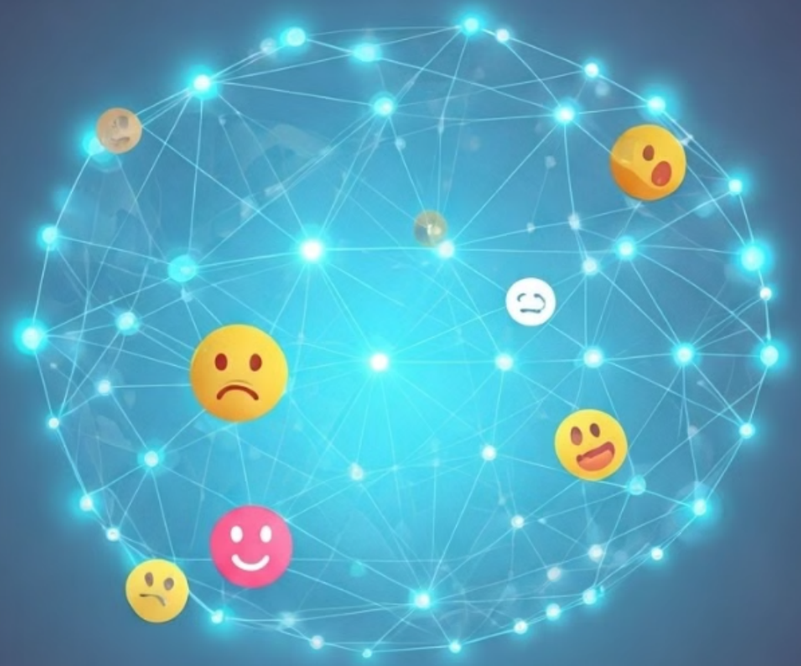


Sentiment Analysis with BERT

Welcome to our project on sentiment analysis using BERT and Hugging Face. We'll explore how cutting-edge NLP technology can unlock insights from textual data.

DSCI – 6004 – 01 Natural Language Processing

Team Members:

1. Sudheer Kumar Tatavalu
2. Hima Sai Kuruba

Project Overview

1

Focus

Using BERT for sentiment analysis of customer feedback.

2

Analysis

Classifying sentiments as positive, negative, or neutral.

3

Tools

Leveraging Hugging Face Transformers for rapid development.

Project Objectives

1. **Preprocess Text Data**

   Implement tokenization, attention masks, and padding for BERT.

2. **Build Sentiment Classifier**

   Fine-tune pre-trained BERT model using transfer learning.

3. **Evaluate Performance**

   Assess classifier's accuracy using designated test dataset.

4. **Predict on Raw Text**

   Enable real-time sentiment prediction on new, unseen text inputs.

Statement of Value

Customer Insights

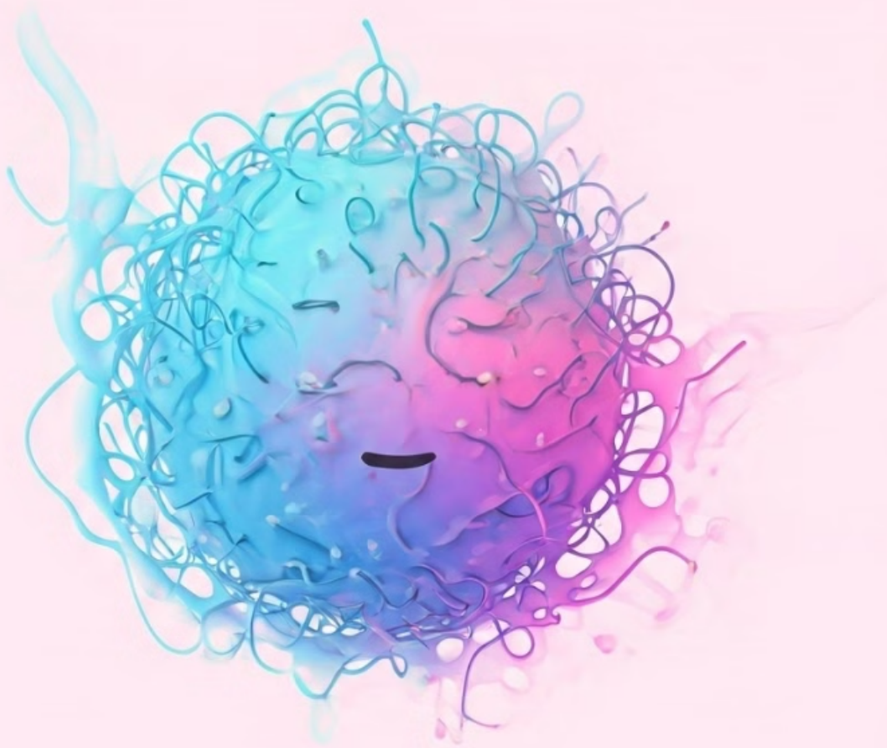
Gain a deeper understanding of customer sentiment towards products and services. This can be used for targeting specific customers and for personalizing marketing messages.

