

Phase 3: Data Modeling & Relationships

1. Roll-Up Summary Fields

- On the Maintenance_Request__c object:
 - Open Requests Count: Counts all active maintenance requests related to a particular Asset or Homeowner.
 - Use for capacity management (e.g., max simultaneous requests per asset) and reporting.
- On the Asset__c object:
 - Total Maintenance Requests: Counts all maintenance requests linked to the asset.
 - Useful for asset maintenance history overviews.

The screenshot shows the Salesforce Setup interface. The left sidebar contains navigation links: Setup, Home, and Object Manager (selected). The main content area is titled 'SETUP > OBJECT MANAGER' and 'Asset'. Below this, there's a 'Details' sidebar with links like Fields & Relationships (selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, Restriction Rules, and Scoping Rules. The main panel displays the 'Asset Custom Field' definition for 'Total Maintenance Requests'. It includes a 'Field Information' table with details like Field Label, Field Name, API Name, Description, Help Text, Data Owner, Field Usage, Data Sensitivity Level, Compliance Categorization, Created By, and Modified By. Below this is the 'Roll-Up Summary Options' table, which specifies the Data Type as 'Roll-Up Summary', Summarized Object as 'Maintenance Request', Filter Criteria, and Summary Type as 'COUNT'.

Field Information	
Field Label	Total Maintenance Requests
Field Name	Total_Maintenance_Requests
API Name	Total_Maintenance_Requests__c
Description	Count of Maintenance Request records related to this Asset
Help Text	Count of Maintenance Request records related to this Asset
Data Owner	
Field Usage	
Data Sensitivity Level	
Compliance Categorization	
Created By	Kusuma Kumar, 28/09/2025, 4:02 pm
Modified By	Kusuma Kumar, 28/09/2025, 4:02 pm

Roll-Up Summary Options	
Data Type	Roll-Up Summary
Summarized Object	Maintenance Request
Filter Criteria	
Summary Type	COUNT

2. Validation Rules

- Maintenance Request Date Validation (Maintenance_Request__c) :
 - Ensure End Date cannot be earlier than Start Date.
- Prevent Overbooking of Maintenance Slots (Maintenance_Request__c):
 - Validation Rule to block new requests if the current open requests count for an Asset exceeds its allowed capacity.
 - Error Message example: "Asset capacity reached. Cannot create more maintenance requests."

- Status Validation:
 - Ensure certain status transitions are valid (e.g., cannot close a request without resolution).

The screenshot shows the 'Object Manager' interface for a 'Maintenance Request Validation Rule'. The rule is titled 'Maintenance Request Validation Rule' and is currently active. The configuration details are as follows:

Validation Rule Detail		Active
Rule Name	EndDate_After_StartDate	✓
Error Condition Formula	End_Date__c < Start_Date__c	
Error Message	End Date cannot be earlier than Start Date	Error Location: End Date
Description		
Created By	Kusuma Kumar, 28/09/2025, 4:12 pm	Modified By: Kusuma Kumar, 28/09/2025, 4:12 pm

Buttons for 'Edit' and 'Clone' are available for the rule name, error condition formula, and the entire rule detail section.

The screenshot shows the 'Object Manager' interface for a 'Maintenance Request Validation Rule'. The rule is titled 'Maintenance Request Validation Rule' and is currently active. The configuration details are as follows:

