**Library Management System (LMS) for ISRT**

[ The ISRT Library Management System (LMS) is a comprehensive digital platform designed to automate and streamline all library operations at ISRT]

Users begin by selecting their user type—student, teacher, or staff—and registering by providing their full name and phone number. After submitting these, an OTP is sent to their mobile for verification. Once verified, users enter additional role-specific details: students provide roll number, registration number, session, hall name, institutional email, and address; teachers and staff provide designation, official email, and address. After successful validation, users create a unique User ID and Password. Access to a personalized dashboard is granted only after completing all these steps.

Users log in using their user ID and password. First, they must enter a valid user ID. Once the user ID is recognized, they are prompted to enter the corresponding password. If the password is correct, the user successfully logs in.

In case the user forgets their password, a recovery option is available. The system sends a one-time password (OTP) to the phone number associated with the account. Upon verifying the OTP, the user is allowed to reset their password and a confirmation email will be sent to the user.

Upon login, users access their role-specific dashboards. Students and teachers can view their borrowed books, due dates, fines, clearance status, and other personal library activities. They receive notifications via SMS or email regarding upcoming due dates and outstanding fines to ensure timely action. From the dashboard, users can also submit clearance requests whenever needed.

The E-Library subsystem provides a dedicated digital space where all available book PDFs are systematically organized and easily accessible. Users can browse or search for books, and upon selecting a specific title, they are presented with several interactive options. These include downloading the full book PDF, accessing a system-generated summary in PDF format, and participating in the Review & Ratings section. This section features a star-based rating system and allows users to leave written feedback. By offering multiple ways to engage with digital resources, the E-Library subsystem promotes self-paced learning and encourages active user interaction with library content.

The system features a smart search function, enabling users to find books by any detail—such as title, author, or subject—using text or voice input, along with filtering options for refined results.

Users can initiate a book borrowing request directly from their personalized dashboard. The system offers two methods to begin the process. In the first method, users can manually fill out a borrowing form by entering key book details such as the title, author, and classification number. In the second method, users can browse or search for a book through the integrated library catalog. When a book is found, its detail page displays a “Borrow This Book” button. Clicking this button auto-fills the borrowing form with the book’s information. In both cases—manual entry or catalog selection—the user then submits the completed request form. Once submitted, the system forwards the request to the librarian’s admin panel for further processing.

When a borrowing request enters the Pending Approval module, the system follows a step-by-step process. First, the librarian checks the book’s availability through the Availability subsystem. If no copies are available, the request is redirected to the Waitlist subsystem. If copies are available, the librarian then checks the user's eligibility using the Eligibility subsystem. If the user is eligible, the request is forwarded to the Approval subsystem for final approval. If the user is not eligible, the request is rejected, and a cancellation email is sent automatically with the reason.

When a borrowing request is received, the Availability subsystem automatically checks the real-time stock of the requested book. It verifies how many copies are currently available and whether the book is already reserved or on hold. If copies are available, the request proceeds to the Eligibility check. If no copies are available or the book is on hold, the system redirects the request to the Waitlist subsystem. This process ensures that the librarian always works with accurate availability data before moving forward with any decision.

The Eligibility subsystem automatically checks the user's borrowing status when a request is received. It verifies if the user has unpaid fines, demerit points, or blacklist status. The system then shows a clear pass or fail result next to the request. If the user is eligible, the request moves to the Approval subsystem. If not, the system rejects the request and sends a cancellation notice with the reason.

When a book is unavailable or all copies are borrowed, the Waitlist automatically adds new requests to a digital queue. Each user is placed in the queue based on their role and application time. Teachers are given the highest priority and are always placed at the front, regardless of when they applied. All other users are organized on a first-come, first-served basis within their category. The system continuously monitors book availability. When a copy becomes available, it notifies the librarian and highlights the next eligible user based on the queue.

If the user is eligible and copies are available, the librarian reviews the request and can approve it by setting a custom return deadline aligned with library policy or specific user needs. Once approved, the system generates a confirmation PDF that includes the book and user details, the set return deadline, the fine policy, and an official library seal marked “Permission Granted.” This PDF is then emailed to the user and simultaneously saved in their dashboard for easy access and future reference.

If the user is blacklisted or does not meet the eligibility criteria, the system automatically rejects the request. It then generates a cancellation notice clearly explaining the reason for rejection and sends this notice to the user promptly.

The system comprehensively manages fines by automatically calculating charges for delayed returns and lost books, with lost items incurring double fees. Users are notified via mail of their fines and can pay through Mobile Financial Services such as bKash or Nagad. Upon payment confirmation, the system updates the user’s fine status accordingly. If fines remain unpaid and the user accumulates three demerit points, they are automatically blacklisted, causing all borrowing requests to be rejected until dues are settled. To regain borrowing privileges, blacklisted users must clear all outstanding fines, return any overdue books, and submit a “Reactivation Request” via their dashboard. After the librarian verifies all conditions are met, they can approve the reactivation, restoring the user’s normal borrowing rights.

One day before the return deadline, the system sends the user a reminder email that includes an option to request a renewal if needed. If the user submits a renewal request, the librarian reviews and approves or denies it. On the due date, if the book is not returned and no renewal has been approved, the system adds a demerit point to the user’s dashboard. Upon return, the librarian clicks a “Book Received” button linked to the borrowing record, which updates the system in real time by marking the book as returned, increasing its available copies, and closing the transaction. The user then receives a confirmation and thank-you email.

The system handles extension requests by forwarding each renewal application to the librarian for approval. The librarian may approve a user’s renewal request up to two consecutive times; after that, any further renewal request is automatically denied. When approved, the system updates the return deadline, generates a new confirmation PDF with the revised due date, and emails it to the user. If the renewal is denied—either automatically after two consecutive approvals or by librarian decision—the user is promptly notified to return the book on time.

A book purchase committee, composed of 6 to 7 faculty members, is responsible for making book selection and purchase decisions. Each year, the BPC manually analyzes borrowing patterns and student demand to suggest specific books or categories for purchase. The number of books purchased can vary depending on priorities and budget availability. All purchases are funded by ISRT’s annual budget, and bills are manually verified after the purchase to ensure financial transparency and accountability. Once new books are purchased, the BPC updates the book list in the system. Outdated or damaged books may be removed from the active catalog and archived instead of deleted. This helps retain metadata and borrowing history for internal reference and audit purposes.

The library maintains its own research journal to support academic publishing by ISRT faculty and researchers. Accepted works are formally published either digitally or in print. This initiative not only encourages scholarly contributions but also provides a dedicated platform for showcasing the research output of the institution.

In the ISRT Library Management System, users can request clearance through a dedicated button on their dashboard. Students may apply for certificate or marksheet clearance, while teachers and staff can apply for pension-related clearance. After selecting the clearance type, users fill out a detailed form—students provide their name, roll number, registration number, session, hall name, institutional email, phone number, address, and reason; teachers and staff provide their name, designation, working duration, official email, phone number, address, and reason. Once submitted, the request appears on the admin’s dashboard under the clearance section. Before taking action, the system or admin checks the user’s eligibility by verifying whether the user has any pending books, unpaid fines, or is blacklisted. If the user is eligible, the admin approves the request, and a PDF clearance certificate is automatically generated containing the user's submitted details, a statement confirming that no books or fines are pending, and an auto-generated library seal. The certificate is emailed to the user and made available for download. If the user is not eligible, the admin cancels the request and must provide a reason, which is included in a cancellation email sent to the user.