

 **Project Title :** Smart Property Portal CRM (Real Estate)**Problem Statement :**

Real estate firms face fragmented tracking of buyer-tenant-owner interactions, manual leasing/sales workflows, and siloed post-move-in service, leading to:

- Long sales/leasing cycles due to manual site visit coordination, booking approvals, and contract processing.
- High error rates in inventory status, pricing updates, and lease data due to spreadsheet-based management.
- Low transparency for prospects and tenants on visit status, booking confirmations, payments, and service requests.
- Limited visibility into pipeline, occupancy, rent roll, and maintenance SLAs for decision-making.
- Absence of a centralized, scalable CRM with dashboards to manage multi-project portfolios across locations and teams.

Smart Property Portal CRM addresses these by delivering a Salesforce-based application that:

- Centralizes property, unit, listing, lead, lease, invoice, and maintenance data with real estate-specific objects.
- Automates site visits, bookings, approvals, rent invoicing, collections, and maintenance workflows.
- Provides Experience Cloud portals for tenants/brokers to track status, submit requests, and access documents.

- Delivers interactive dashboards and reports for portfolio, pipeline, occupancy, rent roll, and service performance.

Phase 1 :

Problem Understanding & Industry Analysis :

This phase analyzes the real estate customer journey, stakeholder ecosystem, and alignment with industry practices to baseline the solution scope and data model. Key activities mirror the reference structure and are tailored to real estate operations:

- **Requirement Gathering :** Capture functional/non-functional requirements for lead-to-lease, property inventory, invoicing, and maintenance processes.
- **Stakeholder Analysis :** Define roles and needs for Sales/Leasing, Property Management, Finance, Brokers/Partners, Tenants/Buyers, and Management.
- **Business Process Mapping :** Map end-to-end flows: inquiry → site visit → booking → contract/lease → invoicing/collections → service/renewals.
- **Industry-Specific Use Case Analysis :** Align with residential/commercial leasing practices, deposits, approvals, escalations, and renewals.
- **AppExchange Exploration :** Identify add-ons for document generation, advanced search, field service, and communication to enhance the core build.

Phase 2 : Org Setup and Configuration :

- **Salesforce Edition :**

Organization ID : 00DgK00000BhfUc

Organization Edition : Developer Edition

Instance : CAN96

See Company Profile screenshot for Edition.

- **Company Profile Setup :**

Page : Setup → Company Information

Org identity : Organization Name, Org ID, and Instance (e.g., CAN96).

Edition : Developer Edition (features and limits depend on this).

Regional defaults : Default Locale, Default Language, Default Time Zone, and Currency Locale.

Organization Detail		Edit
Organization Name	Smart Property Portal Project	Phone
Primary Contact	OrgFarm EPIC	Fax
Division		Default Locale English (United States)
Address	India	Default Language English
Fiscal Year Starts In	April	Default Time Zone (GMT+05:30) India Standard Time (Asia/Kolkata)
Activate Multiple Currencies	<input type="checkbox"/>	Currency Locale English (United States) - USD
Enable Data Translation	<input type="checkbox"/>	Used Data Space 342 KB (7%) [View]
Newsletter	<input checked="" type="checkbox"/>	Used File Space 17 KB (0%) [View]
Admin Newsletter	<input checked="" type="checkbox"/>	API Requests, Last 24 Hours 2 (15,000 max)
Hide Notices About System Maintenance	<input type="checkbox"/>	Streaming API Events, Last 24 Hours 0 (10,000 max)
Hide Notices About System Downtime	<input type="checkbox"/>	Restricted Logins, Current Month 0 (0 max)
Locale Formats	ICU	Salesforce.com Organization ID 00DgK00000BhfUc
		Organization Edition Developer Edition
		Instance CAN96
Created By	OrgFarm EPIC, 9/15/2025, 6:00 AM	Modified By Tanu Wadaskar, 9/20/2025, 8:14 AM
		Edit

- **Business Hours :**

Defined default Business Hours with correct time zone, working days, and start-end times to drive SLAs/escalations for cases.

Organization Business Hours

Help for this Page

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

Action	Business Hours Name	Active	Time Zone	New Business Hours	Default
Edit	Default	<input checked="" type="checkbox"/>	(GMT-07:00) Pacific Daylight Time (America/Los_Angeles)		<input type="checkbox"/>
Edit	India HQ Hours	<input checked="" type="checkbox"/>	(GMT+05:30) India Standard Time (Asia/Kolkata)		<input checked="" type="checkbox"/>

- **Holidays :**

- Created org-wide holiday records (with names, dates, and recurrence if needed) under Setup → Holidays to reflect closures.
- Associated these holidays with relevant Business Hours so SLAs/escalations pause during holiday periods.

Holidays

Holidays are dates and times at which business hours are suspended. Business hours are the days and hours that your support team is available.

Action	Holiday Name	Description	Date and Time
Edit Del	Christmas		12/25/2025 All Day
Edit Del	Diwali		10/21/2025 All Day
Edit Del	Republic Day		1/26/2026 All Day

- **Fiscal Year Settings :**

- **Setting Chosen :** Standard Fiscal Year with start month, or Fiscal Year with defined quarters/periods; note the selected option and start month/structure.
- **Implications :** Custom Fiscal Year affects reporting/forecasting and can't be reverted to Standard after enabling; document any labels or templates used (e.g., 4-4-5).

Setup Organization Fiscal Year Edit: Smart Property Portal Project Help for this Page

To specify the fiscal year type for your organization, choose one of the options below.

