

# Library Management System

## Overview

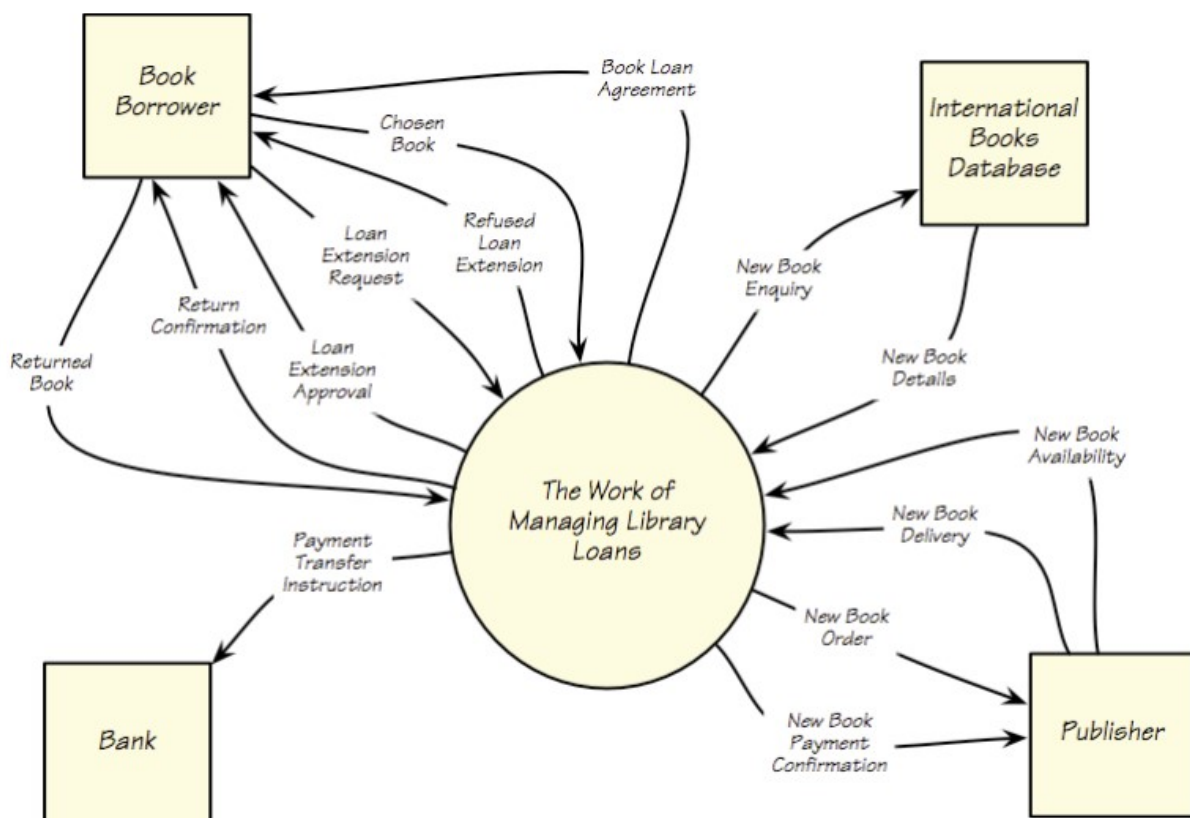
Your team has been engaged to build a new library management system (LMS) for the Yola community. The new LMS is expected to help minimize late and non-return of loaned library books or library loans. Research has shown that about 5% of library loans are extended with permission, 30% are returned late without an extension, and another 20% are never returned at all. The problem is that late or non-returns represent a significant cost to the library and reduces the capacity of the library to effectively serve the community. The primary purpose of the LMS is to help minimize or avoid any losses due to late and/or non-return of library loans.

## The Current Situation

The work of library loans is currently carried out with a mixture of filing cards, Excel spreadsheets, Access databases, manual procedures and some custom-built pieces of software including the Library Management System marketed by Library Loans Ltd. See the library business process models elaborated in the context model below for details on the “how now” situation of how the work is carried out.

## The Context of the Work

This context diagram identifies the boundary of the investigation that is necessary to understand the business of managing library loans and to specify the business requirements. Note that each input and output is defined in the Data Dictionary presented in the Appendix.



## Business Event (BE) List

The following business event list is used to partition the work of managing the library loans into five key functions. The inputs and outputs allow us to trace back each business event to its higher-level summary in the context diagram. The inputs and outputs are also defined in the data dictionary.

