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(Autonomous Institution)

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PROBLEM NUMBER: SIH2024-1782

GIVEN PROBLEM STATEMENT:

Problem Statement Title: An online system to automatically verify new title submissions by checking for similarities with existing titles.

Description:

Background: Press Registrar General of India (PRGI) maintains a database containing approximately 160,000 titles. When a user submits a new title for verification, we need to check its similarity against the existing titles in our database. The goal is to ensure that the new title does not duplicate or closely resemble any existing title to avoid confusion and maintain uniqueness. Additionally, the system must enforce specific guidelines to ensure that certain words are not used, combinations of existing titles are not allowed, and titles with similar meanings or periodicity modifications are rejected.

Problem Description: Develop a system to automatically verify new title submissions by checking for similarities with existing titles in the database and ensuring compliance with specific guidelines. The system should reject titles that are too similar to existing ones, contain disallowed words, or violate other outlined rules. Additionally, the system should provide a probability score indicating the likelihood of a title being verified.

Requirements:

1. Similarity Check:
 - a. Implement a mechanism to check for similar-sounding names using phonetic similarity algorithms (e.g., Soundex, Metaphone).
 - b. Identify titles that have common prefixes or suffixes (e.g., The, India, Samachar, News).
 - c. Ensure that variations in spelling or slight modifications do not bypass the similarity check (e.g., Namaskar vs. Namascar).
 - d. Calculate a similarity percentage for each title comparison.
2. Prefix/Suffix Handling:
 - a. Maintain a list of disallowed prefixes and suffixes.
 - b. Reject any new titles that include these disallowed prefixes or suffixes if they cause the new title to resemble an existing title closely.
3. Guideline Enforcement:
 - a.

Maintain a list of disallowed words (e.g., Police, Crime, Corruption, CBI, CID, Army). b. Ensure that titles containing these disallowed words are rejected. c. Prevent the creation of new titles by combining existing ones (e.g., if "Hindu" and "Indian Express" exist, "Hindu Indian Express is not allowed"). d. Check for titles with similar meanings in other languages and reject them (e.g., "Daily Evening" and "Pratidin Sandhya"). e. Disallow adding periodicity (e.g., daily, weekly, monthly) to existing titles to form new ones. 4. Verification Probability: a. Provide a probability score indicating the likelihood of a title being verified. 5. Database Interaction: a. Efficiently search and compare new titles against the database of 160,000 titles. b. Track current applications and use them for future reference to reject similar titles submitted later. c. Use indexing and optimised search techniques to handle the large dataset and ensure quick responses. 6. User Feedback: a. Provide clear feedback to the user if their submitted title is too similar to an existing title, contains disallowed prefixes/suffixes, violates guidelines, or is created by combining existing titles. b. Display the verification probability to the user. c. Allow the user to modify their title and resubmit it for verification. 7. Scalability: a. Design the system to handle an increasing number of titles and user submissions. b. Ensure that the system remains performant as the database grows.

Expected Solution: 1. The system will provide the probability of a title being verified. For instance, if a title has a similarity score of 80%, the verification probability shall not be more than $100\% - 80\% = 20\%$ 2. The system will reject any new title that is too similar to existing ones, contains disallowed words or prefixes/suffixes, combines existing titles, or has similar meanings in other languages. 3. The system will track current applications and use them for future reference, rejecting similar titles submitted later by other users.

Acceptance Criteria: 1. Accuracy: a. The system correctly identifies similar-sounding titles and provides consistent results. b. The system accurately rejects titles with disallowed prefixes, suffixes, and words. c. The system prevents the creation of titles by combining existing titles and identifies titles with similar meanings in other languages. d. The system disallows adding periodicity to existing titles. e. The system provides an accurate verification probability score. 2. Performance: a. Title verification is completed within a reasonable time frame (e.g., under 2 seconds per title). b. The system can

handle multiple title verification requests simultaneously without significant performance degradation. 3. User Experience: a. Users receive clear and actionable feedback on why their title was rejected. b. Users see a probability score indicating the likelihood of their title being verified. c. The interface for title submission and feedback is user-friendly and intuitive. 4. Robustness: a. The system handles edge cases and variations in spelling effectively. b. The system is resilient to errors and provides meaningful error messages when issues occur.

PROBLEM STATEMENT:

PROBLEM STATEMENT TITLE	An online system to automatically verify new title submissions by checking for similarities with existing titles.
CONTEXT	Press Registrar General of India (PRGI) maintains a database containing approximately 160,000 titles. When a user submits a new title for verification, we need to check its similarity against the existing titles in our database. The goal is to ensure that the new title does not duplicate or closely resemble any existing title to avoid confusion and maintain uniqueness. Additionally, the system must enforce specific guidelines to ensure that certain words are not used, combinations of existing titles are not allowed, and titles with similar meanings or periodicity modifications are rejected. However, manual verification is time-consuming, and variations in spelling, phonetics, and meaning make similarity detection challenging. A systematic approach is required to automate the verification process while enforcing rules against restricted words, title combinations, and periodicity modifications.
ROOT CAUSE	The primary root cause of the problem is the absence of an automated and intelligent title verification system that can efficiently handle large-scale comparisons. The existing database lacks an advanced similarity-checking mechanism, making manual verification inefficient, slow, and prone to human errors. Additionally, the lack of predefined rule enforcement within the system leads to inconsistencies in title approval. The challenge is further compounded by variations in language, synonyms, and minor modifications that make it difficult to detect near-duplicates accurately.
IDEAL SOLUTION	The ideal solution is to develop an AI-powered automated title verification system that integrates natural language processing (NLP) and machine learning algorithms to efficiently compare new submissions with the existing database. This system

	<p>should include fuzzy matching techniques to detect near-duplicates, rule-based filters to enforce predefined guidelines, and context-aware analysis to identify semantic similarities. Additionally, the solution should incorporate a real-time feedback mechanism to provide immediate validation results to users, reducing the need for manual intervention. A user-friendly interface and continuous model training will further enhance accuracy and efficiency over time.</p>
PROPOSED SOLUTION	<p>To address the challenge of verifying new title submissions, we propose developing an automated system that checks for similarities with existing titles in the database while ensuring compliance with predefined guidelines. The system will employ phonetic similarity algorithms (e.g., Soundex, Metaphone) to detect similar-sounding names, identify common prefixes or suffixes, and prevent slight spelling variations from bypassing verification. It will enforce restrictions on disallowed words, prohibit the combination of existing titles, and reject titles with similar meanings in other languages. Additionally, a probability score will be generated to indicate the likelihood of a title being verified. The system will leverage efficient search and indexing techniques to handle large-scale data, ensuring quick responses and scalability. Users will receive clear feedback on rejections, including explanations for similarity violations, disallowed terms, or guideline breaches, and will be allowed to modify and resubmit titles for verification. Furthermore, the system will track current applications to prevent duplicate submissions over time. Designed for accuracy, performance, and user experience, the solution aims to deliver rapid, reliable title verification while maintaining database integrity.</p>

SOFTWARE REQUIREMENTS SPECIFICATION

for

AUTOMATIC TITLE VERIFICATION SYSTEM

Version: 1.0

Prepared By

Group Number: 9

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INTRODUCTION

Purpose:

This Software Requirements Specification (SRS) document provides a comprehensive overview of the **Online Title Verification System**. It defines the system's objectives, functional and non-functional requirements, use case model, key actors, and overall system behaviour.