Fiscal Year Information	
Your organization can change the fiscal year start month, and specify whether the fiscal year name is set to the starting or ending year. For example, if your fiscal year starts in April 2025 and ends in March 2026, your Fiscal Year setting can be either 2025 or 2026.	
<p>⚠️ Changing the fiscal year shifts fiscal periods and impacts opportunities and forecasts across your organization. If your forecast periods are set to quarterly, adjusting the fiscal year start month will erase existing forecast adjustments and quotas. Consider exporting a data backup before implementing this change.</p>	
<p>Change Fiscal Year Period</p> <p>Name: Smart Property Portal Project</p> <p>Fiscal Year Start Month: <input type="text" value="April"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/></p> <p>Fiscal Year is Based On: <input type="radio"/> The ending month <input checked="" type="radio"/> The starting month</p>	

• User Setup & License :

- Create test users:
 - Admin User : Full access, setup and deployment.
 - Sales Manager : Manages teams, approvals, discount approvals, inventory visibility.
 - Sales Agent : Manages assigned leads, site visits, offers and bookings.
- Assign Standard Salesforce or Platform licenses as available, and map to roles.

The screenshot shows the Salesforce 'All Users' page. At the top, there's a header with a user icon, 'SETUP', and 'Users'. Below it, a sub-header says 'All Users'. A message says 'On this page you can create, view, and manage users.' and 'To get more licenses, use the Your Account app: [Let's Go](#)'. There are buttons for 'View: All Users', 'Edit', and 'Create New View'. The main area is a table with columns: Action, Full Name, Alias, Username, Role, Active, Profile, and Title. The table lists several users with their respective details. At the bottom of the table are buttons for 'New User', 'Reset Password(s)', and 'Add Multiple Users'.

Action	Full Name	Alias	Username	Role	Active	Profile	Title
Edit Login	EPIC_OrgFarm	QEPI	epic.88ab9a9bca48@orgfarm.salesforce.com		✓	System Administrator	
Edit Login	Khan_Sameer	Skhan	sameer.khan-sc@spp.com	Customer Support_ International	✓	Standard Platform User	Service Coordinator
Edit Login	Patel_Neeraj	NPat	neeraj.patel+sm@spp.com	Director_Direct Sales	✓	Standard User	Sales Manager
Edit Login	Rao_Kavya	KRao	kavya.rao-pm@spp.com	Installation & Repair Services	✓	Standard Platform User	Property Manager
Edit Login	Singh_Priya	PSingh	priya.singh+se@spp.com	Eastern Sales Team	✓	Custom: Sales Profile	Sales Executive
Edit	User_Integration	integ	integration@00dgk000000hfucuaj.com		✓	Analytics Cloud Integration User	
Edit	User_Security	sec	insightssecurity@00dgk000000bhfcuaj.com		✓	Analytics Cloud Security User	
Edit	Wadaskar_Tanu	tan	tanuwadaskar522445@agentforce.com	CEO	✓	System Administrator	Chief Executive Officer

• Profiles :

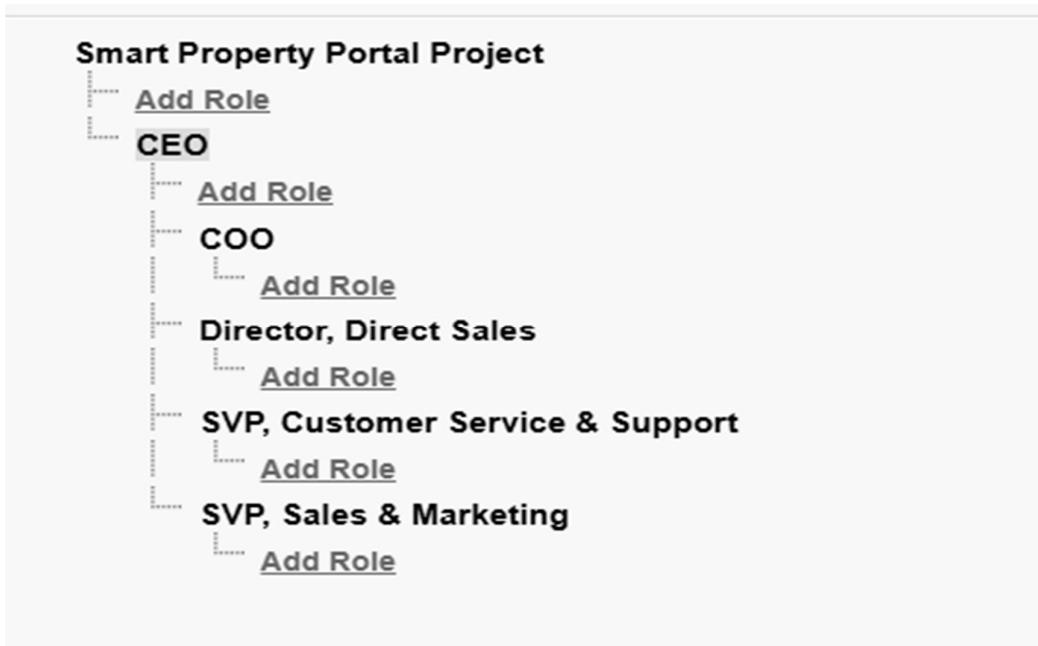
- Sales Agent Profile: CRUD on Lead, Site Visit, Offer, Booking, limited edit on Unit; read on Payment Milestone; no delete on Booking.
- Sales Manager Profile: View All on Leads/Activities, Read/Edit on Units and Bookings, approval permissions for discount and booking approval processes.
- Admin Profile: full system access and deployment controls. Profiles form the baseline FLS and object access.