Decision Making

Empower informed decision-making for product and service enhancements. This can be used to identify key pain points for users and to develop products and features that directly address those needs.

Advanced Technology

Showcase the practical application of BERT and Hugging Face in solving real-world problems. This will help to demonstrate our team's technical expertise and innovative thinking.



BERT and Hugging Face

BERT

Powerful model for understanding word context in sentences.

Bidirectional Reading

Captures nuanced meanings by reading text in both directions.

Hugging Face

Leading NLP library providing easy access to pre-trained models.

Accessibility

User-friendly interface suitable for beginners and experienced practitioners.

Approach

Python

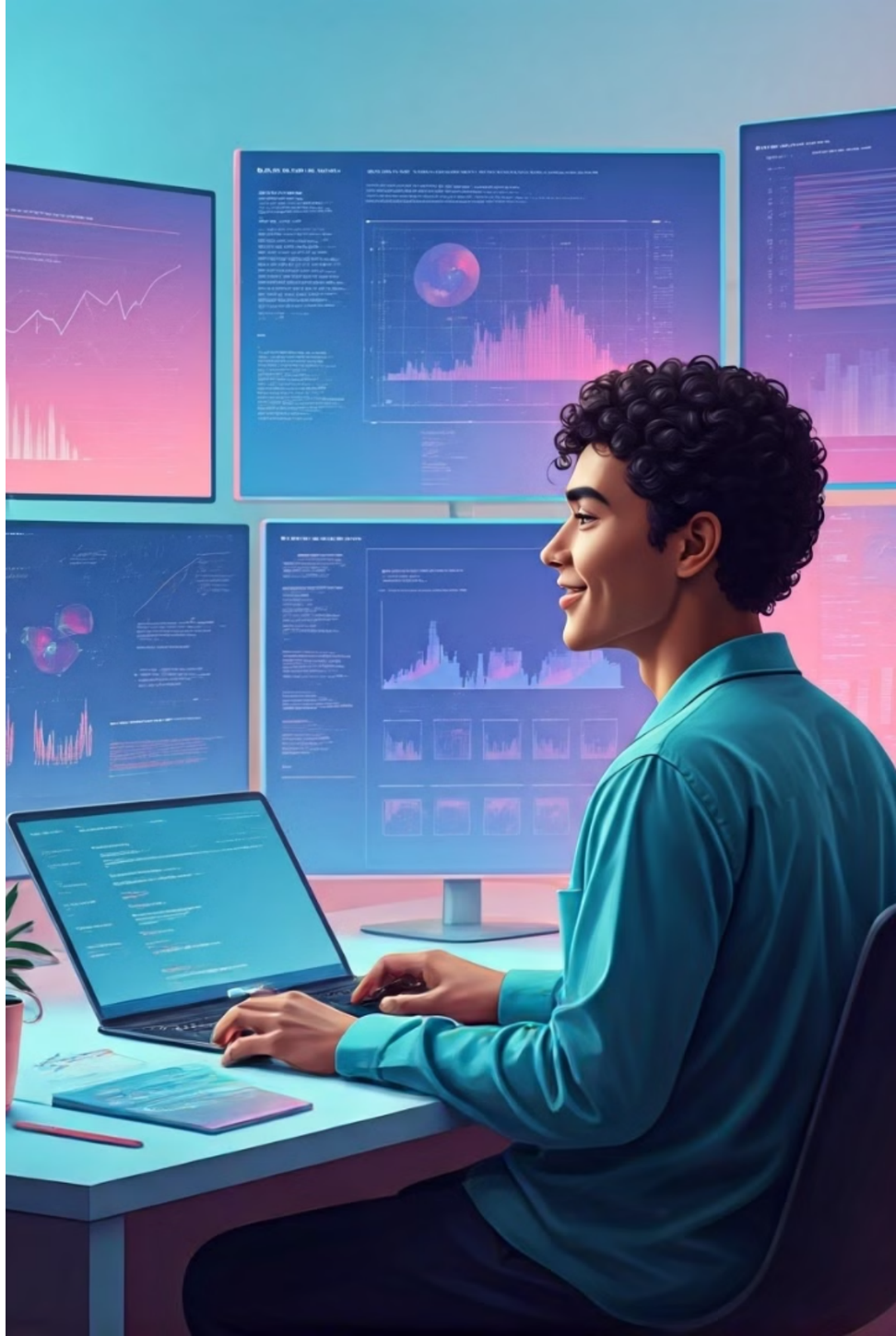
Primary programming language for implementation.

