

AUTOMATIC TITLE VERIFICATION SYSTEM

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CHAPTER 1

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.

CHAPTER 2

2. Software Requirements Specification

For

**AUTOMATED TITLE VERIFICATION AND
REGISTRATION SYSTEM**

Version 1.0

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3. ACTORS OF THE SYSTEM

3.1 Title Applicant

- Can register, log in, and manage their account
- Can submit titles for automated verification
- Can view verification results and modify/register title, if needed
- Can search and view existing title records and personal history
- Can access help resources and contact support

3.2 PRGI Official

- Can log in and manage their official profile
- Can manage restricted words and banned affixes
- Can view real-time title registrations
- Can approve/reject title registrations after other legal processes
- Can browse, filter, and view existing title records

3.3 System Administrator

- Can manage all user accounts and access controls
- Can approve PRGI official account registrations
- Can respond to support queries from users
- Can access and monitor all user activities

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1. Introduction

1.1 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.

1.2 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.

1.3 References

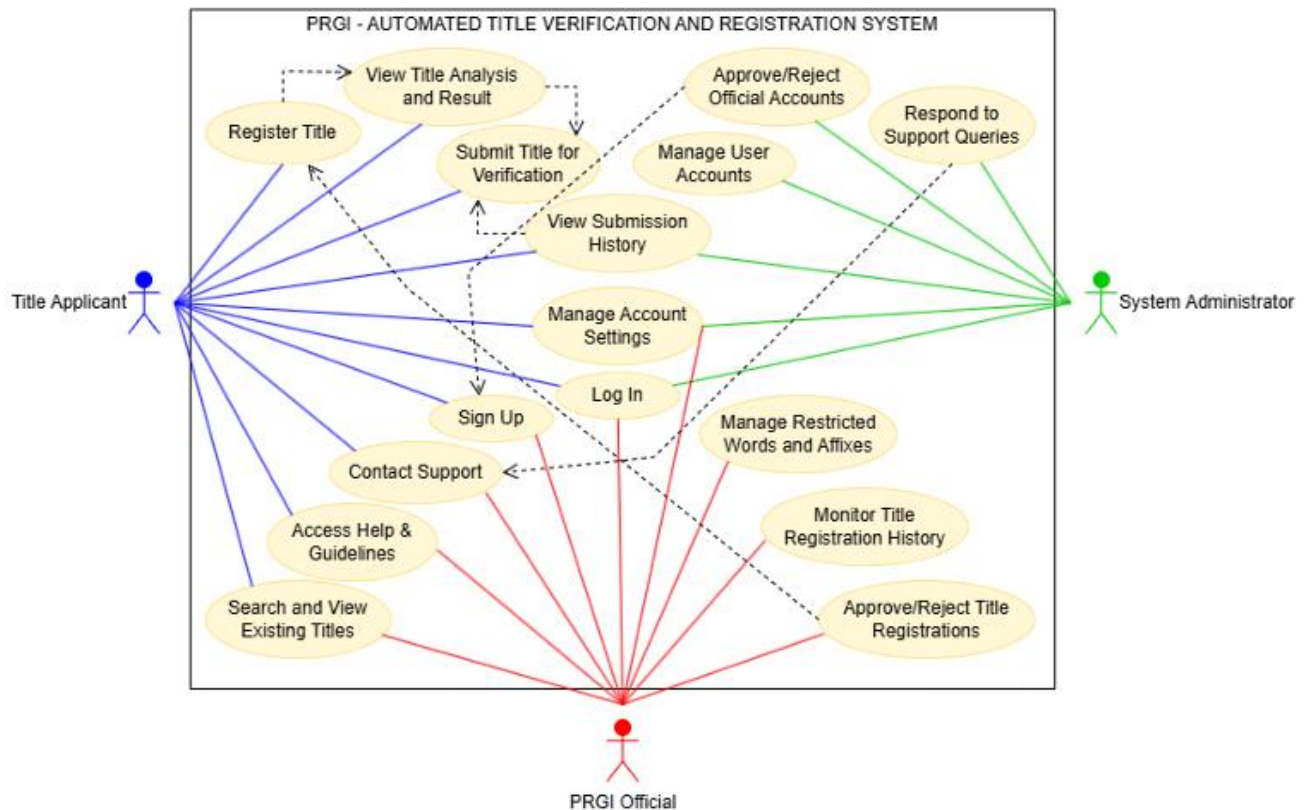
<https://prgi.gov.in/>

1.4 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.

2. Use case model

2.1 Use case diagram



2.2 Use case subsystems

The features of PRGI - Automated Title Verification and Registration system are grouped into subsystems and their use cases are listed below.

2.1. User Access & Management Subsystem:

(Handles identity, roles, and user-related configurations)

- i. Sign up (Applicant, PRGI official)
- ii. Log In (All Users)
- iii. Manage Account Settings (All Users)
- iv. Approve/Reject Official Accounts (System Admin)
- v. Manage User Accounts (System Admin)

2.2 Title Processing & Management Subsystem:

(Covers all functions related to title verification and registration)

- i. Submit Title for Verification (Title Applicant)
- ii. View Title Analysis and Result (Title Applicant)

- iii. Register Title (Title Applicant)
- iv. Approve/Reject Title Registrations (PRGI Official)
- v. Manage Restricted Words and Affixes (PRGI Official)

2.3 Title Exploration & Records Subsystem:

(Focused on search and view features of existing data)

- i. Search and View Existing Titles (Title Applicant, PRGI Official)
- ii. View Submission History (Title Applicant, System Admin)
- iii. Monitor Title Registration History (PRGI Official)

2.4 Support & Help Subsystem:

(Assists users and manages their issues and guidance needs)

- i. Access Help & Guidelines (Title Applicant, PRGI Official)
- ii. Contact Support (Title Applicant, PRGI Official)
- iii. Respond to Support Queries (System Admin)

2.3 USE CASE SPECIFICATIONS

1. USER ACCESS & 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	<ol style="list-style-type: none"> 1. The user navigates to the Sign-Up page. 2. The system displays options to select their role (Title Applicant or PRGI Official). 3. The user selects a role, and the respective registration form appears. 4. The user enters required details: <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 5. The system validates the input: <ul style="list-style-type: none"> • Ensures email and username are unique. • Checks password strength and match with confirmation. 6. If all validations pass, an email verification link is sent to the user. 7. The system displays "Check your email to verify your account." 8. After email verification, users are taken to their respective dashboards. 9. The use case ends successfully.
Alternate Flows	<p>a) User chooses PRGI Official role</p> <ul style="list-style-type: none"> • The user is taken to official dashboard only after getting verified by the system admin. • Until then, the user can stay in the signup page or close signup and login directly after getting verification from admin. <p>b) Email or Username Already Exists</p> <ul style="list-style-type: none"> • The system prompts: "Email/Username already registered. Try a different one." <p>c) Invalid Input Format</p> <ul style="list-style-type: none"> • If any field fails validation, an error message is displayed with guidelines.
	<p>d) 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>e) 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>f) 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	<p>The user must have internet access, a valid email, and unique credentials.</p>

Post-conditions	If successful, the account is created, and the user can log in after email verification.
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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 official users)</p> <ul style="list-style-type: none"> • If the admin hasn't verified the new official account after sign-up, the system displays: "Admin verification pending." • The user can wait till the admin verifies the account and grants access. <p>d) Email 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 do a new registration through signup. <p>e) 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." f) User Navigates Away Before Logging In <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. Manage Account Settings

Name	Manage Account 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, username) or Reset password.b. Notification Preferences – Manage in-app notifications for approval of registration and query responses.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, password, or other fields, the system displays an error message and prompts for corrections.b) 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.c) Logging Out<ul style="list-style-type: none">• If the user wishes to log out from the system, then the user can proceed with the “Log out” option from the account settings and securely log out of the system.
Pre-conditions	The user must be logged into the system.
Post-conditions	The modified preferences are saved, and the system reflects the updates accordingly.

1.4. Approve/Reject Official Accounts

Name	Approve/Reject Official Accounts
Description	Admin reviews and acts on PRGI official signup requests.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none">1. The system administrator navigates to Official Signup Requests.2. The system displays a list of pending PRGI official signup requests.3. The admin reviews each request, including the entered details.4. If applicable, external info is cross-verified for authenticity.5. The admin either approves or rejects the request.6. If approved, the official is granted access and redirected to their dashboard (from signup page) or allowed to login.7. If rejected, the system discards the request along with provided signup details.8. The use case ends successfully.
Alternate Flows	a) Insufficient Info <ul style="list-style-type: none">• If the admin finds insufficient information, they can hold the request.
Pre-conditions	PRGI official must have completed the signup request form.
Post-conditions	The PRGI official account is either activated or denied access.

1.5. Manage User Accounts

Name	Manage User Accounts
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 roles and submission history (if Title Applicant) or registration approval history (if PRGI Official).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. Freeze an account – Temporarily restrict user access based on violations or suspicious activity.b. Delete an account – Permanently remove a user account from the system.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.8. The use case ends successfully.
Alternate Flows	<p>a) Reversal of an Action</p> <ul style="list-style-type: none">• If the administrator needs to undo a freeze of 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.

2. TITLE PROCESSING & MANAGEMENT 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">1. The title applicant logs into the system.2. The system allows the user to enter the title they wish to verify, through their dashboard.3. The user enters the title and submits it for verification.4. The system processes the title and redirects the user to the Analysis Page.5. The use case ends successfully.
Alternate Flows	<ol style="list-style-type: none">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.b) System Processing Delay<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.
Pre-conditions	The title applicant must be logged into the system.
Post-conditions	The system processes the title, and redirects the user to the Title Analysis Page.

2.2. View Title Analysis and Result

Name	View Title Analysis and Result
Description	Allows title applicants the view the verification analysis for the submitted title along with the verification result.
Actor(s)	Title Applicant

Basic Flow	<ol style="list-style-type: none"> 1. The title applicant successfully submits a title for verification through their dashboard. 2. 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"> a. Similar Titles – A list of top 50 most similar existing titles is displayed along with their similarity percentage with the submitted title. b. Similarity Score – Displays the highest percentage of similarity with existing titles. c. Verification Probability – Shows the likelihood of approval based on similarity score and some predefined criteria. d. View Verification Result – Displays whether the title is accepted or rejected based on the verification probability and predefined acceptance threshold. e. Feedback for Rejections – If rejected, the system provides reasons for rejection like, too similar to an existing title, usage of restricted words, etc... f. Modify & Resubmit – If the title is rejected, then the user can make changes and resubmit the title. g. Register Title – If the title is accepted, then the user can proceed with title registration. 5. The applicant reviews the analysis results and takes appropriate action.
Alternate Flows	<ol style="list-style-type: none"> a) Not registering Accepted Title <ul style="list-style-type: none"> • If the user doesn't want to register an accepted title, then the user is allowed to come out of the analysis page. • User can use their history section to register these titles. b) Access through History <ul style="list-style-type: none"> • If the applicant wants to access the Analysis page of a particular previously submitted title, then the submission history section can be used. • All unregistered but accepted titles can be registered only through this option.
Pre-conditions	The title applicant must have submitted a title for verification.
Post-conditions	The analysis page is displayed with similarity scores, verification probability, verification result and feedback (if rejected) or Register option (if accepted).

2.3. 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"> 1. The title applicant views the analysis page and sees that the title has been accepted. 2. The "Register Title" button is enabled for the applicant. 3. The applicant clicks the "Register Title" button. 4. The system navigates to the registration page. 5. The system prompts the user to fill out the necessary details including title details and ownership details. 6. The applicant fills out the registration form and confirms the registration. 7. The system takes this form to the PRGI officials. 8. An official verifies other external documents and processes and approves the registration. 9. The title is registered and stored in database. 10. User is notified about the approval of registration. 11. The use case ends successfully.
Alternate Flows	<p>a) Registration Pending</p> <ul style="list-style-type: none"> • The title after submitting the registration form would fall under 'Pending' category. • It would change to 'Registered', once the title is approved by an official. <p>b) User Cancels Registration</p> <ul style="list-style-type: none"> • The applicant chooses not to proceed and exits the registration page or the applicant cancels a pending submitted registration. • The title remains approved but unregistered.
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 message provided to the applicant.

2.4. Approve/Reject Title Registrations

Name	Approve/Reject Title Registrations
Description	Officials act on submitted title registration requests.
Actor(s)	PRGI Official

Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official accesses the Registration Requests section. 2. The system displays all pending title registration requests. 3. The official selects a request and reviews the submitted registration form. 4. External legal procedures (outside the website) are verified and confirmed. 5. If all external requirements are met, the official approves the registration. 6. The system sends success notifications to both the applicant and the responsible official. 7. The registered title is added to the Existing Titles section for public reference. 8. If legal requirements are not met or discrepancies exist, the official may reject the request.
Alternate Flows	<p>a) Verification Pending</p> <ul style="list-style-type: none"> • The official may postpone action if external legal procedures are incomplete. • In that case, the registration is kept as pending.
Pre-conditions	The title applicant must have submitted the title registration form.
Post-conditions	The title is either registered or rejected and removed from pending requests.