Object	Profile Community User	Profile Community
Edit Del <u>Property Manager Profile</u>		Salesforce
Edit Del <u>Read Only</u>		Salesforce
Edit Del <u>Salesforce API Only System Integrations</u>		Salesforce Integration
Edit Del <u>Sales User</u>		Salesforce

Edit	Cross Org Data Proxy User	XOrg Proxy User	<input type="checkbox"/>
Edit Del	Custom: Marketing Profile	Salesforce	<input checked="" type="checkbox"/>
Edit Del	Custom: Sales Profile	Salesforce	<input checked="" type="checkbox"/>
Edit Del	Custom: Support Profile	Salesforce	<input checked="" type="checkbox"/>
Edit	Customer Community Login User	Customer Community Login	<input type="checkbox"/>

- **Roles :**

- Role hierarchy: Admin → Sales Manager → Sales Agent; ensures managers see subordinate records for coaching and forecasting.



- **Permission Sets :**

- Messaging Access: Channels (SMS/WhatsApp) and template send permissions.
- Inventory Admin: Full edit on Property/Unit for inventory admins only.
- Appointment Power User: Calendar, event series, and overbooking override if required.
- Group permissions sets by function for easy assignment.

The screenshot shows the 'Maintenance Scheduler' permission set in the Setup interface. It displays a table of current assignments, including columns for Full Name, Active status, Role, Profile, User License, and Expires On. The table lists several users assigned to the 'Maintenance Scheduler' permission set.

Full Name	Active	Role	Profile	User License	Expires On
Kavya Rao	✓	Installation & Repair Services	Standard Platform User	Salesforce Platform	
Neeraj Patel	✓	Director, Direct Sales	Standard User	Salesforce	
Priya Singh	✓	Eastern Sales Team	Custom: Sales Profile	Salesforce	
Sameer Khan	✓	Customer Support, International	Standard Platform User	Salesforce Platform	
Tanu Wadaskar	✓	CEO	System Administrator	Salesforce	

• OWD (Org-wide defaults):

- Lead = Private (protect new prospects; share by assignment/team).
- Property/Project = Public Read Only (marketing transparency)
- Unit(Inventory) = Private (prevent accidental edits; grant via role/perm sets).

The screenshot shows the 'Sharing Settings' page in the Setup interface. It displays a table of Org-wide Defaults (OWD) for different objects, including Work Step Template, Work Type, Work Type Group, Invoice, Lease, Listing, Maintenance Ticket, Property, and Unit. The table shows the sharing level (Private or Public Read/Write) and whether it is a Public Read Only object.

Work Step Template	Private	Private	✓
Work Type	Private	Private	✓
Work Type Group	Public Read/Write	Private	✓
Invoice	Public Read/Write	Private	✓
Lease	Private	Private	✓
Listing	Private	Private	□
Maintenance Ticket	Private	Private	✓
Property	Private	Private	✓
Unit	Private	Private	✓

• Sharing Rules :

- Share Leads/Opportunities owned by Sales agents with their Sales Manager role with Read/Write.
- Criteria-based sharing for Property/Unit by project/city to regional teams.

The screenshot shows the 'Sharing Settings' page in the Setup interface. It displays sections for Lease Sharing Rules, Listing Sharing Rules, Maintenance Ticket Sharing Rules, Property Sharing Rules, Status Sharing Rules, and Unit Sharing Rules. Each section shows the criteria for sharing rules, such as 'Lease: Status EQUALS Active' for Lease Sharing Rules.

- **Login Access Policies:**
 - Keep defaults; enable admin login-as if allowed by policy for support during UAT.

The screenshot shows the 'Login Access Policies' configuration page in the Salesforce Setup. The top navigation bar includes 'SETUP' and the page title 'Login Access Policies'. Below the title, a sub-header reads 'Control which support organizations your users can grant login access to.' A 'Help for this Page' link is also present.

The main section is titled 'Manage Support Options' and contains two rows of settings:

Setting	Enabled
Administrators Can Log in as Any User	<input checked="" type="checkbox"/>

Support Organization	Packages	Available to Users	Available to Administrators Only
Salesforce.com Support	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

At the bottom of the page are 'Save' and 'Cancel' buttons.

- **Dev Org Setup**
- **Sandbox Usage**
- **Deployment Basics**

Phase 3 : Data Modeling & Relationships

- **Standard & Custom Objects:**

- **Standard objects used:** Leads, Accounts, Contacts, opportunities
 - Lead converts to Account + Contract (+ Opportunity) for deal tracking and forecasting.
- **Custom Objects:**
 - Property_Project__c : for grouping units and reporting across locations.
 - Unit__c : Inventory record of each flat/plot with pricing and availability for sales selection.
 - Site_Visit__c : Tracks scheduled/completed visits, outcomes, and next actions to drive conversion.
 - Offer__c : Stores quotations and discounts to manage negotiation before booking.
 - Booking__c : Confirms the selected unit and buyer details, forming the basis for payments.
 - Payment_Milestone__c : Breaks the booking amount into due stages for collection tracking.
 - Channel_Partner__c : Captures broker details and attribution for partner-driven deals.