The document serves as a reference for stakeholders, including title applicants, PRGI officials, and system administrators, ensuring a clear understanding of the system's capabilities and constraints. It includes:

- **System Overview:** A high-level description of the system and its purpose.
- **Use Case Model:** Identification of key functionalities through well-structured use cases.
- **Actors & Interactions:** Definition of different user roles and their interactions with the system.
- **Functional & Non-Functional Requirements:** Detailed specifications guiding the system's development.

This document is essential for aligning all stakeholders and ensuring the successful design, implementation, and deployment of the system.

Scope:

This Software Requirements Specification (SRS) document outlines the requirements for the Online Title Verification System, which automates the process of verifying new title submissions by checking their similarity with existing titles in the PRGI database.

The system is designed to:

- Prevent duplication or misleading similarities in submitted titles.
- Enforce predefined guidelines, such as rejecting disallowed words, prefixes, and suffixes.
- Provide probability-based verification to assess title uniqueness.
- Offer user-friendly feedback and allow modifications for rejected titles.
- Support PRGI officials in managing verification rules and reviewing flagged titles.
- Enable system administrators to oversee and maintain system functionality and security.

This document defines the system's functionalities, user interactions, and constraints, serving as a guide for developers, testers, and stakeholders throughout the software development lifecycle.

References:

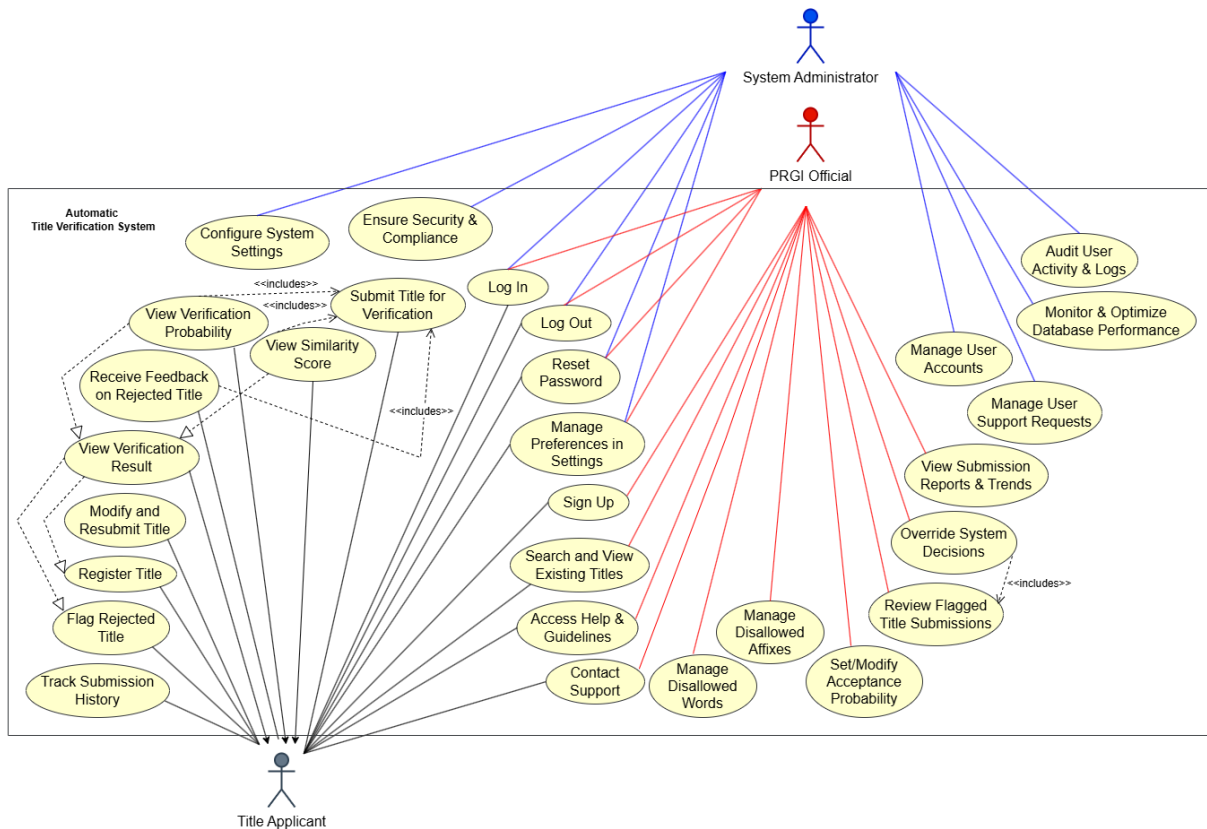
<https://prgi.gov.in/>

Overview:

The Press Registrar General of India (PRGI) is responsible for maintaining a comprehensive database containing approximately 160,000 registered titles. When a user submits a new title for verification, it is essential to ensure that the proposed title does not duplicate or closely resemble any existing title. This process is critical in preventing confusion, maintaining the uniqueness of registered publications, and ensuring adherence to specific regulatory guidelines. However, the current method of title verification presents several challenges that necessitate the development of an automated system.

USE CASE MODEL

Use Case Diagram:



Use Case Subsystem:

The features of Automatic Title Verification System are grouped into subsystems and their use cases are defined below.

1. User Management Subsystem

- Sign Up
- Log In
- Log Out
- Reset Password
- Manage User Accounts
- Manage Preferences in Settings

2. Title Submission & Verification Subsystem

- Submit Title for Verification
- View Similarity Score
- View Verification Probability
- Receive Feedback on Rejected Titles
- View Verification Result
- Modify and Resubmit Title
- Register Title
- Track Submission History

3. Title Compliance & Moderation Subsystem

- Search and View Existing Titles
- Flag Rejected Titles
- Manage Disallowed Words
- Manage Disallowed Affixes
- Set/Modify Acceptance Probability
- Review Flagged Title Submissions
- Override System Decisions

4. Reporting & Analytics Subsystem

- View Submission Reports & Trends
- Audit User Activity & Logs

5. System Administration & Security Subsystem

- Configure System Settings
- Monitor & Optimize Database Performance
- Ensure Security & Compliance

6. Support & Help Subsystem

- Access Help & Guidelines
- Contact Support
- Manage User Support Requests

Use Case Specification:

1. User Management Subsystem:

1.1. Sign Up:

Name	Sign Up
Description	Allows new users to create an account.
Actor(s)	Title Applicant, PRGI Official.
Basic Flow	1. The user navigates to the Sign-Up page.

