Fed Funds Rate Prediction Using NLP and Machine Learning

B.Tech Project Presentation

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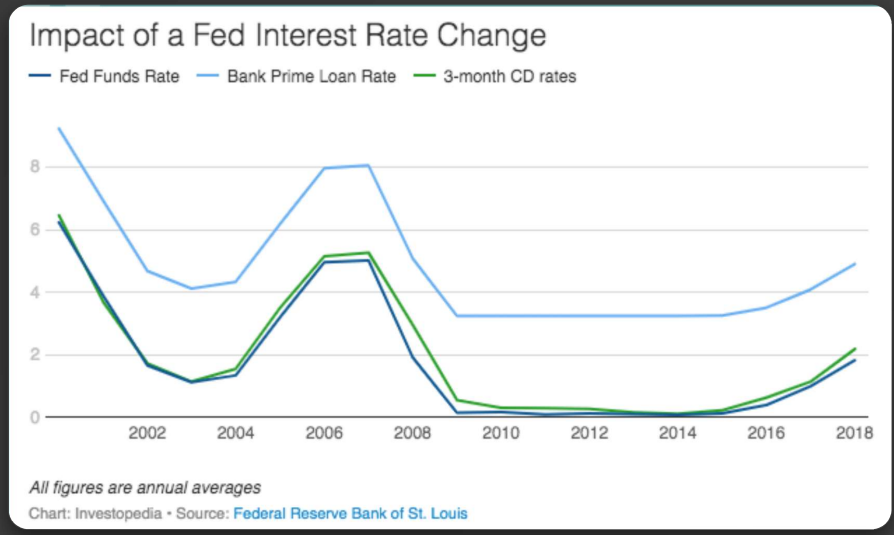
Project Overview

Problem Statement

Predict federal funds rate changes by analyzing FOMC meeting transcripts using machine learning and NLP, aiming to surpass the futures market's 76% accuracy (1994-2000).

Key Objectives

- Develop NLP-based prediction model
- Analyze FOMC meeting transcripts
- Beat market prediction accuracy
- Create actionable insights for investors



Project Background

Fed Funds Rate Impact

- Influences short-term interest rates
- Affects long-term lending rates
- Impacts employment and inflation
- Drives economic growth

FOMC Meetings

- 8 annual meetings
- Closed-door discussions
- Public transcript release
- Critical market impact

Data Sources

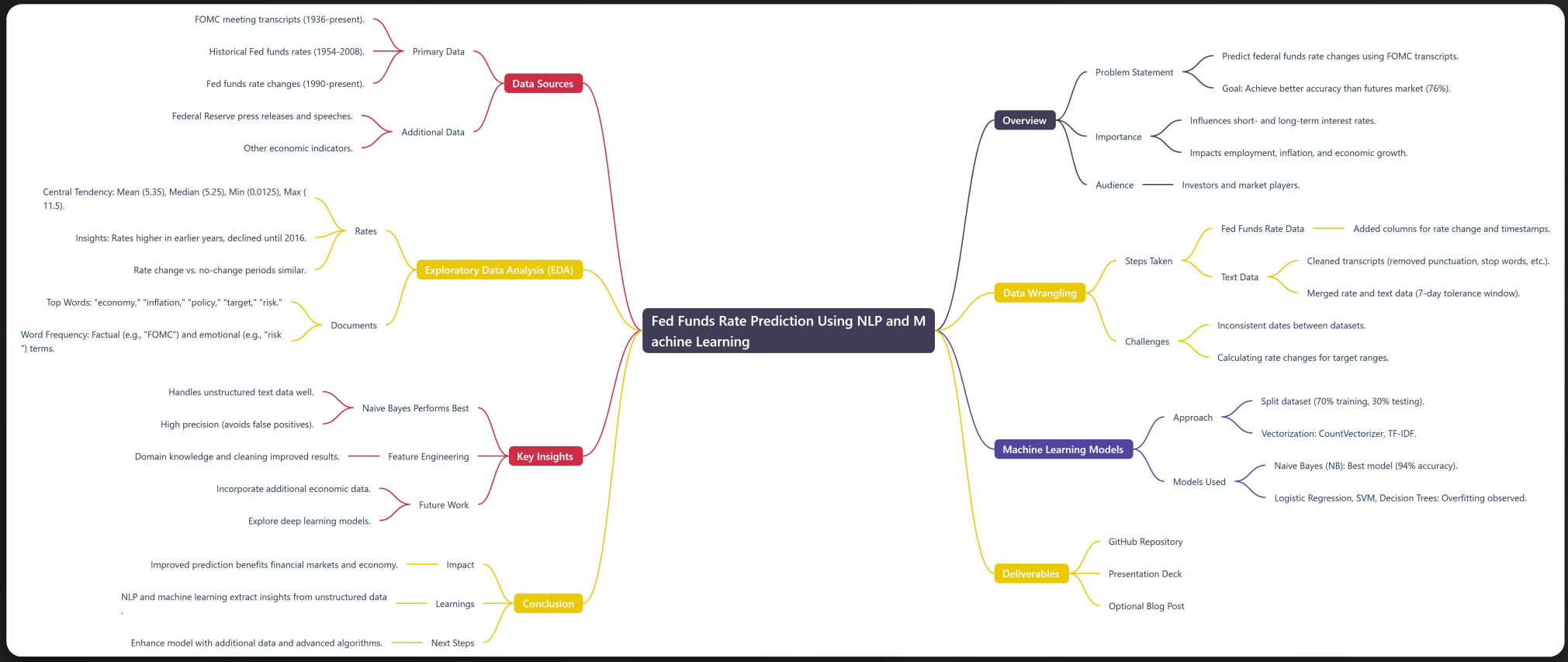
Primary Sources

- FOMC Meeting Transcripts (1936-present)
- Fed Funds Rate History (1954-2008)
- Rate Change Records (1990-present)

Additional Data

- Federal Reserve Press Releases
- Fed Reserve Speeches
- Economic Indicators from FRED

Project Flowchart



Methodology

70/30
Train/Test Split

94%
Model Accuracy

4
ML Models Tested

ML Pipeline

- Text Preprocessing & Cleaning
- Feature Engineering
- Model Training & Validation
- Performance Evaluation

Results & Findings

Model Performance

- Naive Bayes: 94% accuracy
- Logistic Regression: 82-94%
- SVM: Similar performance
- Decision Trees: Showed overfitting

Future Work

Next Steps

- Incorporate additional economic indicators
- Explore advanced NLP techniques
- Develop hybrid prediction models
- Expand historical data coverage

Deliverables

- Public GitHub Repository
- Technical Documentation
- Research Blog Post
- Interactive Demo (Planned)