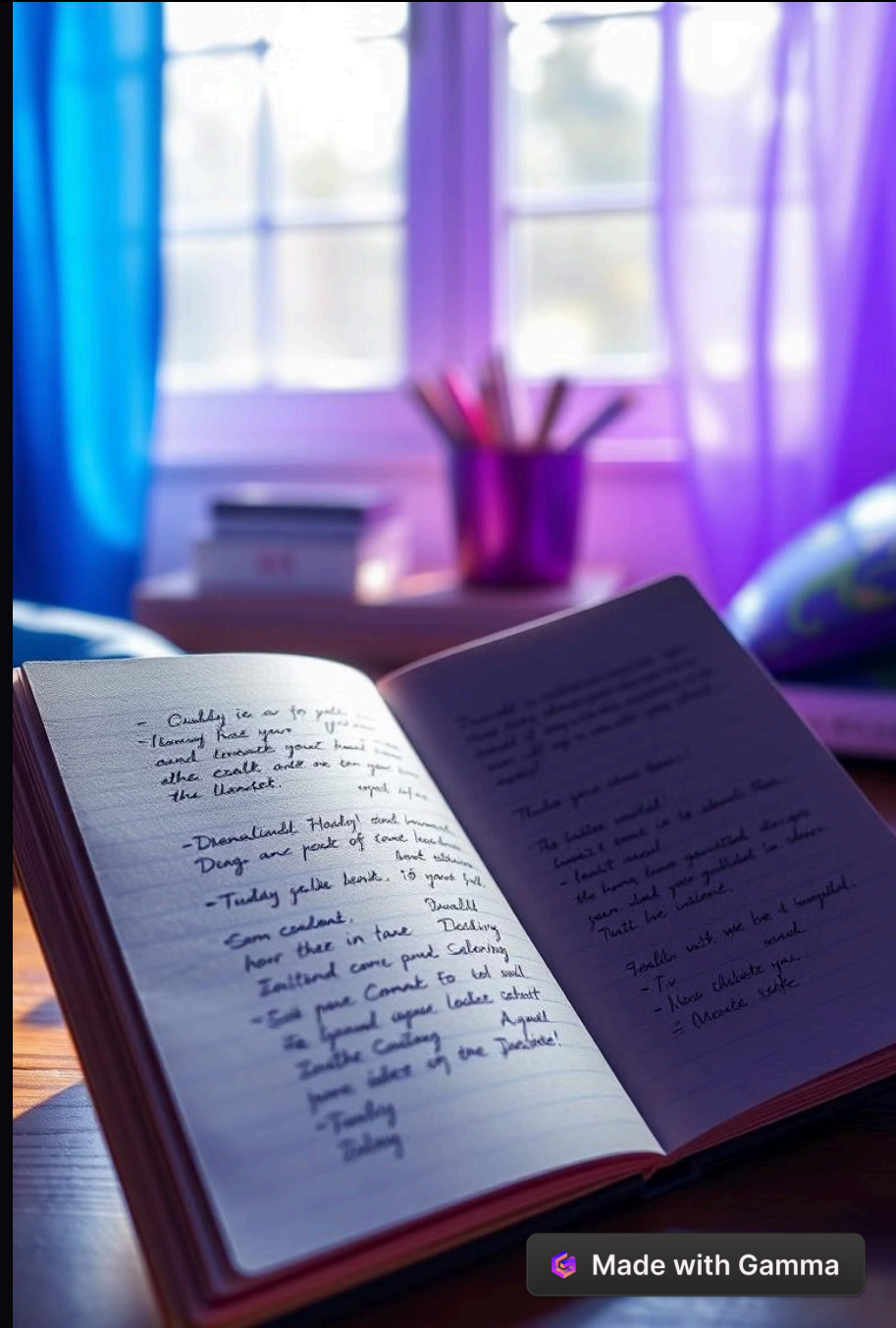
AI Model for Extracting and Summarizing Handwritten Notes

