

Phase 3

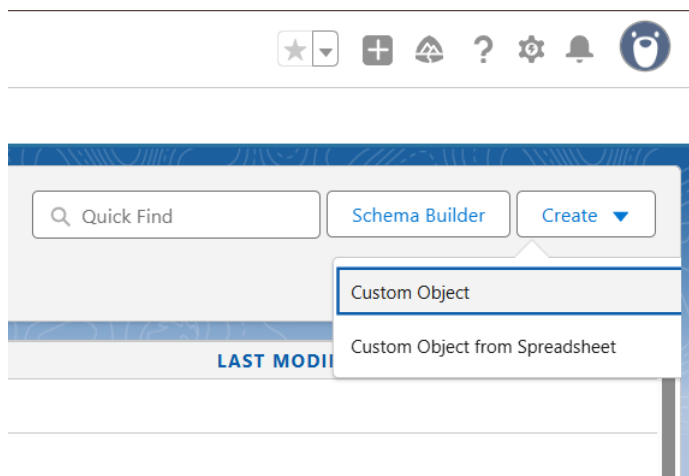
This phase discusses about the Data modelling, Objects, Fields and the Relationships between them

❖ Objects :

Custom Objects :

- Book : Will be used to store the information of library books.
- Borrower : This object will be used for maintaining the borrowers list and possible late dues.
- Member : This will maintain the information of the library members.
- Bill : This will maintain the bills for the library member and their payment status.

❖ Creating the objects :



Book :

Setup

Home

Object Manager

Search Setup

SETUP

New Custom Object

Custom Object Definition Edit

SaveSave & NewCancel

Custom Object Information

Required Information

The singular and plural labels are used in tabs, page layouts, and reports.

Label

Book

Example: Account

Plural Label

Books

Example: Accounts

Starts with vowel sound

☐

The Object Name is used when referencing the object via the API.

Object Name

Book

Example: Account

Description

Context-Sensitive Help Setting

☒ Open the standard Salesforce.com Help & Training window

☐ Open a window using a Visualforce page

Content Name

None

Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name

Book Name

Example: Account Name

Data Type

Text

Warning: If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.

Optional Features

SETUP

New Custom Object

Optional Features

Allow Reports

☒

Allow Activities

☒

Track Field History

☒

Allow in Chatter Groups

☒

Enable Licensing

☐

Object Classification

When these settings are enabled, this object is classified as an Enterprise Application object. When these settings are disabled, this object is classified as a Light Application object. [Learn more.](#)

Allow Sharing

☒

Allow Bulk API Access

☒

Allow Streaming API Access

☒

Deployment Status

[What is this?](#)

In Development

☐

Deployed

☒

Search Status

When this setting is enabled, your users can find records of this object type when they search. [Learn more.](#)

Allow Search

☐

Object Creation Options (Available only when custom object is first created)

