

ALL-USE System Functional Requirements Documentation

Executive Summary

This comprehensive functional requirements document defines the complete functional specifications for the ALL-USE (Automated Learning and Logic-driven Universal Strategic Engine) system, with particular focus on the requirements for WS6 (User Interface workstream) implementation. Based on extensive analysis of the existing codebase, documentation, and implementation strategy, this document provides detailed functional requirements that ensure the user interface seamlessly integrates with the sophisticated backend systems implemented across WS1-WS5.

The ALL-USE system represents a revolutionary wealth-building platform that combines systematic trading protocols with intelligent account management, real-time market integration, and autonomous learning capabilities. The functional requirements outlined in this document ensure that the user interface provides an intuitive, educational, and powerful interface that enables users to effectively implement the ALL-USE methodology while maintaining the mathematical precision and protocol-driven approach that defines the system.

System Overview and Context

Core System Purpose

The ALL-USE system is designed to implement a sophisticated wealth-building methodology through systematic options trading using a three-tiered account structure. The system removes emotional decision-making from trading by implementing mathematical protocols that govern every aspect of account management, trade execution, and risk management.

Key System Capabilities

Based on the analysis of WS1-WS5 implementations, the system provides:

- 1. Intelligent Agent Foundation:** Sophisticated cognitive framework with natural language processing

2. **Protocol-Driven Decision Making:** Mathematical trading protocols with week classification
3. **Advanced Account Management:** Three-tiered structure with automated forking and merging
4. **Real-Time Market Integration:** High-performance market data processing and trade execution
5. **Autonomous Learning:** Continuous improvement through performance analysis and adaptation

User Experience Philosophy

The ALL-USE system is designed around these core user experience principles:

- **Educational:** Every interaction teaches users about the protocol and methodology
- **Methodical:** Systematic, protocol-driven approach to all decisions
- **Transparent:** Clear explanations of all recommendations and rationale
- **Confident:** Conveys certainty in the mathematical edge of the system
- **Calm:** Maintains emotional neutrality and reduces trading anxiety

Functional Requirements by Category

1. User Authentication and Account Setup

1.1 User Registration and Authentication

FR-1.1.1: User Registration - The system SHALL provide secure user registration with email verification - The system SHALL collect basic user information including name, email, and initial investment amount - The system SHALL validate minimum investment requirements (\$10,000 minimum) - The system SHALL create unique user identifiers for account tracking

FR-1.1.2: Multi-Factor Authentication - The system SHALL implement multi-factor authentication for account security - The system SHALL support SMS, email, and authenticator app-based MFA - The system SHALL require MFA for sensitive operations including account modifications and trade execution - The system SHALL maintain session security with automatic timeout

FR-1.1.3: Profile Management - The system SHALL allow users to update personal information and preferences - The system SHALL maintain user risk tolerance settings and communication preferences - The system SHALL provide account recovery mechanisms for lost credentials - The system SHALL support account deactivation and data export

1.2 Initial Account Structure Setup

FR-1.2.1: Three-Tier Account Initialization - The system SHALL guide users through setting up the three-tiered account structure - The system SHALL automatically allocate initial funds according to protocol (40% Gen-Acc, 30% Rev-Acc, 30% Com-Acc) - The system SHALL explain the purpose and function of each account type - The system SHALL validate account setup against protocol requirements

FR-1.2.2: Brokerage Integration Setup - The system SHALL guide users through connecting their brokerage accounts - The system SHALL support Interactive Brokers (IBKR) as the primary broker - The system SHALL validate brokerage connectivity and permissions - The system SHALL synchronize initial positions and balances

FR-1.2.3: Risk Tolerance Configuration - The system SHALL assess user risk tolerance through questionnaire - The system SHALL configure protocol parameters based on risk assessment - The system SHALL explain how risk tolerance affects trading decisions - The system SHALL allow risk tolerance updates with appropriate warnings

2. Conversational Interface Requirements

2.1 Natural Language Processing

FR-2.1.1: Text-Based Conversation - The system SHALL provide natural language conversation capabilities - The system SHALL understand financial terminology and trading concepts - The system SHALL maintain conversation context across multiple interactions - The system SHALL provide contextually relevant responses based on user history