	<p>2. The system displays options to select their role (Title Applicant or PRGI Official).</p> <p>3. The user selects a role, and the respective registration form appears.</p> <p>4. The user enters required details:</p> <ul style="list-style-type: none"> • Full Name • Email (unique, valid format: example@domain.com) • Username (unique, alphanumeric, 5-15 characters) • Password (minimum 8 characters, including uppercase, lowercase, number, and special character) • Confirm Password • Contact Number (optional, 10-15 digits) <p>5. The system validates the input:</p> <ul style="list-style-type: none"> • Ensures email and username are unique. • Checks password strength and match with confirmation. <p>6. If all validations pass, an email verification link is sent to the user.</p> <p>7. The system displays "Check your email to verify your account."</p> <p>8. The use case ends successfully.</p>
Alternate Flows	<p>a) Email or Username Already Exists</p> <ul style="list-style-type: none"> • The system prompts: "Email/Username already registered. Try a different one." <p>b) Invalid Input Format</p> <ul style="list-style-type: none"> • If any field fails validation, an error message is displayed with guidelines. <p>c) Password Doesn't Meet Criteria</p> <ul style="list-style-type: none"> • The system prompts: "Password must be at least 8 characters, including uppercase, lowercase, number, and special character." <p>d) User Fails to Verify Email</p> <ul style="list-style-type: none"> • If the user doesn't verify their email within 24 hours, the system deactivates the incomplete registration. • The user can request a new verification link. <p>e) Registration Abandoned</p> <ul style="list-style-type: none"> • If the user leaves mid-registration, no data is stored unless the form is submitted.
Pre-conditions	The user must have internet access, a valid email, and unique credentials.
Post-conditions	If successful, the account is created, and the user can log in after email verification.

1.2. Log In:

Name	Log In
Description	Allows registered users to access their accounts.
Actor(s)	Title Applicant, PRGI Official, System Administrator.
Basic Flow	<ol style="list-style-type: none"> 1. The user navigates to the login page. 2. The system displays role selection options (Title Applicant, PRGI Official, System Administrator). 3. The user selects their role, and the corresponding login form appears. 4. The user enters their credentials: <ul style="list-style-type: none"> • Username or registered email (must match a valid account). • Password (case-sensitive, must match stored credentials). 5. The system validates the credentials: <ul style="list-style-type: none"> • If correct, the system grants access and redirects the user to their dashboard. • If incorrect, an error message is displayed. 6. If login is successful, the system logs the session and updates last login timestamp. 7. The use case ends successfully.
Alternate Flows	<p>a) Incorrect Username or Password</p> <ul style="list-style-type: none"> • The system displays: "Invalid username or password. Please try again." • After three failed attempts, the system temporarily locks the account for 5 minutes. <p>b) Forgotten Password</p> <ul style="list-style-type: none"> • The user clicks "Forgot Password?" • The system prompts for a registered email. • If valid, the system sends a password reset link. • The user resets the password and logs in successfully. <p>c) Account Not Verified (For new users)</p> <ul style="list-style-type: none"> • If the user hasn't verified their email during sign-up, the system displays: "Email verification required. Check your inbox." • The user can request a new verification email. <p>d) Inactive or Suspended Account</p> <ul style="list-style-type: none"> • If the account is deactivated by the system administrator, the system displays: "Your account has been suspended. Contact support." <p>e) Session Timeout</p> <ul style="list-style-type: none"> • If the user remains inactive for a set duration (e.g., 30 minutes), the system logs them out automatically. <p>f) User Navigates Away Before Logging In</p>

	<ul style="list-style-type: none"> If the user leaves the page before entering credentials, no action is recorded.
Pre-conditions	The user must be registered and have an active account.
Post-conditions	If successful, the user is logged in and can access authorized functionalities.

1.3. Log Out:

Name	Log Out
Description	Allows users to securely exit their accounts.
Actor(s)	Title Applicant, PRGI Official, System Administrator.
Basic Flow	<ol style="list-style-type: none"> The user clicks the "Log Out" button available in the system interface. The system prompts a confirmation message (if required). Upon confirmation, the system: <ul style="list-style-type: none"> Ends the user session. Clears any stored session data. Redirects the user to the login page or homepage. The use case ends successfully.
Alternate Flows	<p>a) Session Expiry</p> <ul style="list-style-type: none"> If the user is inactive for a predefined time (e.g., 30 minutes), the system logs them out automatically and redirects them to the login page. <p>b) System Crash or Unexpected Logout</p> <ul style="list-style-type: none"> If the system crashes or the user is logged out due to technical issues, they must log in again to continue. <p>c) Logout Cancellation</p> <ul style="list-style-type: none"> If a confirmation prompt appears and the user selects "Cancel," the logout process is aborted, and the session remains active.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user is successfully logged out, and the session is terminated.

1.4. Reset Password:

Name	Reset Password
Description	Allows users to update their account password.
Actor(s)	Title Applicant, PRGI Official, System Administrator.
Basic Flow	<ol style="list-style-type: none"> 1. The user navigates to the account settings and selects the "Reset Password" option. 2. The system prompts the user to enter their current password. 3. The user enters the current password, and the system verifies its correctness. 4. If verified, the system prompts the user to enter a new password. 5. The user enters a new password and confirms it. 6. The system validates the new password against the security criteria (e.g., minimum length, character requirements). 7. If valid, the system updates the password and displays a success message. 8. The use case ends successfully.
Alternate Flows	<ol style="list-style-type: none"> a) Incorrect Current Password <ul style="list-style-type: none"> • If the user enters an incorrect current password, the system displays an error message and prompts them to re-enter it. b) Weak or Invalid New Password <ul style="list-style-type: none"> • If the new password does not meet security requirements, the system provides feedback and asks the user to enter a stronger password. c) Password Mismatch <ul style="list-style-type: none"> • If the user's new password and confirmation password do not match, the system prompts them to re-enter both fields. d) User Cancels Reset <ul style="list-style-type: none"> • If the user decides not to proceed, they can cancel the reset process, and no changes will be made.
Pre-conditions	The user must be logged into the system.
Post-conditions	The password is successfully updated, and the user may need to log in again with the new password.

1.5. Manage User Accounts:

Name	Manage User Accounts
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Description	Allows the system administrator to manage user accounts.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator logs into the system and navigates to the "User Management" section. 2. The system displays a list of all registered users, along with their account statuses and roles. 3. The system administrator selects a specific user account to manage. 4. The system presents available account management options: <ol style="list-style-type: none"> a. Restrict an account – Temporarily limit user access based on violations or suspicious activity. b. Delete an account – Permanently remove a user account from the system. c. Block an account – Prevent a user from accessing the system indefinitely. d. Verify PRGI Official account – Review and approve a PRGI Official's signup request based on provided credentials. e. Grant official access to a Title Applicant – Upgrade a title applicant's account to an official account upon authorization. 5. The system administrator selects the desired action and confirms the operation. 6. The system processes the request and updates the user account accordingly. 7. The administrator receives a success message, and the system logs the action for record-keeping. 8. The use case ends successfully.
Alternate Flows	<ol style="list-style-type: none"> a) Invalid Action Attempt <ul style="list-style-type: none"> • If the administrator tries to perform an unauthorized action, the system displays an error message and prevents the operation. b) User Account Not Found <ul style="list-style-type: none"> • If the selected user account does not exist, the system displays an error message and prompts the administrator to search again. c) Verification Failure <ul style="list-style-type: none"> • If a PRGI Official's credentials cannot be verified, the system denies the verification request and logs the reason. d) Reversal of an Action <ul style="list-style-type: none"> • If the administrator needs to undo a restriction or unblock an account, they can navigate to the affected user's profile and revert the action.