Subtitle: A Google Colab-based OCR & NLP Project

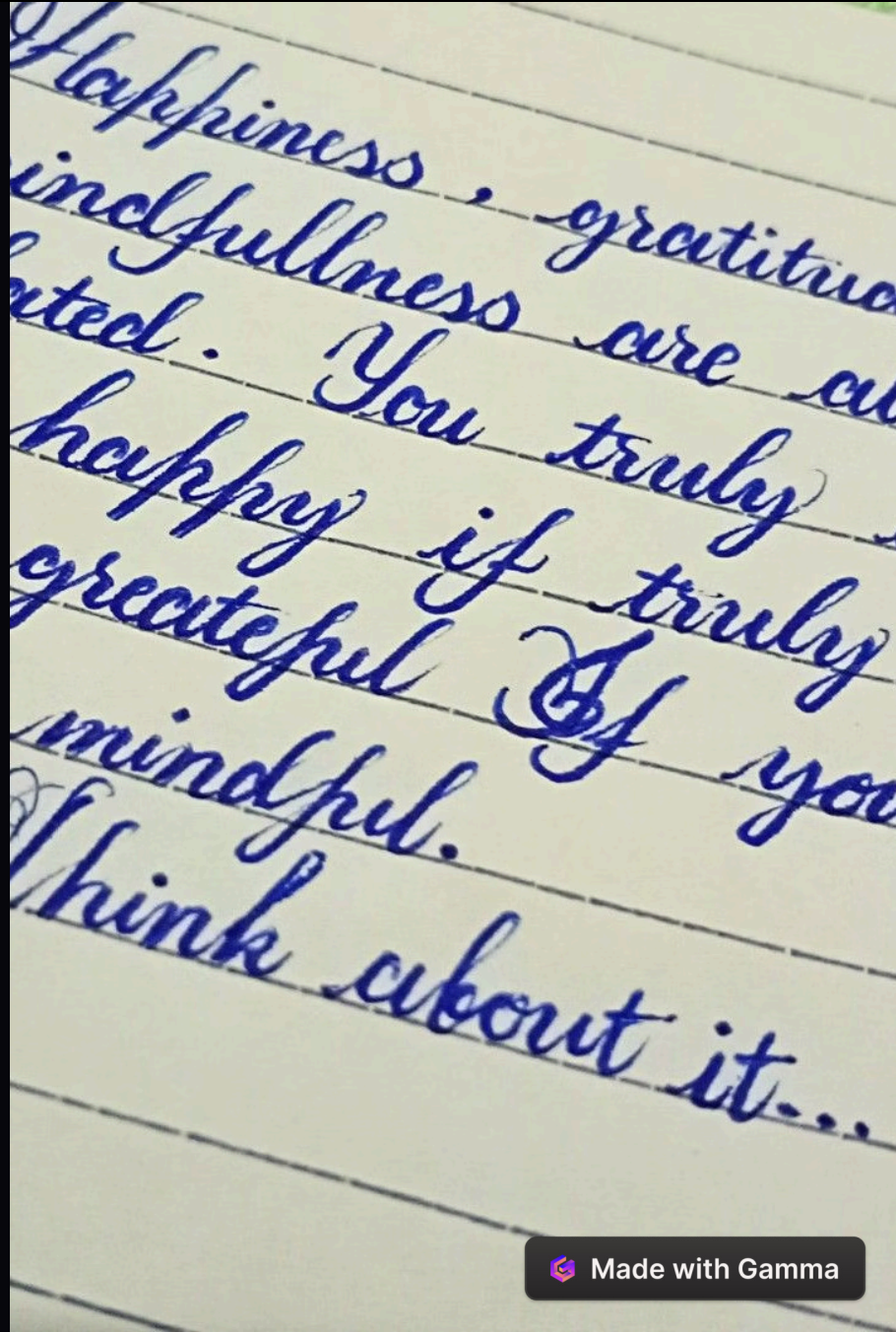
Presented by: Team G2

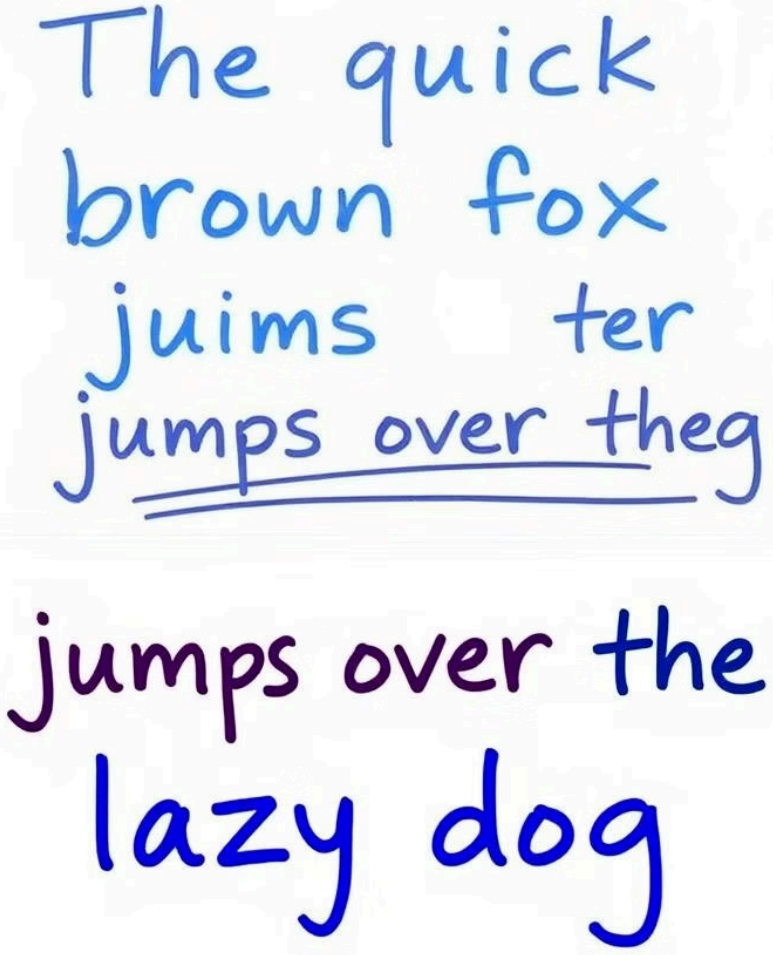


Problem Statement

The manual conversion and summarization of notes are time-intensive.

The goal is to automate this process. We'll use AI to extract text from uploaded images of handwritten notes and generate concise summaries.