Add Notes and Attachments related list to default page layout

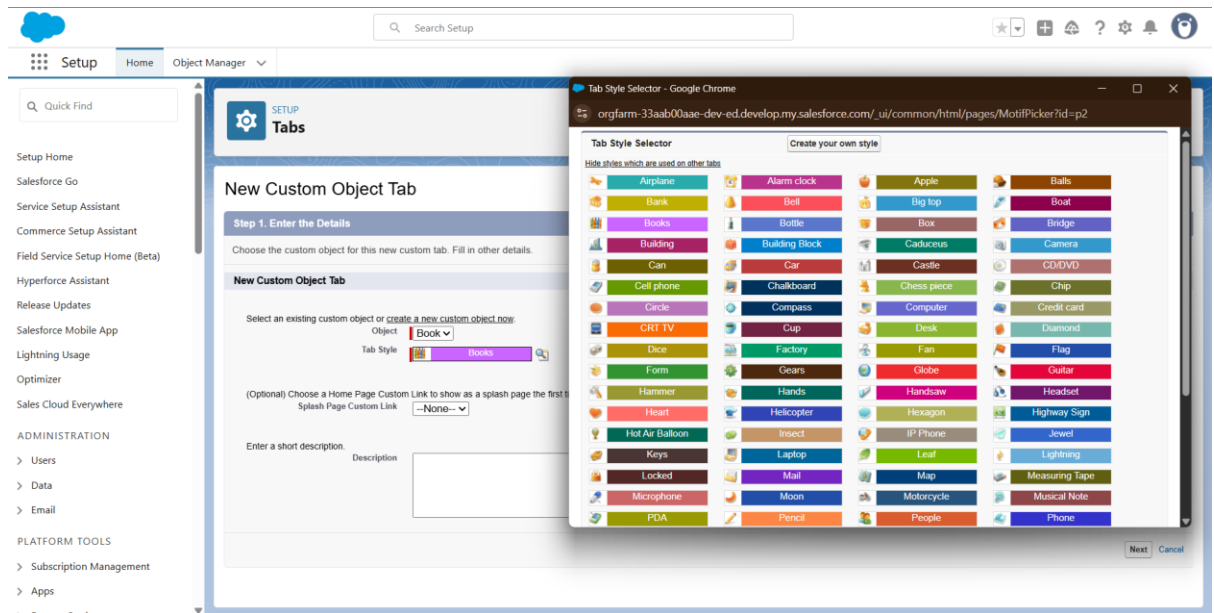
☐

Launch New Custom Tab Wizard after saving this custom object

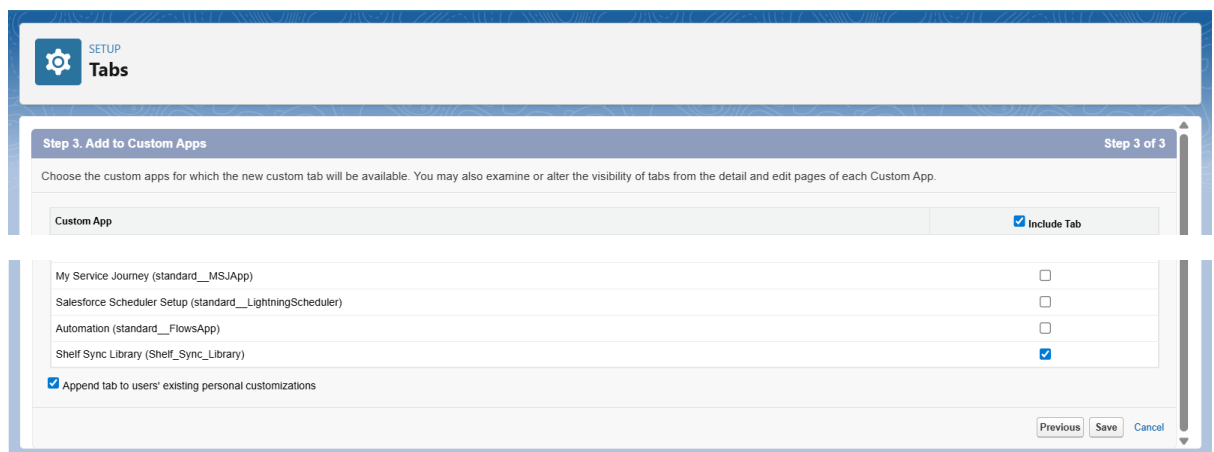
☒

SaveSave & NewCancel

Creating tab for book :



Now disable include tab to all the custom apps and selecting just “Shelf Sync Library” App



And hitting save.

Borrower :

The screenshot shows the 'New Custom Object' page in Salesforce Setup. The 'Custom Object Definition Edit' section is active, showing the 'Custom Object Information' tab. The 'Label' field is 'Borrower', 'Plural Label' is 'Borrowers', and 'Object Name' is 'Borrower'. The 'Data Type' is 'Auto Number'. The 'Record Name' is 'Borrower ID'. The 'Starting Number' is '1'. The 'Context Sensitive Help Setting' is 'Open the standard Salesforce.com Help & Training window'. The 'Content Name' is 'None'. The 'Enter Record Name Label and Format' section shows the 'Record Name' as 'Borrower ID' and the 'Display Format' as 'BO-0000'. The 'Starting Number' is '1'. The 'Warning' message states: 'Warning: If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.'

Custom Object Definition Edit [Save] [Save & New] [Cancel]

Custom Object Information ⓘ Required Information

The singular and plural labels are used in tabs, page layouts, and reports.

