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Amazon Sentiment Sleuth

Analyzing Product Reviews with NLP

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PROJECT DESCRIPTION

Build and evaluate an NLP model for sentiment analysis of product reviews using the Amazon Customer Reviews dataset from AWS. Students will apply text preprocessing, classification techniques, and advanced NLP methods to analyze sentiment in reviews.

PROJECT DELIVERABLES

1. Model code
2. Sentiment analysis results
3. Jupyter notebook with documentation

FURTHER OPTIONAL INSTRUCTIONS

1. Install required libraries with `pip install pandas numpy nltk sklearn transformers matplotlib seaborn`.
2. Download the Amazon Customer Reviews dataset from AWS or use a local version.
3. Load the dataset using Pandas with `pd.read_csv()`.
4. Clean the data by removing missing values or duplicates.
5. Preprocess the text with tokenization, lowercasing, and removing stop words using NLTK or spaCy.
6. Label sentiment categories as Positive, Negative, or Neutral based on review ratings.
7. Convert text to numerical features using TF-IDF or Hugging Face's tokenizer.
8. Split the dataset into training and testing sets with `train_test_split`.
9. Train a classifier such as Logistic Regression or fine-tune a transformer model like BERT.
10. Evaluate the model's performance using metrics like accuracy, precision, recall, and F1-score.
11. Visualize results with confusion matrices and sentiment distribution plots.
12. Document each step in a Jupyter Notebook with Markdown explanations.
13. Summarize insights and performance analysis in the notebook.
14. Save the results as CSV files or visualizations.
15. Ensure all deliverables, including code and documentation, are finalized in the notebook.

_____ BEST OF LUCK ... :) _____

THANK YOU!

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