Booking__c	Booking_c_c	Custom Object
Channel_Partner__c	Channel_Partner_c_c	Custom Object

SETUP

Object Manager

225 Items, Sorted by Label

Offer__c	Offer_c__c	Custom Object

SETUP

Object Manager

225 Items, Sorted by Label

Property_Project__c	Property_Project_c__c	Custom Object

SETUP

Object Manager

225 Items, Sorted by Label

Site_Visit__c	Site_Visit_c__c	Custom Object

SETUP

Object Manager

225 Items, Sorted by Label

Unit__c	Unit_c__c	Custom Object

Setup [Home](#) [Object Manager](#) ▾

SETUP

Object Manager

225 Items, Sorted by Label

Payment_Milestone__c	Payment_Milestone_c__c	Custom Object

- **Fields :**

- 1) **Property_Project__c :**

SETUP > OBJECT MANAGER
Property_Project__c

Details
Quick Find
Items, sorted by Field Label
New
Deleted Fields
Field Dependencies

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING
Address	Address__c	Long Text Area(32768)	
City	City__c	Picklist	
Created By	CreatedBy	Lookup(User)	
Last Modified By	LastModifiedBy	Lookup(User)	
Launch Date	Launch_Date__c	Date	
Owner	OwnerId	Lookup(User,Group)	
Project Name	Project_Name__c	Text(18)	
Property Name	Name	Text(80)	

- 2) **Unit__c:**

Setup | Home | Object Manager

SETUP > OBJECT MANAGER
Unit__c

Details
Quick Find
Items, sorted by Field Label
New
Deleted Fields
Field Dependencies

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING
Carpet Area	Carpet_Area__c	Number(18, 0)	
Created By	CreatedBy	Lookup(User)	
Floor	Floor__c	Number(18, 0)	
Last Modified By	LastModifiedBy	Lookup(User)	
Owner	OwnerId	Lookup(User,Group)	
Price	Price__c	Currency(18, 0)	
Project	Project__c	Lookup(Property_Project__c)	
Status	Status__c	Picklist	

3) Site_Visit__c:

The screenshot shows the 'Object Manager' section for the 'Site_Visit__c' object. The left sidebar lists various configuration options under 'Fields & Relationships'. The main area displays a table of fields with their labels, internal names, and data types.

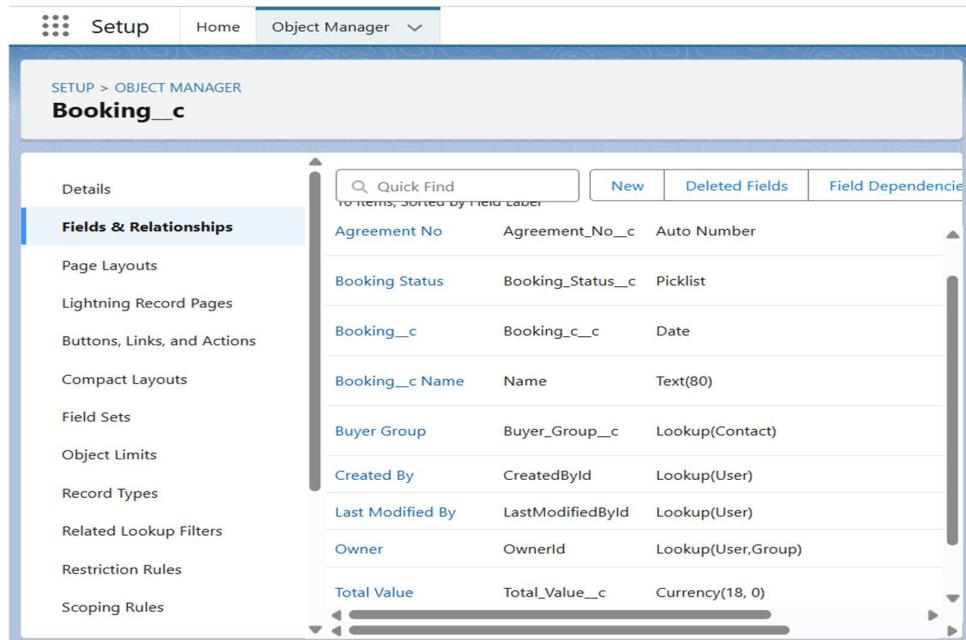
Field	Label	Type
Agent	Agent_c	Lookup(User)
Created By	CreatedById	Lookup(User)
Last Modified By	LastModifiedById	Lookup(User)
Next Action	Next_Action__c	Text(30)
Outcome	Outcome__c	Picklist
Owner	OwnerId	Lookup(User,Group)
Prospect	Prospect__c	Lookup(Contact)
Site_Visit__c Name	Name	Text(80)
Visit Date & Time	Visit_Date_Time__c	Date/Time

4) Offer__c:

The screenshot shows the 'Object Manager' section for the 'Offer__c' object. The left sidebar lists various configuration options under 'Fields & Relationships'. The main area displays a table of fields with their labels, internal names, and data types.

Field	Label	Type
Buyer Group	Buyer_Group_c	Lookup(Lead)
Created By	CreatedById	Lookup(User)
Discount Percent	Discount_Percent__c	Percent(18, 0)
Last Modified By	LastModifiedById	Lookup(User)
Offer__c Name	Name	Text(80)
Owner	OwnerId	Lookup(User,Group)
Quoted Amount	Quoted_Amount__c	Currency(18, 0)
Stage	Stage_c	Picklist
Unit	Unit_c	Lookup(Unit_c)