Label Example: Account

Plural Label Example: Accounts

Starts with vowel sound ☐

The Object Name is used when referencing the object via the API.

Object Name Example: Account

Description

Context Sensitive Help Setting

☒ Open the standard Salesforce.com Help & Training window

☐ Open a window using a Visualforce page

Content Name

Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name Example: Account Name

Data Type Warning: If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.

Display Format Example: A-0000 [What is This?](#)

Starting Number

The screenshot shows the 'New Custom Object' page in Salesforce Setup, specifically the 'Optional Features' section. The 'Allow Reports', 'Allow Activities', 'Track Field History', and 'Allow in Chatter Groups' checkboxes are checked. The 'Enable Licensing' checkbox is unchecked. The 'Object Classification' section shows 'Allow Sharing', 'Allow Bulk API Access', and 'Allow Streaming API Access' all checked. The 'Deployment Status' section shows 'In Development' selected. The 'Search Status' section shows 'Allow Search' selected. The 'Object Creation Options' section shows 'Add Notes and Attachments related list to default page layout' selected and 'Launch New Custom Tab Wizard after saving this custom object' selected. The 'Save', 'Save & New', and 'Cancel' buttons are at the bottom.

Optional Features

☒ Allow Reports

☒ Allow Activities

☒ Track Field History

☒ Allow in Chatter Groups

☐ Enable Licensing ⓘ

Object Classification

When these settings are enabled, this object is classified as an Enterprise Application object. When these settings are disabled, this object is classified as a Light Application object. [Learn more](#)

☒ Allow Sharing

☒ Allow Bulk API Access

☒ Allow Streaming API Access

Deployment Status [What is this?](#)

☐ In Development

☒ Deployed

Search Status

When this setting is enabled, your users can find records of this object type when they search. [Learn more](#)

☐ Allow Search


Object Creation Options (Available only when custom object is first created)

☐ Add Notes and Attachments related list to default page layout

☒ Launch New Custom Tab Wizard after saving this custom object

[Save] [Save & New] [Cancel]

Creating the Tab for this object and including in Library app


SETUP
Tabs

New Custom Object Tab

[Help for this Page](#)

Step 1. Enter the Details
Step 1 of 3

Choose the custom object for this new custom tab. Fill in other details.

New Custom Object Tab
Required Information

Select an existing custom object or [create a new custom object now](#).

Object **Borrower**

Tab Style **Alarm clock**

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.


Splash Page Custom Link **--None--**



Enter a short description.








Description


Next **Cancel**

Member :


Setup



Object Manager


SETUP
New Custom Object

Custom Object Definition Edit
Save Save & New Cancel

Custom Object Information
Required Information

The singular and plural labels are used in tabs, page layouts, and reports.

Label **Member** **Example: Account**

Plural Label **Members** **Example: Accounts**

Starts with vowel sound ☐

The Object Name is used when referencing the object via the API.

Object Name **Member** **Example: Account**

Description

Context-Sensitive Help Setting

☒ Open the standard Salesforce.com Help & Training window

☐ Open a window using a Visualforce page

Content Name **--None--**

Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name **Member Name** **Example: Account Name**

Data Type **Auto Number** **Warning:** If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.

Display Format **M-0000** **Example: A-0000** [What Is This?](#)

Starting Number **1**

SETUP
New Custom Object

Optional Features

- ☒ Allow Reports
- ☒ Allow Activities
- ☒ Track Field History
- ☒ Allow in Chatter Groups
- ☐ Enable Licensing [i](#)

Object Classification

When these settings are enabled, this object is classified as an Enterprise Application object. When these settings are disabled, this object is classified as a Light Application object. [Learn more](#)

- ☒ Allow Sharing
- ☒ Allow Bulk API Access
- ☒ Allow Streaming API Access

Deployment Status [What is this?](#)

☐ In Development
☒ Deployed

Search Status

When this setting is enabled, your users can find records of this object type when they search. [Learn more](#)

☐ Allow Search

Object Creation Options (Available only when custom object is first created)

- ☐ Add Notes and Attachments related list to default page layout
- ☒ Launch New Custom Tab Wizard after saving this custom object

[Save](#) [Save & New](#) [Cancel](#)

And a Tab for this object :

SETUP
Tabs

New Custom Object Tab [Help for this Page](#)

Step 1. Enter the Details Step 1 of 3

Choose the custom object for this new custom tab. Fill in other details.