Pre-conditions	The system administrator must be logged in with administrative privileges.
Post-conditions	The selected account is updated based on the performed action, and the changes are logged in the system.

1.6. Manage Preferences in Settings:

Name	Manage Preferences in Settings
Description	Allows users to modify system and account settings.
Actor(s)	Title Applicant, PRGI Official, System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The user logs into the system and navigates to the "Settings" section. 2. The system displays available preference options categorized as follows: <ol style="list-style-type: none"> a. Account Settings – Update personal information (name, email, contact details), change password, enable two-factor authentication. b. Notification Preferences – Manage email, SMS, and in-app notifications for system updates, verification status, and alerts. c. Privacy Settings – Control visibility of personal details, manage data sharing preferences, and adjust security settings. d. Display & Accessibility – Customize UI themes, font sizes, and enable accessibility features like screen readers. e. System Configurations (For Admins Only) – Modify system-level configurations related to user management, security policies, and operational rules. 3. The user selects a category and makes the desired modifications. 4. The system validates and saves the changes. 5. A confirmation message is displayed, and the use case ends.
Alternate Flows	<ol style="list-style-type: none"> a) Invalid Input <ul style="list-style-type: none"> • If the user enters an invalid format for email, phone number, or other fields, the system displays an error message and prompts for corrections. b) Permission Restrictions <ul style="list-style-type: none"> • If a user tries to modify settings they are not authorized to change (e.g., system configurations by non-admins), the system prevents the action and notifies them. c) Reverting Changes

	<ul style="list-style-type: none"> If the user wishes to discard modifications before saving, they can cancel the operation, and no changes will be applied.
Pre-conditions	The user must be logged into the system.
Post-conditions	The modified preferences are saved, and the system reflects the updates accordingly.

2. Title Submission & Verification Subsystem:

2.1. Submit Title for Verification:

Name	Submit Title for Verification
Description	Allows title applicants to enter and submit their titles for analysis.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> The title applicant logs into the system and navigates to the "Submit Title" section. The system prompts the user to enter the title they wish to verify. The user enters the title and submits it for verification. The system processes the title and redirects the user to the Analysis Page, where the following information is displayed: <ol style="list-style-type: none"> Similarity Score – Displays the percentage of similarity with existing titles. Acceptance Probability – Shows the likelihood of approval based on predefined criteria. Feedback for Rejections – If rejected, the system provides reasons and suggestions for modification. View Verification Result – Displays whether the title is accepted or rejected. Modify & Resubmit – If rejected, the user can make changes and resubmit the title. Register Title – If the acceptance score meets the required threshold, the user can proceed with title registration. Flag Rejected Titles – If the applicant believes the rejection is incorrect, they can flag the title for review by PRGI officials. The applicant reviews the analysis results and takes appropriate action.
Alternate Flows	a) Invalid Title Entry

	<ul style="list-style-type: none"> If the user enters an empty or improperly formatted title, the system prompts for correction before proceeding. <p>b) System Processing Delay</p> <ul style="list-style-type: none"> If title verification takes longer than expected, the system displays a loading indicator and notifies the user to wait. <p>c) Submission Cancellation</p> <ul style="list-style-type: none"> The user can cancel the submission before final processing, and no verification occurs.
Pre-conditions	The title applicant must be logged into the system.
Post-conditions	The system processes the title, and the analysis page is displayed with verification details and further options.

2.2. View Similarity Score:

Name	View Similarity Score
Description	Displays the similarity score of the submitted title by comparing it with existing titles.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> The title applicant submits a title for verification. The system processes the submitted title by comparing it with all existing titles. The Analysis Page is displayed, containing two sections: <ol style="list-style-type: none"> Top 50 Similar Titles – A list of the 50 most similar titles is displayed in descending order of similarity. Similarity Score – The highest similarity percentage among the compared titles is extracted and displayed as the similarity score in another section of the page. The applicant reviews the similarity score and the list of similar titles to decide on further actions.
Alternate Flows	<p>a) No Similar Titles Found</p> <ul style="list-style-type: none"> If no existing titles have a significant similarity, the system displays a message stating that no highly similar titles were found. <p>b) Processing Delay</p> <ul style="list-style-type: none"> If the comparison takes longer than expected, the system displays a loading indicator and notifies the user.

Pre-conditions	The title must be submitted for verification, and the analysis process must be completed.
Post-conditions	The similarity score and the top 50 similar titles are displayed on the analysis page.

2.3. View Verification Probability:

Name	View Verification Probability
Description	Displays the probability of a submitted title getting verified and approved
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> 1. The title applicant submits a title for verification. 2. The system processes the submitted title by analyzing its similarity score and other relevant parameters. 3. The Analysis Page is displayed, containing: <ol style="list-style-type: none"> a. Similarity Score – The highest similarity percentage among existing titles. b. Verification Probability – The probability of the title being approved, calculated based on similarity and other factors. 4. The verification probability is constrained so that it never exceeds the complement of the similarity score (e.g., if similarity is 70%, verification probability cannot exceed 30%). 5. The applicant reviews the verification probability along with the similarity score to decide on further actions.
Alternate Flows	<ol style="list-style-type: none"> a) No Existing Similar Titles <ul style="list-style-type: none"> • If no highly similar titles exist, the verification probability is calculated based on other factors, such as uniqueness and compliance with system rules. b) Processing Delay <ul style="list-style-type: none"> • If the system takes longer to compute the verification probability, a loading indicator is displayed.
Pre-conditions	The title must be submitted for verification, and the analysis process must be completed.
Post-conditions	The verification probability is displayed alongside the similarity score on the analysis page.

2.4. Receive Feedback on Rejected Titles:

Name	Receive Feedback on Rejected Title
Description	Displays reasons for title rejection based on various parameters.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none">1. The title applicant submits a title for verification.2. The system processes the submitted title by analyzing similarity score, verification probability, and compliance with rules.3. The Analysis Page is displayed, containing:<ol style="list-style-type: none">a. Similarity Score – The highest similarity percentage among existing titles.b. Verification Probability – The probability of approval.c. Rejection Feedback – A detailed breakdown of why the title was rejected (if applicable).4. If the title is rejected, the feedback section provides reasons such as:<ul style="list-style-type: none">• High similarity score with existing titles.• Use of restricted words or disallowed affixes.• Combination of existing titles in a non-unique manner.• Other system-enforced parameters leading to rejection.5. The applicant reviews the feedback to modify and resubmit the title if necessary.
Alternate Flows	<ol style="list-style-type: none">a) Title is Approved<ul style="list-style-type: none">• If the title passes verification, no rejection feedback is shown.b) Partial Rejection Cases<ul style="list-style-type: none">• If the title is flagged for minor issues (e.g., slightly high similarity but not outright rejection), a warning message is displayed instead of full rejection feedback.
Pre-conditions	The title must be submitted and analyzed by the system.
Post-conditions	If rejected, the applicant receives structured feedback on the rejection reasons

2.5. View Verification Result:

Name	View Verification Result
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Description	Displays the final approval or rejection of the submitted title
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> 1. The title applicant accesses the analysis page after submitting a title. 2. The system evaluates the title's verification probability. 3. The system compares the verification probability with the acceptance probability set by PRGI officials. 4. If the verification probability is greater than the acceptance probability, the system approves the title. 5. If the verification probability is lower than the acceptance probability, the system rejects the title. 6. The system displays the result as "Approved" or "Rejected" on the analysis page.
Alternate Flows	<p>a) System Error in Processing:</p> <ol style="list-style-type: none"> 1. If an error occurs while determining the result, a message is displayed to the user stating that the verification process has failed. 2. The user is advised to try again later. <p>b) Title Applicant Exits the Page Before Viewing Result:</p> <ol style="list-style-type: none"> 1. The verification result is stored and can be accessed later in submission history.
Pre-conditions	The title has been submitted, and verification has been completed
Post-conditions	The verification result is displayed. If approved, the applicant can proceed to register the title. If rejected, they may modify and resubmit the title.