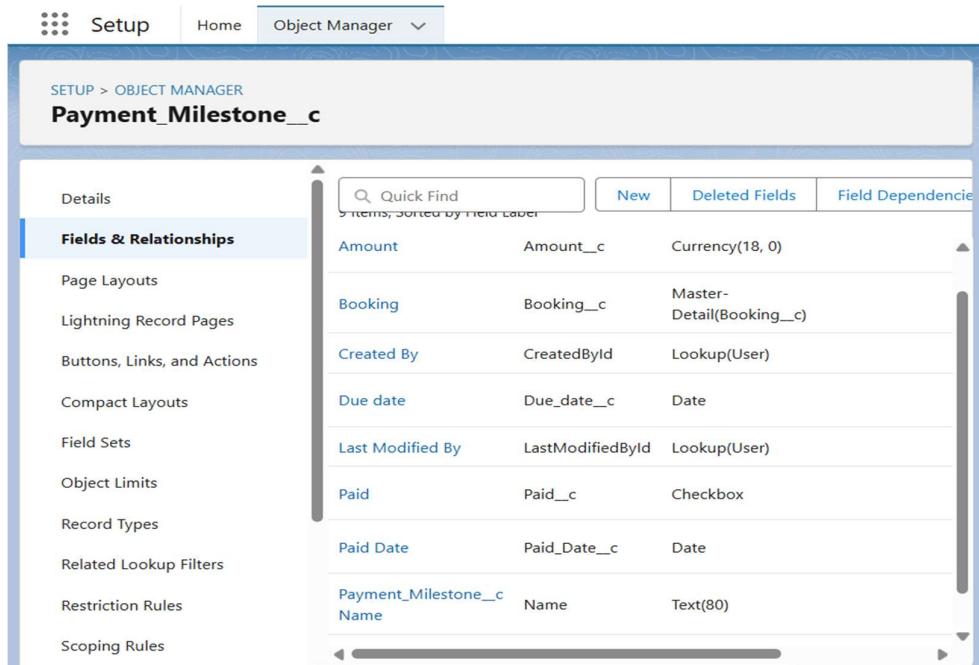
5) Booking_c:



The screenshot shows the Salesforce Object Manager interface for the object 'Booking_c'. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The main title is 'SETUP > OBJECT MANAGER' followed by 'Booking_c'. On the left, a sidebar lists various configuration options: Details, Fields & Relationships (which is selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The right pane displays a table of fields with their details. The fields listed are:

Agreement No	Agreement_No__c	Auto Number
Booking Status	Booking_Status__c	Picklist
Booking_c	Booking_c__c	Date
Booking_c Name	Name	Text(80)
Buyer Group	Buyer_Group__c	Lookup(Contact)
Created By	CreatedBy	Lookup(User)
Last Modified By	LastModifiedBy	Lookup(User)
Owner	OwnerId	Lookup(User,Group)
Total Value	Total_Value__c	Currency(18, 0)

6) Payment_Milestone_c



The screenshot shows the Salesforce Object Manager interface for the object 'Payment_Milestone_c'. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The main title is 'SETUP > OBJECT MANAGER' followed by 'Payment_Milestone_c'. On the left, a sidebar lists various configuration options: Details, Fields & Relationships (which is selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The right pane displays a table of fields with their details. The fields listed are:

Amount	Amount__c	Currency(18, 0)
Booking	Booking__c	Master-Detail(Booking__c)
Created By	CreatedBy	Lookup(User)
Due date	Due_date__c	Date
Last Modified By	LastModifiedBy	Lookup(User)
Paid	Paid__c	Checkbox
Paid Date	Paid_Date__c	Date
Payment_Milestone_c Name	Name	Text(80)

7) Channel_Partner__c:

The screenshot shows the Salesforce Object Manager interface for the 'Channel_Partner__c' object. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The main title is 'SETUP > OBJECT MANAGER' followed by 'Channel_Partner__c'. On the left, a sidebar lists various configuration options: Details, Fields & Relationships (which is selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The main content area displays the fields for 'Channel_Partner__c':

Name	Type	Description
Name	Text(80)	
Commission Percent	Percent(18, 0)	
Contact Person	Contact_Person__c	Text(18)
Created By	CreatedBy	Lookup(User)
Last Modified By	LastModifiedBy	Lookup(User)
Owner	OwnerId	Lookup(User,Group)
Partner Name	Partner_Name__c	Text(18)
Phone	Phone__c	Phone
Status	Status__c	Picklist

- **Record Types:**

- Created record types per object and mapped layouts/picklists: Unit__c (Residential, Commercial), Offer__c (Retail, Channel Partner), Booking__c (Standard, Channel Partner), each with tailored page layouts and restricted picklist values.
- Assigned record types and defaults by profile so agents see the right layout by default during create; verified via the Profile → Record Type Settings screen.

1) Unit_c record type:

The screenshot shows the Salesforce Object Manager for the Unit_c object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The 'Record Types' option is selected and highlighted in blue. The main content area displays a table titled 'RECORD TYPE L...'. It contains two entries: 'Commercial Unit' and 'Residential Unit'. Both records are marked as 'ACTIVE' and were modified by 'Tanu Wadaskar' at '9/21/2025, 1:24 PM' and '9/21/2025, 1:23 PM' respectively. The table has columns for 'RECORD TYPE L...', 'DESCRIPTION', 'ACTIVE', and 'MODIFIED BY'.

RECORD TYPE L...	DESCRIPTION	ACTIVE	MODIFIED BY
Commercial Unit	Commercial inventory variant (shops/offices)	✓	Tanu Wadaskar, 9/21/2025, 1:24 PM
Residential Unit	Residential inventory variant (apartments/flats)	✓	Tanu Wadaskar, 9/21/2025, 1:23 PM

2) Offer_c record type:

The screenshot shows the Salesforce Object Manager for the Offer_c object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The 'Record Types' option is selected and highlighted in blue. The main content area displays a table titled 'RECORD TYPE L...'. It contains two entries: 'Channel Partner Offer' and 'Retail Offer'. Both records are marked as 'ACTIVE' and were modified by 'Tanu Wadaskar' at '9/21/2025, 1:36 PM' and '9/21/2025, 1:34 PM' respectively. The table has columns for 'RECORD TYPE L...', 'DESCRIPTION', 'ACTIVE', and 'MODIFIED BY'.