2.5. Manage Restricted Words and Affixes

Name	Manage Restricted Words and Affixes
Description	Allows PRGI officials to manage the list of restricted words and affixes.
Actor(s)	PRGI Official

Basic Flow	<ol style="list-style-type: none"> 1. The PRGI official navigates to the "Manage Restrictions" page. 2. The system provides two sections, "Restricted Words" and "Restricted Affixes". Official can choose the one, they need to manage. 3. The system displays the list of all restricted words/affixes along with their details (e.g., category (if affixes), last modified/added by, date modified/added). 4. The official can perform the following actions: <ul style="list-style-type: none"> ○ Add a New Restricted Word/Affix: <ol style="list-style-type: none"> a. Enter the new word/affix in the space provided. b. Select the category as prefix or suffix (if affix). c. Confirms to add the word/affix to the list. ○ Modify an Existing Word/Affix: <ol style="list-style-type: none"> a. Selects a word/affix from the list. b. Edits its details (e.g., spelling, category). c. Saves the changes. ○ Delete a Word/Affix: <ol style="list-style-type: none"> a. Selects a word/affix from the list. b. Clicks "Delete" and confirms the deletion. 5. The page includes the following features: <ul style="list-style-type: none"> ○ Search Bar: To find specific words. ○ Sorting: By word/affix name and date modified. ○ Filters: To view words/affixes based on categories or date range. ○ Pagination: To navigate large lists efficiently. 6. After adding, modifying or deleting a word/affix, the system saves the changes in the database along with the officials' username and date of action. 7. A notification is sent to all the officials mentioning the action, official name and date of the action. 8. These restrictions are updated and will be applied for further verification processes.
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/affix. • No changes are saved. <p>b) Attempt to Add a Duplicate Word/Affix</p>
	<ul style="list-style-type: none"> • The system checks if the word/affix already exists. • If found, an error message is displayed, preventing duplication.
Pre-conditions	The PRGI official must be logged into the system.
Post-conditions	The restricted words/affixes list is updated based on the PRGI official's actions and a notification mentioning the changes is sent to all the officials.

3. TITLE EXPLORATION & RECORDS SUBSYSTEM:

3.1. Search and View Existing Titles

Name	Search and View Existing Titles
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 "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, Date of registration, etc...• Filter by: Category, Language, etc...6. The user selects a title from the list.7. The system displays the title's detailed description.8. The use case ends successfully.
Alternate Flows	a) No Matching Titles Found <ul style="list-style-type: none">• If no titles match the search criteria, the system displays a message: "No matching titles found."• The user can modify the search query or reset filters.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user successfully searches and views existing title details.

3.2. View Submission History

Name	View Submission History
Description	Allows title applicants to view their past title submissions.
Actor(s)	Title Applicant, System Administrator

Basic Flow	<ol style="list-style-type: none"> 1. The applicant navigates to the History section. 2. The system provides two sections namely, verification history and registration history. 3. Applicant can choose either verification or registration history to view. <p>Verification History:</p> <ol style="list-style-type: none"> 4. All the previously submitted titles for verification are listed along with the details like status and date of submission. 5. User can open the analysis page of a title by clicking the info button provided. 6. If the applicant wants to register a pre-verified accepted title, then the info button can be used to register the title through analysis page. <p>Registration History:</p> <ol style="list-style-type: none"> 4. All the previously submitted titles for registrations are listed along with the details like status and date of submission. 5. User can check whether a title registration is approved by any official and got registered in the system. 6. The Applicant can cancel any registration if the registration is not approved by any official. 7. The use case ends successfully.
Alternate Flows	<p>a) Pre-verified Registration</p> <ul style="list-style-type: none"> • A pre-verified accepted title can be registered only through this history page. • The titles that are accepted during verification process are stored in a buffer, so that no other similar titles can be accepted during verifications. <p>b) Delete Title</p> <ul style="list-style-type: none"> • If the user wants to delete a title from verification history. • The title is also removed from the buffer to allow further similar titles during verification. <p>c) Cancel registration</p> <ul style="list-style-type: none"> • Once a pending registration is cancelled, the registration is marked as “Cancelled” in the place of status. <p>d) Admin access</p> <ul style="list-style-type: none"> • The system admin can also view the submission history of any applicant through the “Manage Users” section.
Pre-conditions	The user must have submitted at least one title for verification.
Post-conditions	The applicant can view the history of submissions and manage them.

3.3. Monitor Title Registration History

Name	Monitor Title Registration History
Description	PRGI officials can view recently registered titles and their details.
Actor(s)	PRGI Official
Basic Flow	<ol style="list-style-type: none">1. PRGI official opens their dashboard.2. A list of recently registered titles is displayed with details such as:<ul style="list-style-type: none">○ Title name○ Registration date○ Publisher name3. The most recently registered title is present at the top of the list.4. The official can click on any title to view its full description.
Alternate Flows	<p>a) Accessing older titles</p> <ul style="list-style-type: none">• If the official wants to access any title that is not present in the recently registered title list, then it can be accessed from the Existing titles section, with appropriate filters and sorting.
Pre-conditions	The PRGI official must be logged in with the necessary permissions.
Post-conditions	Officials gain insights into recent registrations of Titles.

4. SUPPORT & HELP SUBSYSTEM:

4.1. Access Help & Guidelines

Name	Access Help & 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 verify a title. ○ Analysis Page Explanation: Understanding similarity scores, verification probability, and rejection feedback. ○ Title registration: How the registration process works, when and how to register. ○ Accessing Submission History: How and why to use History section. ○ Existing Titles: How to access existing titles list. ○ Notification: Getting Support and Registration responses. ○ Guidelines for Officials: Managing restrictions and registrations. 3. If further assistance is needed, users can access contact support.
Alternate Flows	a) Downloadable Help Documents <ul style="list-style-type: none"> • Users can download PDFs or guides for offline reference.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user gains knowledge about the system and its functionalities.

4.2. 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 prompts the user to provide a detailed description of the issue faced. 3. The user enters the problem description in the space provided and submits the request. 4. The system sends the message to the System Administrator. 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) Response Delay <ul style="list-style-type: none"> • If the system admin takes time to respond to support requests, then the user will not get any notification. • User may need to wait till he/she gets a response.
Pre-conditions	The user must be logged into the system.
Post-conditions	The user receives assistance from the system administrator.

4.3. Respond to Support Queries

Name	Respond to Support Queries
Description	Allows the system administrator to view and respond to support requests.
Actor(s)	System Administrator
Basic Flow	<ol style="list-style-type: none"> 1. The system administrator navigates to the Support Requests section. 2. The system displays a list of all support requests, including: <ul style="list-style-type: none"> ○ Username ○ User role (Title Applicant / PRGI Official) ○ Submission Date and Time 3. The administrator selects a support request to review. 4. The system displays detailed information of the issue, provided by the user. 5. The administrator types a response and submits it. 6. The system sends the response to the user as a notification.
Alternate Flows	a) Filter and Sort Requests <ul style="list-style-type: none"> • The administrator can filter or sort requests by user type or date.
Pre-conditions	The system administrator must be logged into the system and Users (title applicants or PRGI officials) must have submitted support queries.
Post-conditions	The user receives a response or resolution to their support query.

3. Actors of the System

3.1 Title Applicant

1 Title Submission & Analysis

- Users can submit a new title through their dashboard input field.
- Upon submission, the system redirects them to an analysis page.
- The **left sidebar displays the top 50 most similar titles** from the database for user comparison.
 - *Example:* If a user submits “India Morning Express,” they might see “India Evening Express” at the top with 93% similarity.
- The **top match's similarity score is shown**, and the **verification**

probability is calculated as $100 - \text{similarity score}$.

- If a disallowed word or rule violation is detected, **verification probability becomes 0%** immediately.
 - *Example:* If the title contains the word “CBI,” even if the similarity score is low, it will still get a 0% probability.
- Based on the PRGI-set threshold (e.g., 30% minimum probability), the title gets:
 - Status: Accepted if above threshold.
 - Status: Rejected if below.

2. Feedback for Rejected Titles

- If a title is rejected, the user is shown a **feedback explanation** based on the failed rules.
 - *Example:* “Rejected due to disallowed word: ‘Police’” or “Too similar to existing title: ‘India Police Weekly’.”

3. Modify and Resubmit Option

- Users can edit the rejected title and try again using a **“Modify and Resubmit”** button.

4. Title Registration (Post-Approval)

- If a title is accepted, users can **fill out required registration details**

to officially register the title.

- The title is registered once an official approves the registration, after all other legal processes.
 - *Example:* They may need to enter publisher name, location, language, etc.

5. Search and View Existing Titles

- Users can **search for and explore existing verified titles** in the database.
- Filter and sort options (by language, region, etc.) may be available.

6. Verification & Registration History

- Full **history of submissions and registration attempts** with status shown in table.
 - *Example:* “My Submissions: India Morning Express – Rejected – Submitted on 03/02/2025.”

7. Notification System

- Real-time **notifications** for:
 - Admin responses to contact queries.
 - Official approvals for title registrations.

8. Help & Guidelines Section

- A **user help centre** that includes:
 - Guidelines for creating valid titles.
 - Visual examples of accepted vs. rejected titles.
- The document includes explanations of the features available for any Title Applicant.

9. Contact Support

- Users can **submit a query or report a problem** to the system administrator.
- Responses are shown as **notifications** within the user's panel.

10. Account Settings

- Modify profile details like email, password, and personal info.
- *Example:* Update registered email address from user1@mail.com to user2@mail.com.

PRGI Official:

1. Dashboard Overview

- Monitor trends such as title registrations, along with the timestamp of registration.

2. Approval of Title registrations

- Approve or reject any registration manually based on other legal documents.
- All other activities except verification and registration of titles are done externally.

3. Restricted Vocabulary Management

- Add or edit restricted words and banned affixes (prefixes/suffixes).
- All changes directly affect automated guideline enforcement.

4. Existing Titles Explorer

- Search and filter the database of registered titles by language, status, publisher, etc.
- View full metadata of each title (e.g., submitter, acceptance date, approving official).

5. Help and Guidance Access

- Access the guideline documentation to understand the system and the process of title verification.
- The document includes explanations of the features available for any PRGI official.

6. Support Communication

- Send queries to admins through an internal messaging system.

7. Account and Settings Management

- Update login details, change password, and configure system preferences.

System Administrator:

1. Support Query Management

- View all support queries submitted via the "Contact Support" feature.
- Respond to user queries, with replies sent as in-app notifications.

2. User Activity Monitoring

- View detailed profiles of all users (applicants and officials).
- View activity history such as title submissions, registrations, etc.
- Monitor behaviour for misuse, inactivity, or anomalies.

3. Official Account Verification

- Access a list of all official signup requests.
- Manually verify the legitimacy of official credentials.
- Approve or reject official registrations.
- Only upon approval can an official log in.

4. User Account Management

- View a list of all registered users (both applicants and officials).
- Temporarily freeze user accounts to restrict access.
- Permanently remove users from the system.

5. Exclusive Admin Access

- Only one admin account exists.
- No public sign-up route for admin.
- Admin credentials are securely maintained and cannot be changed by other user roles.

6. Platform Integrity Oversight

- Periodically check the functional behaviour of modules (title verification, registration, etc...).
- Verify that the database reflects the correct and expected data entries.
- Although most non-functional checks are done outside the app (e.g., server tools), the admin ensures feature integrity.

4. Stakeholders

The key stakeholders involved in this system include,

4.1. 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.

4.2. 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.

4.3. System Administrators & Developers

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

4.4. Government & Regulatory Bodies

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

4.5. Legal & Compliance Teams

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

4.6. 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.

5 REQUIREMENTS

5.1 Functional Requirements:

5.1.1 Similarity Detection System:

Detect phonetic, spelling-variant, and semantic similarities between submitted titles and existing ones. Uses algorithms like

Soundex, Metaphone, Levenshtein distance, and optional NLP-based embeddings.

Example: A user submits "Namaskar Bharat". The system finds it 88% similar to "Namascar Bharat Times" using Soundex + Levenshtein, and flags it for review.

5.1.2 Guideline Rule Enforcement:

Automatically checks titles against PRGI rules such as banned words, restricted prefixes/suffixes, prohibition of combination of titles and addition of periodicities to other titles.

Example: A user submits "Crime Reporter Daily". The system flags it due to the banned word "Crime" and improper suffix usage.

5.1.3 Multilingual Title Handling:

Detects semantic duplicates across different languages. Involves using multilingual synonym dictionaries or translation APIs to find meaning overlaps.

Example: A Hindi title "Dainik Samachar" is flagged for being semantically equivalent to the English title "Daily News".

5.1.4 User Feedback and Guidance:

Gives clear, actionable reasons for title rejections to help users identify the problem in the submitted title.

Example: A title like "Indian Express Chronicle" is rejected with explanation: "Combination of two existing titles: Indian Express + Chronicle." Suggestions are provided to modify the name.

5.1.5 Title Submission and Tracking:

Tracks submissions, prevents duplicate applications, and maintains user specific title history.

