# User Story: SPARK Risk Signal Generation Website

**User Persona**:

- **Name**: Sarah, Financial Analyst
- **Age**: 32
- **Background**: Sarah has a background in economics and finance, with 5 years of experience in analyzing currency markets. She uses various data sources to assess risks and opportunities in foreign exchange trading.

**Title**: As a financial analyst, I want to receive timely risk signals for exchange rate fluctuations, so that I can make informed investment decisions.

**Description**: I am a financial analyst who monitors exchange rate movements to assess potential risks and opportunities in the foreign exchange market. To improve my decision-making, I need a website that leverages machine learning models to generate risk signals based on a combination of economic indicators and external factors such as: Foreign exchange reserves (to measure a country's ability to stabilize its currency) Oil prices (since crude oil is closely linked to currency fluctuations, especially for oil-exporting/importing nations) TED spread (as an indicator of credit market stress, which influences exchange rate stability) US Dollar Index (to gauge overall dollar strength against a basket of major currencies) Interest rates on government bonds (since interest rate differentials impact capital flows and currency values) Trade and foreign exchange data (to assess the balance of payments and capital movements) Latest financial news and geopolitical events (to incorporate real-time market sentiment) The website should not only generate alerts when significant exchange rate risks are detected but also provide an explanation of why these risks arise, incorporating insights from financial news and using large language models (LLMs) to analyze trends and sentiments from the latest news sources.

**Acceptance Criteria**:

1. **Data Integration**: The website should integrate data from various sources, including foreign exchange reserves, oil prices, and other economic indicators.
    - *Given* that Sarah accesses the website,
    - *When* the data is updated,
    - *Then* she should see real-time information reflecting the current state of these indicators.
2. **Machine Learning Model**: The website should utilize a machine learning model to assess the risk associated with exchange rate fluctuations based on the integrated data.
    - *Given* that the machine learning model has been trained on historical data,
    - *When* new data is processed,
    - *Then* Sarah should receive risk signals (e.g., low, medium, high) indicating the volatility of the exchange rates.
3. **Risk Analysis Reports**: The website should provide detailed reports that explain the risk signals generated, including the contributing factors based on the latest news and trends.
    - *Given* that Sarah clicks on a risk signal,

    - *When* the report is generated,
    - *Then* she should see an analysis that includes data-driven insights and references to relevant news articles.

4. **User-Friendly Interface**: The website should have a user-friendly interface that allows Sarah to easily navigate between different features, such as viewing risk signals, accessing reports, and exploring historical data trends.

    - *Given* that Sarah logs into the website,
    - *When* she navigates through the interface,
    - *Then* she should find it intuitive and easy to access the information she needs.

5. **Notifications & Alerts**: The website should offer an alert system that notifies Sarah of significant changes in risk signals or critical news updates affecting exchange rates.

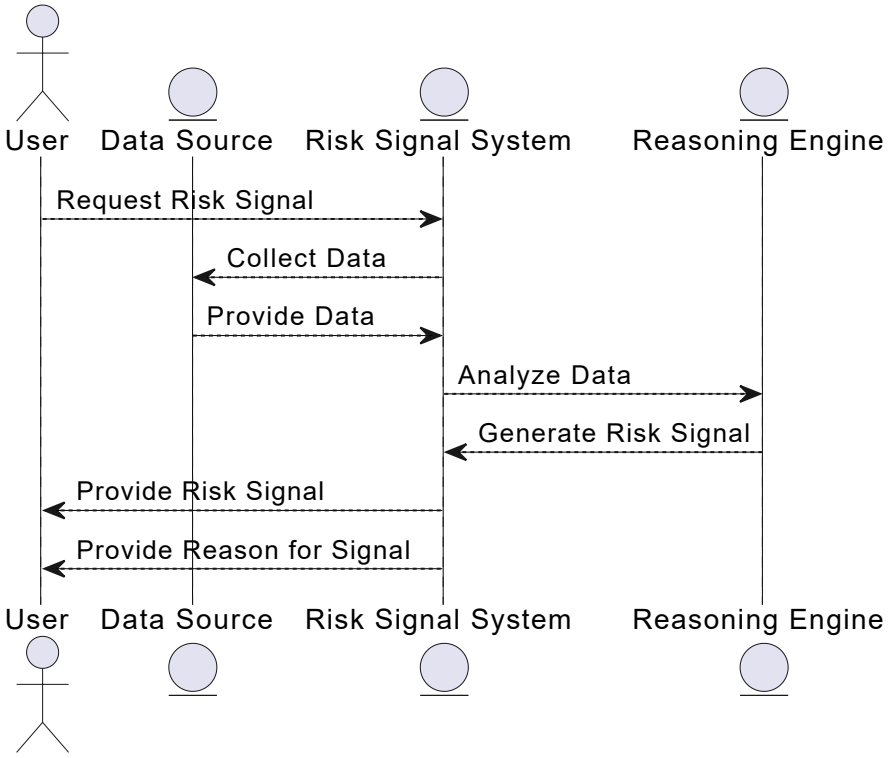
    - *Given* that Sarah sets her preferences for alerts,
    - *When* a significant change occurs,
    - *Then* she should receive a notification via email or through the website dashboard.

