

REQUIREMENT 1: User Authentication System

Priority: High

Description:

Implement a comprehensive user authentication and authorization system that provides secure access to the platform. The system should support multiple authentication methods and maintain user sessions securely.

Features:

- User registration with email verification
- Secure login with password hashing (bcrypt)
- Password reset functionality via email
- Multi-factor authentication (MFA) support
- Session management with JWT tokens
- Role-based access control (RBAC)

Acceptance Criteria:

- Users can register with valid email addresses
- Email verification is required before account activation
- Passwords are encrypted using bcrypt with salt
- Login sessions are secure and expire appropriately
- Password reset emails are sent securely
- MFA can be enabled/disabled by users

Technical Notes:

Use JWT tokens for session management. Implement rate limiting for login attempts. Store user data in encrypted format. Use OAuth 2.0 for third-party authentication providers.

REQUIREMENT 2: Real-time Chat Feature

Priority: High

Description:

Develop a real-time messaging system that enables instant communication between users. The system should support both one-on-one and group conversations with rich media sharing capabilities.

Features:

- Real-time message sending and receiving
- Message history and persistence
- Online/offline status indicators
- Typing indicators
- Message read receipts
- File and image sharing
- Group chat functionality
- Message search and filtering

Acceptance Criteria:

- Messages appear instantly for all participants
- Chat history is preserved in database
- Users can see who is online/offline
- Typing indicators show when someone is typing
- Read receipts confirm message delivery
- Files up to 10MB can be shared
- Group chats support up to 50 participants
- Messages can be searched by content

Technical Notes:

Use WebSocket connections for real-time updates. Implement message queuing for offline users. Use Redis for caching online status. Store messages in MongoDB with indexing for search.

REQUIREMENT 3: File Upload and Sharing

Priority: Medium

Description:

Create a secure file management system that allows users to upload, store, and share files with other users. The system should support various file types and provide access control.

Features:

- Drag-and-drop file upload interface
- File type validation and security scanning
- File sharing with specific users or groups
- File version control and history
- File preview for common formats
- Storage quota management
- File encryption at rest

Acceptance Criteria:

- Files upload successfully with progress indicator
- Only allowed file types are accepted
- Files are scanned for malware
- Users can share files with specific users
- File versions are tracked and accessible
- Common file types can be previewed
- Storage limits are enforced
- Files are encrypted in storage

Technical Notes:

Store files in cloud storage (AWS S3). Use virus scanning service for security. Implement file deduplication. Use CDN for file delivery. Encrypt files with AES-256.

REQUIREMENT 4: Dashboard Analytics

Priority: Medium

Description:

Build a comprehensive analytics dashboard that provides users with insights into their usage patterns, performance metrics, and system statistics. The dashboard should be customizable and real-time.

Features:

- Real-time data visualization
- Customizable dashboard widgets
- Export functionality (PDF, CSV)
- Scheduled report generation
- Interactive charts and graphs
- Performance metrics tracking
- User activity monitoring

Acceptance Criteria:

- Dashboard loads within 3 seconds
- Users can customize widget layout
- Reports can be exported in multiple formats
- Scheduled reports are delivered on time
- Charts are interactive and responsive
- Performance metrics are accurate
- User activity is tracked in real-time

Technical Notes:

Use Chart.js for visualizations. Implement data caching with Redis. Use WebSockets for real-time updates. Store analytics data in time-series database (InfluxDB).