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Stock Movement Prediction Web Application

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Project Overview

- Predict stock price movement based on news headlines
- Use a simple machine learning model for classification
- Deploy an easy-to-use web app with Streamlit for real-time predictions



Problem Statement

- Stock market is highly volatile and influenced by news
- Manual analysis of news is slow and prone to errors
- Aim to automate prediction of stock movement
(Up/Down) from headlines



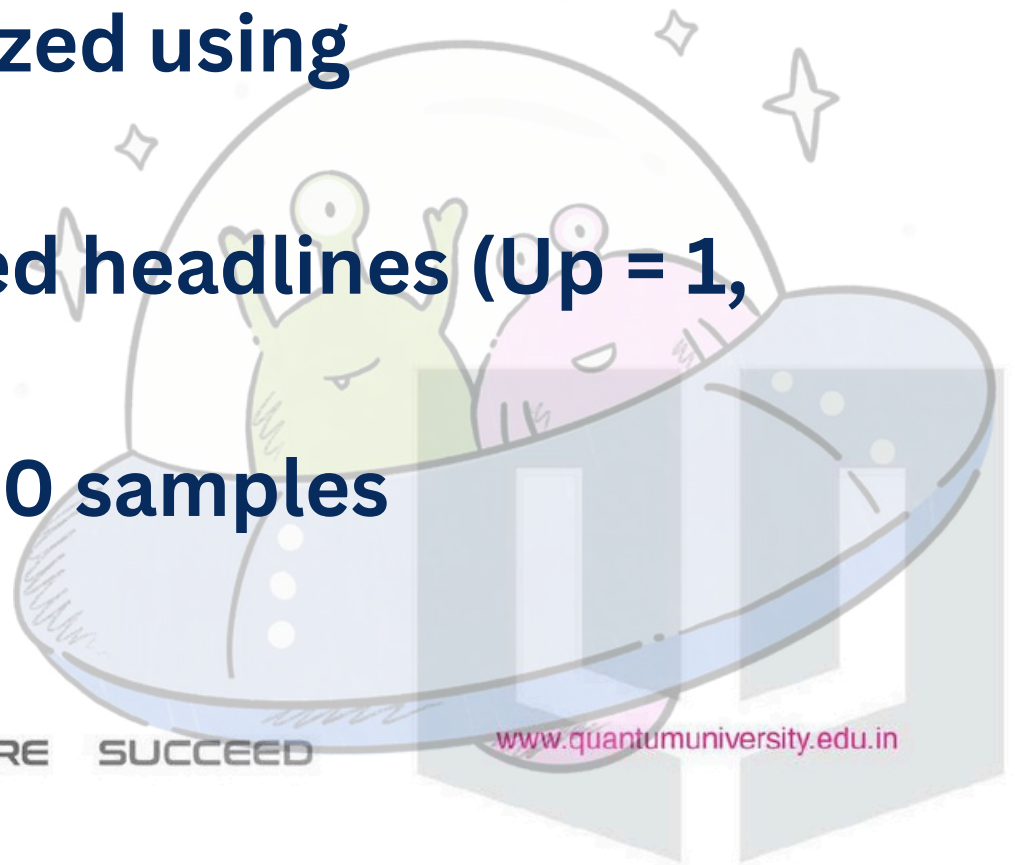
Dataset Details

- Dataset contains 1000 news headlines
- Balanced classes: 500 positive (Up), 500 negative (Down)
- Examples:
- Positive: “Company reports record profits”
- Negative: “Layoffs announced by the company”



