**Hate Speech Detection using Python**

**Artificial Intelligence LAB**

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**1. Abstract:**

The Hate Speech Detection project aims to develop a system capable of identifying hate speech in text input, utilizing both textual and voice-based inputs. The system employs machine learning techniques, specifically logistic regression, trained on a dataset of labeled tweets. The trained model is integrated into a Graphical User Interface (GUI) built using Tkinter in Python, allowing users to input text manually or through voice commands for hate speech detection.

**2. Acknowledgement:**

We acknowledge the support and guidance provided by Sir Sohail Ahmed throughout the semester – it wouldn’t have been possible to build this project without the things taught by him.

**3. Introduction:**

Digital hate speech has become a prevalent issue in online platforms, necessitating automated methods for its detection. This project endeavors to address this challenge by developing an AI-powered hate speech detection system.

**4. Project Overview:**

The Hate Speech Detection system comprises two main components: a machine learning model trained on labeled tweet data and a GUI built using Tkinter. Users can input text either manually or through voice commands, and the system outputs whether hate speech is detected or not.

**5. Design Methodology:**

The design process involved collecting and preprocessing the dataset, training the machine learning model using logistic regression, and integrating it into a GUI using Tkinter. Python was the primary programming language used for both the model development and GUI implementation.

**7. Software Description:**

The project utilized Python for coding the machine learning model and Tkinter for building the GUI. Additionally, the project relied on the pandas library for data importation, scikit-learn for machine learning tasks, and Speech Recognition for voice input processing.

**8. Results and Analysis:**

Experimental results demonstrated the effectiveness of the hate speech detection system, with high accuracy in identifying hate speech in both textual and voice inputs. The analysis revealed robust performance and compliance with project specifications.

**9. Discussion:**

The results indicate promising outcomes in hate speech detection, showcasing the potential for real-world applications. Challenges encountered during development included audio quality variations in voice inputs, which were mitigated through error handling mechanisms.

**10. Conclusion:**

The Hate Speech Detection project successfully developed a system capable of identifying hate speech in text and voice inputs. The project underscores the significance of AI-based solutions in addressing societal issues such as online hate speech.

**11. Future Work:**

Future enhancements could involve refining the model with additional data sources and exploring advanced machine learning algorithms for improved accuracy. Additionally, integrating real-time monitoring features and expanding language support could enhance the project's functionality.

**12. References:**

- Geeks for Geeks

- YouTube tutorials

**13. Appendices:**

N/A