RECORD TYPE L...	DESCRIPTION	ACTIVE	MODIFIED BY
Channel Partner Offer	Broker-assisted offer with commission eligibility	✓	Tanu Wadaskar, 9/21/2025, 1:36 PM
Retail Offer	Direct buyer offer	✓	Tanu Wadaskar, 9/21/2025, 1:34 PM

3) Booking_c record type:

The screenshot shows the Salesforce Object Manager for the Booking_c object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The 'Record Types' option is selected and highlighted in blue. The main content area displays a table titled 'RECORD TYPE L...'. It contains two entries: 'Channel Partner Booking' and 'Standard Booking'. Both records are marked as 'ACTIVE' and were modified by 'Tanu Wadaskar' at '9/21/2025, 1:40 PM' and '9/21/2025, 1:39 PM' respectively. The table has columns for 'RECORD TYPE L...', 'DESCRIPTION', 'ACTIVE', and 'MODIFIED BY'.

RECORD TYPE L...	DESCRIPTION	ACTIVE	MODIFIED BY
Channel Partner Booking	Booking via partner; includes commission/referral tracking.	✓	Tanu Wadaskar, 9/21/2025, 1:40 PM
Standard Booking	Direct booking without partner commission	✓	Tanu Wadaskar, 9/21/2025, 1:39 PM

- **Page Layouts:**

- Built separate layouts and mapped them via the Page Layout Assignment matrix so each profile/record type sees the right fields and related lists during create and view.
- Kept layouts lean and organized by sections; configured related list columns and order for Units, Offers, and Bookings to speed data entry.

1) Unit_c:

SETUP > OBJECT MANAGER
Unit_c

PAGE LAYOUT N...	CREATED BY	MODIFIED BY
Commercial Layout	Tanu Wadaskar, 9/21/2025, 1:21 PM	Tanu Wadaskar, 9/21/2025, 1:21 PM
Residential Layout	Tanu Wadaskar, 9/21/2025, 1:20 PM	Tanu Wadaskar, 9/21/2025, 1:21 PM
Unit_c Layout	Tanu Wadaskar, 9/21/2025, 11:28 AM	Tanu Wadaskar, 9/21/2025, 12:45 PM

2) Offer_c:

SETUP > OBJECT MANAGER
Offer_c

PAGE LAYOUT N...	CREATED BY	MODIFIED BY
Offer_c Layout	Tanu Wadaskar, 9/21/2025, 11:29 AM	Tanu Wadaskar, 9/21/2025, 12:08 PM
Offer-CP Layout	Tanu Wadaskar, 9/21/2025, 1:35 PM	Tanu Wadaskar, 9/21/2025, 1:35 PM
Offer-Retail Layout	Tanu Wadaskar, 9/21/2025, 1:31 PM	Tanu Wadaskar, 9/21/2025, 1:31 PM

3) Booking_c:

SETUP > OBJECT MANAGER

Booking_c

Page Layouts

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Booking_c Layout	Tanu Wadaskar, 9/21/2025, 11:29 AM	Tanu Wadaskar, 9/21/2025, 12:12 PM
Booking-CP Layout	Tanu Wadaskar, 9/21/2025, 1:38 PM	Tanu Wadaskar, 9/21/2025, 1:38 PM
Booking-Standard Layout	Tanu Wadaskar, 9/21/2025, 1:37 PM	Tanu Wadaskar, 9/21/2025, 1:37 PM

4) Property_Project_c:

SETUP > OBJECT MANAGER

Property_Project_c

Page Layouts

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Project Layout	Tanu Wadaskar, 9/21/2025, 1:54 PM	Tanu Wadaskar, 9/21/2025, 1:55 PM
Property_Project_c Layout	Tanu Wadaskar, 9/21/2025, 11:27 AM	Tanu Wadaskar, 9/21/2025, 12:45 PM

5) Site_Visit__c:

The screenshot shows the 'Page Layouts' section of the Site_Visit__c object's setup page. The left sidebar lists various configuration options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, etc. The main area displays two page layouts: 'Site Visit Layout' and 'Site_Visit__c Layout'. Both were created by Tanu Wadaskar on 9/21/2025.

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Site Visit Layout	Tanu Wadaskar, 9/21/2025, 1:56 PM	Tanu Wadaskar, 9/21/2025, 1:56 PM
Site_Visit__c Layout	Tanu Wadaskar, 9/21/2025, 11:28 AM	Tanu Wadaskar, 9/21/2025, 12:38 PM

6) Payment_Milestone__c:

The screenshot shows the 'Page Layouts' section of the Payment_Milestone__c object's setup page. The left sidebar lists various configuration options. The main area displays two page layouts: 'Milestone Layout' and 'Payment_Milestone__c Layout'. Both were created by Tanu Wadaskar on 9/21/2025.

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Milestone Layout	Tanu Wadaskar, 9/21/2025, 1:59 PM	Tanu Wadaskar, 9/21/2025, 2:00 PM
Payment_Milestone__c Layout	Tanu Wadaskar, 9/21/2025, 11:29 AM	Tanu Wadaskar, 9/21/2025, 12:12 PM

- **Compact Layouts :**

- Compact layouts show a record's key fields in the highlights panel and mobile header so users can scan critical info at a glance without scrolling.