FR-2.1.2: Speech Interface (Phase 2+) - The system SHALL provide speech recognition for voice input - The system SHALL support text-to-speech for audio responses - The system SHALL recognize financial terminology in speech input - The system SHALL provide multi-platform speech support (mobile, desktop, web)

FR-2.1.3: Context Management - The system SHALL maintain conversation history and context - The system SHALL reference previous conversations and decisions - The system SHALL understand implicit references to accounts and positions - The system SHALL provide conversation summaries and key decision points

2.2 Educational Interaction

FR-2.2.1: Protocol Explanation - The system SHALL explain ALL-USE protocol concepts in clear, understandable language - The system SHALL provide detailed rationale for all

recommendations - The system SHALL offer different explanation levels based on user expertise - The system SHALL provide interactive tutorials for complex concepts

FR-2.2.2: Decision Guidance - The system SHALL guide users through protocol-based decisions - The system SHALL explain the consequences of different choices - The system SHALL provide alternative scenarios and outcomes - The system SHALL ensure users understand the rationale before proceeding

FR-2.2.3: Learning Progression - The system SHALL track user understanding and expertise level - The system SHALL adapt explanations based on user knowledge - The system SHALL provide progressive learning paths for advanced concepts - The system SHALL offer certification or competency validation

2.3 Personality and Communication Style

FR-2.3.1: Methodical Personality - The system SHALL communicate in a methodical, systematic manner - The system SHALL emphasize protocol-driven decision making - The system SHALL maintain consistency in communication style - The system SHALL convey confidence in the mathematical approach

FR-2.3.2: Emotional Neutrality - The system SHALL maintain calm, objective communication - The system SHALL avoid emotional language or market predictions - The system SHALL focus on protocol adherence rather than market opinions - The system SHALL help users maintain emotional discipline

FR-2.3.3: Adaptive Communication - The system SHALL adapt communication style to user preferences - The system SHALL adjust technical detail level based on user expertise - The system SHALL provide personalized interaction patterns - The system SHALL learn from user feedback and preferences

3. Account Management Interface Requirements

3.1 Account Structure Visualization

FR-3.1.1: Three-Tier Account Display - The system SHALL display the three-tiered account structure clearly - The system SHALL show current balances and allocations for each account type - The system SHALL provide proportional visualization of account sizes - The system SHALL highlight account relationships and dependencies

FR-3.1.2: Account Performance Tracking - The system SHALL display real-time performance metrics for each account - The system SHALL show weekly, monthly, and quarterly returns - The system SHALL compare actual performance against protocol targets - The system SHALL provide performance attribution and analysis

FR-3.1.3: Cash Buffer Management - The system SHALL display cash buffer levels for each account - The system SHALL show optimal cash buffer recommendations - The system SHALL alert users to cash buffer issues or opportunities - The system SHALL explain cash buffer management strategies

3.2 Forking and Merging Visualization

FR-3.2.1: Fork Trigger Monitoring - The system SHALL monitor and display progress toward forking thresholds - The system SHALL provide visual indicators of fork readiness - The system SHALL explain forking benefits and implications - The system SHALL show projected account structure after forking

FR-3.2.2: Fork Execution Interface - The system SHALL provide clear interface for executing account forks - The system SHALL show detailed breakdown of fund allocation during forking - The system SHALL animate the forking process for user understanding - The system SHALL confirm fork completion and new account structure

FR-3.2.3: Merge Management - The system SHALL monitor forked accounts for merge conditions - The system SHALL recommend merge timing and strategy - The system SHALL visualize merge impact on account structure - The system SHALL execute merges with user confirmation

3.3 Reinvestment Management

FR-3.3.1: Reinvestment Scheduling - The system SHALL display reinvestment schedules for each account type - The system SHALL show upcoming reinvestment dates and amounts - The system SHALL explain reinvestment strategies and benefits - The system SHALL allow manual reinvestment timing adjustments

FR-3.3.2: Allocation Optimization - The system SHALL recommend optimal fund allocation across accounts - The system SHALL show impact of different allocation strategies - The system SHALL provide allocation rebalancing recommendations - The system SHALL explain allocation decisions and rationale