Example: If "Economic Post" is already submitted by one user and under review, another user submitting the same title will be notified of the conflict.

5.1.6 Role-Based Access System:

Different interfaces and permissions for Title Applicants, PRGI Officials, and System Administrators.

Example: Only PRGI Officials can manage banned words or approve title registrations. Admin responds to queries.

5.2 Non-Functional Requirements

5.2.1 Scalability: The system must efficiently handle a large volume of data and users.

Example: Even with 200,000 titles and 2,000 daily submissions, the system should not crash or lag.

5.2.2 Performance: Fast response time for similarity checks and feedback.

Example: Title similarity and rule validation completes under 2 seconds even during peak usage.

5.2.3 Usability: The interface should be intuitive and assist users throughout the process.

Example: A user gets suggestions as they type, like "Avoid banned words such as 'CBI', 'Crime', etc."

5.2.4 Accuracy: High correctness in similarity detection and rule enforcement.

Example: Two visually different titles like "Desh ki Awaaz" and "Voice of Nation" are correctly flagged as similar.

5.2.5 Maintainability: Easy to update rules and logic without full system redeployment.

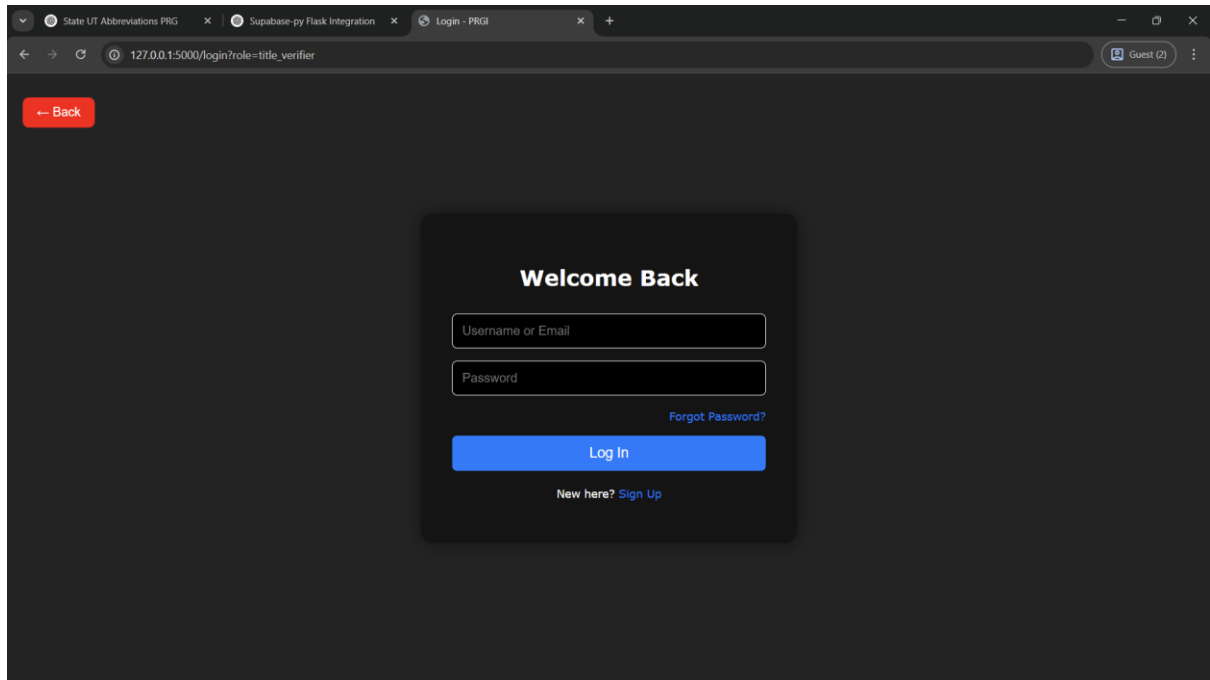
Example: Official adds "Forces" to the disallowed list from their dashboard, no code changes required.

5.2.6 Security: Secure authentication and protection of title data and user accounts. Example: Titles submitted by one applicant can't be viewed or edited by another. Passwords are hashed and stored securely.

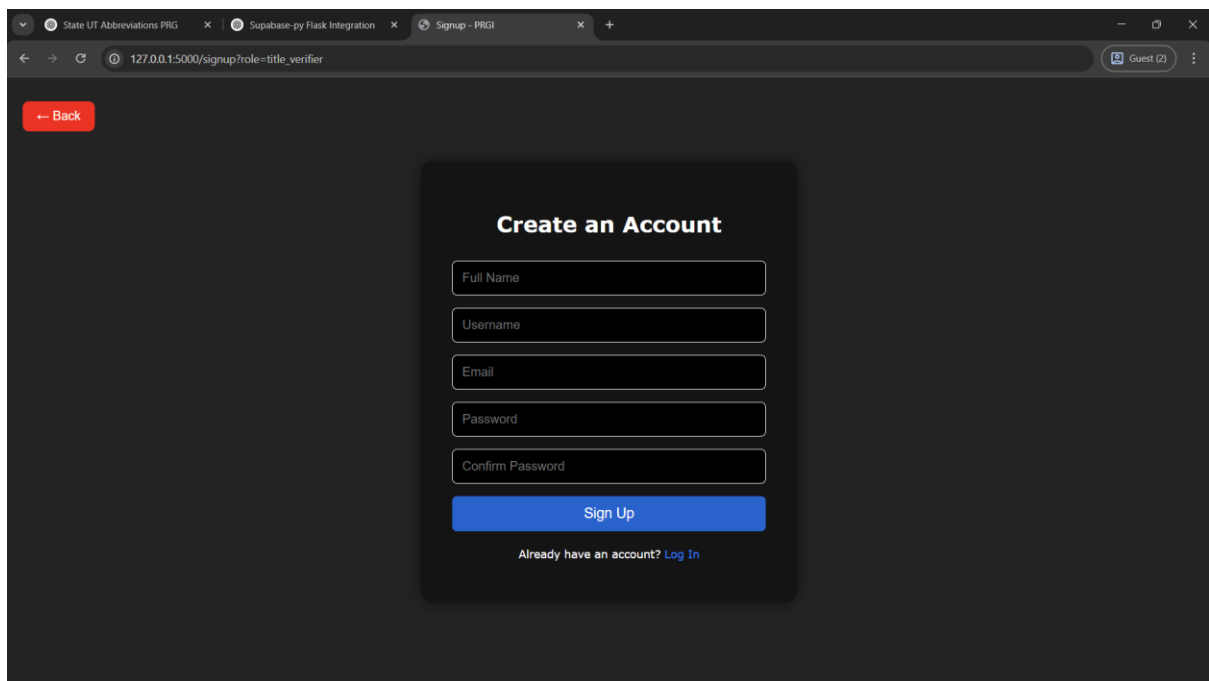
CHAPTER 3

USER INTERFACE DESIGN

Log in

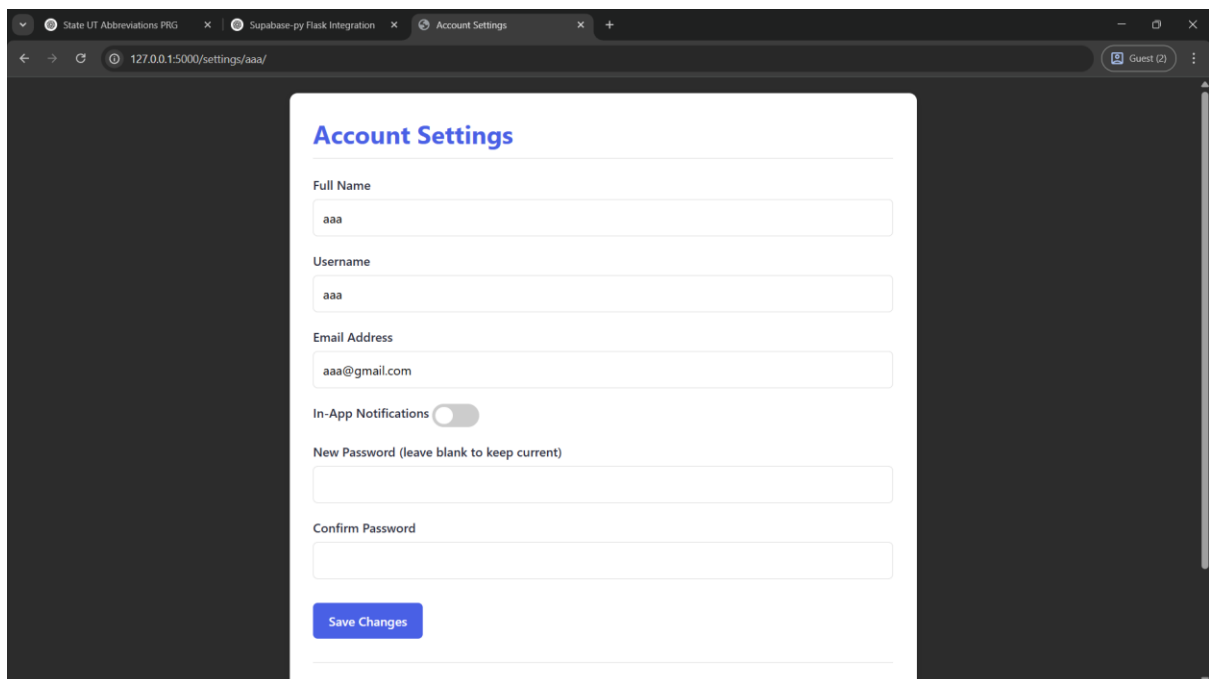


Sign up



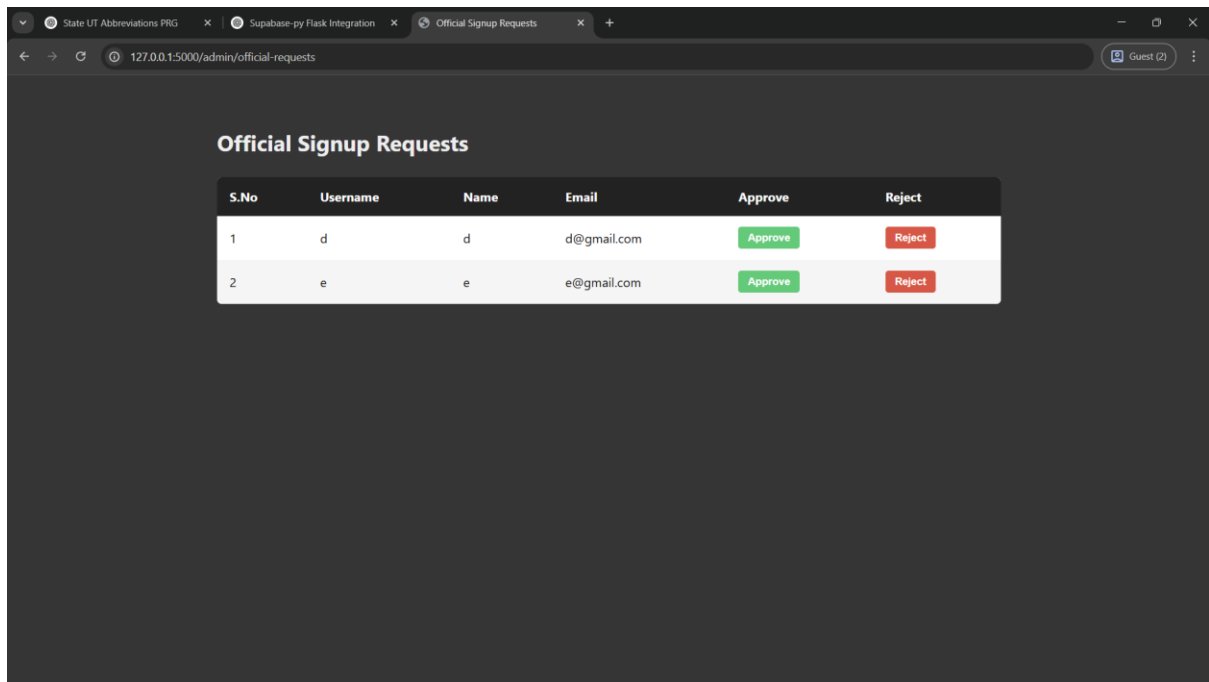
A screenshot of a web browser showing a 'Sign up' page. The browser's address bar displays '127.0.0.1:5000/signup?role=title_verifier'. The page has a dark background. In the top left corner, there is a red button labeled 'Back'. The main content is a light gray box titled 'Create an Account'. Inside this box, there are five input fields: 'Full Name', 'Username', 'Email', 'Password', and 'Confirm Password'. Below these fields is a blue 'Sign Up' button. At the bottom of the box, there is a link that says 'Already have an account? Log In'.