Machine Learning Model

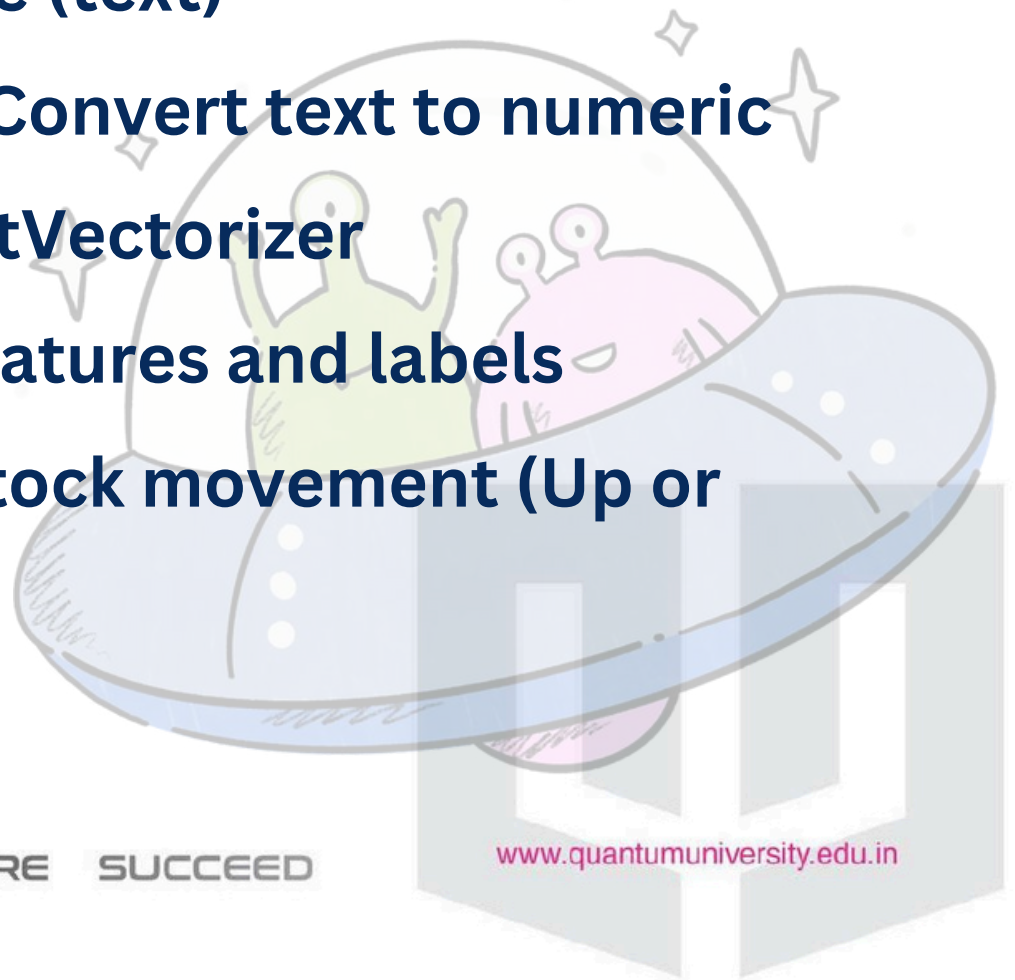
- **Model used: Logistic Regression**
- **Text data vectorized using CountVectorizer**
- **Trained on labeled headlines (Up = 1, Down = 0)**
- **Dataset size: 1000 samples**





Data Processing Pipeline

- **Input: News headline (text)**
- **Feature extraction: Convert text to numeric features using CountVectorizer**
- **Model training on features and labels**
- **Output: Predicted stock movement (Up or Down)**





Web Application with Streamlit

- Built interactive web app with Streamlit
- User inputs a news headline via text box
- App returns prediction instantly (Up 📈 or Down 📉)
- Simple, clean UI for easy user interaction



How to Run the Application

Save the Python script as stock_predictor_app.py

Open terminal and navigate to script location

Run command:

streamlit run stock_predictor_app.py

Open browser at <http://localhost:8501>

Enter headline and get prediction





Demo Examples

Input: “New product launch exceeds expectations”

→ Prediction: Up 

Input: “Data breach exposes millions of customers” → Prediction: Down 

Include screenshots or live demo





Challenges & Future Work

Dataset size limited — larger dataset will improve accuracy

Incorporate advanced NLP models for better context understanding

Integrate real-time news feed and dynamic retraining

Explore multi-class classification (e.g., Neutral sentiment)



Conclusion

Successfully built a model to predict stock movement from headlines

Logistic Regression offers a simple yet effective solution

Streamlit enabled quick deployment of an interactive app

Future improvements can enhance model accuracy and usability



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Thank you!

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