New Custom Object Tab ! Required Information

Select an existing custom object or [create a new custom object now](#).

Object: **Member** [v](#)

Tab Style: **Computer** [v](#)

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link: **--None--** [v](#)

Enter a short description.

Description:

[Next](#) [Cancel](#)

Bill :

Setup Home **Object Manager** [v](#)

SETUP
New Custom Object

Custom Object Definition Edit [Save](#) [Save & New](#) [Cancel](#)

Custom Object Information ! Required Information

The singular and plural labels are used in tabs, page layouts, and reports.

Label: **Bill** [v](#) **Example: Account**

Plural Label: **Bills** [v](#) **Example: Accounts**

Starts with vowel sound: ☐

The Object Name is used when referencing the object via the API.

Object Name: **Bill** [v](#) **Example: Account**

Description:

Context-Sensitive Help Setting: ☒ Open the standard Salesforce.com Help & Training window
☐ Open a window using a Visualforce page

Content Name: **--None--** [v](#)

Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name: **Bill No.** [v](#) **Example: Account Name**

Data Type: **Auto Number** [v](#) **Warning:** If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.

Display Format: **0L-(0000)** [v](#) **Example: A-(0000) [What is This?](#)**

Starting Number: **1** [v](#)

New Custom Object Tab

Help for this Page

Step 1. Enter the Details

Step 1 of 3

Choose the custom object for this new custom tab. Fill in other details.

New Custom Object Tab

Required Information

Select an existing custom object or [create a new custom object now.](#)

Object Bill

Tab Style Desk

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link --None--

Enter a short description.

Description

Next

Cancel

❖ Adding the Navigation bar items for the Library :

Edit Shelf Sync Library App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#)

NAVIGATION ITEMS (8)

Add More Items

- Home
- Accounts
- Calendar
- Dashboards
- Books
- Borrowers
- Members
- Bills

[Reset Navigation to Default](#)

Cancel

Save

Edit Shelf Sync Library App Navigation Items

Personalize your nav bar for this app. Reorder items, and rename or remove items you've added.

[Learn More](#)

1 item added to your list. Save your updates.

NAVIGATION ITEMS (9)

Add More Items

- Home
- Accounts
- Calendar
- Dashboards
- Books
- Borrowers
- Members
- Bills
- Contacts

[Reset Navigation to Default](#)

Cancel

Save

❖ Fields in Objects:

● Book :

Creating Fields : Book Name/Title (Text), Author (Text), Book Type (Picklist), Description (Text), Quantity / Stock (Number).

Below is a screenshot :

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Author	Author__c	Text(40)		
Book Title	Name	Text(80)		✓
Book Type	Book_Type__c	Picklist		
Created By	CreatedById	Lookup(User)		
Description	Description__c	Text(200)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User, Group)		✓
Stock	Stock__c	Number(18, 0)		

- We need an book title, author name, book type, stock available and description of the book if needed.
- This Objects Record is a Parent for Borrower's Master – Detail Relationship.

