Software Requirements Specification

for

Numadic

Version 1.0

Prepared by

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Contents

Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.0	Anay Narayanan, Arham Shah, Aditya Jaiswal, Devesh Bhayani	First and Only Darft	20/02/2023

1 Introduction

This Software Requirements Specification (SRS) documents the requirements for a stock trading platform, which is designed to facilitate online trading of securities. The platform aims to provide a secure, reliable, and user-friendly interface for traders to buy and sell stocks. This SRS covers the functional, performance, safety, security, and quality attributes of the system.

1.1 Document Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the software requirements for the **NUMADIC Stock Brokering App (Version 1.0)**, a digital platform designed to facilitate stock trading and investment for users in India. This document serves as a reference for developers, testers, and stakeholders, ensuring that the application meets functional expectations, regulatory compliance, and user needs.

By detailing the system's requirements, this SRS provides a clear framework for implementation, minimizing ambiguities and aligning all teams involved in the development process. It ensures that the app delivers a seamless and secure trading experience while complying with **SEBI** regulations and integrating with Indian stock exchanges such as **NSE** and **BSE**.

1.2 Product Scope

The **NUMADIC Stock Brokering App (Version 1.0)** is a mobile and web-based trading platform designed to provide Indian investors with a seamless and secure stock trading experience. It enables users to buy and sell stocks, track market trends, manage portfolios, and execute various types of orders, including market, limit, and stop-loss orders. The app integrates with Indian stock exchanges like **NSE** and **BSE** and complies with **SEBI** regulations to ensure transparency and security in transactions.

The primary benefits of the app include real-time market data, user-friendly order execution, and robust security features such as **KYC verification** and **two-factor authentication (2FA)**. Additionally, it supports fund transfers through multiple payment gateways and provides personalized insights for informed decision-making. The objective of this platform is to empower both beginner and experienced investors with intuitive tools that simplify stock trading, enhance financial literacy, and optimize investment strategies.

1.3 Intended Audience and Document Overview

<u>Intended Audience</u>

This Software Requirements Specification (SRS) document is intended for multiple stakeholders involved in the development, evaluation, and implementation of the **NUMADIC Stock Brokering App (Version 1.0)**. The primary audience includes:

- **Client:** The client, who has commissioned the development of this stock brokering app, will use this document to verify that the requirements align with their business objectives, regulatory needs, and user expectations.
- **Professor:** As an evaluator, the professor will assess the document's completeness, clarity, and adherence to standard software engineering principles.
- **Developers:** Software engineers will refer to this document for detailed functional and non-functional requirements to guide the implementation of various system components.
- **Testers:** The quality assurance team will use this SRS to develop test cases and ensure the system meets the specified requirements.
- **Project Managers:** This document helps project managers track development progress, manage timelines, and allocate resources effectively.

<u>Document Overview</u>

To ensure an effective understanding of the **NUMADIC Stock Brokering App (Version 1.0)**, the document should be read in a logical sequence that aligns with the needs of different stakeholders.

- **Introduction (Section 1)** should be read first by all readers, as it provides the document's purpose, scope, intended audience, definitions, and references.
    - Clients and professors should focus on **1.1 Document Purpose** and **1.2 Product Scope** to understand the overall goals of the system.
    - Developers and testers should review **1.4 Definitions, Acronyms, and Abbreviations** to familiarize themselves with technical terminology.
    - Project managers may also find **1.6 References and Acknowledgments** useful for tracking dependencies.
- **Overall Description (Section 2)** should follow, as it offers a broad understanding of the system.
    - **2.1 Product Perspective** and **2.2 Product Functionality** provide insights into how the system integrates into the stock trading ecosystem, making them essential for developers, testers, and project managers.
    - **2.3 Users and Characteristics** is crucial for understanding the target audience.
    - **2.5 Design and Implementation Constraints** should be reviewed by developers to account for system limitations.
- **Specific Requirements (Section 3)** is critical for developers and testers, as it details system functionality.
    - **3.1 External Interface Requirements** outlines interactions with stock exchanges, banks, and payment gateways.
    - **3.2 Functional Requirements** defines the core trading and portfolio management features.
    - Testers should pay special attention to **3.3 Behavior Requirements**, which describe how the system responds under different conditions.
- **Other Non-Functional Requirements (Section 4)** should then be reviewed by developers, testers, and security teams.
    - **4.1 Performance Requirements** defines system performance expectations.
    - **4.2 Safety and Security Requirements** is crucial for compliance and secure transactions.
    - **4.3 Software Quality Attributes** sets standards for usability, maintainability, and reliability.

