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SENTIMENT ANALYSIS

ABSTRACT

In this project, a **Customer Review Sentiment Analyzer** is developed to understand whether a customer review expresses a positive or negative opinion. The system uses a pre-trained sentiment analysis model provided by the Hugging Face Transformers library. Instead of manually training a model, an existing NLP pipeline is used to analyze text efficiently. The application processes multiple customer reviews as well as user-entered input and returns the predicted sentiment along with a confidence score. This project helped in understanding how real-world NLP applications can be built easily using modern machine learning libraries.

What I Understood

Customer reviews play an important role in understanding user satisfaction and product quality. Sentiment analysis helps in automatically identifying emotions and opinions from text data. Transformer-based models are powerful because they can understand context better than traditional methods. Hugging Face provides ready-made pipelines that make it easier to implement such models without deep knowledge of training neural networks.

What I Built

I implemented a **sentiment analysis program** using Python and the Hugging Face Transformers library. The program first analyzes a list of predefined customer reviews and classifies them as **Positive** or **Negative**. Later, it also allows the user to enter a custom review, and the model predicts the sentiment along with a confidence score. This project demonstrates how sentiment analysis can be applied in real-life scenarios such as customer feedback analysis and product review systems.

SAMPLE OUTPUT / SCREENSHOTS

The output shows:

Correct classification of positive and negative customer reviews

Confidence scores indicating how sure the model is about each prediction

Real-time sentiment prediction for user-entered review

[3]

```
Review: The product quality is amazing and delivery was very fast!
Sentiment: POSITIVE | Confidence: 1.00
------------------------------------------------------------
Review: Worst experience ever. The item broke in two days.
Sentiment: NEGATIVE | Confidence: 1.00
------------------------------------------------------------
Review: Customer service was helpful and polite.
Sentiment: POSITIVE | Confidence: 1.00
------------------------------------------------------------
Review: I regret buying this product. Total waste of money.
Sentiment: NEGATIVE | Confidence: 1.00
------------------------------------------------------------
```

Observation

- Positive reviews were classified correctly with high confidence.
- Negative reviews were detected accurately.
- The model performs well without any fine-tuning.

```
user_review = input("Enter a customer review: ")
result = sentiment_analyzer(user_review)[0]

print(f"Sentiment: {result['label']}")
print(f"Confidence Score: {result['score']:.2f}")
```

```
Sentiment: POSITIVE
Confidence Score: 1.00
```