Applications

Education: Convert lecture notes to digital study guides

Healthcare: Digitize doctor prescriptions

Banking: Read handwritten cheques or forms

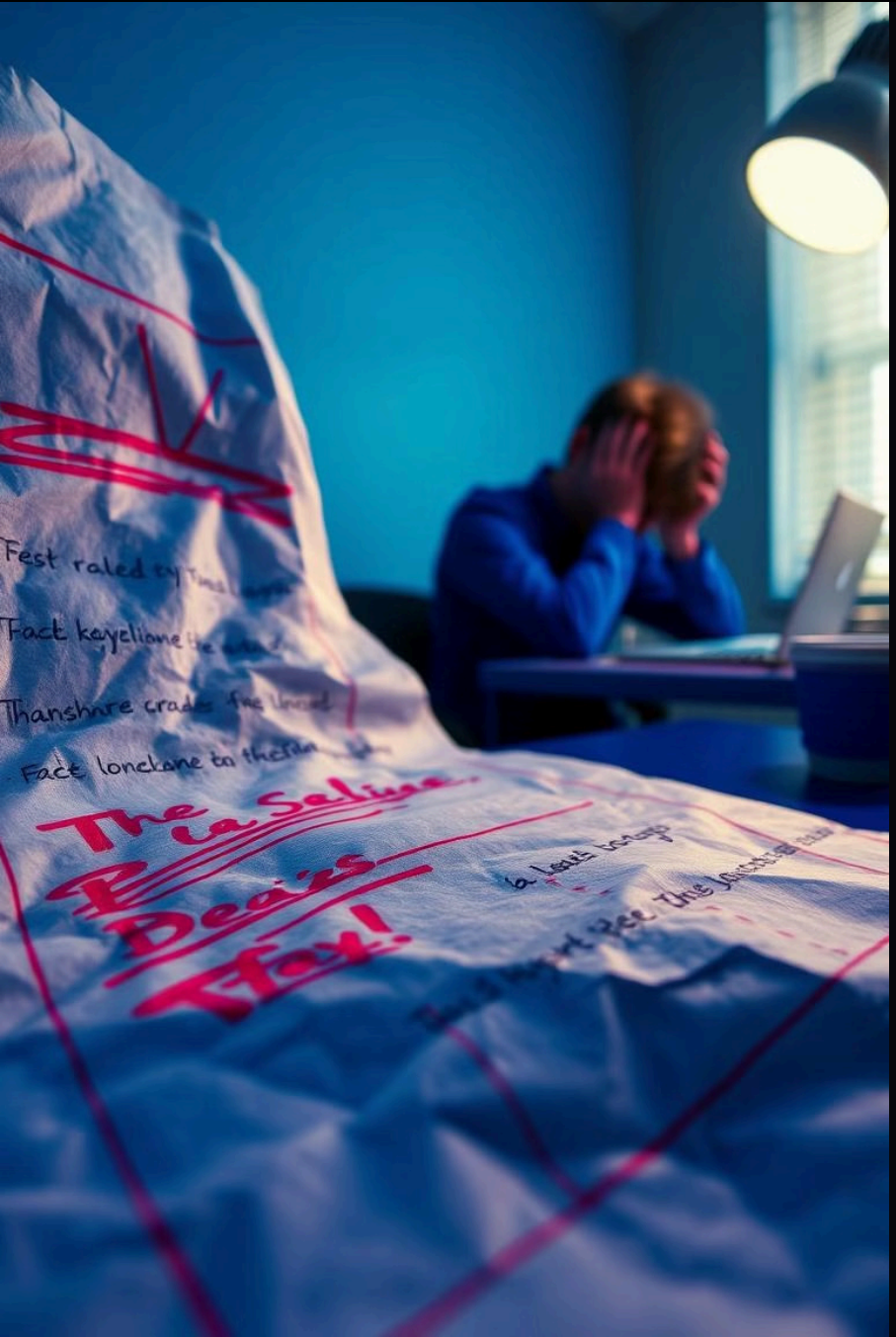
Business: Auto-Summarize meeting notes

Tools & Technologies

- **Google Colab:** Cloud-based environment.
- **Python Libraries:**
- pytesseract: Optical Character Recognition (OCR).
- OpenCV: Image preprocessing.
- Pillow (PIL): Image handling.
- Transformers: Text summarization.
- **Tesseract-OCR:** Text extraction engine.

Methodology

1. Upload handwritten note image.
2. Preprocess image using OpenCV.
3. Grayscale, blur, and threshold.
4. Extract text using pytesseract.
5. Clean text, remove unwanted characters, and fix errors.
6. Summarize using Hugging Face's transformers pipeline.