- **Other Requirements (Section 5)** should be read by project managers and regulatory teams, as it may contain additional compliance or business-related constraints.
- **Appendices (Appendix A & B)** serve as reference materials.
  - **Appendix A – Data Dictionary** provides structured definitions of key data elements, useful for developers and database administrators.
  - **Appendix B – Group Log** records collaboration details, making it relevant for project managers and documentation teams.

1.4 Definitions, Acronyms and Abbreviations

- **API** – Application Programming Interface
- **BSE** – Bombay Stock Exchange
- **DBMS** – Database Management System
- **GUI** – Graphical User Interface
- **KYC** – Know Your Customer
- **ML** – Machine Learning
- **NSE** – National Stock Exchange
- **OTP** – One-Time Password
- **REST** – Representational State Transfer
- **SEBI** – Securities and Exchange Board of India
- **SRS** – Software Requirements Specification
- **SSL** – Secure Sockets Layer
- **UI** – User Interface
- **UX** – User Experience
- **XML** – Extensible Markup Language

1.5 Document Conventions

This document adheres to standard formatting and typographical conventions to ensure clarity and consistency. The following conventions have been applied:

- **Formatting Conventions:**
  - The document follows the IEEE formatting requirements.
  - All text is written in **Arial** font, size **11 or 12**.
  - Section and subsection titles follow the predefined template formatting.
  - Body text is **single-spaced** with **1-inch margins** on all sides.
  - Italics are used for *comments or notes*.
- **Naming Conventions:**
  - All acronyms and abbreviations are defined in **Section 1.4** before first use.
  - System components, database tables, and API endpoints follow **camelCase** or **PascalCase** as per standard coding practices.
  - Error messages and warnings appear in **bold** to highlight their importance.
- **Special Highlighting:**
  - **Bold text** is used for key terms, section headers, and important warnings.
  - *Italicized text* is used for explanatory notes or placeholders.
  - Monospace font is used for code snippets, database queries, or system commands.

1.6 References and Acknowledgments

[1] IEEE, *IEEE Std 830-1998 - IEEE Recommended Practice for Software Requirements Specifications*, IEEE, 1998.

[2] Financial Industry Regulatory Authority (FINRA), *Rules & Regulations for Online Trading Platforms*, 2023. [Online]. Available: https://www.finra.org. [Accessed: 25-Feb-2025].

[3] Securities and Exchange Board of India (SEBI), *Stock Broker Regulations and Compliance Guidelines*, 2024. [Online]. Available: https://www.sebi.gov.in. [Accessed: 25-Feb-2025].

[4] ISO/IEC, *ISO/IEC 25010:2011 - Systems and Software Engineering – Software Product Quality Requirements and Evaluation (SQuaRE)*, 2011.

[5] Company Vision and Scope Document, *Stock Brokering App Vision and Business Goals*, Internal Document, 2025.

2 Overall Description

2.1 Product Perspective

The **Numadic Stock Brokering App** is a **new, self-contained** digital platform designed to facilitate seamless stock trading for individual investors in India. It serves as an intermediary between users and stock exchanges such as the **National Stock Exchange (NSE)** and **Bombay Stock Exchange (BSE)**, providing a user-friendly interface for buying, selling, and managing investments. Unlike traditional brokerage services, this app leverages **AI-driven analytics, real-time market insights, and automated trading recommendations** to enhance user decision-making.

The app operates within a larger **financial ecosystem**, integrating with **banking systems, stock exchanges, regulatory bodies (SEBI), and payment gateways** to ensure secure and compliant transactions. It supports multiple external interfaces, including **APIs for live market data feeds, KYC verification systems, and payment processing services**. The software is designed to work on **mobile (Android & iOS) and web platforms**, ensuring accessibility for a broad range of users.