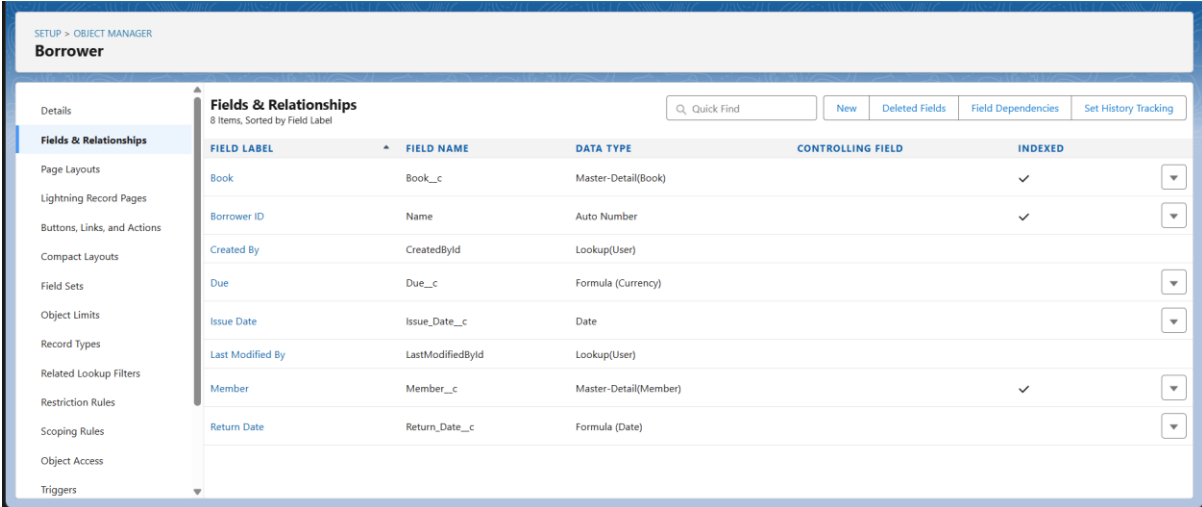
Book Type has List of book types :

Romance, Fantasy, Science Fiction, Mystery & Detective, Thriller & Suspense, Horror, Historical Fiction, Adventure, Memoir & Autobiography, Biography, Self-Help/Personal Development, History, Business & Economics, Science & Technology, Art & Photography.

● Borrower :

Creating Fields : Book (Master Detail (Book)), Issue Date (Date), Return Date (Formula(Date)), Member (Master Detail (Member)), Due/Fine (Formula (Currency)), Borrower ID (Auto Number).

Below is a screenshot :



FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Book	Book__c	Master-Detail(Book)		✓
Borrower ID	Name	Auto Number		✓
Created By	CreatedById	Lookup(User)		
Due	Due__c	Formula (Currency)		
Issue Date	Issue_Date__c	Date		
Last Modified By	LastModifiedById	Lookup(User)		
Member	Member__c	Master-Detail(Member)		✓
Return Date	Return_Date__c	Formula (Date)		

- This Object is a child to its **two parents** i.e. One is **BOOK** and Other is **MEMBER**, and thus has **2 Master Detail Relationships** and is the **Junction Object** here.
- If any of its parent gets deleted the borrower records will be deleted and depends on its parents.
- Return Date is Formulated from the Issue Date :
- Formula is : **Issue_Date__c + 30**
- **To get an return date of 30 days after issuing the book.**
- Due is calculated using formula depending on the days passed after the return date, with 50 \$ per day as Fine.

- Formula is : $\text{IF}(\text{TODAY}() > \text{Return_Date_c}, (\text{TODAY}() - \text{Return_Date_c}) * 50, 0)$

• Member :

Creating Fields : Member Name (Text), Member ID (Auto Number), Email ID (Email), Mobile Number (Phone), Gender (Picklist), Address (Text).

Below is a screenshot :