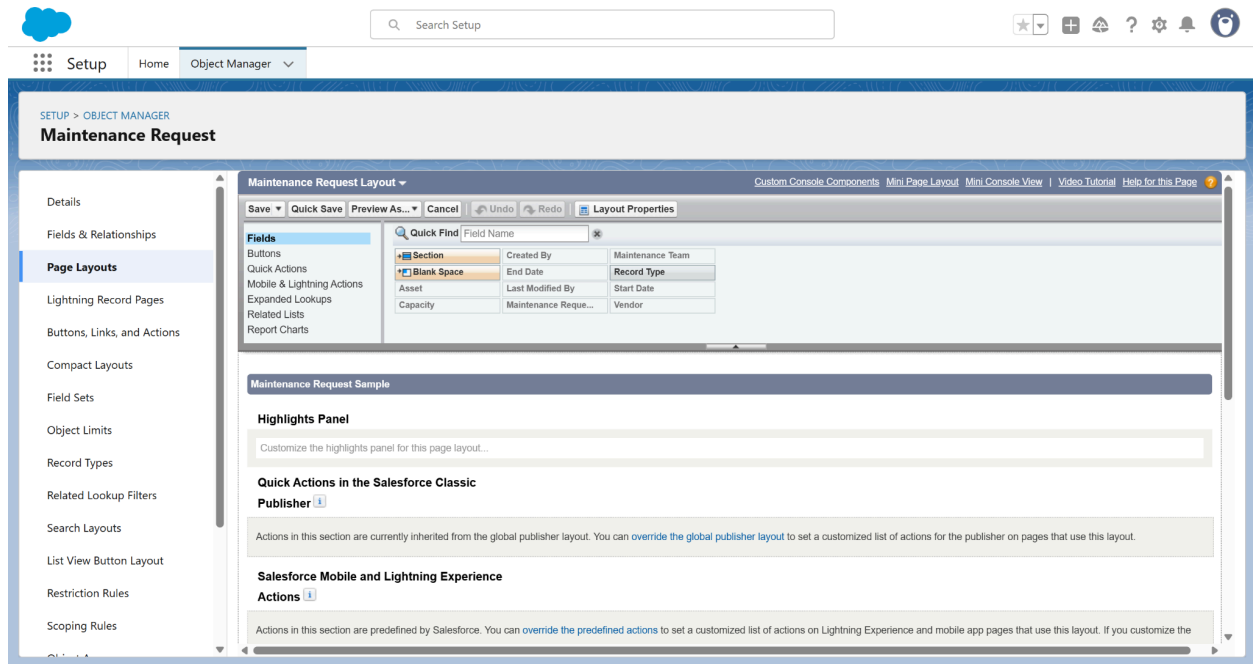
Validation Rule Detail		Active
Rule Name	Prevent_Overbooking	✓
Error Condition Formula	Asset__r.Total_Maintenance_Requests__c >= Asset__r.Capacity__c	
Error Message	Asset capacity reached. Cannot create more maintenance requests.	Error Location: Top of Page
Description		
Created By	Kusuma Kumar, 28/09/2025, 4:18 pm	Modified By: Kusuma Kumar, 28/09/2025, 4:18 pm

Buttons for 'Edit' and 'Clone' are available for the rule name, error condition formula, and the entire rule detail section.

3. Page Layouts & Record Types

- Asset Page Layout: Displays asset details, related maintenance requests, vendors, and history logs.
- Maintenance Request Page Layout: Shows request details, linked assets, assigned maintenance team, and status.

- Define Record Types for Maintenance Requests to differentiate types such as Emergency Repair, Preventive Maintenance, or Vendor Service Call.



4. Compact Layouts (Mobile)

- Asset Compact Layout: Asset Name, Location, Status.
- Maintenance Request Compact Layout: Request Number, Status, Assigned Team Member.