PyTorch

For building and training the model.

Scikit-learn

For evaluation metrics and data handling.



Deliverables

1

Final Model

Fine-tuned BERT model for sentiment analysis, ready for deployment.

2

Reports

Training, validation, and evaluation documentation with comprehensive analysis.

3

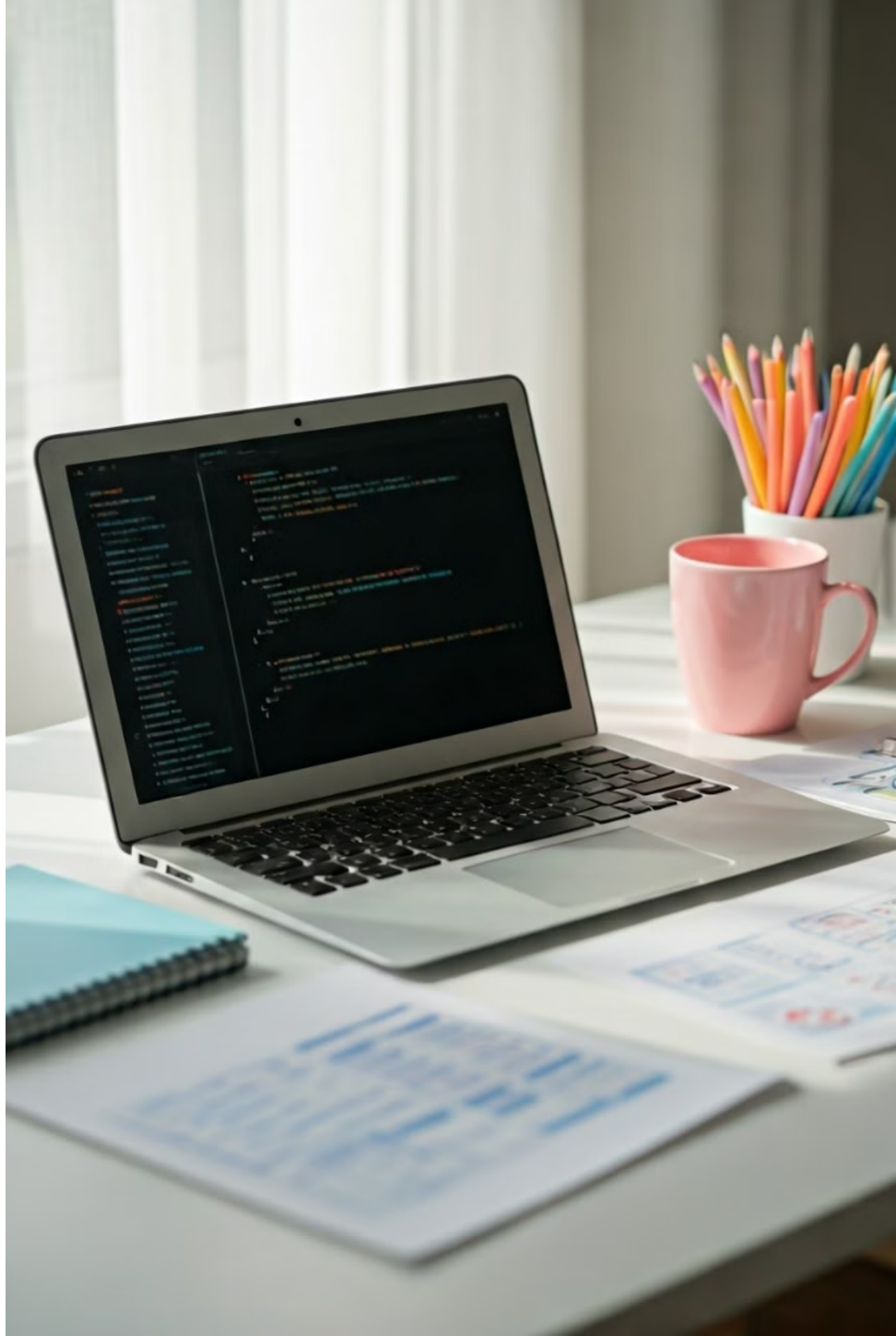
Code Repository

Well-documented codebase for reproducibility and further development.