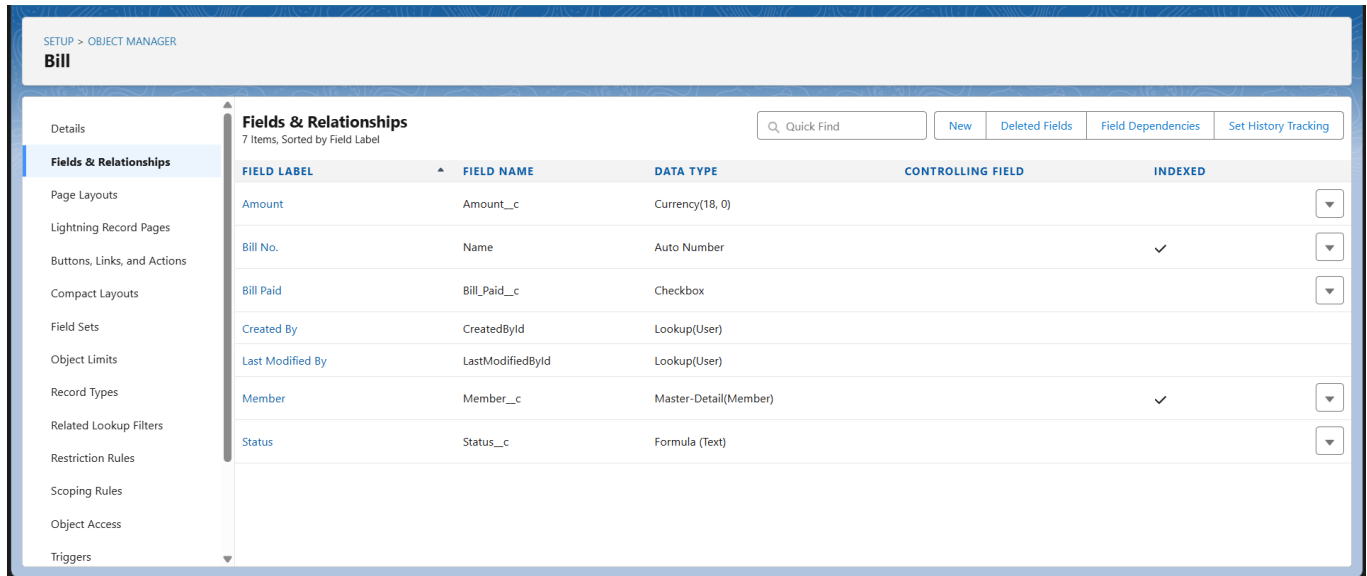
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address__c	Text Area(255)		
Created By	CreatedById	Lookup(User)		
Email ID	Email_ID__c	Email		
Gender	Gender__c	Picklist		
Last Modified By	LastModifiedById	Lookup(User)		
Member ID	Member_ID__c	Auto Number		
Member Name	Name	Text(80)		✓
Mobile Number	Mobile_Number__c	Phone		
Owner	OwnerId	Lookup(User,Group)		✓

- This Object is one of the parents of the Borrower Object and the parent of Bill Object.
- Deleting this record will cause records of both Borrower and Bill to be deleted according to MD relationship.
- Gender is a Picklist with values : Male, Female and Others.

● Bill :

Creating Fields : Bill No., Status (Formulae(Text)), Member Name (Master Detail (Member)), Amount Due (Currency), Bill Paid (Checkbox).

Below is a screenshot :



FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(18, 0)		
Bill No.	Name	Auto Number		✓
Bill Paid	Bill_Paid__c	Checkbox		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Member	Member__c	Master-Detail(Member)		✓
Status	Status__c	Formula (Text)		

- This is a child to the Member Object and has one Master Detail Relationship.
- This Object will show us the impending dues of the library members and the records which will be created using automation features of salesforce and triggers.
- The Status Box Shows a Image Output from a formula i.e. if the Bill_Paid is True or False.

The images are imported as **Static Resource** in the org.