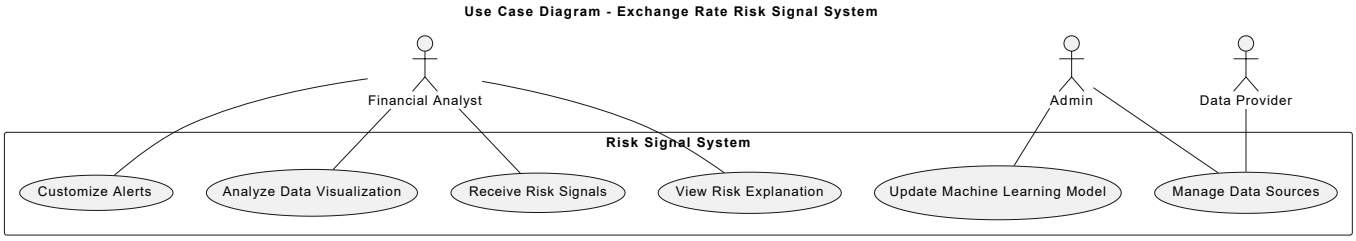
6. **Customization Options**: The website should allow Sarah to customize the parameters of the machine learning model and the data sources she wants to include in her analysis.

    - *Given* that Sarah wants to focus on specific indicators,
    - *When* she adjusts her settings,
    - *Then* the risk signals and analyses should reflect her customized preferences.

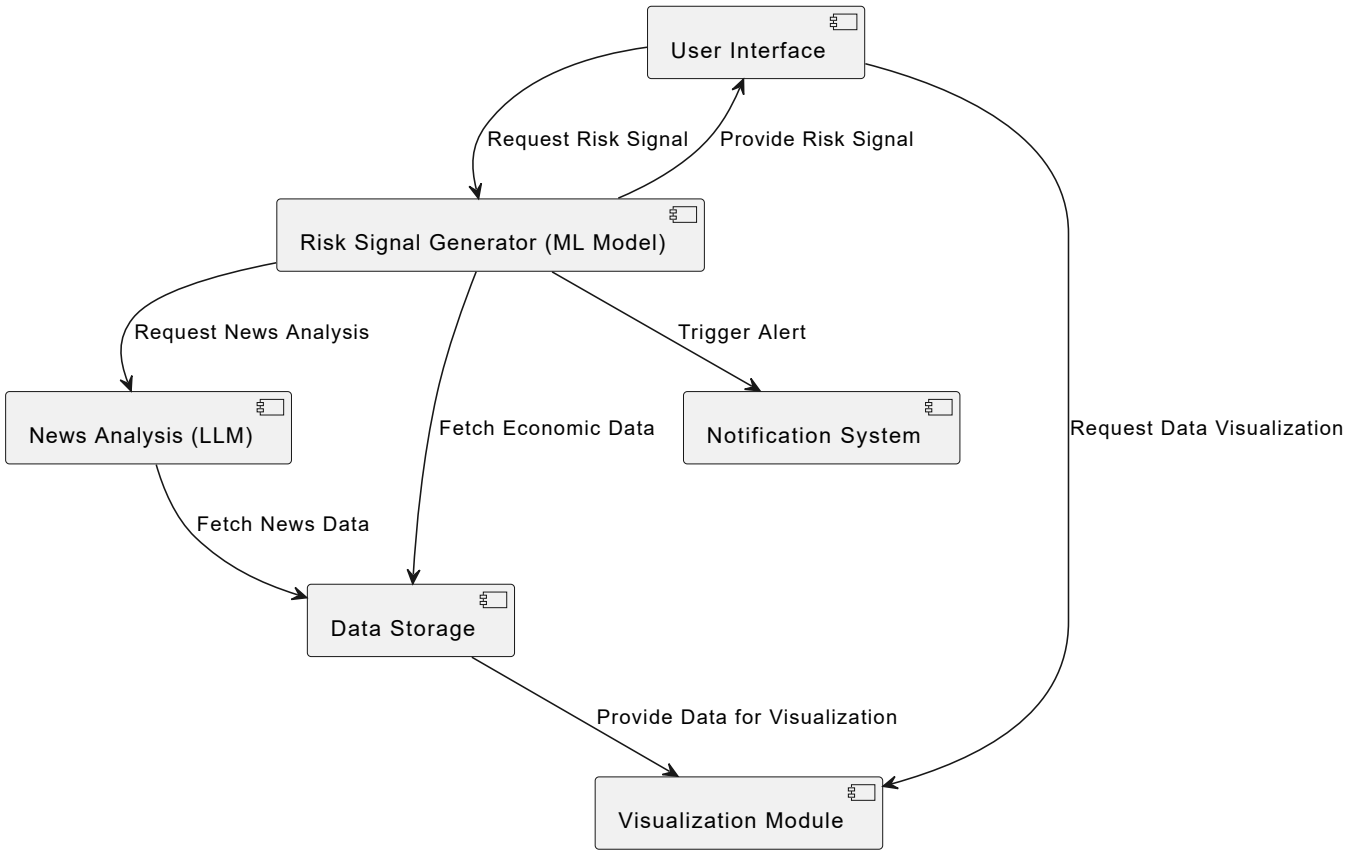
## Conclusion:

This user story highlights the essential features of a website designed to generate risk signals about exchange rates using a machine learning model. By addressing the needs of financial analysts like Sarah, the platform aims to provide valuable insights and foster informed decision-making in the dynamic world of currency trading.


User
Data Source
Risk Signal System
Reasoning Engine
Request Risk Signal
Collect Data
Provide Data
Analyze Data
Generate Risk Signal
Provide Risk Signal
Provide Reason for Signal
User
Data Source
Risk Signal System
Reasoning Engine


Use Case Diagram - Exchange Rate Risk Signal System
Financial Analyst
Admin
Data Provider
Risk Signal System
Customize Alerts
Analyze Data Visualization
Receive Risk Signals
View Risk Explanation
Update Machine Learning Model
Manage Data Sources

**Component Diagram - Exchange Rate Risk Signal System**



**Activity Diagram - Risk Signal Generation**