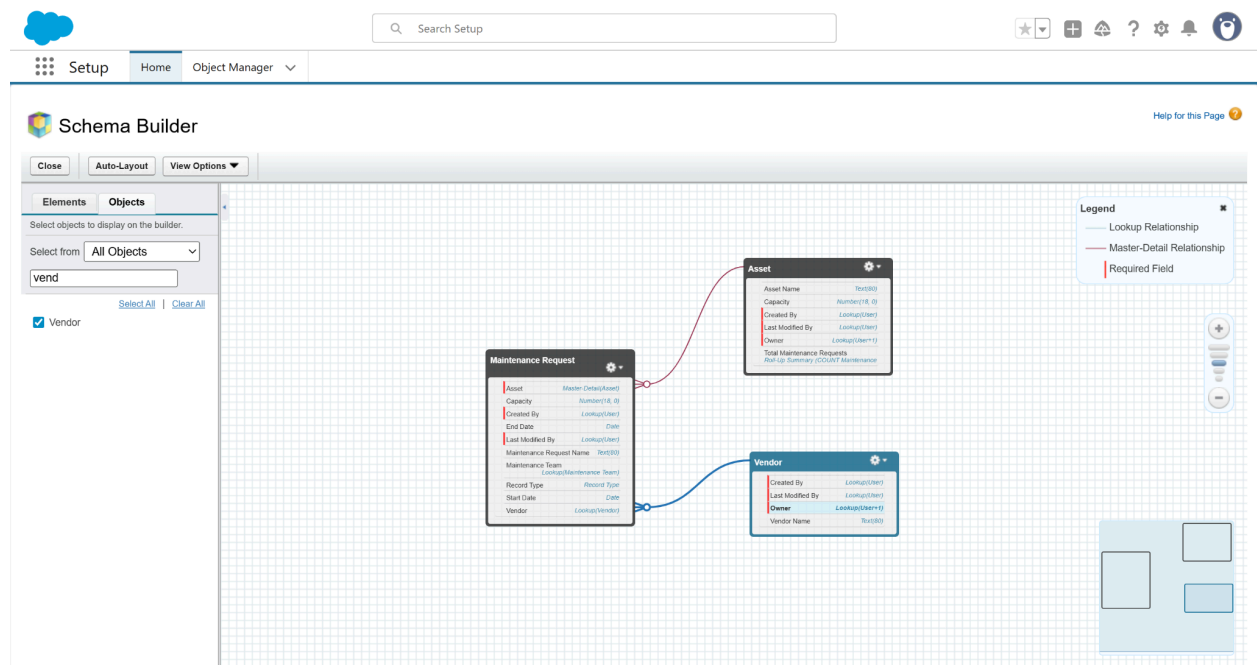
5. Schema Builder Visualization

- Create an ER diagram in Schema Builder including:
 - Asset, Maintenance_Request, Vendor, Maintenance_Team (custom user or contact), and Homeowner.
- Visualize Master-Detail and Lookup relationships ensuring data integrity and security inheritance.

6. Tabs & App Navigation

- Create Custom Tabs for key objects: Asset, Maintenance Request, Vendor, Maintenance Team.
- Add these tabs to the Home Maintenance Repair Management app via the App Manager.
- This enables users to access data conveniently through the App Launcher.

Schema Builder Visualization



Tabs & App Navigation

Custom Tabs

You can create new custom tabs to extend Salesforce functionality or to build new application functionality.

Custom Object tabs look and behave like the standard tabs provided with Salesforce. Web tabs allow you to embed external web applications and content within the Salesforce window. Visualforce tabs allow you to embed Visualforce pages. Lightning Component tabs allow you to add Lightning components to the navigation menu in Lightning Experience and the mobile app. Lightning Page tabs allow you to add Lightning Pages to Lightning Experience and the mobile app.

Custom Object Tabs

Action	Label	Tab Style	Description
Edit Del	Assets	Bank	
Edit Del	Maintenance Requests	Wrench	
Edit Del	Vendors	People	

Web Tabs

No Web Tabs have been defined

Visualforce Tabs

No Visualforce Tabs have been defined

Lightning Component Tabs

Action	Label	Tab Style	Description
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7. Data Dictionary

- Prepare a detailed data dictionary with:
 - Names of custom objects and fields.
 - Data types, relationships, validation logic.
 - Purpose of each field and business rules applied.

8. Sample Data Preparation

- Create sample CSV files for Assets, Maintenance Requests, Vendors, Maintenance Team members.
- Use Data Import Wizard or Data Loader to import sample records.
- Verify successful import and data integrity.

