

## Question-Answer Pairs

**Q:** What is financial sentiment analysis?

**A:** Financial sentiment analysis is the process of analyzing textual data related to financial markets to determine whether the sentiment is positive, negative, or neutral.

**Q:** How does machine learning help in sentiment analysis?

**A:** Machine learning models classify financial news, stock market tweets, and reports into different sentiment categories using NLP techniques.

**Q:** What are the key challenges in financial sentiment analysis?

**A:** Challenges include handling domain-specific language, sarcasm, abbreviations, and real-time data processing.

**Q:** What is time series analysis in finance?

**A:** Time series analysis helps analyze and forecast stock prices, interest rates, and market trends based on historical data patterns.

**Q:** Why is sentiment analysis important for investors?

**A:** Investors use sentiment analysis to gauge market trends, predict stock price movements, and make informed trading decisions.

**Q:** What role does NLP play in financial sentiment analysis?

**A:** NLP techniques like tokenization, stemming, and named entity recognition (NER) help extract meaningful insights from financial texts.

**Q:** What are common machine learning models used in sentiment analysis?

**A:** Models like Support Vector Machines (SVM), Naïve Bayes, Random Forest, and deep learning (LSTMs, BERT) are commonly used.

**Q:** How can we visualize financial sentiment over time?

**A:** Sentiment scores can be plotted on time series graphs to show trends and correlations with market movements.

**Q:** What datasets are commonly used for financial sentiment analysis?

**A:** Popular datasets include FiQA, Financial PhraseBank, and Twitter-based stock market datasets from Kaggle.

**Q:** What is the impact of news sentiment on stock prices?

**A:** Positive news can drive stock prices up, while negative sentiment can trigger market sell-offs and volatility.