

Phase 8: Data Management (Library Book Borrowing System)

Goal

To manage, import, export, and maintain data effectively in Salesforce for the Library Book Borrowing System. This ensures data accuracy, consistency, and reliability throughout the application lifecycle.

Step 1: Objectives of Data Management

The purpose of this phase is to:

- Import and organize data for Books, Students, and Borrow Records.
- Maintain clean and accurate data using Salesforce tools.
- Export and back up records for security and reporting.
- Validate data integrity across all related objects.

Screenshot: Data Management overview page in Setup.

Step 2: Data Import — Adding Initial Records

Objective

Import data for Books, Students, and Borrow Records using Salesforce's Data Import Wizard.

Steps

1. Go to **Setup** → **Data Import Wizard**.
2. Click **Launch Wizard**.
3. Choose the object you want to import:
 - **Books** → Custom Object: Book.
 - **Students** → Custom Object: Student.
 - **Borrow Records** → Custom Object: Borrow Record.
4. Upload a **CSV file** for each object with required fields:

Example CSV for Books:

Title	Author	ISBN	Category	Status
Data Science Basics	John Doe	9781234567890	Education	Available
AI Foundations	Jane Smith	9789876543210	Technology	Borrowed

Example CSV for Students:

Student Name	Roll Number	Department	Email
Alex Johnson	S001	Computer Science	alex@example.com
Maria Lee	S002	Electrical	maria@example.com

Example CSV for Borrow Records:

Book	Student	Borrow Date	Return Date	Status
Data Science Basics	Alex Johnson	2025-09-01	2025-09-10	Borrowed
AI Foundations	Maria Lee	2025-09-03	2025-09-12	Returned

- Click **Next → Map Fields Automatically** (or manually map if needed).
- Review your mappings and click **Start Import**.

Expected Result: CSV data successfully imported into Salesforce objects.

Screenshot: Data Import Wizard progress and completion screen.

Step 3: Data Export — Backup and Reporting

Objective

Export records from Salesforce for backup or offline analysis.

Steps

- Go to **Setup → Data Export → Schedule Export**.
- Choose objects to export:
 - Books
 - Students
 - Borrow Records
- Check **Include images, documents, attachments** (optional).
- Click **Start Export** or **Schedule Export** for automatic weekly backups.
- Once complete, download the **.zip file** containing CSV files.

Alternative Tool: Use **Data Loader** for bulk export.

Expected Result: CSV backup files generated successfully.

Screenshot: Data Export Service summary with objects selected.

Step 4: Data Maintenance — Editing and Cleaning Data

Objective

Maintain and update records periodically to ensure data accuracy.

Steps

1. Open the **App Launcher** → **Library Management** → **Object Tabs**.
2. Navigate to:
 - **Books Tab** → Edit statuses for borrowed or returned books.
 - **Students Tab** → Update student details or contact info.
 - **Borrow Records Tab** → Edit return dates or statuses as needed.
3. Use **List Views** to filter and bulk update data.
 - Example: Create a list view for *Books with Status = Borrowed*.
4. Delete duplicate or incorrect records if identified.

Expected Result: All data remains updated and consistent across objects.

Screenshot: Book list view showing editable records.

Step 5: Data Validation — Ensuring Integrity

Objective

Verify that imported and updated data remains valid and consistent across relationships.

Steps

1. Open random Borrow Records to ensure:
 - Linked **Book** and **Student** fields are populated correctly.
 - **Borrow Date** < **Return Date**.
2. Run validation reports:
 - Create a custom report *Borrow Records without Linked Book or Student*.
 - Use filters: Book = blank OR Student = blank.
3. Fix missing relationships using Data Import Wizard or manual editing.

Expected Result: All records are properly linked and logically valid.

Screenshot: Report showing validated Borrow Records with related data.

Step 6: Duplicate Management

Objective

Prevent and handle duplicate records using Salesforce's built-in Duplicate Management feature.

Steps

1. Go to **Setup → Duplicate Rules**.
2. Click **New Rule → Select Object** (e.g., Student).
3. Define rule criteria:
 - Match **Student Name** and **Email**.
4. Choose **Action**: Block or Allow with Alert.
5. Activate the rule.

Expected Result: System prevents creation of duplicate Student records.

Screenshot: Active duplicate rule for Student object.

Step 7: Data Security and Access Control

Objective

Ensure only authorized users can view or modify sensitive data.

Steps

1. Verify **Profile and Permission Set** settings:
 - Library Manager: Full Access.
 - Librarian: Read/Edit on Books and Borrow Records.
 - Assistant Librarian: Read-only.
2. Field-level Security:
 - Hide sensitive fields like Email or Roll Number for lower roles.
3. Record Ownership:
 - Assign records to correct users or roles.

Expected Result: Secure and controlled access to data across roles.

Screenshot: Field-level security settings for Student object.

Step 8: Data Backup and Recovery Plan

Objective

Establish regular backups to prevent data loss.

Steps

1. Enable **Weekly Data Export** in Setup.
2. Use **Data Loader** or **Salesforce Data Export** to manually back up key objects.
3. Store exported files securely in **Google Drive/OneDrive**.

4. Keep at least 3 latest backups for rollback safety.

Expected Result: Reliable and up-to-date backups for all library data.

Screenshot: Cloud folder containing CSV backups.

Step 9: Testing Data Management Operations

Objective

Validate that data import, export, and updates are successful.

Test Checklist

Test Case	Action	Expected Result
Import Book records	Data Import Wizard	Books imported successfully
Export Student data	Data Export Service	CSV generated with correct data
Update Borrow Records	Inline editing	Records saved without errors
Duplicate rule test	Add duplicate student	Duplicate blocked
Backup recovery	Re-import old backup	Data restored accurately

Screenshot: Successful import confirmation message.

Step 10: Final Validation and Summary

Objective

Summarize and validate all data management activities.

Summary Table

Task	Status	Notes
Data Import	✓ Completed	All records imported successfully
Data Export	✓ Completed	Backup generated weekly
Data Maintenance	✓ Ongoing	Regular updates verified
Data Validation	✓ Completed	No missing relationships
Duplicate Management	✓ Enabled	Prevents redundant entries

Phase 8 Outcome

- Data successfully imported, maintained, and validated.

- Regular export and backup procedures establis