Manage Account Settings

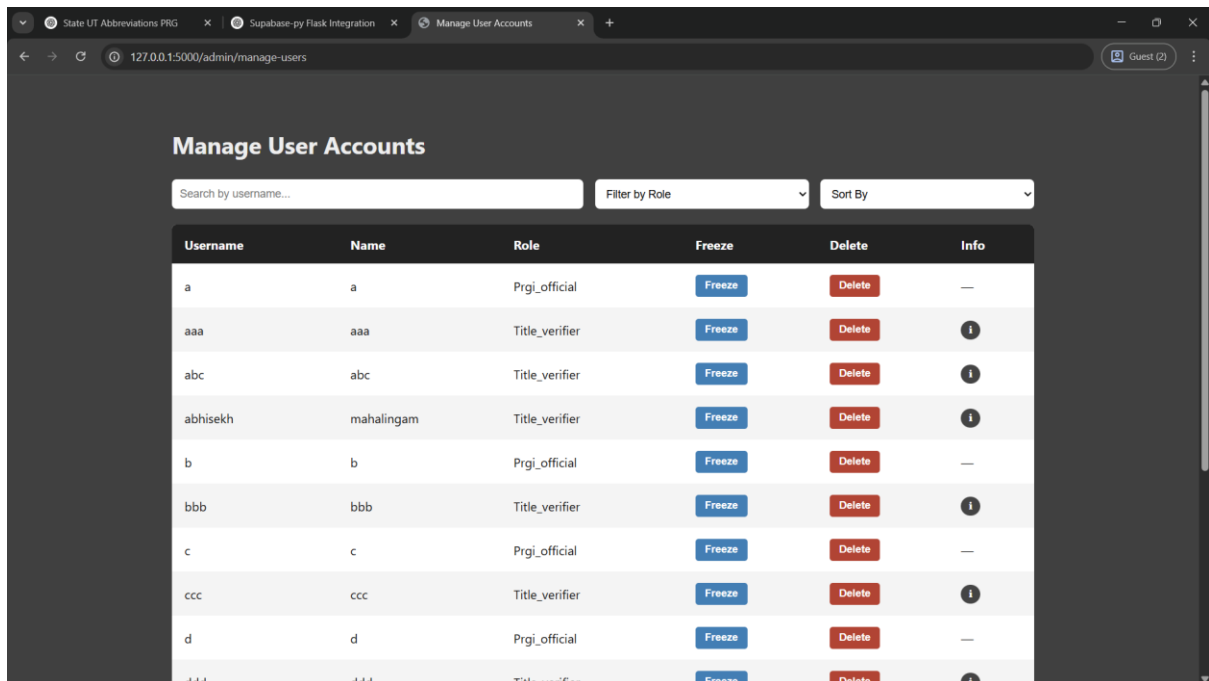


A screenshot of a web browser showing an 'Account Settings' page. The browser's address bar displays '127.0.0.1:5000/settings/aaa/'. The page has a dark background. The main content is a white box titled 'Account Settings'. Inside this box, there are several input fields: 'Full Name' (containing 'aaa'), 'Username' (containing 'aaa'), and 'Email Address' (containing 'aaa@gmail.com'). Below these is a toggle switch for 'In-App Notifications', which is currently turned off. There are also two input fields for 'New Password (leave blank to keep current)' and 'Confirm Password'. At the bottom of the white box is a blue 'Save Changes' button.

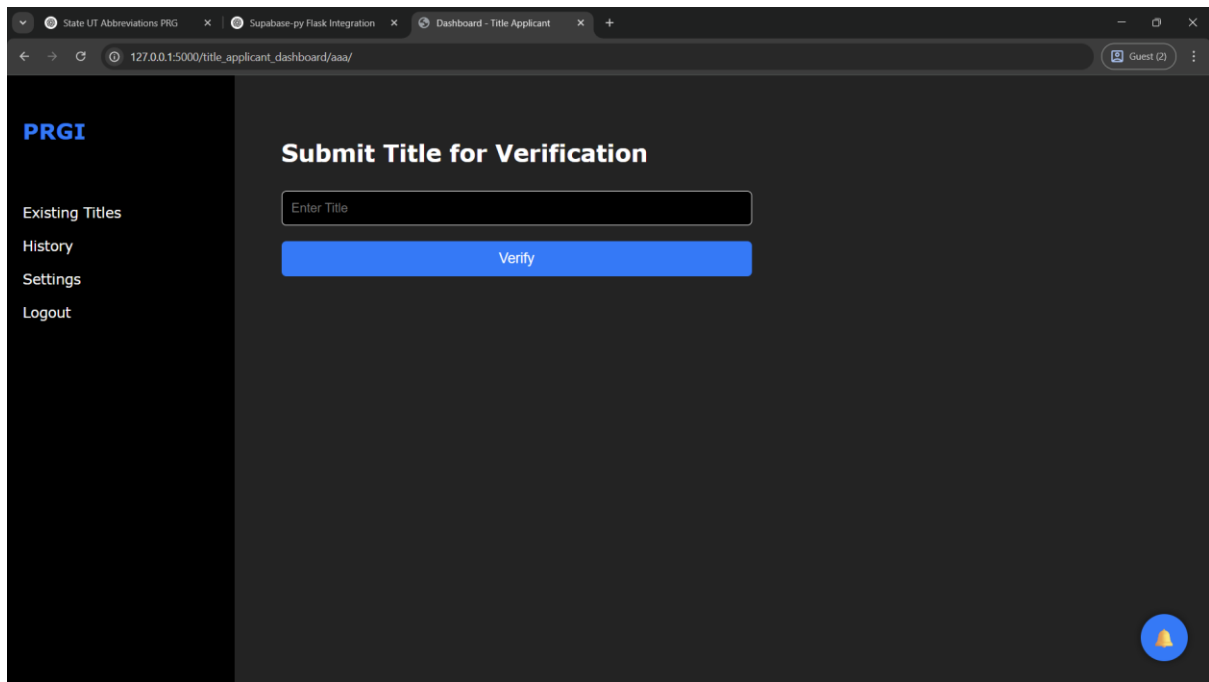
Approve/Reject Official Accounts



Manage User Accounts



Submit Title for Verification



View Title Analysis and Result

The screenshot displays the 'Title Analysis' dashboard. The browser tabs include 'State UT Abbreviations PRG', 'Supabase-py Flask Integration', and 'Title Analysis'. The address bar shows '127.0.0.1:5000/analysis/aaa/'. The page has a dark theme. On the left, there is a table titled 'Title Similarity' with columns '#', 'Title', and '%'. The table lists 19 titles and their similarity percentages. On the right, there is a section titled 'Analysis of Submitted Title' which includes two summary cards: 'Similarity Score' (21.67%) and 'Verification Probability' (78.33%). Below these cards, the 'Status' is 'Accepted' in red text, and there is a 'Feedback' section with a text area. At the bottom of the analysis section, there are two buttons: 'Modify & Resubmit' (blue) and 'Register Title' (green).

#	Title	%
1	Nature & You	21.67%
2	Mind & Matter	20.0%
3	Planet Watch	20.0%
4	Insight Today	20.0%
5	Policy Notes	20.0%
6	Nav Bharat Times	20.0%
7	Heritage India	19.52%
8	Insight India	19.52%
9	Investor Daily	19.17%
10	Business Outlook	19.17%
11	The Economist India	18.89%
12	India Explored	18.67%
13	Entrepreneur India	18.48%
14	The Patriot	15.83%
15	The Critic	15.83%
16	The Opinion	15.83%
17	The Bulletin	15.83%
18	Voice of Nation	15.33%
19	Auto Drive	15.33%

Register Title

The screenshot shows a web browser window with the URL `127.0.0.1:5000/register_title/aaa/the%20hindu/?`. The page title is "Title Registration". The form is titled "Title Details" and contains the following fields:

- Proposed Title Name:
- Language of Publication:
- Periodicity:
- Place of Publication:
- Title Category:
- Publication Format:
- Title Justification:

The screenshot shows the same web browser window, but the form is now titled "Ownership Details" and "Applicant Details". The form contains the following fields:

- Owner's Name:
- Publisher's Name:
- Legal Entity Type:
- Applicant's Full Name:
- Username:
- Email:

At the bottom of the form, there is a blue button labeled "Register".

Approve/Reject Title Registrations

State UT Abbreviations PRG

Supabase-py Flask Integration

Title Approval Dashboard

127.0.0.1:5000/approval-dashboard/a

Guest (2)

Title Registration Requests

S.No	Title	Publisher	Submitted At	Status	Actions
1	grd news	aaa	2025-05-27T00:11:51.736014+00:00	Rejected	--
2	hindu	N/A	2025-05-26T19:59:35.116946+00:00	Rejected	--
3	nothing	N/A	2025-05-27T01:01:21.394295+00:00	Registered	--
4	cbe newsing	N/A	2025-05-27T01:11:34.288833+00:00	Registered	--

Manage Restricted Words and Affixes

State UT Abbreviations PRG

Supabase-py Flask Integration

Manage Restricted Content

127.0.0.1:5000/restrictions/a

Guest (2)

Manage Restricted Words & Affixes

Restricted Words

Restricted Affixes

Search

Sort by

Filter

Add new word

+ Add New

S.No	Restricted Word	Last Updated By	Update	Delete
1	police	a	<div>police</div> <div>Update</div>	Delete
2	crime	a	<div>crime</div> <div>Update</div>	Delete
3	fraud	a	<div>fraud</div> <div>Update</div>	Delete
4	dummy	a	<div>dummy</div> <div>Update</div>	Delete

Search and View Existing Titles

State UT Abbreviations PRG

Supabase-py Flask Integration

Existing Titles

127.0.0.1:5000/existing_titles

Guest (2)

Existing Titles

Search titles...

Sort by

Filter

Search

S.No	Title	Publisher	Language
1	Young Minds	People's Publisher	English
2	The Patriot	Global News Corp	English
3	Urban Mirror	Visionary Press	Hindi
4	Voice of Nation	World Info Ltd	English
5	Daily Varta	NBT Group	Hindi
6	Cinema Scope	BizTrend Media	English
7	Medical Journal of India	India Journals	English
8	Auto Drive	Innova Publications	English
9	Traveller's Digest	World Info Ltd	English
10	EduSphere	People's Publisher	English

1 2 3 4 5 6 7 8 9 10 11

View Submission History

State UT Abbreviations PRG

Supabase-py Flask Integration

User History

127.0.0.1:5000/history/aaa/

Guest (2)

User History

Verification History

Registration History

Search titles...

Sort by Date

All

S.No	Title	Result	Date & Time	Info
1	daily v	Rejected	2025-05-26T15:59:25.016807+00:00	i
2	daily vv	Rejected	2025-05-26T15:59:25.016807+00:00	i
3	week	Accepted	2025-05-26T15:59:25.016807+00:00	i
4	i t week ly	Rejected	2025-05-26T15:59:25.016807+00:00	i
5	vorta weekly	Rejected	2025-05-26T15:59:25.016807+00:00	i
6	daily	Accepted	2025-05-26T15:59:25.016807+00:00	i
7	varta daily	Rejected	2025-05-26T15:59:25.016807+00:00	i
8	abc	Accepted	2025-05-26T15:59:25.016807+00:00	i
9	abc	Accepted	2025-05-26T15:59:25.016807+00:00	i

Monitor Title Registration History

The screenshot displays the PRGI Dashboard with a sidebar menu on the left containing: Existing Titles, Restricted Words & Affixes, Registration Requests, Settings, and Logout. The main content area is titled "Real-Time Title Registrations" and features a table with the following data:

S.No	Title	Time	Publisher	Language
1	cbe newsing	2025-05-27T01:12:00.713807+00:00	None	None
2	Urban Mirror	2025-05-15T18:34:35.91079+00:00	Visionary Press	Hindi
3	Auto Drive	2025-05-15T18:34:35.91079+00:00	Innova Publications	English
4	Daily Varta	2025-05-15T18:34:35.91079+00:00	NBT Group	Hindi
5	Cinema Scope	2025-05-15T18:34:35.91079+00:00	BizTrend Media	English
6	Medical Journal of India	2025-05-15T18:34:35.91079+00:00	India Journals	English
7	Voice of Nation	2025-05-15T18:34:35.91079+00:00	World Info Ltd	English
8	Traveller's Digest	2025-05-15T18:34:35.91079+00:00	World Info Ltd	English
9	EduSphere	2025-05-15T18:34:35.91079+00:00	People's Publisher	English
10	The Patriot	2025-05-15T18:34:35.91079+00:00	Global News Corp	English

A notification bell icon is visible in the bottom right corner of the dashboard.