4. Trading Interface Requirements

4.1 Week Classification Display

FR-4.1.1: Current Week Classification - The system SHALL display current week classification (Green, Red, Chop) - The system SHALL show classification confidence level and rationale - The system SHALL explain implications of each week type - The system SHALL provide historical classification accuracy

FR-4.1.2: Classification History - The system SHALL maintain and display week classification history - The system SHALL show classification accuracy over time - The system SHALL correlate classifications with performance outcomes - The system SHALL provide classification trend analysis

FR-4.1.3: Predictive Classification - The system SHALL provide next week classification predictions - The system SHALL show prediction confidence and methodology - The system SHALL explain factors influencing predictions - The system SHALL track prediction accuracy over time

4.2 Trading Recommendations

FR-4.2.1: Protocol-Based Recommendations - The system SHALL generate trading recommendations based on current protocols - The system SHALL show specific strikes, expirations, and position sizes - The system SHALL explain recommendation rationale and expected outcomes - The system SHALL provide alternative recommendations with trade-offs

FR-4.2.2: Trade Validation - The system SHALL validate all trades against protocol requirements - The system SHALL prevent protocol violations with clear explanations - The system SHALL show protocol compliance status for all positions - The system SHALL recommend corrections for protocol deviations

FR-4.2.3: Risk Assessment - The system SHALL display risk metrics for all recommended trades - The system SHALL show maximum loss potential and probability - The system SHALL explain risk management strategies - The system SHALL provide risk-adjusted return expectations

4.3 Position Management

FR-4.3.1: Position Monitoring - The system SHALL display all current positions across all accounts - The system SHALL show real-time position values and Greeks - The system SHALL monitor positions against ATR thresholds - The system SHALL provide position performance attribution

FR-4.3.2: Adjustment Recommendations - The system SHALL recommend position adjustments based on ATR triggers - The system SHALL show adjustment options and expected outcomes - The system SHALL explain adjustment timing and methodology - The system SHALL track adjustment effectiveness over time

FR-4.3.3: Exit Strategy Management - The system SHALL recommend position exit strategies - The system SHALL show optimal exit timing and methods - The system SHALL explain exit decision rationale - The system SHALL track exit strategy effectiveness

5. Performance Analytics Interface

5.1 Performance Dashboard

FR-5.1.1: Real-Time Performance Metrics - The system SHALL display real-time performance across all accounts - The system SHALL show daily, weekly, monthly, and quarterly returns - The system SHALL compare performance against protocol targets - The system SHALL provide performance trend analysis

FR-5.1.2: Benchmark Comparison - The system SHALL compare performance against relevant benchmarks - The system SHALL show risk-adjusted performance metrics - The system SHALL explain performance attribution factors - The system SHALL provide competitive analysis context

FR-5.1.3: Performance Projections - The system SHALL project future performance based on current trends - The system SHALL show geometric growth projections for account structure - The system SHALL explain projection methodology and assumptions - The system SHALL provide scenario analysis for different outcomes

5.2 Analytics and Insights

FR-5.2.1: Pattern Recognition - The system SHALL identify successful trading patterns and strategies - The system SHALL show pattern effectiveness and frequency - The system SHALL recommend pattern-based optimizations - The system SHALL track pattern evolution over time

FR-5.2.2: Performance Attribution - The system SHALL provide detailed performance attribution analysis - The system SHALL show contribution of different strategies and accounts - The system SHALL identify performance drivers and detractors - The system SHALL recommend performance improvement strategies

FR-5.2.3: Risk Analysis - The system SHALL provide comprehensive risk analysis and metrics - The system SHALL show risk-adjusted returns and Sharpe ratios - The system SHALL identify risk concentration and diversification opportunities - The system SHALL recommend risk management improvements

6. Visualization and Dashboard Requirements

6.1 Interactive Visualizations

FR-6.1.1: Account Structure Visualization - The system SHALL provide interactive visualization of account hierarchy - The system SHALL show fund flows between accounts over time - The system SHALL animate account forking and merging processes - The system SHALL provide drill-down capabilities for detailed analysis