2.6. Modify and Resubmit Title:

Name	Modify and Resubmit Title
Description	Allows the title applicant to edit and resubmit a rejected title.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> 1. The title applicant views the analysis page and sees that the title has been rejected. 2. The applicant clicks the "Modify and Resubmit" button. 3. The system navigates back to the title entry page, pre-filling the previously entered title.

	<ol style="list-style-type: none"> The applicant modifies the title based on feedback provided. The applicant resubmits the title for verification. The system processes the new submission and updates the analysis page with the revised results.
Alternate Flows	<p>a) User Cancels Modification:</p> <ol style="list-style-type: none"> The applicant chooses not to modify the title and exits the title entry page. The previously submitted title remains unchanged, and no new verification occurs. <p>b) System Error During Resubmission:</p> <ol style="list-style-type: none"> If an error occurs during resubmission, the system displays an error message. The applicant is advised to retry later.
Pre-conditions	The title must have been submitted and verified, with a rejection result displayed.
Post-conditions	The modified title is submitted for verification, and the analysis page updates accordingly.

2.7. Register Title:

Name	Register Title
Description	Allows the title applicant to register an approved title.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> The title applicant views the analysis page and sees that the title has been approved. The "Register Title" button is enabled for the applicant. The applicant clicks the "Register Title" button. The system navigates to the registration page. The system generates a detailed description of the title, including relevant metadata. The applicant reviews the generated details and confirms the registration. The system stores the registered title in the database and assigns it a unique reference ID. A confirmation message is displayed, and the applicant receives a registration receipt.
Alternate Flows	a) User Cancels Registration:

	<ol style="list-style-type: none"> 1. The applicant chooses not to proceed and exits the registration page. 2. The title remains approved but unregistered. b) System Error During Registration: <ol style="list-style-type: none"> 1. If an error occurs during registration, the system displays an error message. 2. The applicant is advised to retry later.
Pre-conditions	The submitted title must be approved in the verification result.
Post-conditions	The title is successfully registered and stored in the system, with a confirmation receipt provided to the applicant.

2.8. Track Submission History:

Name	Track Submission History
Description	Allows title applicants to view their past title submissions.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> 1. The applicant navigates to Track Submission History. 2. The system displays a list of previously submitted titles with details. 3. The applicant selects a title to view its details. 4. The system opens the Analysis Page of the selected title.
Alternate Flows	a) Filter and Sort – The applicant filters or sorts submissions based on date, status, or similarity score. b) Delete History – The applicant deletes an entry from history if allowed.
Pre-conditions	The user must have submitted at least one title for verification.
Post-conditions	The applicant can review past submissions and access analysis details.

3. Title Compliance & Moderation Subsystem:

3.1. Search and View Existing Titles:

Name	Search and View Existing Titles
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Description	Allows users to search, filter, and view existing titles.
Actor(s)	Title Applicant, PRGI Official
Basic Flow	<ol style="list-style-type: none"> 1. The user navigates to the "Search and View Existing Titles" page. 2. A list of all existing titles is displayed. 3. The user can enter keywords in the search bar to find specific titles. 4. The system filters the list dynamically based on the search input. 5. The user can apply sorting and filtering options, including: <ul style="list-style-type: none"> • Sort by: Alphabetical order, popularity, date of registration. • Filter by: Category, length, similarity percentage, approval status. 6. The user selects a title from the list. 7. The system displays the title's detailed description.
Alternate Flows	<p>a) No Matching Titles Found:</p> <ol style="list-style-type: none"> 1. If no titles match the search criteria, the system displays a message: "No matching titles found." 2. The user can modify the search query or reset filters. <p>b) User Cancels the Search:</p> <ol style="list-style-type: none"> 1. The user exits the search page without selecting a title. 2. The system returns to the previous screen.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user successfully searches and views existing title details.

3.2. Flag Rejected Titles:

Name	Flag Rejected Title
Description	Allows title applicants to flag a rejected title for review.
Actor(s)	Title Applicant
Basic Flow	<ol style="list-style-type: none"> 1. The title applicant views the verification result in the analysis page. 2. If the title is rejected, the "Flag for Review" option is enabled. 3. The applicant clicks the "Flag for Review" button.

	<ol style="list-style-type: none"> The system prompts the applicant to provide a reason for flagging (e.g., "Title is unique but incorrectly rejected"). The applicant submits the flagging request. The system adds the flagged title to the "Flagged Titles Review" section for PRGI officials. PRGI officials can review the flagged title, analyze the rejection reason, and take appropriate action: <ul style="list-style-type: none"> Approve the title if the rejection was incorrect. Keep the rejection and provide further clarification to the applicant.
Alternate Flows	<p>a) User Cancels Flagging:</p> <ol style="list-style-type: none"> The applicant chooses not to proceed with flagging. The system does not record any flagging request. <p>b) PRGI Official Approves the Title:</p> <ol style="list-style-type: none"> After review, the PRGI official finds the rejection incorrect. The system updates the title status to "Approved" and notifies the applicant. <p>c) PRGI Official Confirms the Rejection:</p> <ol style="list-style-type: none"> If the rejection is valid, the PRGI official provides additional feedback. The applicant is notified of the final decision.
Pre-conditions	The title must have been submitted and rejected by the system.
Post-conditions	The flagged title is reviewed by PRGI officials, and necessary action is taken.

3.3. Manage Disallowed Words:

Name	Manage Disallowed Words
Description	Allows PRGI officials to manage the list of disallowed words.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none"> The PRGI official navigates to the "Manage Disallowed Words" page. The system displays the list of all disallowed words along with their details (e.g., reason for restriction, category, date added, added by). The official can perform the following actions: <ul style="list-style-type: none"> Add a New Disallowed Word: <ol style="list-style-type: none"> Clicks the "Add New" button.