Below is a general diagram illustrating how the **Numadic Stock Brokering App** interacts with its environment:
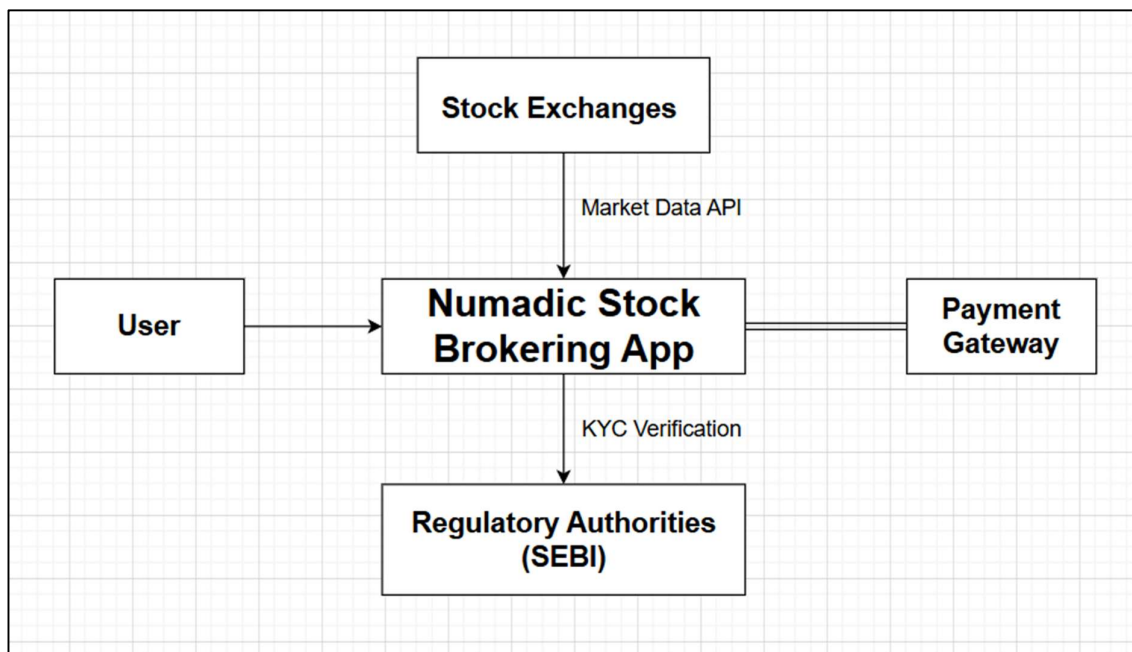

Figure 1: Diagram for App Environment

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2.2 Product Functionality

The **Numadic Stock Brokering App** provides a range of functionalities to enable seamless, secure, and efficient stock trading. Below is a high-level summary of the major system functions:

- **User Management & Authentication**
  - Secure login and account registration (email, phone, OTP-based authentication).
  - KYC verification as per SEBI regulations.
  - Multi-factor authentication for enhanced security.
- **Market Data & Insights**
  - Real-time stock prices, charts, and historical data.
  - AI-driven stock recommendations and portfolio insights.
  - News updates and market trends.
- **Stock Trading & Order Management**
  - Buy and sell stocks with different order types (market, limit, stop-loss orders).
  - Live order book and trade execution tracking.
  - Support for intraday trading, delivery-based trading, and derivatives.
- **Portfolio Management**
  - View and manage stock holdings with real-time valuation.
  - Track investment performance, profit/loss calculations, and dividend earnings.
  - Set alerts and notifications for price movements and order execution.
- **Fund Management & Transactions**
  - Secure deposits and withdrawals through UPI, net banking, and linked bank accounts.
  - Integration with multiple payment gateways for seamless transactions.
  - Automated settlement of funds and withdrawal processing.
- **Reports & Statements**
  - Generate trade reports, tax statements, and profit/loss summaries.
  - Downloadable reports in multiple formats (PDF, CSV, Excel).
  - Monthly and yearly financial summaries for easy tax filing.
- **Regulatory Compliance & Security**
  - SEBI-compliant trading operations and audit logs.
  - Encrypted transactions and secure API communication.
  - Risk management and fraud detection mechanisms.
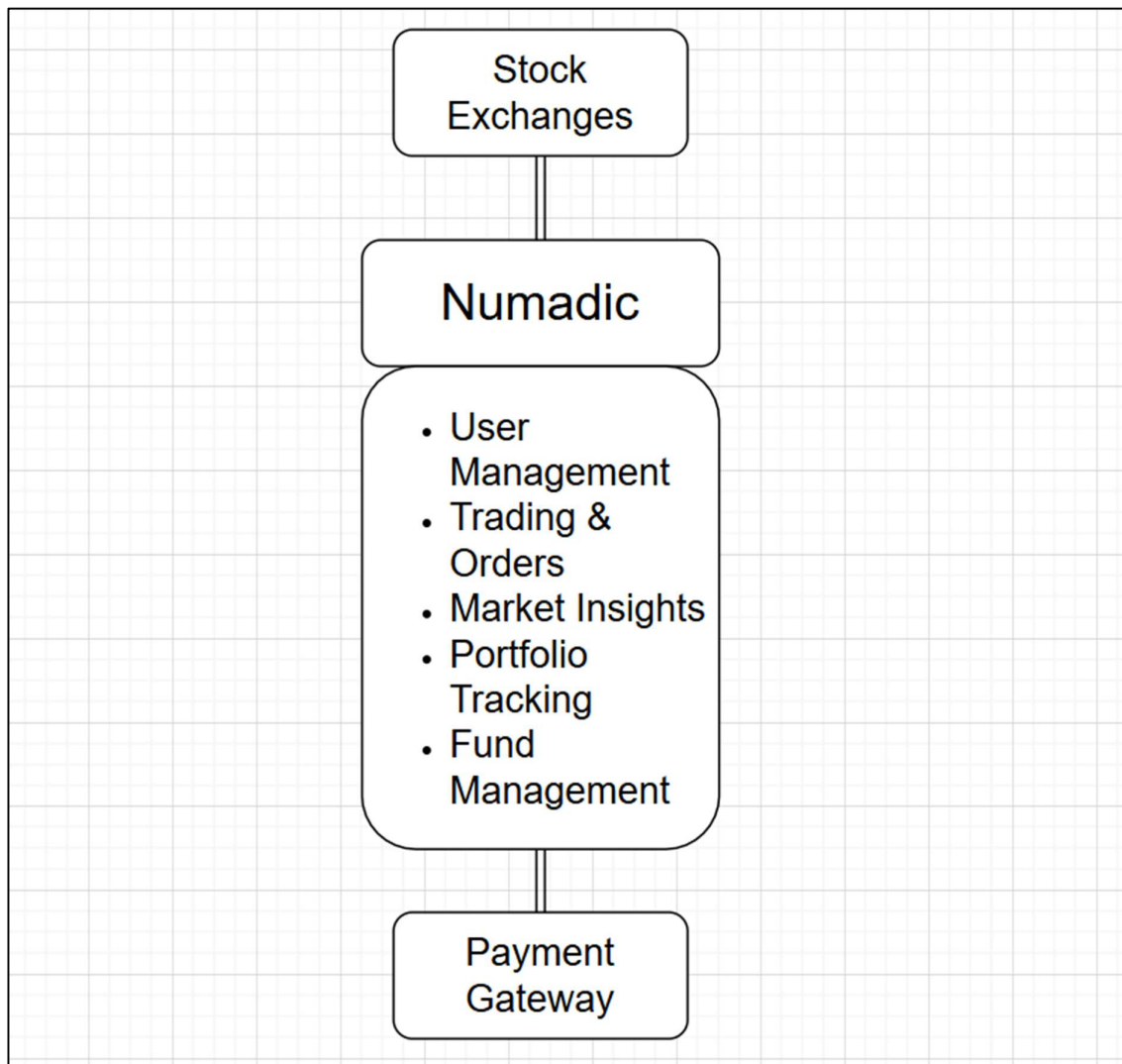
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Figure 2: Diagram for system handling user experience

2.3 Users and Characteristics

The Numadic Stock Brokering App is designed to cater to a diverse set of users, each with different levels of expertise, trading frequency, and functional needs.

Below are the key user groups along with their characteristics:

1. **Retail Investors (Beginner & Casual Traders)**
   - Frequency of Use: Occasional (few trades per week or month).
   - Technical Expertise: Basic understanding of stock markets.
   - Primary Functions Used:
     - o Stock buying and selling.
     - o Market research and portfolio tracking.
     - o Fund deposits and withdrawals.
   - Importance: High – This is the largest user base and requires an intuitive UI with educational resources.

2. **Active Traders & Day Traders**
   - Frequency of Use: Frequent (multiple trades per day).
   - Technical Expertise: Intermediate to advanced.
   - Primary Functions Used:
     - o Advanced charting tools and real-time stock data.
     - o Intraday trading with margin and stop-loss orders.
     - o Automated alerts and AI-driven trade suggestions.
   - Importance: Very High – They generate significant trading volume and require low-latency execution.