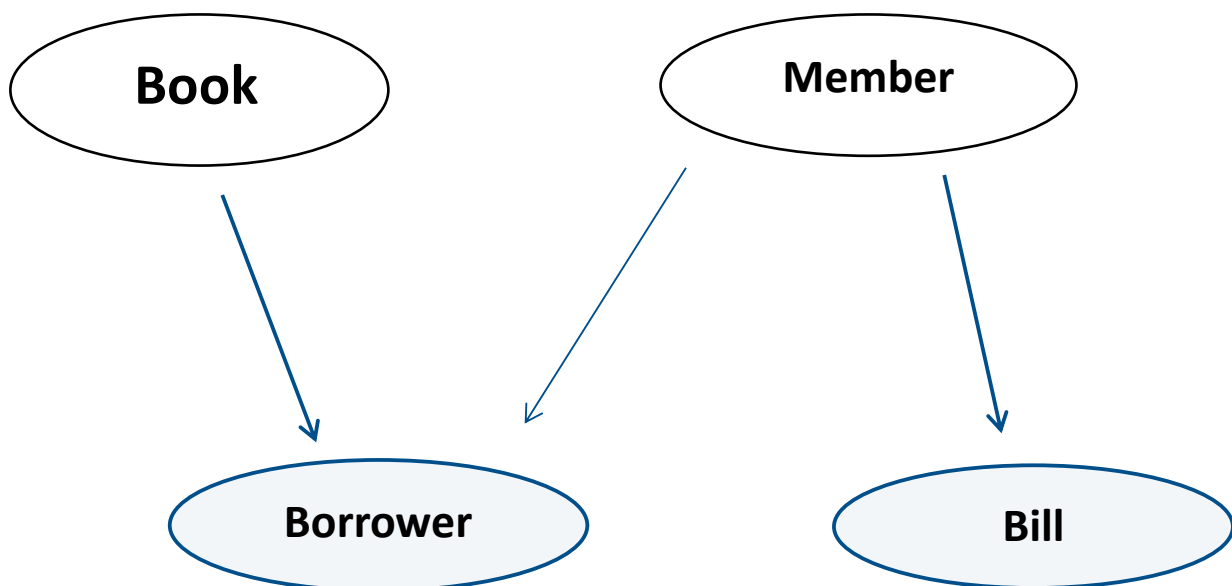
Static Resources									
Use static resources to upload content that you want to reference in a Visualforce page, including .zip and .jar files, images, stylesheets, JavaScript, and other files.									
View: All Create New View									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All									
New									
Action	Name	Namespace Prefix	Description	MIME Type	Size	Created By Alias	Created Date	Last Modified Date +	Cache Control
<a>Edit <a>Del	unpaid_icon			image/jpeg	7,741	Librarian	9/21/2025	9/21/2025, 12:33 PM	Public
<a>Edit <a>Del	paid_icon			image/jpeg	5,658	Librarian	9/21/2025	9/21/2025, 12:33 PM	Public

The formula used :

```
IF(
    Bill_Paid__c,
    IMAGE("/resource/paid_icon", "Paid", 100, 100),
    IMAGE("/resource/unpaid_icon", "Unpaid", 100, 100)
)
```

Shows the respective image for bill paid or not paid.

❖The Relationship Diagram :



- In the above diagram the Book → Borrower shows a parent to child relation and ;
- Member → Borrower, Member → Bill shows another parent to child relation
- Here the Borrower Object has Two Master Detail Relationships
- The Bill Object has One Master Detail Relationship
- The Borrower is a **Junction** Object.

❖ Page Layouts :

- **Books** : (Changing the layout for Members)
Hiding unnecessary detail

SETUP > OBJECT MANAGER
Book

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions

Page Layouts
2 Items, Sorted by Page Layout Name

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Book Layout	Vedant Khirsagar, 9/21/2025, 5:24 AM	Vedant Khirsagar, 9/21/2025, 2:17 PM
Book_Member	Vedant Khirsagar, 9/21/2025, 2:19 PM	Vedant Khirsagar, 9/21/2025, 2:20 PM

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields
Buttons
Quick Actions
Mobile & Lightning Actions
Expanded Lookups
Related Lists
Report Charts

Quick Find Field Name

+ Section	Book Type	Owner
+ Blank Space	Created By	Stock
Author	Description	
Book Title	Last Modified By	

Fields (Header not visible)

* Book Title	Sample Text
* Author	Sample Text
* Book Type	Sample Text
Description	Sample Text

- **Borrower : (Arranging the Existing One)**

SETUP > OBJECT MANAGER

Borrower

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields

Buttons

Quick Actions

Mobile & Lightning Actions

Expanded Lookups

Related Lists

Report Charts

Quick Find Field Name

Section	Created By	Member
Blank Space	Due	Return Date
Book	Issue Date	
Borrower ID	Last Modified By	

Information (Header visible on edit only)

Borrower ID	GEN-2004-001234
Member	Sample Text
Book	Sample Text
Issue Date	9/21/2025
Return Date	9/21/2025
Due	₹123.45

- **Bill (Change for Members)**

Hiding sensitive setting for bill paid option

SETUP > OBJECT MANAGER

Bill

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields

Buttons

Quick Actions

Mobile & Lightning Actions

Expanded Lookups

Related Lists

Report Charts

Quick Find Field Name

Section	Bill Paid	Status
Blank Space	Created By	
Amount	Last Modified By	
Bill No.	Member	

Edit Delete Clone

Fields (Header not visible)

Bill No.	GEN-2004-001234
Member	Sample Text
Amount	₹123.45
Status	Sample Text