FR-6.1.2: Performance Visualization - The system SHALL provide interactive performance charts and graphs - The system SHALL show performance across multiple time periods - The system SHALL allow comparison between different accounts and strategies - The system SHALL provide customizable visualization options

FR-6.1.3: Protocol Decision Trees - The system SHALL visualize protocol decision trees and logic - The system SHALL show decision paths and outcomes - The system SHALL provide interactive exploration of decision alternatives - The system SHALL explain decision criteria and thresholds

6.2 Dashboard Customization

FR-6.2.1: Personalized Dashboards - The system SHALL allow users to customize dashboard layouts - The system SHALL provide widget-based dashboard construction - The system SHALL save and restore dashboard configurations - The system SHALL provide dashboard templates for different user types

FR-6.2.2: Mobile Optimization - The system SHALL provide mobile-optimized dashboard interfaces - The system SHALL maintain functionality across different screen sizes - The system SHALL provide touch-friendly interaction patterns - The system SHALL optimize performance for mobile devices

FR-6.2.3: Real-Time Updates - The system SHALL provide real-time dashboard updates - The system SHALL show live market data and position changes - The system SHALL provide configurable update frequencies - The system SHALL maintain performance with real-time updates

7. Notification and Alert Requirements

7.1 Protocol-Based Alerts

FR-7.1.1: Trading Opportunity Alerts - The system SHALL alert users to new trading opportunities - The system SHALL provide protocol-based recommendation alerts - The system SHALL explain alert rationale and urgency - The system SHALL allow alert customization and preferences

FR-7.1.2: Risk Management Alerts - The system SHALL alert users to risk threshold breaches - The system SHALL provide position adjustment recommendations - The system SHALL explain risk implications and recommended actions - The system SHALL escalate critical risk situations

FR-7.1.3: Account Management Alerts - The system SHALL alert users to forking and merging opportunities - The system SHALL provide reinvestment timing notifications -

The system SHALL alert to cash buffer issues or opportunities - The system SHALL explain account management implications

7.2 Performance Alerts

FR-7.2.1: Performance Milestone Alerts - The system SHALL alert users to performance milestones and achievements - The system SHALL provide performance target progress notifications - The system SHALL celebrate significant performance improvements - The system SHALL explain performance milestone significance

FR-7.2.2: Underperformance Alerts - The system SHALL alert users to underperformance situations - The system SHALL provide analysis of underperformance causes - The system SHALL recommend corrective actions and improvements - The system SHALL track improvement progress over time

7.3 System Status Alerts

FR-7.3.1: Market Condition Alerts - The system SHALL alert users to significant market condition changes - The system SHALL provide week classification change notifications - The system SHALL explain market condition implications for protocols - The system SHALL recommend protocol adjustments for market changes

FR-7.3.2: System Maintenance Alerts - The system SHALL provide advance notice of system maintenance - The system SHALL alert users to system issues or outages - The system SHALL provide status updates during maintenance periods - The system SHALL confirm system restoration and functionality

8. Educational and Help System Requirements

8.1 Interactive Learning System

FR-8.1.1: Protocol Education - The system SHALL provide comprehensive protocol education modules - The system SHALL offer interactive tutorials and simulations - The system SHALL track user progress through educational content - The system SHALL provide competency testing and certification

FR-8.1.2: Contextual Help - The system SHALL provide contextual help for all interface elements - The system SHALL offer detailed explanations of concepts and terminology - The system SHALL provide step-by-step guidance for complex operations - The system SHALL maintain searchable help documentation

FR-8.1.3: Video and Multimedia Content - The system SHALL provide video explanations of key concepts - The system SHALL offer multimedia tutorials and

demonstrations - The system SHALL provide interactive simulations and examples - The system SHALL support multiple learning styles and preferences

8.2 Knowledge Base and Documentation

FR-8.2.1: Comprehensive Documentation - The system SHALL maintain comprehensive user documentation - The system SHALL provide protocol reference materials - The system SHALL offer troubleshooting guides and FAQs - The system SHALL keep documentation current with system updates

FR-8.2.2: Search and Discovery - The system SHALL provide powerful search capabilities across all content - The system SHALL offer intelligent content recommendations - The system SHALL provide related content suggestions - The system SHALL track content usage and effectiveness

