Functional Requirements

FR1.1: The system shall retrieve real-time stock market data from financial APIs, ensuring secure authentication, error handling, and reliable data fetching.

FR1.2: The system shall process and clean incoming stock data, handling missing values, duplicates, and inconsistencies before storage and analysis.

FR2.1: The system shall store both real-time and historical stock data in a structured database, allowing efficient querying and retrieval for analysis.

FR3.1: The system shall provide multiple interactive charts and graphs to visualize stock trends, historical comparisons, and performance analysis.

FR3.2: The system shall allow users to customize data visualization by selecting different stock metrics, time ranges, and chart types.

FR4.1: The system shall send real-time alerts and notifications for significant stock market movements, price thresholds, or unusual trading activity.

FR5.1: The system shall allow users to create and manage personal watchlists, tracking selected stocks and receiving relevant updates.

Non-functional requirements

NFR1.1: The system shall allow for modular expansion, enabling new analytics, visualization, or processing features to be integrated without major architectural changes.

NFR1.2: The system shall ensure a response time of under 2 seconds for critical operations, maintaining performance even under heavy user load.

NFR1.3: The system shall be able to handle at least 10,000 API requests per hour without significant performance degradation.

NFR2.1: The system shall support horizontal scaling to accommodate increasing data volumes, user growth, and higher API request loads.

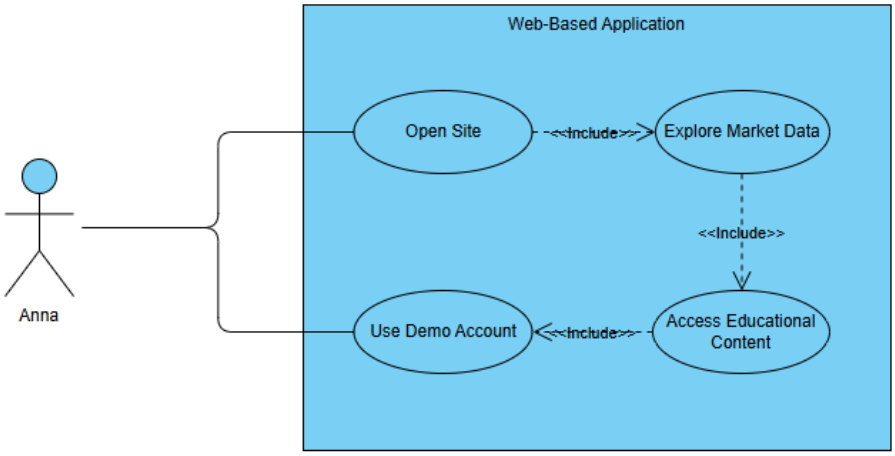
NFR3.1: The system shall implement strong encryption protocols and role-based access control to protect user data from unauthorized access.

NFR4.1: The system shall provide a user-friendly, intuitive interface optimized for both desktop and mobile devices.

NFR5.1: The system shall be designed with a modular architecture to ensure easy maintenance, debugging, and future feature expansion.

NFR6.1: The system shall maintain 99.9% uptime, ensuring reliability through failover mechanisms and automated backups.

User scenario



User persona

Example persona
Anna is a 28-year-old marketing professional with no prior experience in stock trading. She recently became interested in investing to grow her savings and achieve financial independence. Anna values simplicity and education, as she is unfamiliar with market concepts and trading strategies. She uses the application to learn about stock trading, explore market trends, and practice with demo accounts before making real investments.