Access Help & Guidelines

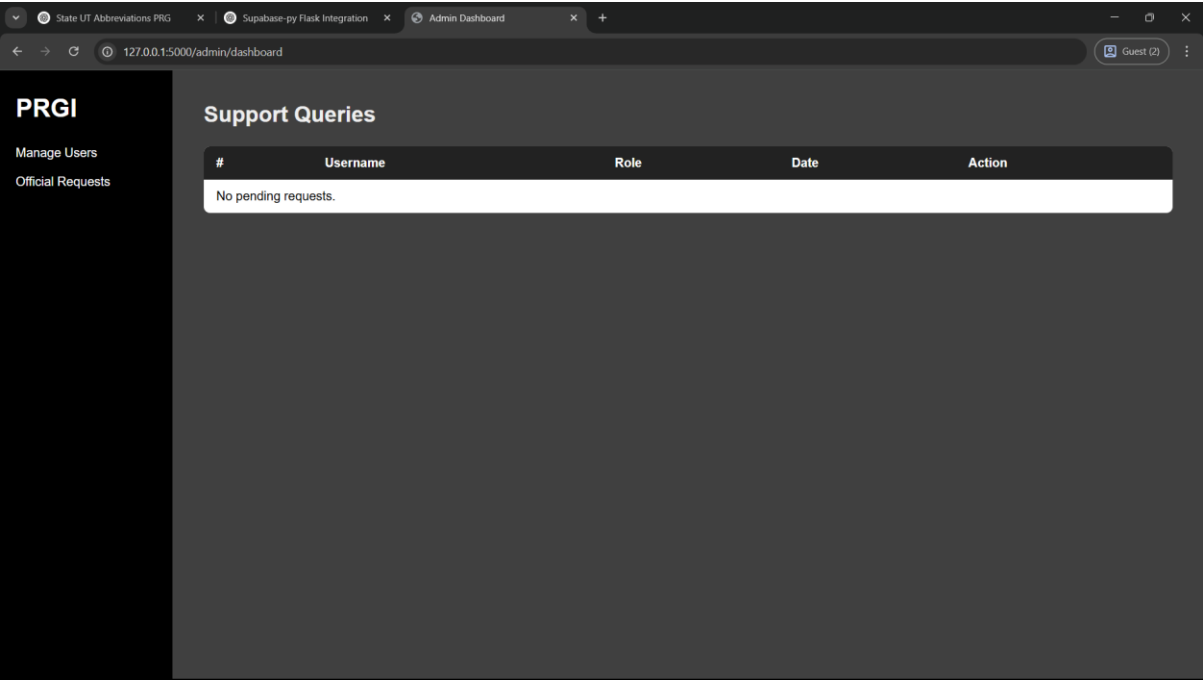
-

Contact Support

The screenshot shows a "Support" modal window with the following elements:

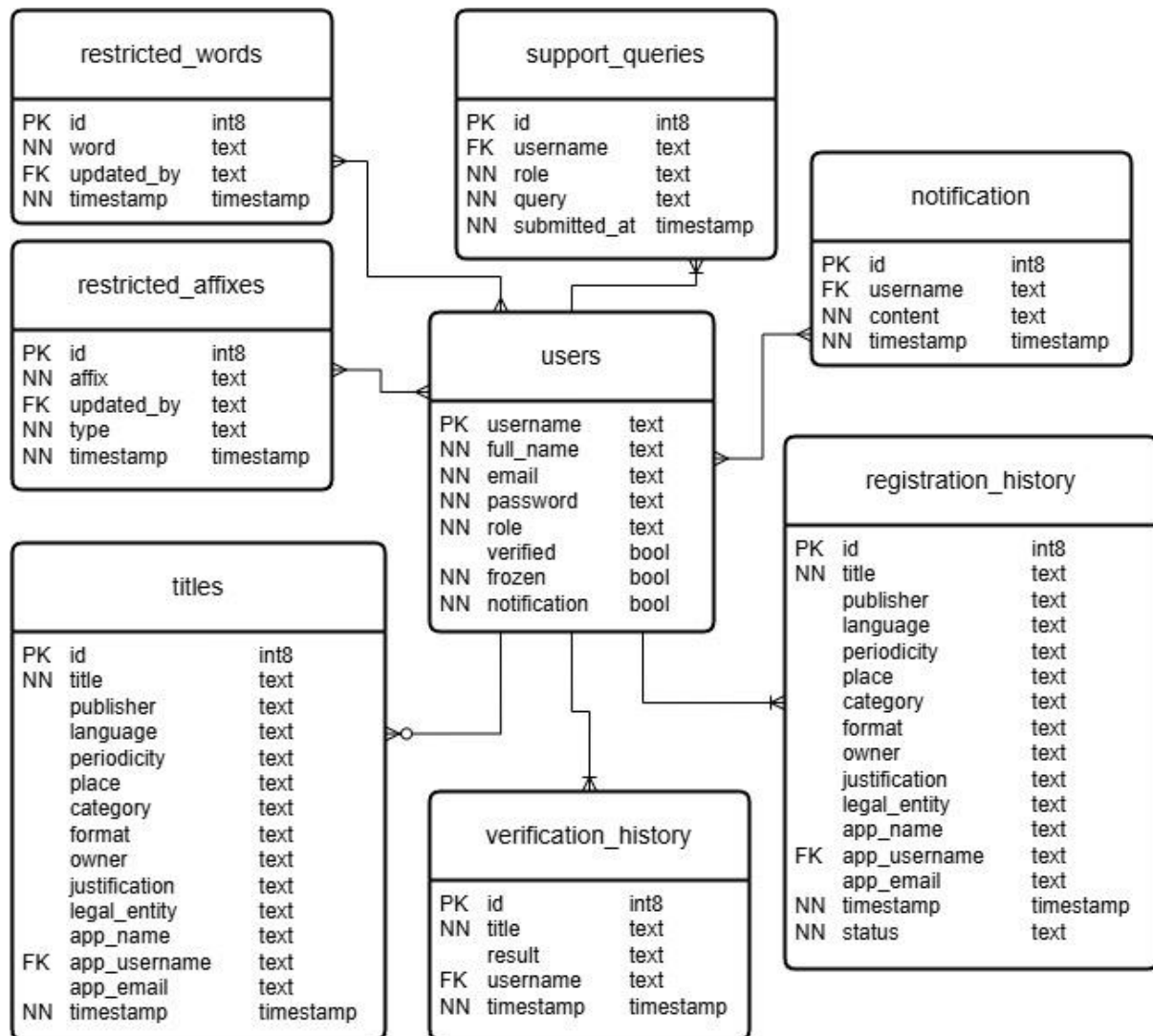
- Title:** Support
- Input Field:** "Enter your Queries here..." with a placeholder "Type your problem here..."
- Submit Button:** A blue "Send" button.
- Feedback Message:** "Our Admins will evaluate your problem and provide you solutions through a notification."

Respond to Support Queries



CHAPTER 4

ENTITY RELATIONSHIP DIAGRAM



CHAPTER 5

TEST CASES

1. USER ACCESS & MANAGEMENT SUBSYSTEM:

1.1. Sign Up

#	TS1
Title	Verify "Sign up" functionality
Description	To test the different scenarios that might arise while a user is trying to signup

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Successful sign-up for Title Applicant	—	Valid user info provided	Account created; verification email sent	1. Navigate to Sign-Up 2. Select "Title Applicant" 3. Fill valid details 4. Submit	Message: "Check your email to verify your account"	Passed
TC2	Successful sign-up for PRGI Official	—	Valid official info provided	Account created; awaits admin approval	1. Select "PRGI Official" 2. Enter valid details 3. Submit	Message: "Account pending admin verification"	Passed
TC3	Email already exists	—	Email registered earlier	Submission blocked	1. Enter duplicate email 2. Submit	Error: "Email already registered"	Passed
TC4	Username already exists	—	Username already in use	Submission blocked	1. Enter duplicate username 2. Submit	Error: "Username already taken"	Passed
TC5	Invalid email	—	Email is malforme	Submission	1. Enter "user@@mail"	Error: "Invalid email"	Passed

	format		d	blocked	2. Submit	format”	
TC6	Username too short or contains invalid characters	–	Username violates rules	Submission blocked	1. Enter “ab” or “user!@#” 2. Submit	Error: “Invalid username format”	Passed
TC7	Weak password input	–	Password doesn’t meet criteria	Submission blocked	1. Enter weak password like “abc123” 2. Submit	Error: “Password must include uppercase, lowercase, number, and special character”	Passed
TC8	Password and confirm password mismatch	–	Passwords do not match	Submission blocked	1. Enter mismatched values 2. Submit	Error: “Passwords do not match”	Passed
TC9	Submit with all valid input then abandon verification	–	Verification email not clicked	Account remains inactive	1. Complete sign-up 2. Do not verify email	Email not verified; account pending /inactive	Passed
TC10	Resend email verification link	TC9	Account inactive due to email not verified	Link resent	1. Click “Resend Verification” 2. Confirm action	Message: “Verification email sent again”	Passed
TC11	Verification link expired	TC9	24 hours passed without clicking link	Verification fails	1. Wait 24 hours 2. Click email link	Message: “Link expired. Request new verification email”	Passed
TC12	Registration abandoned mid-way	–	Form not submitted	No account created	1. Enter partial data 2. Close tab	No record saved in database	Passed
TC1	Email	TC1	Email is	User is	1. Click “sign	User is	Passed

3	verification successful (for title applicant)		verified	authenticated	up" button 2. Email verification sent 3. Verify email	redirected to their dashboard	
TC1 4	Admin verification successful (for official signups)	TC2	Admin approved the official signup request	Admin is authenticated and granted permissions for modifying the system	1. Click "sign up" button 2. Request sent to admin 3. Admin verifies the signup	Official is redirected to their dashboard	Passed

1.2. Log In

#	TS2
Title	Verify "Log In" functionality
Description	To test the different scenarios that might arise while a user is trying to login

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Successful login for Title Applicant	–	User account is verified and active	Redirected to applicant dashboard	1. Navigate to login page 2. Select "Title Applicant" 3. Enter valid credentials 4. Click Login	Dashboard loaded; session logged	Passed
TC2	Successful login for PRGI Official	–	Official account is admin-approved	Redirected to official dashboard	1. Select "PRGI Official" 2. Enter valid credentials 3. Submit	Dashboard loaded; session logged	Passed
TC3	Successful login for System Admin	–	Admin account exists	Redirected to admin dashboard	1. Select "System Administrator" 2. Enter	Admin panel opened	Passed

					credentials 3. Login		
TC4	Incorrect password attempt	–	User account exists	Login blocked	1. Enter valid username and wrong password	Error: “Invalid username or password”	Passed
TC5	Incorrect username attempt	–	No such account	Login blocked	1. Enter incorrect username 2. Click Login	Error message shown	Passed
TC6	Login without email verification	–	Email not verified	Access denied	1. Use unverified user credentials 2. Login	Message: “Email verification required”	Passed
TC7	Login before admin approval (PRGI Official)	–	Official signup not yet approved	Login blocked	1. Use official credentials before approval	Message: “Admin verification pending”	Passed
TC8	Login to a suspended account	–	Account is deactivated	Access denied	1. Try logging into a suspended account	Message: “Your account has been suspended”	Passed
TC9	Forgot password – valid email	–	Email exists in system	Reset link sent	1. Click “Forgot Password?” 2. Enter valid email	Message: “Reset link sent to your email”	Passed
TC10	Forgot password – invalid email	–	Email not in system	Reset blocked	1. Click “Forgot Password?” 2. Enter invalid email	Error: “Email not found”	Passed
TC11	Reset password and login successfully	TC9	Reset process completed	User can access account	1. Open reset email 2. Set new password 3. Login	Dashboard accessed with new credentials	Passed
TC1	Navigate	–	User	No login	1. Open login	No action	Passed

2	away before login		doesn't submit form	recorded	page 2. Leave without entering credentials	taken	
TC1 3	Login with uppercase /lowercase mismatch in password	–	Correct password is case-sensitive	Login fails	1. Enter correct username and wrong case password	Error: "Invalid password"	Passed
TC1 4	Login using username instead of email	–	Username is valid	Login successful	1. Enter username and password instead of email	Redirected to dashboard	Passed
TC1 5	Login using email instead of username	–	Email is valid	Login successful	1. Enter email and password instead of username	Login works as expected	Passed

1.3. Manage Account Settings

#	TS3
Title	Verify "Manage Account Settings" functionality
Description	To test the different scenarios that might arise while a user is trying to manage their account settings

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Access account settings section	–	User is logged in	Settings page displayed	1. Navigate to "Settings"	Settings categories (Account, Notifications) shown	Passed
TC2	Update username successfully	–	Valid new username entered	Username updated	1. Go to Account Settings 2. Change	Success: "Username updated"	Passed

					username 3. Save	successfully"	
TC3	Username already exists	–	Username already in use	Change blocked	1. Enter duplicate username 2. Save	Error: "Username already taken"	Passed
TC4	Username too short or contains invalid characters	–	Username violates rules	Change blocked	1. Enter "ab" or "user!@#" 2. Save	Error: "Invalid username format"	Passed
TC5	Update email with valid format	–	New email is valid and unique	Email updated	1. Enter new valid email 2. Click Save	Confirmation message shown	Passed
TC6	Update email with invalid format	–	Incorrect format used	Change blocked	1. Enter "user@@mail" 2. Submit	Error: "Invalid email format"	Passed
TC7	Update email to one already in use	–	Email already exists	Change blocked	1. Enter registered email 2. Click Save	Error: "Email already in use"	Passed
TC8	Change password with valid criteria	–	New password meets all conditions	Password updated	1. Enter current password 2. Set new password with proper format 3. Confirm change	Message: "Password changed successfully"	Passed
TC9	Change password with weak format	–	New password does not meet policy	Submission blocked	1. Set password as "abc123" 2. Submit	Error: "Password too weak"	Passed
TC10	Password and confirm password mismatch	–	Fields do not match	Update blocked	1. Enter different values in both fields 2. Submit	Error: "Passwords do not match"	Passed
TC11	Update	–	Preferences	Notificatio	1. Select	"Notification	Passed

	notification preferences		selected	n settings saved	/deselect notification checkboxes 2. Save	preferences updated" message shown	
TC12	Cancel changes before saving	–	Changes made but not saved	No changes applied	1. Modify any setting 2. Click "Cancel"	Fields revert to original state	Passed
TC13	Submit empty fields	–	All fields cleared	Submission blocked	1. Clear all input fields 2. Click Save	Error: "Fields cannot be empty"	Passed
TC14	Log out through account settings	–	User is logged in	Session terminated	1. Click "Log out" from settings	Redirected to login page	Passed
TC15	View changes reflected after update	TC2–TC11	Setting successfully changed	Changes applied throughout system	1. Modify name /email /password 2. Revisit profile	Updated info displayed correctly	Passed
TC16	Attempt to access settings without login	–	User is not authenticated	Redirected to login	1. Try accessing settings URL directly	System redirects to login page	Passed