	<ul style="list-style-type: none"> b. Enters the word and provides a reason for restriction. c. Selects the category (e.g., offensive, misleading, prohibited). d. Confirms to add the word to the list. ○ Modify an Existing Word: <ul style="list-style-type: none"> a. Selects a word from the list. b. Edits its details (e.g., reason, category). c. Saves the changes. ○ Delete a Word: <ul style="list-style-type: none"> a. Selects a word from the list. b. Clicks "Delete" and confirms the deletion. <p>4. The page includes the following features:</p> <ul style="list-style-type: none"> ○ Search Bar: To find specific words. ○ Sorting: By word name, category, date added, and added by. ○ Filters: To view words based on categories or date range. ○ Pagination: To navigate large lists efficiently.
Alternate Flows	<p>a) User Cancels an Action:</p> <ul style="list-style-type: none"> • At any point, the PRGI official can cancel adding, modifying, or deleting a word. • No changes are saved. <p>b) Attempt to Add a Duplicate Word:</p> <ul style="list-style-type: none"> • The system checks if the word already exists. • If found, an error message is displayed, preventing duplication. <p>c) Accidental Deletion:</p> <ul style="list-style-type: none"> • If a word is deleted, the system asks for confirmation. • An "Undo" option is available for a limited time.
Pre-conditions	The PRGI official must be logged into the system.
Post-conditions	The disallowed words list is updated based on the PRGI official's actions.

3.4. Manage Disallowed Affixes:

Name	Manage Disallowed Affixes
Description	PRGI officials to manage the list of disallowed prefixes and suffixes.
Actor(s)	PRGI Official

Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official navigates to the "Manage Disallowed Affixes" page. 2. The system displays the list of all disallowed prefixes and suffixes along with their details (e.g., reason for restriction, category, date added, added by). 3. The official can perform the following actions: <ul style="list-style-type: none"> ○ Add a New Disallowed Affix: <ol style="list-style-type: none"> a. Clicks the "Add New" button. b. Selects whether it is a prefix or suffix. c. Enters the affix and provides a reason for restriction. d. Selects the category (e.g., misleading, prohibited, conflicting). e. Confirms to add the affix to the list. ○ Modify an Existing Affix: <ol style="list-style-type: none"> a. Selects an affix from the list. b. Edits its details (e.g., reason, category). c. Saves the changes. ○ Delete an Affix: <ol style="list-style-type: none"> a. Selects an affix from the list. b. Clicks "Delete" and confirms the deletion. 4. The page includes the following features: <ul style="list-style-type: none"> ○ Search Bar: To find specific affixes. ○ Sorting: By affix name, type (prefix/suffix), category, date added, and added by. ○ Filters: To view affixes based on type, category, or date range. ○ Pagination: To navigate large lists efficiently.
Alternate Flows	<ol style="list-style-type: none"> a) User Cancels an Action: <ul style="list-style-type: none"> • The PRGI official can cancel adding, modifying, or deleting an affix at any point. • No changes are saved. b) Attempt to Add a Duplicate Affix: <ul style="list-style-type: none"> • The system checks if the affix already exists. • If found, an error message is displayed, preventing duplication. c) Accidental Deletion: <ul style="list-style-type: none"> • If an affix is deleted, the system asks for confirmation. • An "Undo" option is available for a limited time.
Pre-conditions	The PRGI official must be logged into the system.
Post-conditions	The disallowed affixes list is updated based on the PRGI official's actions

3.5. Set/Modify Acceptance Probability:

Name	Set / Modify Acceptance Probability
Description	Allows PRGI officials to set or modify the acceptance probability for title approval.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official navigates to the "Set / Modify Acceptance Probability" page. 2. The system displays the current acceptance probability along with a history log of previous changes (date, time, and the official who made the changes). 3. The official can perform the following actions: <ul style="list-style-type: none"> ○ Set Initial Acceptance Probability: <ol style="list-style-type: none"> a. If no probability is set, the official enters a value (e.g., 10% – 50%). b. Provides a reason (optional). c. Confirms the setting. ○ Modify Existing Acceptance Probability: <ol style="list-style-type: none"> a. Clicks the "Modify" button. b. Adjusts the probability value. c. Provides a reason for modification. d. Saves the changes. 4. The page includes the following features: <ul style="list-style-type: none"> ○ History Log: Displays all modifications with timestamps and the names of officials who made changes. ○ Search & Filter: Allows filtering the history by date, official, or probability range. ○ Access Control: Only authorized PRGI officials can modify the probability. ○ Confirmation Prompt: Any change requires confirmation before saving.
Alternate Flows	<p>a) User Cancels an Action:</p> <ul style="list-style-type: none"> • If the official cancels before saving, no changes are applied. <p>b) Invalid Probability Value:</p> <ul style="list-style-type: none"> • If the entered value exceeds a predefined system limit (e.g., 100%), an error message is displayed. <p>Modification Restriction:</p> <ul style="list-style-type: none"> • The system may restrict frequent modifications, allowing only one change within a set time frame (e.g., once per day).

Pre-conditions	The PRGI official must be logged into the system with the necessary permissions.
Post-conditions	The updated acceptance probability is saved and will be used for future title verification decisions.

3.6. Review Flagged Title Submissions:

Name	Review Flagged Title Submissions
Description	Allows PRGI officials to review and take action on flagged titles.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official navigates to the "Review Flagged Title Submissions" page. 2. The system displays a list of all flagged titles submitted by applicants, including: <ul style="list-style-type: none"> o Title name o Reason for flagging (if provided) o Date flagged o Status (Pending, Under Review, Resolved) 3. The official can perform the following actions: <ul style="list-style-type: none"> o View Title Details: Clicking on a title opens its full description. o Access Analysis Page: Officials can view the similarity score, verification probability, and rejection feedback. o Approve the Title: If found valid, the official can override the rejection and approve the title for registration. o Reject Confirmation: If the rejection is valid, the official can mark the flag as resolved. o Request Further Review: If necessary, officials can forward the title for additional evaluation. 4. Additional features: <ul style="list-style-type: none"> o Sorting & Filtering: Officials can filter flagged titles by date, reason, or status.
Alternate Flows	<ol style="list-style-type: none"> a) User Cancels an Action: <ul style="list-style-type: none"> • If an official cancels before taking action, no changes are applied. b) Insufficient Information: <ul style="list-style-type: none"> • If the official requires additional details, they can request clarification from the applicant.

Pre-conditions	The PRGI official must be logged in with the necessary permissions.
Post-conditions	The flagged title's status is updated based on the official's decision, and appropriate actions are recorded.

3.7. Override System Decisions:

Name	Override System Decisions
Description	PRGI officials can manually approve or reject titles while reviewing flagged submissions or viewing existing titles.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official accesses one of the following sections: <ul style="list-style-type: none"> ○ Review Flagged Title Submissions: Lists all titles flagged by applicants for reconsideration. ○ Search and View Existing Titles: Lists all currently approved titles. 2. The official selects a title and is shown: <ul style="list-style-type: none"> ○ Title details ○ Similarity score and verification probability ○ Decision rationale ○ Any flagged reports or concerns (if applicable) 3. The official can perform one of the following actions: <ul style="list-style-type: none"> ○ Approve a Flagged Rejected Title: If the system incorrectly rejected a title, it can be manually approved. ○ Reject an Approved Title: If an approved title is found invalid, it can be manually rejected. 4. The system updates the title's status accordingly and records: <ul style="list-style-type: none"> ○ The official's name, date, and reason for the decision. ○ An action log for tracking changes. 5. The title applicant (if affected) is notified of the override decision.
Alternate Flows	<p>a) User Cancels the Override: No changes are applied if the official chooses not to proceed.</p> <p>b) Further Clarification Needed: The official may request additional details before making a decision.</p>

Pre-conditions	The PRGI official must be logged in with the necessary permissions.
Post-conditions	The overridden title's status is updated, and all changes are logged for accountability.