9. Integration and API Requirements

9.1 Backend System Integration

FR-9.1.1: Agent Foundation Integration - The system SHALL integrate seamlessly with WS1 Agent Foundation - The system SHALL utilize cognitive framework for natural language processing - The system SHALL access memory systems for conversation context - The system SHALL leverage personality engine for consistent communication

FR-9.1.2: Protocol Engine Integration - The system SHALL integrate with WS2 Protocol Engine for decision making - The system SHALL access week classification and trading protocols - The system SHALL utilize decision systems for recommendations - The system SHALL maintain protocol compliance across all operations

FR-9.1.3: Account Management Integration - The system SHALL integrate with WS3 Account Management systems - The system SHALL access three-tier account structure and operations - The system SHALL utilize forking and merging capabilities - The system SHALL coordinate reinvestment and allocation functions

FR-9.1.4: Market Integration - The system SHALL integrate with WS4 Market Integration systems - The system SHALL access real-time market data and analytics - The system SHALL utilize trading execution capabilities - The system SHALL coordinate with brokerage integration systems

FR-9.1.5: Learning System Integration - The system SHALL integrate with WS5 Learning System capabilities - The system SHALL access performance tracking and analytics - The system SHALL utilize autonomous learning insights - The system SHALL coordinate continuous improvement functions

9.2 External System Integration

FR-9.2.1: Brokerage API Integration - The system SHALL integrate with brokerage APIs for real-time data - The system SHALL support multiple brokerage platforms - The system SHALL maintain secure API connections and authentication - The system SHALL handle API errors and failover scenarios

FR-9.2.2: Market Data Integration - The system SHALL integrate with market data providers - The system SHALL access real-time options chains and pricing - The system SHALL utilize historical data for analysis and backtesting - The system SHALL maintain data quality and accuracy standards

10. Security and Compliance Requirements

10.1 Data Security

FR-10.1.1: Data Encryption - The system SHALL encrypt all sensitive data at rest and in transit - The system SHALL implement secure key management and rotation - The system SHALL protect user credentials and financial information - The system SHALL maintain audit trails for all data access

FR-10.1.2: Access Control - The system SHALL implement role-based access control - The system SHALL enforce principle of least privilege - The system SHALL maintain session security and timeout controls - The system SHALL provide secure authentication mechanisms

10.2 Regulatory Compliance

FR-10.2.1: Financial Regulations - The system SHALL comply with relevant financial regulations - The system SHALL maintain required disclosures and disclaimers - The system SHALL implement appropriate risk warnings - The system SHALL support regulatory reporting requirements

FR-10.2.2: Data Privacy - The system SHALL comply with data privacy regulations (GDPR, CCPA) - The system SHALL implement data minimization and purpose limitation - The system SHALL provide user consent management - The system SHALL support data portability and deletion rights

11. Performance and Scalability Requirements

11.1 Performance Requirements

FR-11.1.1: Response Time - The system SHALL provide sub-second response times for user interactions - The system SHALL maintain performance under normal load

conditions - The system SHALL optimize for mobile device performance - The system SHALL provide performance monitoring and optimization

FR-11.1.2: Availability - The system SHALL maintain 99.9% uptime availability - The system SHALL provide redundancy and failover capabilities - The system SHALL implement disaster recovery procedures - The system SHALL minimize planned maintenance downtime

11.2 Scalability Requirements

FR-11.2.1: User Scalability - The system SHALL support thousands of concurrent users - The system SHALL scale horizontally to meet demand - The system SHALL maintain performance with user growth - The system SHALL provide capacity planning and monitoring

FR-11.2.2: Data Scalability - The system SHALL handle large volumes of market and user data - The system SHALL scale data storage and processing capabilities - The system SHALL maintain data access performance at scale - The system SHALL implement efficient data archiving strategies

This comprehensive functional requirements document provides the detailed specifications needed to implement WS6 (User Interface) with full integration to the sophisticated backend systems implemented across WS1-WS5. The requirements ensure that the user interface maintains the educational, methodical, and protocol-driven approach that defines the ALL-USE system while providing an intuitive and powerful user experience.