Classification system