4. Reporting & Analytics Subsystem:

4.1. View Submission Reports & Trends:

Name	View Submission Reports and Trends
Description	PRGI officials can view recently registered titles and their details.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official accesses the Submission Reports and Trends page. 2. A list of recently registered titles is displayed with details such as: <ul style="list-style-type: none"> ○ Title name ○ Registration date ○ Title applicant details ○ Verification probability and similarity score ○ Approval rationale 3. The official can click on any title to view its full description and registration history. 4. Sorting and filtering options allow officials to refine results by date, applicant, similarity score, etc. 5. The official can export reports for analysis.
Alternate Flows	<p>a) No Recently Registered Titles: If no new titles exist, a message is displayed.</p> <p>b) Official Applies Filters: The list updates dynamically based on selected criteria.</p>
Pre-conditions	The PRGI official must be logged in with the necessary permissions.
Post-conditions	Officials gain insights into recent registrations and trends for further decision-making.

4.2. Audit User Activity & Logs:

Name	Audit User Activity and Logs
Description	System administrators can view user activity history.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator accesses the User Activity and Logs page. 2. A list of all user actions is displayed, including: <ul style="list-style-type: none"> ○ User ID and role (Title Applicant, PRGI Official) ○ Login and logout timestamps ○ Actions performed (title submission, modifications, flagging, approvals, etc.) ○ Changes made (before and after values) ○ System decisions overridden 3. The administrator can filter logs by date, user, action type, or status. 4. Clicking on any entry provides a detailed view of the action history. 5. Logs can be exported for further analysis or auditing.
Alternate Flows	<p>a) No User Activity Found: If no logs match the selected filters, a message is displayed.</p> <p>b) Administrator Reviews Specific Logs: Clicking on a log entry opens a more detailed breakdown.</p>
Pre-conditions	The system administrator must be logged in with the necessary permissions.
Post-conditions	The administrator gains a complete audit trail of all user activities for monitoring and security.

5. System Administration & Security Subsystem:

5.1. Configure System Settings:

Name	Configure System Settings
Description	System administrators can modify global system settings, including access controls and role-based permissions.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator accesses the System Settings page.

	<ol style="list-style-type: none"> Options are provided to configure various aspects of the system, including: <ul style="list-style-type: none"> Access Controls: Define which user roles can access specific features. Role-Based Permissions: Set permissions for Title Applicants, PRGI Officials, and other system users. Feature Management: Enable or disable specific features for different user roles. Security Settings: Configure login requirements, session timeouts, and audit log retention. The administrator selects a category to modify and updates the settings. The system saves the changes and applies them immediately.
Alternate Flows	<p>a) Unauthorized Access Attempt: If a non-administrator tries to access this section, an error message is displayed.</p> <p>b) Settings Rollback: If a setting causes system issues, the administrator can revert to a previous configuration.</p>
Pre-conditions	The system administrator must be logged in with the necessary permissions.
Post-conditions	The system settings are updated, ensuring proper control over user roles and feature access.

5.2. Monitor & Optimize Database Performance:

Name	Monitor and Optimize Database Performance
Description	System administrators analyze system performance and optimize database management.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> The system administrator accesses the Database Performance Monitoring section. Various performance metrics are displayed, including: <ul style="list-style-type: none"> Query Execution Time to identify slow queries. Storage Utilization to monitor database size and growth. Index Performance to check efficiency in data retrieval. User Activity Logs to analyze load patterns.

	<ul style="list-style-type: none"> ○ Error and Crash Reports for diagnosing system failures. <ol style="list-style-type: none"> 3. The administrator reviews reports and identifies areas for optimization. 4. Possible optimizations include: <ul style="list-style-type: none"> ○ Indexing Improvements to speed up searches. ○ Query Optimization by restructuring complex queries. ○ Database Cleanup by archiving or deleting old data. ○ Resource Allocation Adjustments to manage server load. 5. The system updates database configurations accordingly.
Alternate Flows	<p>a) Performance Alert Triggered: If the system detects a sudden drop in performance, it notifies the administrator with recommended actions.</p> <p>b) Changes Rollback: If an optimization negatively impacts performance, the administrator can revert to a previous database state.</p>
Pre-conditions	The system administrator must be logged in with the required privileges.
Post-conditions	The database performance is analyzed, and optimizations are applied to ensure system efficiency.

5.3. Ensure Security & Compliance:

Name	Ensure Security and Compliance
Description	System administrators manage security metrics and permission-based controls
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator accesses the Security and Compliance section. 2. Available security management options include: <ul style="list-style-type: none"> ○ User Access Control: Assign, modify, or revoke permissions for different roles. ○ Authentication Management: Configure login security, multi-factor authentication, and password policies.

	<ul style="list-style-type: none"> ○ Data Encryption Settings: Ensure sensitive data is encrypted at rest and in transit. ○ Audit Logs and Monitoring: View system logs for unauthorized access attempts or unusual activity. ○ Compliance Checks: Ensure the system adheres to legal and regulatory requirements. <ol style="list-style-type: none"> 3. The administrator reviews security reports and updates settings as needed. 4. If necessary, corrective actions are applied, such as blocking suspicious accounts or adjusting system permissions.
Alternate Flows	<p>a) Security Breach Alert: If the system detects unauthorized access or potential breaches, the administrator receives an alert and takes immediate action.</p> <p>b) Emergency Access Revocation: In case of a compromised account, the administrator can revoke access and enforce security measures.</p>
Pre-conditions	The system administrator must be logged in with the required security privileges.
Post-conditions	Security settings and compliance measures are reviewed and updated to maintain system integrity.

6. Support & Help Subsystem:

6.1. Access Help & Guidelines:

Name	Access Help and Guidelines
Description	Provides guidance on using the software.
Actor(s)	Title Applicant, PRGI Officials
Basic Flow	<ol style="list-style-type: none"> 1. The user navigates to the Help and Guidelines section. 2. The system displays a categorized list of topics, including: <ul style="list-style-type: none"> ○ General Overview: Introduction to the system and its purpose. ○ Title Submission Process: Steps to submit, modify, and register a title. ○ Analysis Page Explanation: Understanding similarity scores, verification probability, and rejection feedback. ○ Review and Appeal Process: How PRGI officials review flagged submissions.

	<ul style="list-style-type: none"> ○ Settings and Preferences: Managing account and system settings. ○ Security and Access Control: Information on permissions and compliance. <ol style="list-style-type: none"> 3. Users can browse topics, search for specific help articles, or use a step-by-step guide. 4. If further assistance is needed, users can access FAQs or contact support.
Alternate Flows	<p>a) Interactive Walkthrough: Users can opt for an in-system guided tutorial on key features.</p> <p>b) Downloadable Help Documents: Users can download PDFs or guides for offline reference.</p>
Pre-conditions	The user must be logged into the system.
Post-conditions	The user gains knowledge about the system and its functionalities.