3. **Institutional Investors & Portfolio Managers**
   - Frequency of Use: Regular (daily trading and portfolio management).
   - Technical Expertise: Advanced financial knowledge.
   - Primary Functions Used:
     - o Bulk order execution and algorithmic trading support.
     - o Portfolio analysis and risk assessment tools.
     - o Customizable reports and market analytics.
   - Importance: Medium – They use specialized tools, but their trading volume is valuable to the platform.

4. **Brokers & Sub-Brokers**
   - Frequency of Use: Continuous (managing multiple client portfolios).
   - Technical Expertise: Professional market knowledge.
   - Primary Functions Used:
     - o Client portfolio management.
     - o Commission tracking and regulatory compliance tools.
     - o Direct access to stock exchange APIs.
   - Importance: Medium – They contribute to platform liquidity but need specialized features.

5. **Regulatory Authorities (SEBI Auditors, Compliance Officers)**
   - Frequency of Use: Periodic (monitoring compliance and audits).
   - Technical Expertise: Legal and regulatory knowledge.
   - Primary Functions Used:
     - Transaction monitoring and compliance reports.
     - Risk management and fraud detection oversight.
     - Audit logs and trade history records.
   - Importance: Low – Necessary for compliance but not the primary target users.

6. **System Administrators & Developers**

   - Frequency of Use: Continuous (maintaining and improving the platform).
   - Technical Expertise: Software development, cybersecurity, database management.
   - Primary Functions Used:
     - Backend system monitoring and API management.
     - Security enforcement and bug fixes.
     - Performance tuning and infrastructure maintenance.
   - Importance: High – Critical for maintaining system integrity and reliability.

<u>**User Priority Ranking**</u>:

1. Active Traders & Day Traders (Very High Priority)
2. Retail Investors (Beginner & Casual Traders) (High Priority)
3. Institutional Investors & Portfolio Managers (Medium Priority)
4. Brokers & Sub-Brokers (Medium Priority)
5. System Administrators & Developers (High Priority for stability)
6. *Regulatory Authorities (Low Priority but mandatory for compliance)*

2.4 Operating Environment

The Numadic Stock Brokering App is designed to operate in a multi-platform environment, ensuring seamless access across various devices and operating systems. It will be available as a mobile application (Android & iOS) and a web-based platform accessible through modern web browsers. The application relies on a robust cloud-based infrastructure to provide real-time market data, order execution, and secure transaction processing.

Minimum Platform Requirements:

1. Mobile Application:
   - Operating System: Android 8.0+ (Oreo), iOS 12+
   - Processor: Minimum Quad-Core 2.0 GHz
   - RAM: At least 3GB
   - Storage: 100MB of free space for installation
   - Network: 4G/5G or stable Wi-Fi connection

2. Web Application:
   - Supported Browsers: Chrome, Firefox, Safari, Edge (latest versions)
   - Internet Speed: Minimum 5 Mbps for real-time data updates
   - Resolution: Optimized for Full HD (1920×1080)

3. Backend & Server Infrastructure:

- Hosting Environment: Cloud-based (AWS, Azure, or Google Cloud)
- Database: PostgreSQL / MongoDB for scalable storage
- APIs: RESTful APIs for data exchange with stock exchanges and payment gateways.
- Security: AES-256 encryption for data transmission, SSL certification.

The system must integrate with stock exchange APIs]]and payment gateways for seamless transactions. The application is optimized for low-latency data processing to provide real-time market updates and order execution without significant delays.

2.5 Design and Implementation Constraints

The development of the **Numadic Stock Brokering App** is subject to the following constraints:

1. **Regulatory Compliance** – Must adhere to **SEBI regulations**, **KYC/AML guidelines**, and integrate with **NSE/BSE** while ensuring proper order validation and settlement.
2. **Security and Data Privacy** – Requires **AES-256 encryption**, **multi-factor authentication (MFA)**, and compliance with **Indian data protection laws (DPDP Act 2023)** to secure user data.
3. **Performance and Latency** – Must provide **real-time stock updates (<100ms latency)** and **high-frequency trade execution**, with a scalable backend for peak trading hours.
4. **Hardware and Platform** – Optimized for **3GB RAM mobile devices** and **modern web browsers**, with a **cloud-based infrastructure** ensuring seamless performance.
5. **External Integrations** – Must support **UPI, Net Banking, and Card payments**, and integrate **API-based stock exchange communication** with real-time market data feeds.