4

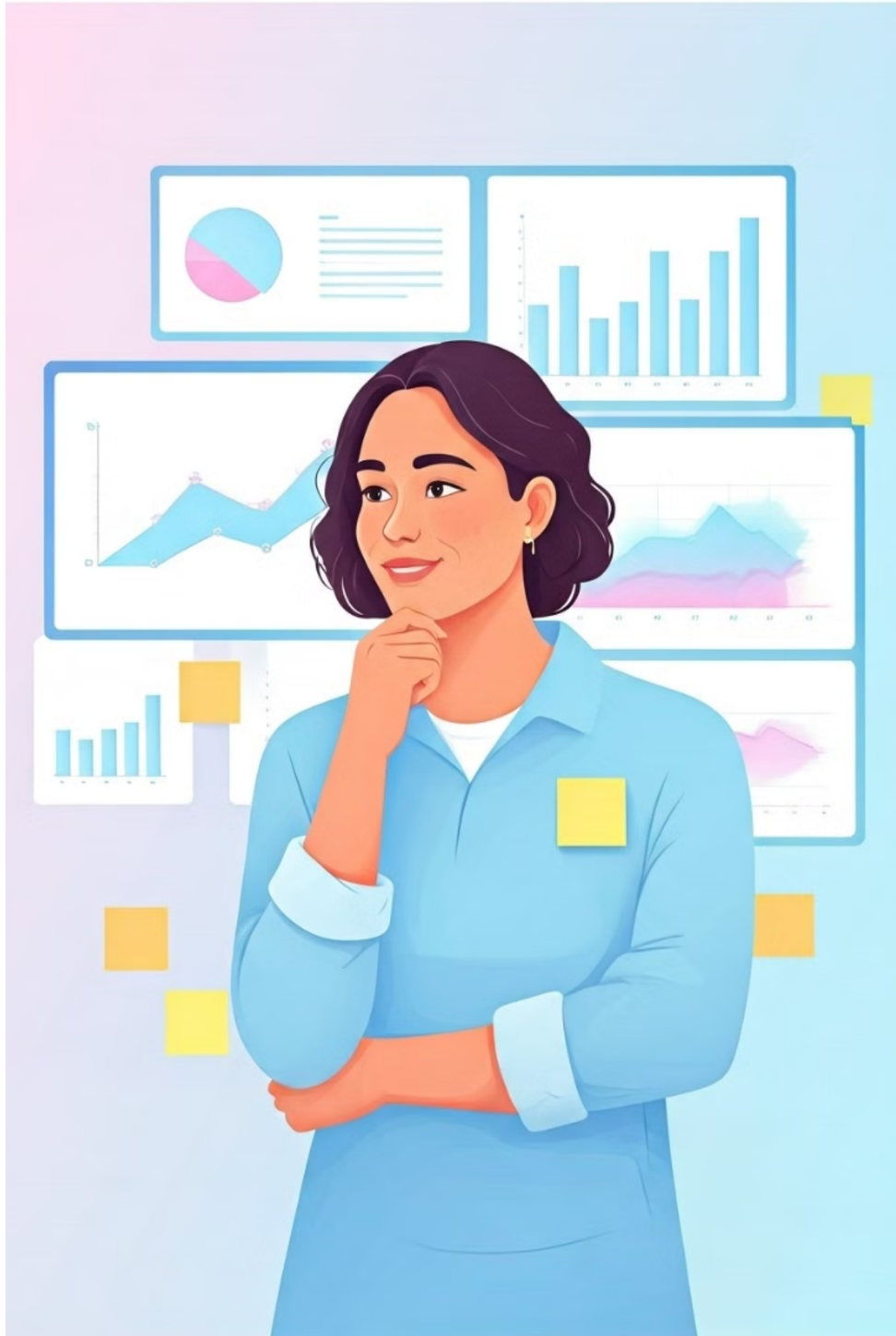
Presentation

Summary of project objectives, methodology, results, and conclusions.



Evaluation Methodology

Accuracy	Overall correctness of predictions
Precision	Accuracy of positive predictions
Recall	Ability to identify all relevant instances
F1 Score	Balance between precision and recall
Confusion Matrix	Detailed breakdown of predictions
ROC-AUC Score	Model's ability to distinguish between classes



Thank you