6.2. Contact Support:

Name	Contact Support
Description	Allows users to message the system administrator.
Actor(s)	Title Applicant, PRGI Officials
Basic Flow	<ol style="list-style-type: none"> 1. The user navigates to the Contact Support section. 2. The system displays a form with fields for: <ul style="list-style-type: none"> ○ Issue Category: Dropdown menu (e.g., Technical Issue, Verification Concern, Security Issue). ○ Subject: Short title summarizing the issue. ○ Description: Detailed explanation of the problem. ○ Attachments (if applicable): Option to upload screenshots or documents. 3. The user fills out the form and submits the request. 4. The system sends the message to the System Administrator and provides a tracking ID. 5. The administrator reviews the issue and responds via the system. 6. The user receives a notification when a response is available.
Alternate Flows	a) Live Chat (if enabled): Users can initiate a real-time conversation with support.

	b) View Past Requests: Users can track previously submitted support messages and responses.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user receives assistance from the system administrator.

6.3. Manage User Support Requests:

Name	Manage User Support Requests
Description	Allows the system administrator to view, manage, and respond to support requests.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator navigates to the Manage User Support Requests section. 2. The system displays a list of all support requests, including: <ul style="list-style-type: none"> ○ Request ID ○ User (Title Applicant / PRGI Official) ○ Issue Category (Technical Issue, Verification Concern, Security Issue, etc.) ○ Submission Date ○ Status (Pending, In Progress, Resolved) 3. The administrator selects a support request to review. 4. The system displays detailed information, including: <ul style="list-style-type: none"> ○ Subject ○ Description of the issue ○ Attachments (if any) ○ Message history (if there were previous responses) 5. The administrator types a response and submits it. 6. The system updates the request status and notifies the user.
Alternate Flows	<p>a) Escalate Request: If needed, the administrator can escalate the issue to a higher authority.</p> <p>b) Close Request: If the issue is resolved, the administrator can mark it as Closed.</p> <p>c) Filter and Sort Requests: The administrator can filter requests by category, user type, date, or status.</p>

Pre-conditions	<ol style="list-style-type: none">1. The system administrator must be logged into the system.2. Users (title applicants or PRGI officials) must have submitted support requests.
Post-conditions	<ol style="list-style-type: none">1. The user receives a response or resolution to their support request.2. The request status is updated in the system.

ACTORS OF THE SYSTEM

The following are the actions provided for each user,

1. Title Applicant

- Submit a new title for verification.
- Receive feedback on title similarity, restricted words, and compliance issues.
- View the probability score of title verification.
- Modify and resubmit a rejected title.

2. PRGI Official

- Review and approve/reject submitted titles manually if needed.
- Update the list of restricted words and disallowed prefixes/suffixes.
- Monitor the system's verification accuracy and flag issues.

3. System Administrator

- Manage user roles and access permissions.
- Oversee system performance, uptime, and security.
- Update and optimize verification algorithms and database indexing.
- Troubleshoot technical issues and implement necessary fixes.

STAKEHOLDERS

The key stakeholders involved in this system include,

1. Press Registrar General of India (PRGI) Officials

- Oversee and manage the registration of titles.
- Ensure compliance with regulatory guidelines.
- Utilize the system for efficient title verification.

2. Applicants (Publishers, Media Houses, Individuals)

- Submit new titles for verification.
- Receive feedback and modify submissions if required.
- Rely on the system for a transparent approval process.

3. System Administrators & Developers

- Maintain, update, and optimize the automated verification system.
- Ensure database integrity and performance.
- Address technical issues and implement new features.

4. Government & Regulatory Bodies

- Define and enforce title registration guidelines.
- Monitor compliance with national media and publication laws.

5. Legal & Compliance Teams

- Handle disputes related to title rejections.
- Ensure that the system aligns with copyright and trademark regulations.

6. General Public & Readers

- Benefit indirectly from clear, unique, and distinguishable publication titles.
- Avoid confusion due to duplicate or misleading publication names.

Each stakeholder plays a crucial role in ensuring the system functions efficiently and maintains the integrity of the title verification process.

REQUIREMENTS

Functional Requirements:

The functional requirements of the software include,

1. Title Applicant:

- User Account Management
- Title Submission & Verification
- User Dashboard o Search and view existing titles
- Help & Support o Access FAQs and guidelines for title creation.
- Settings & Customization

2. PRGI Official (Regulatory Authority):

- Login & Role-based
- Restricted Word & Affix Management
- Title Review & Oversight
- Monitoring & Logs
- Help & Support
- Settings & Customization

3. System Administrator:

- User & Role Management
- System Configuration & Optimization
- Audit & Security Monitoring
- Settings & Customization

4. Given System Requirements:

1. Similarity Check: a. Implement a mechanism to check for similar-sounding names using phonetic similarity algorithms (e.g., Soundex, Metaphone). b. Identify titles that have common prefixes or suffixes (e.g., The, India, Samachar, News). c. Ensure that variations in spelling or slight modifications do not bypass the similarity check (e.g., Namaskar vs. Namascar). d. Calculate a similarity percentage for each title comparison.

2. Prefix/Suffix Handling: a. Maintain a list of disallowed prefixes and suffixes. b. Reject any new titles that include these disallowed prefixes or suffixes if they cause the new title to resemble an existing title closely.
3. Guideline Enforcement: a. Maintain a list of disallowed words (e.g., Police, Crime, Corruption, CBI, CID, Army). b. Ensure that titles containing these disallowed words are rejected. c. Prevent the creation of new titles by combining existing ones (e.g., if "Hindu" and "Indian Express" exist, "Hindu Indian Express" is not allowed). d. Check for titles with similar meanings in other languages and reject them (e.g., "Daily Evening" and "Pratidin Sandhya"). e. Disallow adding periodicity (e.g., daily, weekly, monthly) to existing titles to form new ones.
4. Verification Probability: a. Provide a probability score indicating the likelihood of a title being verified. For instance, if a title has a similarity score of 80%, the verification probability shall not be more than $100\% - 80\% = 20\%$.
5. User Feedback: a. Provide clear feedback to the user if their submitted title is too similar to an existing title, contains disallowed prefixes/suffixes, violates guidelines, or is created by combining existing titles. b. Display the verification probability to the user. c. Allow the user to modify their title and resubmit it for verification.

Non-Functional Requirements:

The non-functional requirements of the software include,

1. Database Interaction: a. Efficiently search and compare new titles against the database of 160,000 titles. b. Track current applications and use them for future reference to reject similar titles submitted later. c. Use indexing and optimised search techniques to handle the large dataset and ensure quick responses.
2. Scalability: a. Design the system to handle an increasing number of titles and user submissions. b. Ensure that the system remains performant as the database grows.
3. Accuracy: a. The system provides consistent results. b. The system provides an accurate verification probability score.
4. Performance: a. Title verification is completed within a reasonable time frame (e.g., under 2 seconds per title). b. The system can handle multiple title verification requests simultaneously without significant performance degradation.
5. User Experience: a. Users receive clear and actionable feedback on why their title was rejected. b. Users see a probability score indicating the likelihood of their title being verified. c. The interface for title submission and feedback is user-friendly and intuitive.
6. Robustness: a. The system handles edge cases and variations in spelling effectively. b. The system is resilient to errors and provides meaningful error messages when issues occur.