**Explanation of the Sentiment Analysis App**

This Streamlit application performs sentiment analysis on user-provided text using two popular Natural Language Processing (NLP) techniques: TextBlob and VADER (Valence Aware Dictionary and sentiment Reasoner). The app provides both an overall sentiment score for the text and a detailed sentiment analysis of individual words (tokens).

**1. Importing Required Libraries**

* Streamlit: For building an interactive web application.
* TextBlob: For basic sentiment analysis, providing polarity and subjectivity scores.
* Pandas: For creating dataframes to display analysis results.
* Altair: For creating visualizations of the sentiment data.
* VADER Sentiment Analyzer: For a more granular sentiment analysis of individual words (tokens).

**2. Defining Functions:**

* *convert\_to\_df(sentiment)*: Takes the sentiment object from TextBlob and converts it into a dataframe with two metrics:
  + Polarity: Ranges from -1 to 1, indicating negative to positive sentiment.
  + Subjectivity: Ranges from 0 to 1, indicating objectivity to subjectivity.
* *analyze\_token\_sentiment(docx)*: Analyzes each word (token) in the text using VADER, categorizing them as Positive, Negative, or Neutral based on their sentiment score.
  + Positive: Score > 0.1
  + Negative: Score <= -0.1
  + Neutral: Otherwise

- The function returns a dataframe of tokens with their sentiment type and score.

**3. Application Workflow (main function):**

* Displays the app title and a sidebar with a menu ("Home" and "About").
* On the "Home" page:
* User enters text in a text area and clicks the "Analyze" button.
* If text is provided:
* TextBlob is used to determine overall sentiment (Polarity and Subjectivity).
* A dataframe displays these values.
* The text is further analyzed using VADER at the word level.
* Another dataframe displays each word with its sentiment type and score.
* An interactive Altair bar chart is generated, visualizing the sentiment score of each word.
* The "About" page provides a brief description of the app.

**4. Key Features:**

* Quick and accurate sentiment analysis of entire text and individual words.
* Clean and interactive UI using Streamlit.
* Clear visualization of token-level sentiment with Altair.

**5. How to Use:**

* Go to the "Home" page.
* Enter your text in the text area.
* Click "Analyze" to see the overall sentiment and individual word analysis.