MaintananceRequest.csv

MaintenanceRequest

File Edit View Insert Format Data Tools Extensions Help

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	A	B	C	D	E	F
1	Request Numbr	Asset (ID)	Vendor	Start Date	End Date	Status
2	MR001	001xx000003DC	Vendor A	2025-09-01	2025-09-03	Open
3	MR002	001xx000003DC	Vendor B	2025-09-05	2025-09-06	Completed
4	MR003	001xx000003DC	Vendor C	2025-09-02	2025-09-04	In Progress
5	MR004	001xx000003DC	Vendor A	2025-09-10	2025-09-11	Scheduled
6	MR005	001xx000003DC	Vendor B	2025-09-07	2025-09-08	Open
7	MR006	001xx000003DC	Vendor A	2025-09-03	2025-09-05	Completed
8	MR007	001xx000003DC	Vendor C	2025-09-12	2025-09-14	Open
9	MR008	001xx000003DC	Vendor B	2025-09-15	2025-09-17	Scheduled
10	MR009	001xx000003DC	Vendor A	2025-09-18	2025-09-19	In Progress
11	MR010	001xx000003DC	Vendor C	2025-09-20	2025-09-21	Open
12	MR011	001xx000003DC	Vendor B	2025-09-22	2025-09-23	Completed
13	MR012	001xx000003DC	Vendor A	2025-09-24	2025-09-26	Open
14	MR013	001xx000003DC	Vendor C	2025-09-27	2025-09-28	Scheduled
15	MR014	001xx000003DC	Vendor B	2025-09-29	2025-09-30	Open
16	MR015	001xx000003DC	Vendor A	2025-10-01	2025-10-02	Open
17	MR016	001xx000003DC	Vendor C	2025-10-03	2025-10-04	Completed
18	MR017	001xx000003DC	Vendor B	2025-10-05	2025-10-06	In Progress
19	MR018	001xx000003DC	Vendor A	2025-10-07	2025-10-09	Scheduled
20	MR019	001xx000003DC	Vendor C	2025-10-10	2025-10-12	Open
21	MR020	001xx000003DC	Vendor B	2025-10-13	2025-10-14	Completed
22						

Asset.csv

Asset.csv

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	A	B	C	D
1	Asset Name	Location	Capacity	
2	AC Unit 101	Building A	5	
3	Generator 1	Building B	3	
4	Elevator A	Tower 1	10	
5	HVAC System M	Building A	6	
6	Water Pump 12	Basement	2	
7	Security Camera	Parking Lot	15	
8	Fire Alarm Syste	Building C	8	
9	Boiler Room 3	Building B	4	
10	Sprinkler System	Garden Area	20	
11	Lighting Panel 4	Hallway Main	12	
12	Door Lock 24	Building D	5	
13	Generator 2	Building C	3	
14	Ventilation Fan	Roof	7	
15	Elevator B	Tower 2	8	
16	Water Heater 10	Basement	2	
17	Switchboard 3	Basement	6	
18	Air Purifier 6	Office Area	10	
19	CCTV Monitor 2	Security Room	15	
20	Conveyor Belt 1	Warehouse	5	
21	Solar Panel Arra	Roof	25	
22				

Vendor.csv

Vendor

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	A	B	C	D
1	Vendor Name	Contact Numbe	Email	
2	Vendor A	123-456-7890	vendora@example.com	
3	Vendor B	098-765-4321	vendorb@example.com	
4	Vendor C	555-123-4567	vendorc@example.com	
5	Vendor D	444-321-6789	vendord@example.com	
6	Vendor E	777-555-9999	vendore@example.com	
7				

9. Testing & Verification

- Create Assets with defined capacity limits (e.g., max concurrent requests).
- Open several Maintenance Requests linked to an asset.
- Attempt to create a new request exceeding capacity → should be blocked by Validation Rule.
- Test request lifecycle updates (open, in progress, closed).
- Verify Roll-Up Summary fields auto-update as requests are created or closed.
- Test date validations for request start and end dates.
- Confirm layouts display required related lists and fields