These constraints ensure the app is **secure, compliant, fast, and scalable**, delivering a reliable trading

2.6 User Documentation

The **Numadic Stock Brokering App** will be accompanied by comprehensive user documentation to assist users in navigating its features efficiently. This includes a **User Manual** covering account setup, trading processes, fund management, and security guidelines. An **Interactive On-Screen Guide** will provide contextual tool tips for key functionalities, while an **FAQ Section** will address common issues. A **customer support chatbot** and **helpdesk portal** will offer real-time assistance. Documentation will be accessible via the app, website, and downloadable formats.

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2.7 Assumptions and Dependencies

The development of the **Numadic Stock Brokering App** is based on the following assumptions and dependencies:

1. **Stable API Access** – It is assumed that stock exchanges (NSE/BSE) will provide reliable and low-latency API access for market data and order execution.
2. **Regulatory Stability** – SEBI regulations governing stock trading platforms will remain stable during development to avoid major redesigns.
3. **Internet Connectivity** – Users will have stable internet access, as real-time stock updates and trade execution require a consistent connection.
4. **Third-Party Services** – The app will rely on third-party **payment gateways (UPI, Net Banking, Credit/Debit Cards)** and **KYC verification services**, assuming their continuous availability.
5. **Device and Browser Support** – The app is designed to run smoothly on smartphones with at least **3GB RAM** and **modern web browsers**, assuming users will have updated devices.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 Hardware Interfaces

The **Numadic Stock Brokering App** interacts with various hardware components to ensure smooth operation and security. Below are the key hardware interfaces:

- **Touchscreen Interface** – The app will communicate with the touchscreen hardware of smartphones, tablets, and laptops to enable user interactions such as swiping, tapping, and pinch-to-zoom for chart analysis.
- **Biometric Sensors** – The software will interface with **fingerprint scanners** and **Face ID sensors** on compatible devices via **Android Biometric API** and **Apple's Face ID API** to enable secure authentication.
- **Network Interfaces** – The app will rely on **Wi-Fi, 4G, and 5G** network hardware for real-time data retrieval and trade execution. Communication will be managed through standard **TCP/IP protocols** and **WebSockets** for live market updates.
- **Secure Payment Modules** – The app will integrate with **NFC readers** and **banking hardware** via **UPI, Razorpay, and PCI-DSS-compliant payment gateways** for seamless fund transfers.
- **Device Storage Access** – The app will interact with local storage hardware to cache user preferences, store encrypted session data, and log transaction history securely.

3.1.2 Software Interfaces

The **Numadic Stock Brokering App** will interact with various software components to ensure seamless functionality, real-time data processing, and secure transactions. Below are the key software interfaces:

- **Operating System Interface**: Supports Android, iOS, Windows, and macOS for seamless platform compatibility.
- **Database Interface**: Uses PostgreSQL or MongoDB for storing user portfolios and transaction history.
- **Trading API Interface**: Connects to NSE/BSE APIs for real-time stock prices and order execution.
- **Payment Gateway Interface**: Integrates with UPI, Razorpay, and Net Banking for secure transactions.
- **Third-Party Market Data Interface**: Fetches live stock data via APIs like Alpha Vantage and Bloomberg.
- **Notification and Messaging Interface**: Sends alerts through Firebase, APNs, Twilio, and SendGrid.
- **Security and Compliance Interface**: Implements OAuth 2.0, KYC verification, and AES-256 encryption.

3.1.3 Communications Interfaces

The stock brokering app requires secure and efficient communication between users, stock exchanges, payment gateways, and external APIs. All data transmissions, including stock orders, user authentication, and financial transactions, will be conducted over **HTTPS** to ensure encryption and integrity. WebSocket connections will be used for real-time stock price updates and order execution to provide a seamless trading experience.

For secure authentication and user verification, the app will implement **OAuth 2.0** and **JWT.** Payment transactions will follow **PCI-DSS** compliance and use **SSL/TLS** encryption to protect sensitive financial data. Email and push notifications will be delivered using **SMTP** and **FCM**, ensuring timely updates on market trends and order execution. Data synchronization between the mobile app and backend servers will be handled using **RESTful APIs** with JSON formatting for efficient communication.