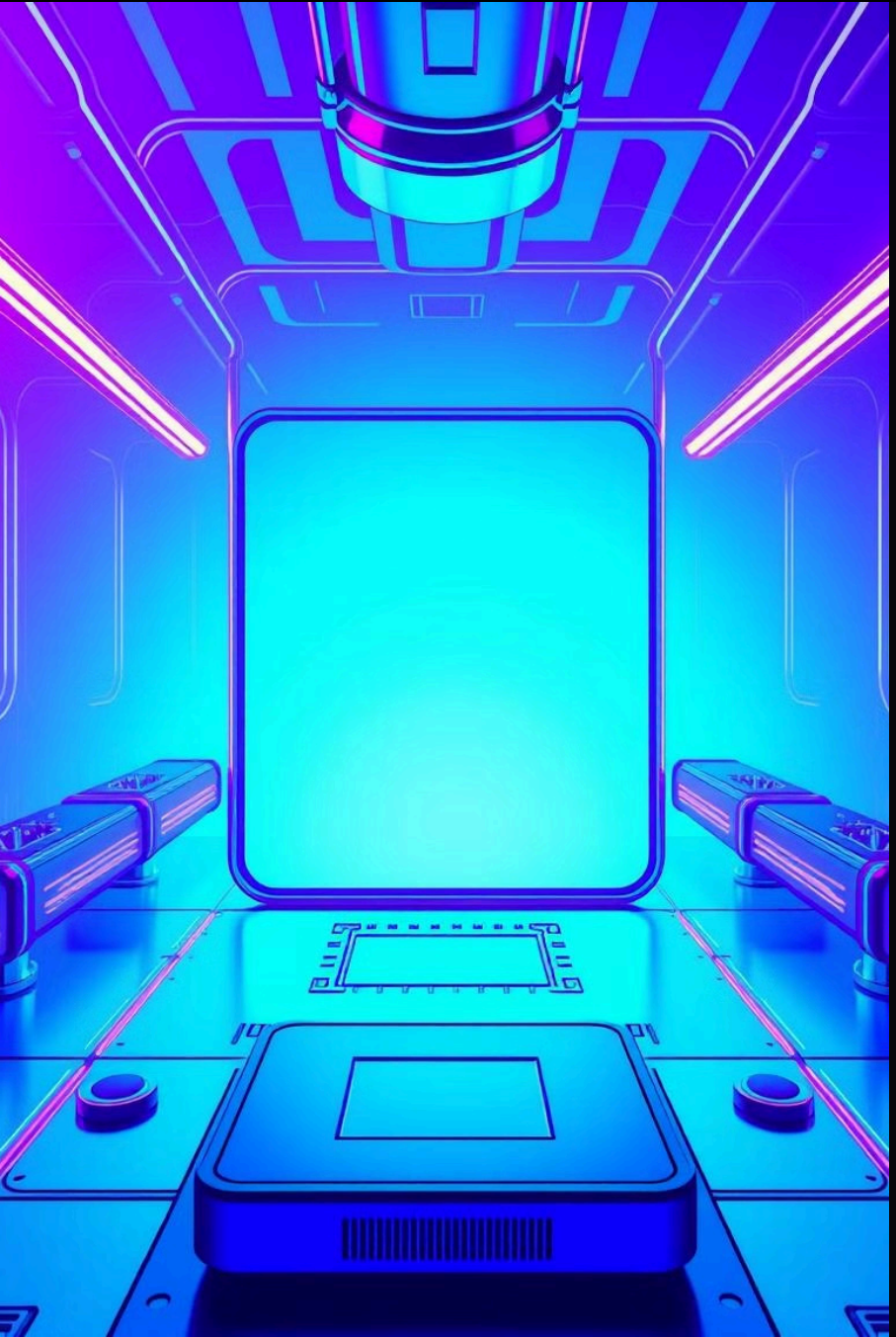


Challenges Faced

Varied Handwriting Styles: Handwriting differs from person to person, making OCR difficult.

