# FR (Functional Requirements) - Mavito Application

- **FR1 User Management**
  - FR1.1 User Registration
    - FR1.1.1 The system shall allow new users to create an account.
    - FR1.1.2 The system shall require a unique username/email and password for registration.
  - FR1.2 User Login
    - FR1.2.1 The system shall allow registered users to log in using their credentials.
  - FR1.3 (Optional) Role-Based Access Control
    - FR1.3.1 The system shall define user roles (e.g., Casual User, Student, Linguist, NLP Researcher, Administrator).
    - FR1.3.2 The system shall assign distinct permissions based on user roles.

- **FR2 Lexicon and Terminology Access**
  - FR2.1 Unified Search Interface
    - FR2.1.1 The system shall provide a single search interface to query across all integrated lexicons, glossaries, and dictionaries.
    - FR2.1.2 (Optional) Advanced Search
      - FR2.1.2.1 The system should support fuzzy search capabilities for misspellings or partial matches.
    - FR2.1.3 (Optional) AI-Enabled Search

- FR2.1.3.1 The system should leverage AI to improve search result relevance and understanding of query intent.

  - FR2.1.4 (Optional) Filtering

    - FR2.1.4.1 The system should allow users to filter search results by criteria such as language, source lexicon, keyword tags, or term categorization.

  - FR2.2 Browse Language Resources

    - FR2.2.1 The system shall allow users to browse available language resources.

  - FR2.3 View Term Details

    - FR2.3.1 The system shall display detailed information for selected terms.

    - FR2.3.2 (Optional) AI-Powered Translations & Definitions

      - FR2.3.2.1 The system may suggest possible meanings and translations for terms using AI models.

    - FR2.3.3 (Optional) Listen to Pronunciations (Speech-to-Text for entries)

      - FR2.3.3.1 The system may provide an audio pronunciation for terms where available.

  - **FR2.4 (Optional) Personalized Content Recommendation/Filtering**

    - FR2.4.1 User Profiling for Personalization

      - FR2.4.1.1 The system shall allow users to optionally specify their role or area of interest (e.g., High School Student, NLP Researcher) for personalized content.

      - FR2.4.1.2  The system may infer user interests based on interaction history to enhance personalization, with explicit user consent.

    - FR2.4.2 AI-Powered Recommendation Engine

      - FR2.4.2.1The system should develop or integrate an AI model to analyze user profiles and/or behavior.

- FR2.4.2.2 The system should filter or prioritize search results and displayed content based on relevance to the user's specified or inferred profile.

- FR2.4.2.3 The system may suggest relevant lexicons, terms, or glossaries to the user based on their profile.

  - FR2.4.3 User Control over Recommendations

    - FR2.4.3.1 The system shall allow users to enable or disable personalized recommendations.

    - FR2.4.3.2 The system may allow users to provide feedback on the relevance of recommendations.

- **FR3 Offline Functionality (Progressive Web App - PWA)**

  - FR3.1 Download Language Resources

    - FR3.1.1 The system shall allow users to download selected language resources (lexicons, glossaries) for offline access.

  - FR3.2 Offline Access

    - FR3.2.1 The system shall allow users to access and search downloaded resources when offline.

  - FR3.3 Data Synchronization

    - FR3.3.1 When online, the system shall synchronize downloaded resources with updates from the central repository.

  - FR3.4 (Optional) Offline Speech Recognition

    - FR3.4.1 (Wow Factor) The system may allow users to search via voice commands even when offline.

- **FR4 User Contributions and Feedback**

  - FR4.1 User Commenting

    - FR4.1.1 The system shall allow logged-in users to comment on specific terms or entries.

  - FR4.2 User Feedback Submission

- FR4.2.1 The system shall allow users to submit feedback, suggestions, or report errors for terms or the application.

  - FR4.3 Central Repository Integration for Feedback

    - FR4.3.1 Feedback and comments submitted by users shall be sent to a backend server for moderation and potential integration.

  - FR4.4 (Optional) Crowdsourced Validation

    - FR4.4.1 The system may implement a feature allowing users to upvote/downvote suggested changes or comments.

  - FR4.5 (Optional) Gamification for Contributions

    - FR4.5.1 (Wow Factor) The system may reward users (e.g., points, badges) for valuable contributions like comments or error reporting.

- **FR5 Interface and User Experience (UX)**

  - FR5.1 Multi-language Support for Interface

    - FR5.1.1 The application interface shall support multiple South African languages.

  - FR5.2 (Optional) Mobile-Friendly UI .

    - FR5.2.1 The UI must be responsive and optimized for mobile devices to ensure broad accessibility.

  - FR5.3 (Optional) Theming and Customization

    - FR5.3.1 The system may offer a dark mode.

    - FR5.3.2 The system may allow users to customize their reading experience.

  - FR5.4 Basic Themes (Required for Demo 1)

    - FR5.4.1 The system shall provide at least one basic theme for the user interface.

  - FR5.5 Form Validation (Required for Demo 1)

    - FR5.5.1 All user input forms (e.g., login, registration, feedback) shall have appropriate client-side and server-side validation.

- **FR6 Data Management & Extensibility (System-focused)**

  - FR6.1 Open Source & Extensible Code Structure

    - FR6.1.1 The project codebase shall be open source.

    - FR6.1.2 The code shall be well-documented and structured to allow for future contributions and extensions.

  - FR6.2 (Optional) Integration with NLP APIs

    - FR6.2.1 The system may provide APIs for NLP researchers to access and analyze the datasets.

  - FR6.3 (Optional) Data Visualization

    - FR6.3.1 The system may display statistics on word frequency, usage trends, or user contributions.

  - FR6.4 (Optional) Blockchain-backed Authorship Tracking

    - FR6.4.1 (Wow Factor) The system may maintain authorship records for glossaries using blockchain technology.