3.2 Functional Requirements

3.2.1 User Authentication & Security

- **User Registration**: Allows users to create an account using email, phone number, and OTP verification.

- **Login & Multi-Factor Authentication**: Secure login using password and OTP or biometric authentication.

- **Role-Based Access Control**: Different access levels for users, admins, and brokers.

- **Session Management**: Automatic logout after inactivity for security.

3.2.2 Trading & Order Management

- **Live Market Data**: Displays real-time stock prices and market trends.

- **Order Placement**: Users can buy/sell stocks with market, limit, or stop-loss orders.

- **Order Execution & Tracking**: Orders are processed through stock exchanges and tracked in real-time.

- **Portfolio Management**: Users can view their holdings, transaction history, and unrealized profits/losses.

3.2.3 Payments & Fund Management

- **Deposit & Withdrawal**: Users can add or withdraw funds using UPI, net banking, or wallets.

- **Transaction History**: Detailed record of all deposits, withdrawals, and trading transactions.

- **Automatic Brokerage Calculation**: Fees and brokerage charges are calculated based on trades.

3.2.4 Reports & Analytics

- **Trade Reports**: Generates daily, weekly, and monthly trade summaries.

- **Stock Performance Analysis**: Graphical representation of stock trends and past performance.

- **Tax Reports**: Provides capital gains reports for tax filing purposes.

3.2.5 Notifications & Alerts

- **Price Alerts**: Users can set price alerts for stocks.

- **Order Status Notifications**: Updates on order execution, cancellations, and pending orders.

- **Market News & Announcements**: Important financial news updates and regulatory announcements.
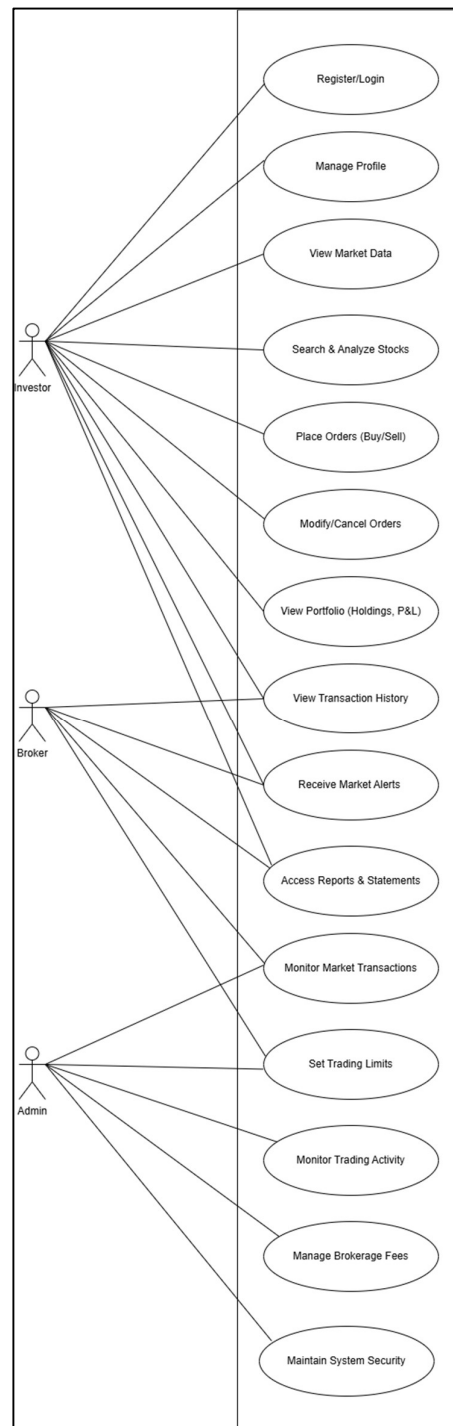
3.2.6 Customer Support & Assistance

- **Live Chat & Helpdesk**: In-app customer support via chat or ticketing system.

- **FAQs & Tutorials**: Knowledge base for beginners with trading guides and FAQs.

- **Dispute Resolution**: Users can raise disputes related to transactions or trade execution.