1.4. Approve/Reject Official Accounts

#	TS4
Title	Verify "Approve/Reject Official Accounts" functionality
Description	To test the different scenarios that might arise while the admin is trying to approve or reject official signup requests

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View list of	–	PRGI official	List is	1. Log in as	All pending	Passed

	pending official signup requests		requests exist	displayed	admin 2. Navigate to Official Signup Requests	requests are listed with user info	
TC2	Approve a valid official request	–	Signup details are complete and authentic	Official is approved and can log in	1. Select a request 2. Review details 3. Click “Approve”	Message: “Request accepted” Account created	Passed
TC3	Reject an invalid official request	–	Signup info is incomplete or invalid	Request is discarded	1. Select a request 2. Click “Reject” 3. Confirm rejection	Message: “Request rejected” No account created	Passed
TC4	Hold a request due to insufficient info	–	Details are incomplete	Request remains in pending state	1. Neither “Accept” nor “Reject”	Request stays visible in pending list	Passed
TC5	View official signup details before approval	–	Request is in list	Full profile shown	1. Click on a request row	Signup form data shown in detail	Passed
TC6	Attempt to approve without being logged in	–	Admin not authenticated	Access denied	1. Open approval URL directly without logging in	Redirected to login page	Passed
TC7	Official waiting in signup page is taken to their dashboard	TC2	Official is waiting in the signup page and admin approves	Directly taken to the dashboard	1. Official waits in signup page 2. Admin verifies	Official is redirected to their dashboard	Passed
TC8	Approved official can login	TC2	Official left signup page midway and admin approves	Login successful	1. Approve request 2. Official logs in	Official is redirected to their dashboard	Passed

TC9	Rejected official cannot log in	TC3	Request denied earlier	Login blocked	1. Try to log in with rejected credentials	Error: "Account does not exist or not approved"	Passed
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1.5. Manage User Accounts

#	TS5
Title	Verify "Manage User Accounts" functionality
Description	To test the different scenarios that might arise while the admin is trying to manage general user accounts

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View list of all registered users	–	Admin is logged in	User list displayed	1. Go to "User Management" section	List of users with roles and activity history shown	Passed
TC2	Freeze a user account	–	User exists and is active	Account access restricted	1. Select a user 2. Click "Freeze" 3. Confirm action	Message: "Account has been frozen"	Passed
TC3	Delete a user account permanently	–	User exists	Account removed	1. Select user 2. Click "Delete" 3. Confirm deletion	Message: "User deleted successfully"	Passed
TC4	View submission / approval history per user	–	User has past activity	History shown in detail	1. Click on a specific user row	Display verification /registration history	Passed
TC5	Revert a frozen	TC2	User account is	Access	1. Select frozen user 2.	Account status:	Passed

	account to active status		frozen	restored	Click "Unfreeze"	"Active" again	
TC6	Manage account from search result	–	User searched by name /email	Actions still allowed	1. Use search bar 2. Select user 3. Perform action	Freeze/delete available as normal	Passed
TC7	Filter users by role (Applicant /Official)	–	Multiple user roles exist	Filtered list shown	1. Select role filter	Only users of selected role appear	Passed
TC8	Sort users by registration date	–	Multiple users in list	Ordered by date	1. Click "Sort by Date"	List reorders chronologically	Passed
TC9	Attempt to access management without admin login	–	Not authenticated	Access denied	1. Open URL for user management 2. Not logged in	Redirected to login	Passed

2. TITLE PROCESSING & MANAGEMENT SUBSYSTEM:

2.1. Submit Title for Verification

#	TS6
Title	Verify "Submit Title for Verification" functionality
Description	To test the different scenarios that might arise while a title applicant is trying to submit a title for verification

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Submit a valid title for verification	–	User is logged in with access to dashboard	Title processed and user redirected to analysis	1. Log in 2. Enter valid title (e.g., "India Today Bulletin") 3.	Redirect to Title Analysis Page	Passed

				page	Click Submit		
TC2	Submit a title with leading /trailing spaces	–	User is logged in	Title trimmed and submitted correctly	1. Enter “ India Times ” 2. Submit	System trims whitespace and processes normally	Passed
TC3	Submit empty title	–	User is logged in	Submission blocked	1. Leave title field blank 2. Submit	Error: “Title cannot be empty”	Passed
TC4	Submit title with only spaces	–	User is logged in	Submission blocked	1. Enter " " (only spaces) 2. Submit	Error: “Title cannot be empty”	Passed
TC5	Submit title with only numbers	–	User is logged in	Submission rejected	1. Enter “123456” 2. Submit	Error: “Invalid title format”	Passed
TC6	Submit title with special characters only	–	User is logged in	Submission rejected	1. Enter “@#%&*!” 2. Submit	Error: “Invalid title format”	Passed
TC7	Submit a very long title (exceeding limit)	–	User is logged in	Submission rejected	1. Enter a title over 100 characters 2. Submit	Error: “Title too long. Limit: 100 characters.”	Passed
TC8	Submit a title with mixed casing	–	User is logged in	Title accepted and normalized	1. Enter “tHe NatIonAl PosT” 2. Submit	System processes normally, case preserved or normalized	Passed
TC9	Submit with special characters or numbers in between	–	User is logged in	Submission approved	1. Enter “India@News# Today2” 2. Submit	Redirect to Title Analysis Page	Passed
TC10	Submit title when not	–	User is not logged in	User denied access	1. Try to access dashboard	Redirected to login	Passed

	logged in				directly 2. Attempt to submit title	page	
TC11	Refresh page after typing title (before submit)	–	User is logged in	Title input cleared, nothing processed	1. Enter a title 2. Refresh browser before clicking submit	Page reloads with empty field; no processing triggered	Passed
TC12	Submit title, then navigate away mid-processing	–	User is logged in	Process may be interrupted or queued	1. Enter title 2. Submit 3. Navigate away before loading finishes	System handles gracefully or reprocesses on next visit	Passed
TC13	Submit previously accepted title	–	User is logged in	System notifies about previous trial	1. Enter a previously accepted title 2. Submit	System provides proper message and doesn't undertake a fresh analysis	Passed
TC14	Submit previously rejected title	–	User is logged in	System accepts for fresh analysis	1. Enter a previously rejected title 2. Submit	Redirect to analysis page for new result	Passed
TC15	Submit title with valid multilingual characters	–	User is logged in	Title accepted if format is valid	1. Enter title like “प्रति दिन समाचार” 2. Submit	System accepts and processes multilingual title	Passed
TC16	A valid submission is stored in history	TC1	The submitted title is valid	The submission is stored in history	1. Access submission history page 2. Look at the list of title verifications	The title is stored in the verification history for later access	Passed

2.2. View Title Analysis and Result

#	TS7
Title	Verify "View Title Analysis and Result" functionality
Description	To test the different scenarios that might arise while a title applicant is trying to view the analysis page and verification result for a title

#	Summary	Depen dency	Pre- condition	Post- condition	Execution Steps	Expected Output	Actual Output
TC1	View analysis for a newly submitted valid title	TS6	Title has been submitted successfully	Analysis page with all sections displayed	1. Submit a valid title 2. System redirects to Analysis Page	List of similar titles, similarity score, verification probability, result shown	Passed
TC2	View analysis with high similarity score	–	Title matches existing titles closely	System shows rejection with feedback	1. Submit a similar title 2. Access analysis page	Rejected due to high similarity with feedback	Passed
TC3	Title with phonetic similarity with existing ones	–	Title has phonetic similarity	Similarity calculation considers phonetics	1. Submit a title with phonetic similarity	Similarity score is calculated accordingly	Passed
TC4	Title with spelling similarity with existing ones	–	Title has spelling similarity	Similarity calculation considers spelling	1. Submit a title with spelling similarity	Similarity score is calculated accordingly	Passed
TC5	Title with semantic similarity with existing ones	–	Title has semantic similarity	Similarity calculation considers semantics	1. Submit a title with semantic similarity	Similarity score is calculated accordingly	Passed
TC6	Title is a combination of existing ones	–	Title combines of 2 existing titles	Title is rejected	1. Submit a title which is a combination of 2 existing	Title is rejected with a feedback	Passed

					titles		
TC7	View analysis with usage of restricted word	–	Submitted title includes disallowed term	System shows rejection with relevant feedback	1. Submit a title like “CBI News Weekly” 2. Open analysis	Rejected with message: “Restricted word: CBI”	Passed
TC8	Verification probability calculated from similarity	–	Title has moderate similarity	Probability shown based on formula	1. Submit title 2. View analysis page	Verification probability = 100 - similarity	Passed
TC9	View analysis with acceptable probability score	–	Title is sufficiently unique	System shows acceptance	1. Submit valid title with high probability 2. Access analysis	Accepted; option to register shown	Passed
TC10	Feedback displayed for rejected title	–	Title is rejected	Rejection reason shown clearly	1. Submit problematic title 2. View feedback section	Feedback: “Too similar to 'Daily India News'”	Passed
TC11	Modify and resubmit from analysis page	–	Title is rejected	System allows editing and resubmission	1. View rejected title 2. Click “Modify and Resubmit” 3. Enter new version	Redirected to resubmission flow	Passed
TC12	Register title from analysis page	–	Title is accepted	System redirects to registration form	1. Submit accepted title 2. Click “Register Title”	Registration form displayed	Passed
TC13	Leave analysis without registering accepted	–	Title is accepted	Title saved for future registration	1. Submit valid title 2. Leave analysis	Title marked in history as “Accepted – Not	Passed

	title				page	Registered”	
TC1 4	Access analysis of previously submitted title	–	Title is in user history	Analysis data retrievable from history	1. Open history page 2. Select a submitted title	Redirect to corresponding analysis page	Passed
TC1 5	Register from history for accepted title	–	Title was accepted previously but not registered	System allows late registration	1. Open history 2. Click on accepted title 3. Click “Register”	Redirects to title registration form	Passed
TC1 6	Title rejected for both similarity and restriction	–	Title fails on both criteria	Multiple feedback messages shown	1. Submit “CBI India Daily” 2. View analysis	Rejected; Feedback: “Too similar” and “Restricted word”	Passed
TC1 7	Analysis data includes empty similarity list	–	Title has no significant match	Similarity list is empty, title likely accepted	1. Submit very unique title 2. View analysis	“No major matches found”; Accepted	Passed
TC1 8	System handles analysis page reload	–	Analysis page refreshed	Results persist or reload cleanly	1. View analysis 2. Refresh browser	Page reloads with same title data	Passed
TC1 9	Attempt to access analysis without submitting title	–	No title submission	Access is denied	1. Directly enter analysis page URL without submission	Redirected to dashboard or error page	Passed

2.3. Register Title

#	TS8
Title	Verify "Register Title" functionality
Description	To test the different scenarios that might arise while a title applicant is trying to register a title