## Library Management System

Business Event List			
No.	Business Event (BE) Name	Input	Output
1.	Borrower chooses book	▪ Chosen book	▪ Book loan agreement
2.	Borrower wants to extend loan	▪ Loan extension request	▪ Loan extension approval ▪ Loan extension refusal
3.	Publisher has new book available	▪ New book availability	▪ New book order
4.	Publisher delivers new book	▪ New book delivery ▪ New book details	▪ New book enquiry
5.	Time to pay for new books	▪ None	▪ Payment transfer instruction ▪ New book payment confirmation
6.	Borrower returns book	▪ Returned book	▪ Return confirmation

### Business Use Case (BUC) Scenarios

**BUC Scenario for Business Event 2:** Borrower wants to extend loan

**BE 2:** Borrower wants to extend loan

**BUC:** Decide on loan extension

**Trigger:** Loan Extension Request

**Precondition:** The Borrower must have an existing loan for the book in question

**Interested Stakeholders:** Librarian(s), Auditors, Borrower

**Active Stakeholder:** Duty Librarian, Borrower

**Scenario Steps:**

- 1) The borrower gives the loan extension request to the duty librarian
- 2) The librarian finds the book loan agreement for the requested extension
- 3) The librarian finds any other books that are currently loaned to the borrower
- 4) The librarian checks that none of the dates on each of the books currently loaned to the borrower is earlier than today's date
- 5) The librarian makes and records the loan extension request decision
- 6) The librarian gives the loan request extension decision to the borrower
- 7) The librarian confirms the loan return date to borrower or asks the borrower to return any overdue loans

**Outcome:** The decision on book loan extension is made and the borrower is informed

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### Appendix:

#### Data Dictionary

Naming conventions and definitions for the Library Loans			
Data Name	Description	Definition	Data Type
<b>Author</b>	The writer of the book	Author Name	Class
<b>Author Name</b>	Name of the writer of the book		Data element
<b>Bank Account Transfer Details</b>	A publisher's bank details for transferring payments		Data element
<b>Book</b>	A publication available for loan	Book ISBN + Book Title + Published Date + Book Classification	Class
<b>Book Copy</b>	A specific copy of a book	Copy Number	Data element
<b>Book Classification</b>		[Fiction   Non-Fiction   Children]	Data element
<b>Book Delivery</b>	Data stored to keep track of deliveries of ordered books	Delivery Date + Number of Copies Delivered + Delivery Price	Class
<b>Book ISBN</b>	Unique identifier for a Book	Identifier assigned by central body	Data element
<b>Book Loan Agreement</b>	Agreement between Book Borrower and Library	Borrower Name + Borrower Id + Library Id + Book ISBN + Copy Number + Loan Start Date + Loan Expiry Date	Dataflow
<b>Book Order</b>	Data stored to keep track of a New Book Order	Order Number + Order Date + Number of Copies	Class
<b>Book Title</b>	Title of a book supplied by the publisher		Data element
<b>Borrower</b>	Person or organization who borrows books from a library	Borrower Name + Borrower Id + Borrower Address	Class
<b>Borrower Id</b>	Unique number assigned by the library	Number from 1 to 10000000	Data element
<b>Borrower Name</b>	Name by which the borrower is known	Borrower Title + Borrower Forename + Borrower Surname	Data group
<b>Copy Number</b>	Number to identify multiple copies of books with the same ISBN		Data element
<b>Chosen Book</b>	Book that borrower	Borrower Id + Book	Dataflow

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	has chosen to borrow	ISBN + Copy Number + Book Title	
<b>Delivery Price</b>	The price charged to the Library by the publisher for the supply and delivery of ordered books		Data element
<b>Finance Department</b>	The finance department of the library	Finance Department Contact	Adjacent System Stakeholder
<b>Loan</b>	Record of the loan of a Book	Loan Start Date + Loan Expiry Date + Return Date + (Loan Extension Date)	Class
<b>Loan Extension Approval</b>	Decision made by library to approve extension of a loan	Library Id + Borrower Id + Book ISBN + Copy Number + Loan Extension Date	Dataflow
<b>Loan Extension Date</b>	Extension to the date by which a book must be returned		Data element
<b>Loan Extension Request</b>	Request from borrower to extend an existing loan	Borrower Id + Book ISBN + Book Title + Extension Request Date	Dataflow
<b>Loan Expiry Date</b>	The date that a loaned book must be returned		Data element
<b>Loan Start Date</b>	The date that a book loan starts		Data element
<b>New Book Availability</b>	Alert from publisher about availability of new book	Book ISBN + Book Title + Author Name + Book Review + Publisher Name + Published Date + Book Price	Dataflow
<b>New Book Delivery</b>	A new book delivered by the publisher in response to an order	Title + Order Number + Delivery Date + Delivery Price + {Physical Book}	Dataflow
<b>New Book Details</b>	Book details provided by the international books database	Book ISBN + Book Title + Author Name + Publisher Name + Published Date + Book Price	Dataflow
<b>New Book Enquiry</b>	Enquiry sent to the international books database	Book ISBN + Book Title + Author Name	Dataflow
<b>International</b>	A database containing	{Book ISBN + Book	External Database

## Library Management System

<b>Books Database</b>	details of all published books. This is maintained by the International Library Association	Title + Author Name + Published Date + Book Classification}	
<b>Library</b>	A library belonging to the International Library Association	Library Id + Library Address	Class
<b>Library Id</b>	Unique number assigned by the International Library Association	Structure defined in Library Id definition document LID2008	Data element