3.3 Behaviour Requirements

3.3.1 Use Case View

4 Other Non-functional Requirements

4.1 Performance Requirements

The **Numadic Stock Brokering App** will adhere to the following performance standards:

- **Order Execution Speed:** All buy/sell orders should be processed within **2 seconds** under normal market conditions.
- **Market Data Refresh Rate:** Real-time stock prices and analytics should update **every 1 second** to ensure accurate trading decisions.
- **Concurrent Users:** The system must support **at least 10,000 concurrent users** without performance degradation.
- **Fund Transfer Processing:** Deposits and withdrawals should be reflected in the user's account within **5 seconds** after approval.
- **Latency Tolerance:** The total response time for API interactions (including external stock exchange APIs) should not exceed **500 milliseconds** for critical operations.

4.2 Safety and Security Requirements

4.2.1 Safety Requirements

1. **Transaction Verification:** The system must enforce a two-step confirmation process before executing any trade above a predefined threshold to prevent accidental or unauthorized transactions.
2. **System Downtime Protection:** A failover mechanism must be in place to ensure trading operations continue smoothly in case of system crashes or server failures.
3. **Unauthorized Access Prevention:** The platform should auto-lock accounts after three consecutive failed login attempts to mitigate brute-force attacks.

4.2.2 Security Requirements:

- **High-Level Security Standards:** The platform must meet industry security standards such as **ISO 27001** and **PCI-DSS** for handling financial transactions securely.
- **Role-Based Access Control (RBAC):** Different access levels should be assigned to users, ensuring that traders, brokers, and administrators can only access authorized functions.
- **End-to-End Encryption:** All data exchanged between the user and the server must be encrypted using **TLS 1.3** to prevent interception.
- **Secure API Communication:** Any external integrations (e.g., payment gateways, market data providers) must use secure API authentication methods like **OAuth 2.0**.
- **Regular Security Audits:** The system must undergo periodic penetration testing and security assessments to identify and fix vulnerabilities.

Figure 3: Use Case for Numadic Stock Brokering App

4.3 Software Quality Attributes

4.3.1 Reliability

The system must maintain **99.9% uptime**, ensuring continuous availability for traders. Automated backup and recovery mechanisms should be in place to prevent data loss in case of failures.

4.3.2 Security

The platform must implement **multi-factor authentication (MFA)**, data encryption, and **regular security audits** to protect sensitive financial transactions and user information.

4.3.3 Maintainability

The software architecture should follow a **modular design**, allowing easy updates and fixes without affecting the entire system. Code documentation and version control must be maintained for future scalability.

4.3.4 Usability

The user interface should be **intuitive and responsive**, providing a seamless experience for both novice and experienced traders. A customizable dashboard with real-time data visualization will enhance usability.

4.3.5 Interoperability

The system must support **API integration** with third-party market data providers, banks, and payment gateways, ensuring smooth interaction with external services.

Appendix A – Data Dictionary

Name	Description	Related Operations
User_ID	Unique identifier for each registered user	User registration, authentication
User_Role	User's role within the system	Role-based access control
Account_Balance	Available funds in a user's trading account	Deposits, withdrawals, trade execution
Stock_Symbol	Ticker symbol representing a stock	Search, buy, sell, price tracking
Stock_Name	Full name of the company associated with the stock	Display in UI, stock searches
Market_Price	Real-time price of a stock	Market data retrieval
Trade_Quantity	Number of shares involved in a trade	Order validation, execution
Order_Type	Type of stock order	Order placement
Trade_Status	Current status of a trade	Order processing, execution tracking
Timestamp	Date and time of a transaction	Logging, order execution timestamps
Commission_Fee	Fee charged per trade	Trade execution, cost calculation
Portfolio_ID	Unique identifier for a user's portfolio	Managing user portfolio
Portfolio_Value	Total value of user's stock holdings	Portfolio tracking, performance reports
Transaction_ID	Unique ID for each transaction	Transaction history, trade tracking
Deposit_Amount	Amount deposited into the trading account	Fund transfers
Withdrawal_Amount	Amount withdrawn from the account	Fund transfers

Notification_ID	Unique ID for system notifications	Sending alerts on stock movements
News_Article_ID	Unique ID for stock-related news articles	News aggregation, display
API_Request_ID	Unique identifier for external API requests	External API calls for stock data
Session_Token	Encrypted token for active user session	User authentication

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Appendix B - Group Log

<Please include here all the minutes from your group meetings, your group activities, and any other relevant information that will assist the Teaching Assistant to determine the effort put forth to produce this document>