#	Summary	Depen dency	Pre- condition	Post- condition	Execution Steps	Expected Output	Actual Output
TC1	Register an approved title successfully	TS7	Title is accepted and not registered	Title form submitted and status set to "Pending"	1. View analysis page 2. Click "Register Title" 3. Fill registration form 4. Submit	Confirmation : "Your registration is under review"	Passed
TC2	Access registration form from history	–	Title is accepted but not registered	Access form via history page	1. Go to Submission History 2. Click accepted title 3. Click "Register Title"	Redirect to registration form	Passed
TC3	Submit incomplete registration form	–	Form is open	Form submission blocked	1. Leave mandatory fields empty 2. Click Submit	Error: "Please fill out all required fields"	Passed
TC4	Register title with invalid data formats	–	User is on form	Validation fails	1. Enter incorrect formats (e.g., number in name field) 2. Submit	Error: "Invalid input format"	Passed
TC5	Cancel registration mid-process	–	Form open or registration submitted	Registration not created or saved as unsubmitted	1. Open form 2. Click "Cancel" or close page	Returned to dashboard; title stays "Accepted – Not Registered"	Passed
TC6	View status after registration	TC1	Registration is submitted	Status shown as "Pending"	1. Go to Submission History 2. View registration	Title marked as "Registration"	Passed

	submission				status	Pending”	
TC7	View final registration approval	–	Official has approved registration	Title marked as “Registered”	1. Wait for approval 2. Open history	Status: “Registered” and notification received	Passed
TC8	Try to register an already registered title	–	Title already registered	Access denied or button disabled	1. Open analysis or history 2. Attempt re-registration	Message: “Title already registered”	Passed
TC9	Submit form with special characters in restricted fields	–	Special characters in restricted fields	Submission blocked	1. Enter “John@Doe” in owner name field 2. Submit	Error: “Special characters not allowed”	Passed
TC10	Skip optional fields and register	–	Optional fields left empty	Title registered if required fields filled	1. Fill only required fields 2. Submit	Registration proceeds; success message shown	Passed
TC11	Resubmit after initial registration cancel	TC5	User cancelled registration earlier	Form re-accessible, new attempt possible	1. Open title from history 2. Click “Register Title” 3. Resubmit form	Form submitted; status “Pending”	Passed
TC12	Receive notification after approval	TC1, TC7	Title approved by PRGI Official	Notification shown	1. Wait for official approval 2. Login to view updates	Notification: “Your title has been registered successfully”	Passed
TC13	Attempt registration without title approval	–	Title is not yet accepted	Access denied	1. Submit unverified title 2. Try to access register button	Message: “Title not yet approved for registration”	Passed

2.4. Approve/Reject Title Registrations

#	TS9
Title	Verify "Approve/Reject Title Registration" functionality
Description	To test the different scenarios that might arise while an official is trying to approve or reject a title registration request

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Approve a valid registration request	TS8	Valid registration form is submitted	Title marked as "Registered"; added to official records	1. Official logs in 2. Opens Registration Requests 3. Reviews form 4. Confirms external verification 5. Clicks Approve	Title status: "Registered"; Notification sent to applicant	Passed
TC2	Reject an invalid or incomplete registration	—	Form exists but is legally non-compliant	Request removed; applicant notified	1. Open Registration Requests 2. Identify discrepancies 3. Click Reject	Title removed from pending list; "Rejected" notice sent	Passed
TC3	Postpone action for incomplete external verification	—	External legal steps not completed	Status remains "Pending"	1. Open request 2. Decide to wait 3. Take no action	Title remains in pending list	Passed
TC4	View pending registration requests list	—	Official is logged in	All pending titles listed	1. Navigate to Registration Requests section	Display list of unprocessed registration forms	Passed
TC5	View full registration form details	—	Request is selected	All user-submitted data shown	1. Select a pending title 2. Open full form	Title and applicant data shown in detail	Passed
TC6	Title becomes	TC1	Title is registered	Visible in "Existing	1. Approve registration 2.	Newly registered	Passed

	public after approval			Titles” section	Go to Existing Titles	title appears	
TC7	Official receives confirmation of approval action	TC1	Registration approved	Acknowledgment shown to official	1. Approve title 2. Complete action	Message: “Title registered successfully” shown	Passed
TC8	Applicant receives notification after decision	TC1, TC2	Request is approved or rejected	Message sent to applicant’s dashboard	1. Submit registration 2. Wait for official decision 3. Login again	Notification: “Your title was approved” or “Registration rejected”	Passed
TC9	Title status changed in the applicant’s registration history	TC1, TC2	Official approves or rejects title registration request	The status is changed according to the action	1. Access registration history section 2. Look at the status field for a title	The title’s status field is changed to registered or rejected	Passed

2.5. Manage Restricted Words and Affixes

#	TS10
Title	Verify "Manage Restricted Words and Affixes" functionality
Description	To test the different scenarios that might arise while an official is trying to manage restricted words and affixes

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View existing restricted words and affixes	—	Official is logged in	List of all restricted terms shown	1. Navigate to Manage Restrictions 2. View displayed list	Words and affixes are listed with metadata	Passed
TC2	Add new restricted word	—	Word does not exist	Word added to list and	1. Click “Add Word” 2. Enter valid word 3.	Success: “Word added successfully”;	Passed

	successfully		in list	visible to all	Confirm addition	Notification sent	
TC3	Add new restricted affix with category	–	Affix is new	Affix saved with prefix /suffix type	1. Click “Add Affix” 2. Enter affix 3. Choose category (prefix/suffix) 4. Confirm	Affix added and categorized; Notification sent	Passed
TC4	Attempt to add duplicate word/affix	–	Word/affix already exists	Entry rejected	1. Enter an existing word/affix 2. Submit	Error: “This word/affix already exists”	Passed
TC5	Modify existing word	–	Word selected from list	Word spelling or details updated	1. Select a word 2. Edit the text 3. Save changes	Word updated; date and user saved	Passed
TC6	Modify existing affix	–	Affix selected from list	Affix spelling or category changed	1. Select affix 2. Change spelling or category 3. Save	Affix updated; changes recorded	Passed
TC7	Delete a restricted word	–	Word selected from list	Word removed from restrictions	1. Select word 2. Click Delete 3. Confirm action	Word deleted; notification sent	Passed
TC8	Delete a restricted affix	–	Affix selected from list	Affix removed	1. Select affix 2. Delete and confirm	Affix removed from list and system	Passed
TC9	Cancel addition of a word/affix	–	Add form is open	No change occurs	1. Click Add Word/Affix 2. Enter word /affix 3. Click Cancel	Form closes; word/affix not added	Passed
TC10	Cancel modification of word/affix	–	Edit form is open	No update saved	1. Select word /affix 2. Edit field 3. Cancel before saving	No change applied	Passed
TC1	Cancel	–	Delete	Word/affix	1. Select word	Nothing is	Passed

1	deletion of word/affix		confirmation dialog shown	remains unchanged	/affix 2. Click Delete 3. Click "No" on confirm dialog	removed	
TC1 2	Search for a restricted word by keyword	–	Words exist in list	Filtered result shown	1. Enter partial or full word in search bar	Matching terms displayed	Passed
TC1 3	Filter affixes by category	–	List contains affixes	Filter result shown	1. Select filter: Prefix or Suffix	Only matching affixes displayed	Passed
TC1 4	Sort restrictions by name	–	List is visible	Sorted list displayed	1. Click on Name column header	Words sorted alphabetically	Passed
TC1 5	Sort restrictions by date modified	–	List is visible	Sorted by latest /oldest	1. Click Date Modified column	List updates by date	Passed
TC1 6	Paginate through a long list of restrictions	–	Many items in list	Paginated data navigable	1. Click next/previous page	Page loads next set of results	Passed
TC1 7	Validate metadata logging after changes	–	Add/edit/delete performed	Username and timestamp recorded	1. Modify a word 2. Save 3. View metadata	Metadata shows who and when it was changed	Passed
TC1 8	Notification sent after restriction update	TC2, TC3, TC5 – TC8	Change successfully applied	All officials are notified	1. Add /edit /delete any item 2. Confirm action	Notification: "[Official Name] updated restrictions on [Date]"	Passed
TC1 9	Restrictions affect future title verification	–	A new word is added to list	New title with word is flagged	1. Add "XYZ" to restriction list 2. Submit title with "XYZ"	Title rejected: "Contains restricted word 'XYZ'"	Passed

3. TITLE EXPLORATION & RECORDS SUBSYSTEM:

3.1. Search and View Existing Titles

#	TS11
Title	Verify "Search and View Existing Titles" functionality
Description	To test the different scenarios that might arise while a user is trying to search and view existing titles

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View all existing titles	–	User is logged in	Complete list of titles is visible	1. Navigate to "Existing Titles" page	List of titles loaded and displayed	Passed
TC2	Search by exact title keyword	–	User is on titles page	Matching titles displayed	1. Enter full title name in search bar (e.g., "India Today")	Only relevant results shown	Passed
TC3	Search by partial keyword	–	Titles exist with matching substring	Filtered titles displayed	1. Enter "India" 2. View updated results	Titles with "India" in name are listed	Passed
TC4	Apply alphabetical sort	–	List is loaded	Titles rearranged alphabetically	1. Select sort option: A–Z	Titles reordered accordingly	Passed
TC5	Apply date-based sort	–	List is loaded	Sorted by most recent or oldest first	1. Choose "Date of Registration" 2. Select sort order	Titles listed by date	Passed
TC6	Filter by category	–	Categories are available	Results filtered	1. Select a category filter (e.g., "News")	Only titles under that category are shown	Passed
TC7	Filter by	–	Language	Titles	1. Choose	Only Hindi	Passed

	language		data available	listed for selected language	language filter (e.g., "Hindi")	titles appear	
TC8	Combined search and filter usage	–	Filters and keywords used together	Narrowed result set shown	1. Apply filter 2. Enter keyword	Filtered search results based on both	Passed
TC9	View title details	–	Titles are listed	Detailed metadata shown	1. Click on a listed title	Full title details shown in a new section /page	Passed
TC10	No matching titles for search	–	Entered keyword does not match any title	User informed, no data shown	1. Enter nonsensical term like "xzyq"	Message: "No matching titles found"	Passed
TC11	Reset search/filter options	–	Search or filters are applied	List returns to full view	1. Click "Reset" or clear filters	Full list of titles displayed again	Passed
TC12	Pagination through titles list	–	List exceeds one page	Next/Previous controls work	1. Click "Next Page" or scroll	Page navigates to next group of titles	Passed
TC13	Navigate away and return	–	User leaves page mid-use	List reloads correctly	1. Navigate away 2. Return to titles page	Titles page reloads or retains state	Passed
TC14	Attempt to search with empty input	–	User leaves search field blank	No change in list	1. Leave search bar empty 2. Click Search	Full title list remains	Passed
TC15	Access denied if not logged in	–	User not logged in	Redirected to login or error	1. Try to access "Existing Titles" page directly	Redirected to login page	Passed

3.2. View Submission History

#	TS12
Title	Verify "View Submission History" functionality
Description	To test the different scenarios that might arise while a user is trying to view their submission history

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View verification history list	–	User is logged in with at least one verification attempt	List of submitted titles shown	1. Navigate to History 2. Select "Verification History"	Table of previously verified titles with status	Passed
TC2	View registration history list	–	At least one title has been submitted for registration	List of registrations displayed	1. Navigate to History 2. Select "Registration History"	Table of registered and pending titles shown	Passed
TC3	View status and date for each submission	–	Submissions exist	Details loaded with each row	1. View either history list	Each title shows status and date	Passed
TC4	Access analysis page from verification history	–	Title is listed in history	System opens analysis data	1. Click "Info" on a title in verification history	Redirects to analysis page with full details	Passed
TC5	Register accepted title from verification history	–	Title is accepted but not yet registered	Form access provided	1. Click "Info" 2. Click "Register Title"	Redirected to registration page	Passed
TC6	View approved	–	Title was registered	Status shows	1. Open registration	Registered title info	Passed

	registratio n info		by an official	“Registered”	history 2. Find title	shown	
TC7	Cancel a pending registratio n	–	Registration status is “Pending”	Status updated to “Cancelled”	1. Open history 2. Click “Cancel” on a pending item	Confirmatio n and status changed	Passed
TC8	Delete a title from verification history	–	Title exists in history	Title removed from history and buffer	1. Open verification history 2. Click “Delete” on a title	Title deleted and similar titles no longer blocked	Passed
TC9	Attempt to register rejected title from history	–	Title was rejected in verification	Registration disabled	1. Click info on rejected title	No registration option shown	Passed
TC1 0	Search for a title in history	–	User has many titles	Matching records displayed	1. Enter keyword in history search bar	Titles filtered by keyword	Passed
TC1 1	Sort history by submission date	–	List of entries exists	History list rearranged	1. Click on “Date” column to sort	Entries sorted accordingly	Passed
TC1 2	View history when no titles exist	–	New user or no submissions yet	Blank state or message shown	1. Open history with no data	Message: “No submissions yet”	Passed
TC1 3	System admin views applicant’s history	–	Admin is logged in	Applicant history displayed	1. Go to Manage Users 2. Open a user 3. Click “View History”	Verification and registration lists for that user shown	Passed

3.3. Monitor Title Registration History

#	TS13
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Title	Verify "Monitor Title Registration History" functionality
Description	To test the different scenarios that might arise while an official is trying to monitor the recent title registrations history

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View recently registered titles on dashboard	–	PRGI official is logged in	List of registered titles shown	1. Log in as PRGI official 2. View dashboard	List of recently registered titles with details	Passed
TC2	Verify order of registration list	–	At least two registered titles exist	List sorted by most recent first	1. Open registration list 2. Check top entries	Latest registered title appears first	Passed
TC3	View title metadata from list	–	Titles are listed	Title description loaded	1. Click on a title from the list	Full registration details shown	Passed
TC4	Refresh registration list view	–	Titles recently updated	List refreshed correctly	1. Refresh dashboard 2. Check title order	Updated title list shown	Passed
TC5	Attempt to view registration list when not logged in	–	Official is logged out or session expired	Access denied	1. Try accessing dashboard directly 2. System checks session	Redirected to login page	Passed