The screenshot shows a 'Bulk Data Load Jobs' monitor page. It includes a search bar at the top left, a sidebar with 'Integrations' and 'Data Import Wizard', and a main content area. The main area has a 'Monitor Bulk Data Load Jobs' header and a 'Quota' section. Below the quota section is an 'In Progress' table with columns: Job ID, Submitted By, Start Time, Status, Job Type, Operation, Object, Records Processed, Records Failed, and Progress. Below this is a 'Completed last 7 days' table with the same columns. The 'Completed last 7 days' table shows three rows of data.

Job ID	Submitted By	Start Time	End Time	Status	Job Type	Operation	Object	Records Processed	Records Failed	Time to Complete (hh:mm:ss)
750d2000000hYvof	Kumar_Kusuma	28/09/2025, 4:57 pm	28/09/2025, 4:57 pm	Closed	Bulk V1	Insert	Vendor	5	0	00:02
750d2000000hZb0y	Kumar_Kusuma	28/09/2025, 4:55 pm	28/09/2025, 4:55 pm	Closed	Bulk V1	Insert	Maintenance Request	20	20	00:06
750d2000000hZb8S	Kumar_Kusuma	28/09/2025, 4:48 pm	28/09/2025, 4:48 pm	Closed	Bulk V1	Insert	Asset	20	0	00:00

Home Maintenance and Repair Management Lightning App

The screenshot shows the 'Home Maintenance and Repair Management Lightning App' interface. It features a top navigation bar with a search bar and various icons. Below the navigation bar is a sidebar with 'Home Maintenance...' and 'Assets'. The main content area is titled 'Assets' and 'Recently Viewed'. It includes a 'New' button, an 'Import' button, a 'Change Owner' button, and an 'Assign Label' button. Below these buttons is a search bar and a table with columns: Name, Status, and Actions. The table is currently empty, and a message at the bottom says 'Nothing to see here. There's nothing in your list yet. Try adding a new record.'

Testing and Validation

Home Maintenance... Assets Maintenance Requests Vendors

Assets
All

20 Items • Sorted by Asset Name • Updated a few s

Asset Name ↑

1	<input type="checkbox"/>	AC Unit 101
2	<input type="checkbox"/>	Air Purifier 6
3	<input type="checkbox"/>	Boiler Room 3
4	<input type="checkbox"/>	CCTV Monitor 2
5	<input type="checkbox"/>	Conveyor Belt 11
6	<input type="checkbox"/>	Door Lock 24
7	<input type="checkbox"/>	Elevator A
8	<input type="checkbox"/>	Elevator B
9	<input type="checkbox"/>	Fire Alarm System 1
10	<input type="checkbox"/>	Generator 1
11	<input type="checkbox"/>	Generator 2
12	<input type="checkbox"/>	HVAC System Main
13	<input type="checkbox"/>	Lighting Panel 4
14	<input type="checkbox"/>	Security Camera 5
15	<input type="checkbox"/>	Solar Panel Array 1
16	<input type="checkbox"/>	Sprinkler System 7
17	<input type="checkbox"/>	Switchboard 3

New Asset

* = Required Information

Information

* Asset Name ↻
Roof Leakage

Capacity ↻

Location ↻
Visakhapatnam

Owner
Kusuma Kumar

Cancel Save & New Save

Home Maintenance... Assets Maintenance Requests Vendors

Maintenance Requests
All

0 Items • Sorted by Maintenance Request Name • L

New Maintenance Request: Emergency Repair

* = Required Information

Information

* Maintenance Request Name ↻
Roof Leakage_New

* Vendor ↻
Vendor D

Maintenance Team
Search Maintenance Teams... Q

* Asset ↻
Roof Leakage

End Date ↻
29/09/2025

Start Date ↻
28/09/2025

Format: 31/12/2024

Capacity

Cancel Save & New Save