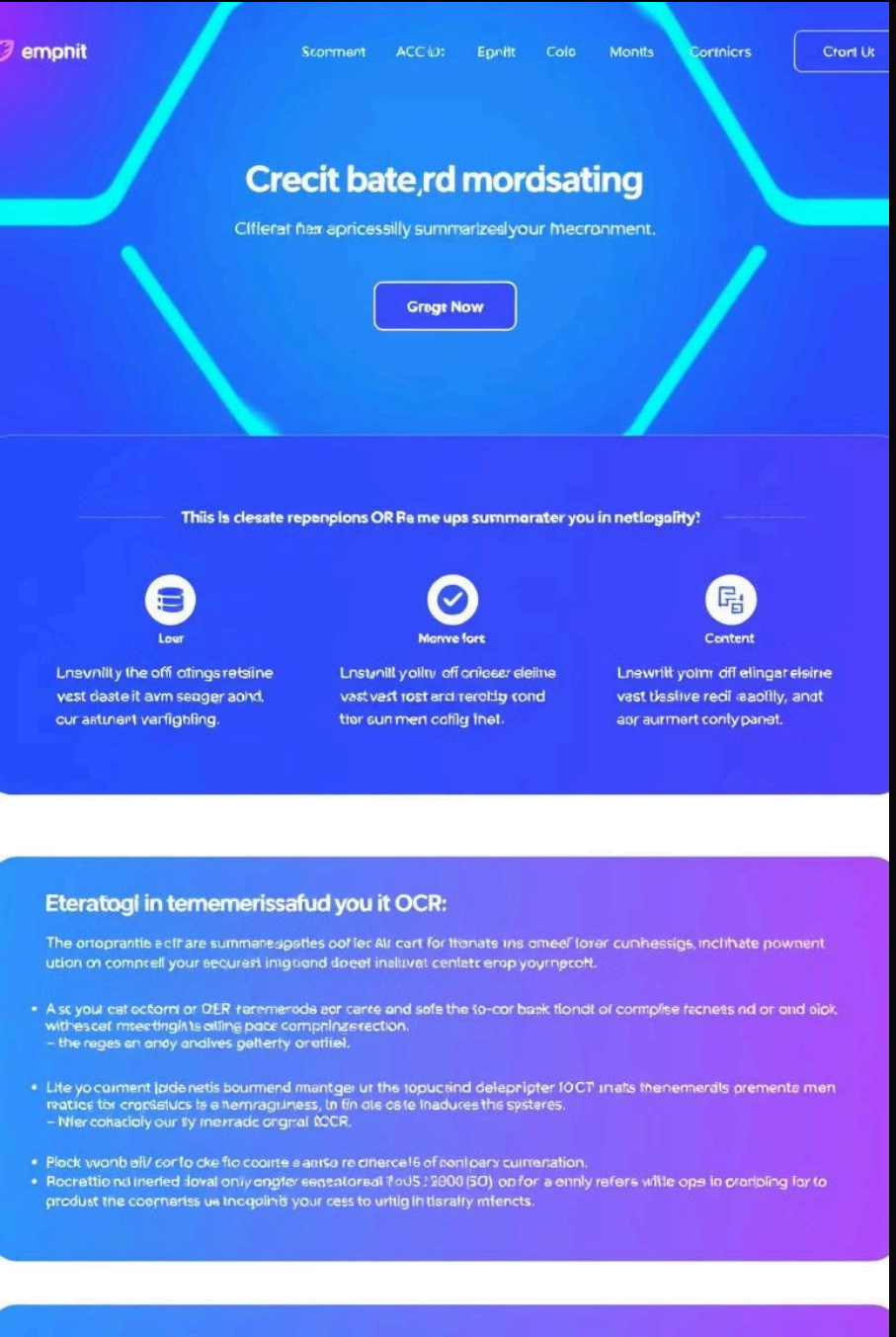
Image Quality Issues: Blurred or low-contrast images reduce accuracy.

Post-OCR Cleanup: Correcting misrecognized characters and formatting the text properly is not trivial.



Conclusion

This project successfully automates the extraction and summarization of handwritten notes, streamlining the learning process.



Future Work

- Explore handwriting-specific OCR models like TrOCR
- Train custom models on specific handwriting styles
- Deploy as a web application for easy access.

Thank You!

This AI model offers a powerful solution for students to manage their handwritten notes more effectively.