4. SUPPORT & HELP SUBSYSTEM:

4.1. Access Help & Guidelines

#	TS14
Title	Verify "Access Help & Guidelines" functionality
Description	To test the different scenarios that might arise while a user is trying to

	access help & guidelines section
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#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Access Help & Guidelines section	–	User is logged in	Help topics are displayed	1. Click on “Help & Guidelines” in menu	System loads help topics list	Passed
TC2	View general overview topic	–	Help page is open	General system overview displayed	1. Open Help 2. Click “General Overview”	Introductory content is shown	Passed
TC3	View title submission process guide	–	Help page is open	Steps for submission explained	1. Open Help 2. Click “Title Submission Process”	Guidelines for submitting titles shown	Passed
TC4	View analysis page explanation	–	Help page is open	User understands score and feedback	1. Click “Analysis Page Explanation” topic	Explanation of scores and feedback shown	Passed
TC5	View title registration process	–	Help page is open	Title registration info shown	1. Open Help 2. Click “Title Registration”	Registration process steps are displayed	Passed
TC6	Access submission history guidance	–	Help section open	History usage instructions shown	1. Open Help 2. Click “Accessing Submission History”	Info on using history page displayed	Passed
TC7	Learn about existing titles access	–	Help section open	Title search and filter guidance shown	1. Open Help 2. Click “Existing Titles”	Instructions on exploring titles appear	Passed
TC8	Understand notification system	–	Help page open	Notification details provided	1. Click “Notification” topic	Info on alerts, registration updates displayed	Passed

TC9	View official guidelines	–	PRGI official is logged in	Topic related to official roles appears	1. Click “Guidelines for Officials”	Details on managing restrictions, approvals	Passed
TC10	Download help document	–	Downloads are available	Help file saved locally	1. Click “Download PDF” on any help topic	File downloaded successfully	Passed
TC11	Attempt to access help without login	–	User not authenticated	Access granted	1. Try to access help document	Help document is shown without any restrictions	Passed

4.2. Contact Support

#	TS15
Title	Verify "Contact Support" functionality
Description	To test the different scenarios that might arise while a user is trying to contact support6

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	Access Contact Support page	–	User is logged in	Contact form displayed	1. Navigate to “Contact Support”	Form with issue description field shown	Passed
TC2	Submit valid support request	–	User has entered a valid message	Request sent to admin	1. Type issue in input box 2. Click “Submit”	Message sent; confirmation shown	Passed
TC3	Submit request with empty message	–	User submits form with no text	Submission blocked	1. Leave message box blank 2. Click “Submit”	Error: “Please enter a message”	Passed
TC4	Submit	–	Message	Submission	1. Paste long	Error:	Passed

	extremely long message		exceeds limit (e.g., 1000+ chars)	blocked	content into box 2. Submit	"Message too long"	
TC5	Submit message with special characters	–	Special characters included	Message accepted	1. Enter "#@! Issue with login" 2. Submit	Request submitted successfully	Passed
TC6	System sends message to admin inbox	TC2	Valid submission made	Admin receives message	1. User submits request 2. Admin logs in	Support request visible to admin	Passed
TC7	Admin responds to message	–	Admin opens request	User receives response notification	1. Admin types reply 2. Submits response	Message reaches user inbox/notification panel	Passed
TC8	User views support response	TC7	Response available	Message displayed	1. Click on notification or view inbox	Full response content shown	Passed
TC9	User navigates away before submitting	–	Message typed but not submitted	Message lost if not saved	1. Type message 2. Leave page	Form cleared; no data saved	Passed
TC10	Multiple support queries from same user	–	User submits more than one issue	All listed in user history or inbox	1. Submit several issues over time	Multiple entries tracked individually	Passed
TC11	Notification delay for admin response	–	Admin takes time to respond	User sees message only when available	1. Submit request 2. Wait without reply	No immediate notification shown	Passed
TC12	Access Contact Support as	–	PRGI Official is logged in	Same form shown	1. Official opens "Contact	Form to submit issue is available	Passed

	official				Support"		
TC1 3	Attempt to submit contact message without login	–	User not authenticated	Access denied	1. Open contact page URL directly	Redirect to login page	Passed

4.3. Respond to Support Queries

#	TS16
Title	Verify "Respond to Support Queries" functionality
Description	To test the different scenarios that might arise while the admin is trying to respond to submitted support queries

#	Summary	Dependency	Pre-condition	Post-condition	Execution Steps	Expected Output	Actual Output
TC1	View list of support requests	–	Admin is logged in and support queries exist	Requests are listed	1. Go to "Support Requests" section	List of support tickets with username, role, and timestamp	Passed
TC2	View details of a specific request	TC1	At least one query listed	Full query content shown	1. Click on a support request	Message content from user is displayed	Passed
TC3	Respond to a support query	–	Admin has opened a support ticket	Message delivered to user as notification	1. Enter reply 2. Click "Send"	Confirmation shown; user receives notification	Passed
TC4	Attempt to respond with empty	–	No text in reply box	Submission blocked	1. Leave reply field blank 2. Click "Send"	Error: "Response message cannot be	Passed

	message					empty”	
TC5	Respond using multiline message	–	Admin enters multiline text	Format preserved in response	1. Enter multi-line response 2. Submit	Response appears with line breaks preserved	Passed
TC6	Filter requests by user role	–	Multiple tickets from different roles exist	Filtered list shown	1. Select filter: “PRGI Official”	Only requests from PRGI Officials are listed	Passed
TC7	Sort support queries by submission date	–	Support queries have varied timestamps	List sorted accordingly	1. Apply sort by “Date: Newest First”	Requests reordered by date	Passed
TC8	Cancel a draft response	–	Admin types reply but cancels	No response sent	1. Type message 2. Click Cancel	Text cleared; no action taken	Passed
TC9	Respond to multiple requests in sequence	–	Several requests exist	All get responded individually	1. Open each query 2. Type and send replies	Responses recorded for each user	Passed
TC10	View request with long message	–	User’s message is lengthy	Scrollable or expanded view shown	1. Select request with long description	Full message is readable	Passed
TC11	Respond after long inactivity	–	Admin responds after delay	User still receives notification	1. Respond to an older support query	Notification still delivered to user	Passed
TC12	Attempt to view support section without login	–	Admin is logged out	Access denied	1. Open direct URL to support panel	Redirected to login page	Passed

CHAPTER 6

HARDWARE AND SOFTWARE REQUIREMENTS

Software Requirements

This project is developed using a web-based architecture with a structured and scalable technology stack. The selected tools and libraries are optimized for performance, modularity, and ease of learning.

1. Frontend

- **Technologies:** HTML, CSS
- **Description:** The frontend is developed using standard HTML for structure and CSS for styling. It includes user interfaces for title submission and administrative controls.

2. Backend

- **Technology:** Python with Flask Framework
- **Description:** Flask is used as the backend framework for handling routing, form submissions, title verification logic, and database interactions. It provides a minimal and flexible foundation suitable for building web applications and APIs.

3. Database

- **Technology:** PostgreSQL (Hosted on Supabase)
- **Description:** PostgreSQL is used as the primary relational database to store titles, restricted words or affixes, user records, and logs. Supabase offers a managed cloud environment for hosting the PostgreSQL instance, providing scalability, security, and administrative tools.

4. Libraries for Similarity Checking

- **Libraries Used:**
 - `sklearn.feature_extraction.text.TfidfVectorizer`: Used for vectorizing text data and calculating semantic similarity through cosine similarity.
 - `metaphone` (from the `fuzzy` or `similar` phonetic library): Used to encode phonetic representations of words for comparing pronunciation similarity.
 - `jaro_winkler_similarity` (from `jellyfish` or equivalent): Used for computing phonetic similarity scores between encoded titles.
 - Python standard operations (`set`, `split`, string preprocessing): Used for calculating spelling similarity through Jaccard similarity and for stopwords filtering.

- **Purpose:** These tools are used in combination to compare submitted titles with existing ones using a multi-dimensional similarity approach, incorporating spelling, phonetic, and semantic matching. The final similarity score determines whether a title is unique enough to be registered.

CHAPTER 7

IMPLEMENTATION

Use Case No.	Use Case Name	Test Case No.	Status	Screenshot
TS1	Sign Up	TC1 – TC14	Pass	–
TS2	Log In	TC1 – TC16	Pass	–
TS3	Manage Account Settings	TC1 – TC14	No Run	–
TS4	Approve/Reject Official Accounts	TC1 – TC11	Pass	–
TS5	Manage User Accounts	TC1 – TC14	Pass	–
TS6	Submit Title for Verification	TC1 – TC10	Pass	–
TS7	View Title Analysis and Result	TC1 – TC11	Pass	–
TS8	Register Title	TC1 – TC12	Pass	–
TS9	Approve/Reject Title Registrations	TC1 – TC11	Pass	–
TS10	Manage Restricted Words and Affixes	TC1 – TC19	Pass	–
TS11	Search and View Existing Titles	TC1 – TC15	Pass	–
TS12	View Submission History	TC1 – TC15	Pass	–
TS13	Monitor Title Registration History	TC1 – TC8	Pass	–
TS14	Access Help & Guidelines	TC1 – TC14	No Run	–
TS15	Contact Support	TC1 – TC13	Pass	–
TS16	Respond to Support Queries	TC1 – TC12	Pass	–

CHAPTER 8

CONCLUSION

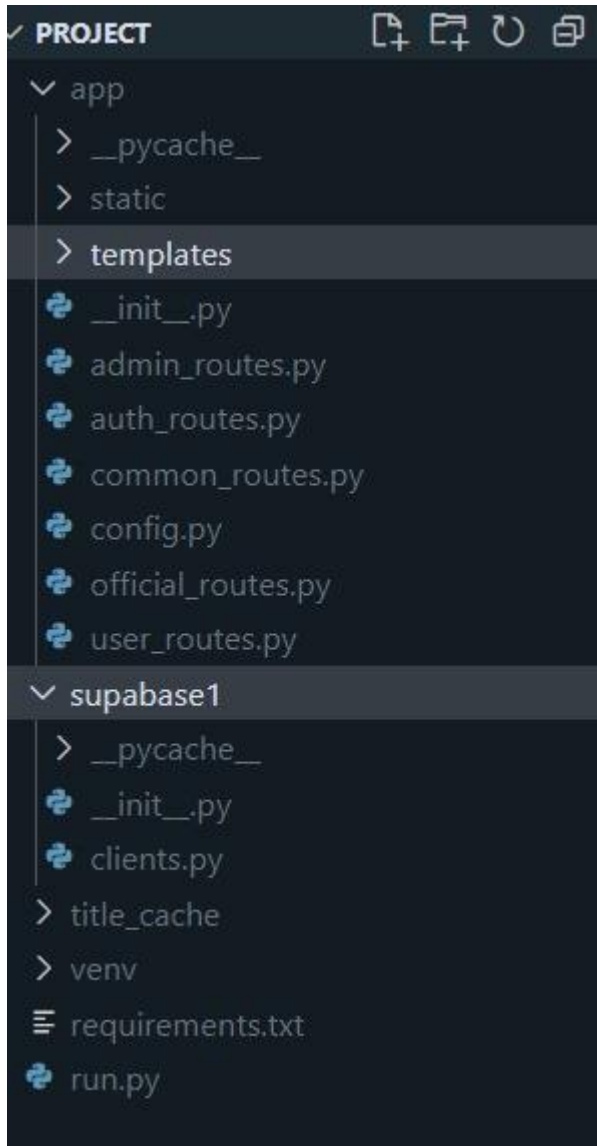
The *Automated Title Verification and Registration System* offers a scalable, intelligent, and user-friendly solution to streamline the title verification process managed by the Press Registrar General of India (PRGI). By leveraging phonetic and semantic similarity detection, enforcing regulatory guidelines, and integrating multilingual awareness, the system ensures that newly submitted titles are both unique and compliant.

With distinct user roles — Title Applicants, PRGI Officials, and System Administrator — the platform provides a well-defined access hierarchy, automated decision-making through similarity scoring, and manual override for special cases. The integrated feedback, history tracking, and support modules enhance transparency and usability.

Extensive use case design and test case coverage have ensured that the system is functionally complete, reliable, and ready for deployment. This project not only solves a real-world administrative bottleneck but also demonstrates a practical application of full-stack development principles, database management, role-based access control, and system validation through comprehensive testing.

Ultimately, this solution fosters fairness, avoids duplication, supports policy enforcement, and sets the stage for future enhancements such as advanced NLP.

APPENDIX A



GitHub repository link: <https://github.com/Madhan-KJ/PRGI>

Website link: <https://prgi-vkwq.onrender.com>

APPENDIX B





This certifies that

Harish Karthic R

successfully completed the

Responsive Web Design

Developer Certification on March 5, 2025

representing approximately 300 hours of work



A stylized, handwritten signature of Quincy Larson in black ink.

Quincy Larson

Executive Director, freeCodeCamp.org



Verify this certification at:

<https://freecodecamp.org/certification/harishkarthic/responsive-web-design>