- 1) Listing :

The screenshot shows the Salesforce Object Manager interface for the 'Listing' object. The left sidebar has a 'Compact Layouts' section selected. The main area displays a table of compact layouts:

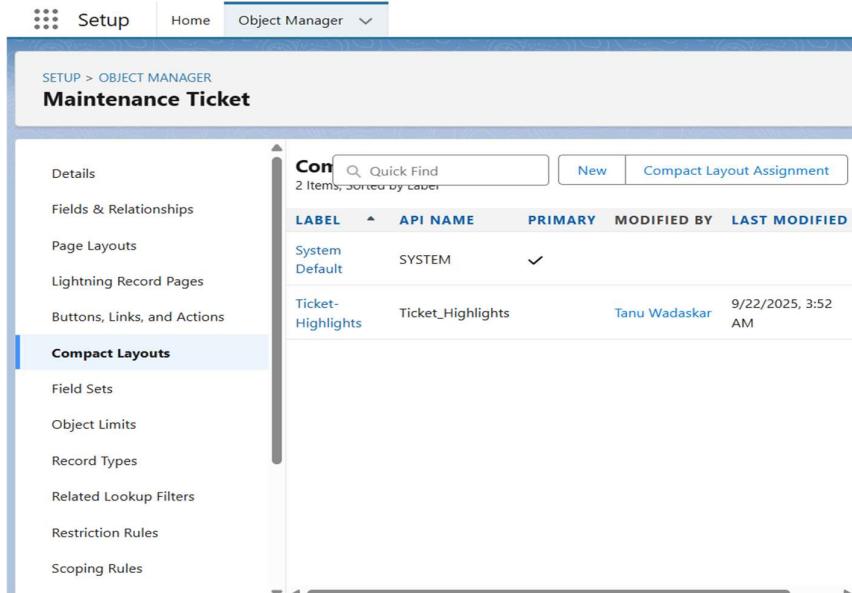
LABEL	API NAME	PRIMARY	MODIFIED BY	LAST MODIFIED
Listing-Highlights	Listing_Highlights		Tanu Wadaskar	9/22/2025, 3:48 AM
System Default	SYSTEM			

- 2) Lease:

The screenshot shows the Salesforce Object Manager interface for the 'Lease' object. The left sidebar has a 'Compact Layouts' section selected. The main area displays a table of compact layouts:

LABEL	API NAME	PRIMARY	MODIFIED BY	LAST MODIFIED
Lease-Highlights	Lease_Highlights		Tanu Wadaskar	9/22/2025, 3:50 AM
System Default	SYSTEM			

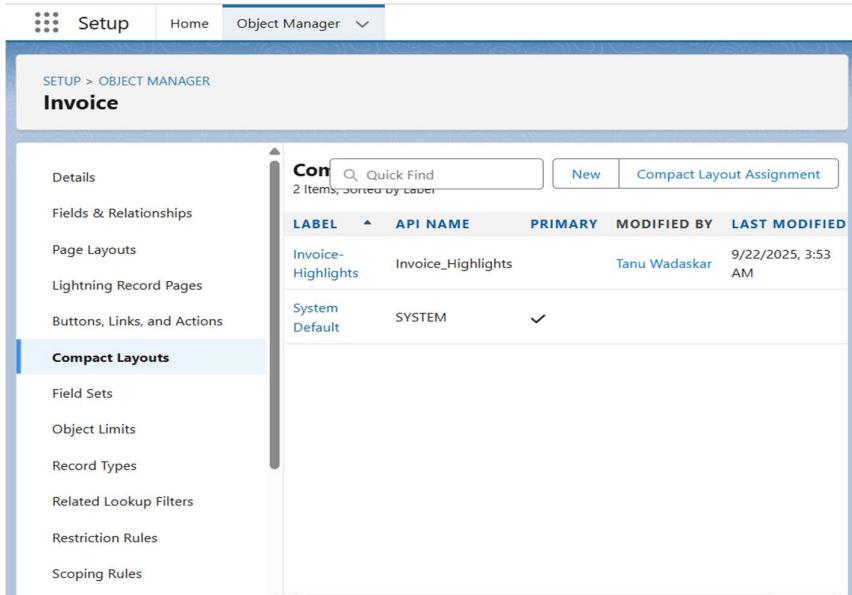
3) Maintenance Ticket:



The screenshot shows the Salesforce Object Manager interface for the Maintenance Ticket object. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The left sidebar lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, and Compact Layouts (which is selected). The main content area displays a table of compact layouts. The table has columns for Label, API Name, Primary, Modified By, and Last Modified. It shows two items: 'System Default' (Label: System, API Name: SYSTEM) and 'Ticket-Highlights' (Label: Ticket-Highlights, API Name: Ticket_Highlights, Modified By: Tanu Wadaskar, Last Modified: 9/22/2025, 3:52 AM).

Label	API Name	Primary	Modified By	Last Modified
System Default	SYSTEM	✓		
Ticket-Highlights	Ticket_Highlights		Tanu Wadaskar	9/22/2025, 3:52 AM

4) Invoice:



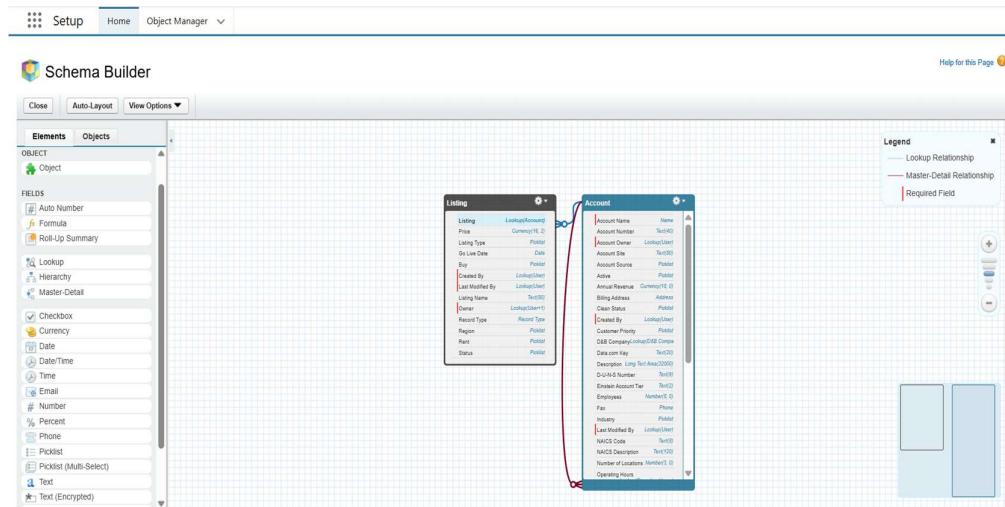
The screenshot shows the Salesforce Object Manager interface for the Invoice object. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The left sidebar lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, and Compact Layouts (which is selected). The main content area displays a table of compact layouts. The table has columns for Label, API Name, Primary, Modified By, and Last Modified. It shows two items: 'Invoice-Highlights' (Label: Invoice-Highlights, API Name: Invoice_Highlights, Modified By: Tanu Wadaskar, Last Modified: 9/22/2025, 3:53 AM) and 'System Default' (Label: System, API Name: SYSTEM).

Label	API Name	Primary	Modified By	Last Modified
Invoice-Highlights	Invoice_Highlights		Tanu Wadaskar	9/22/2025, 3:53 AM
System Default	SYSTEM	✓		

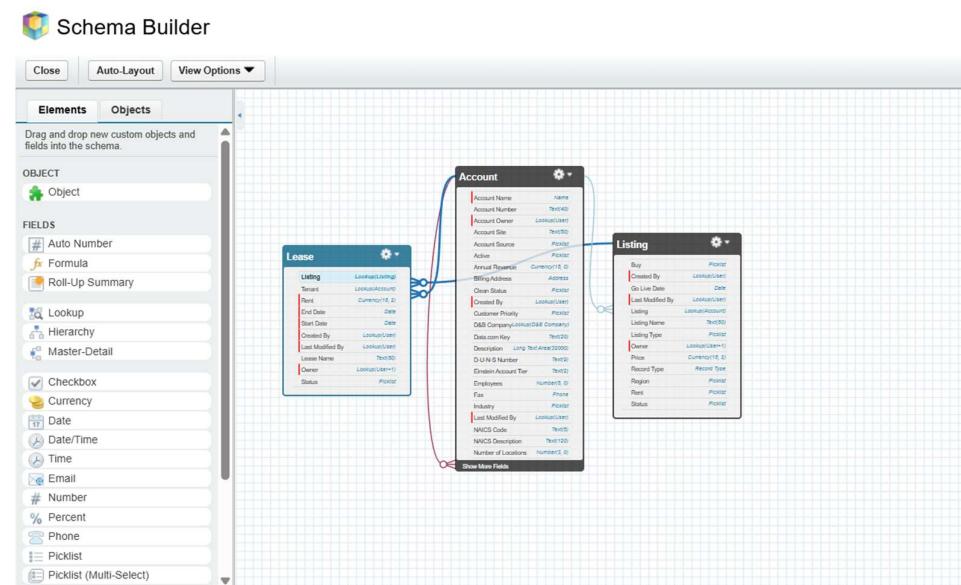
● Schema Builder:

- Schema Builder is the visual canvas used to design and document the data model, showing objects, fields, required marks, and lookup/master-detail lines at a glance for clean screenshots.
- It was used to add the needed fields and lookups for Listing, Lease, Maintenance Ticket, Invoice, and Account via drag-and-drop, then Auto-Layout was applied to capture a clear relationship diagram for the report.

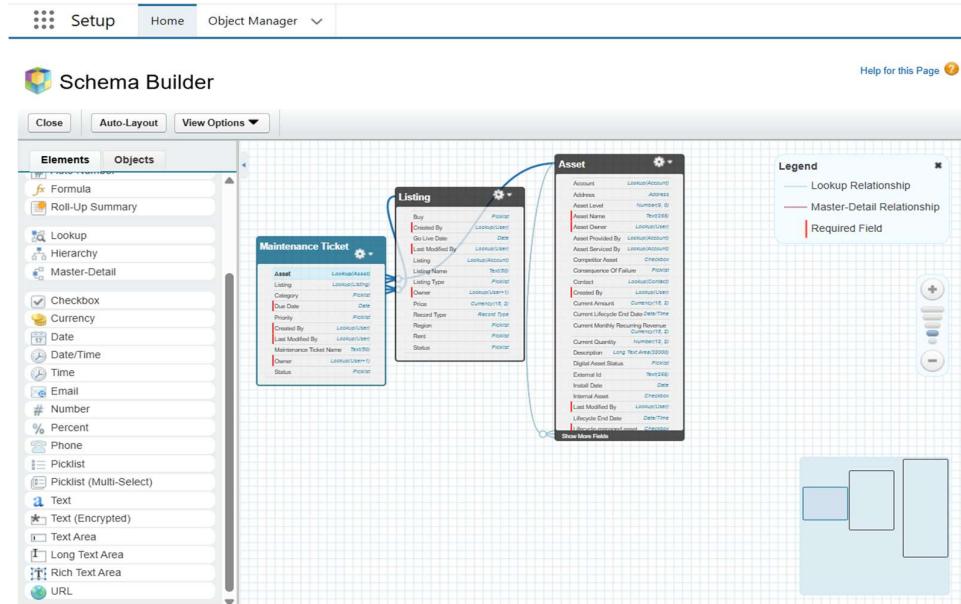
1) Listing:



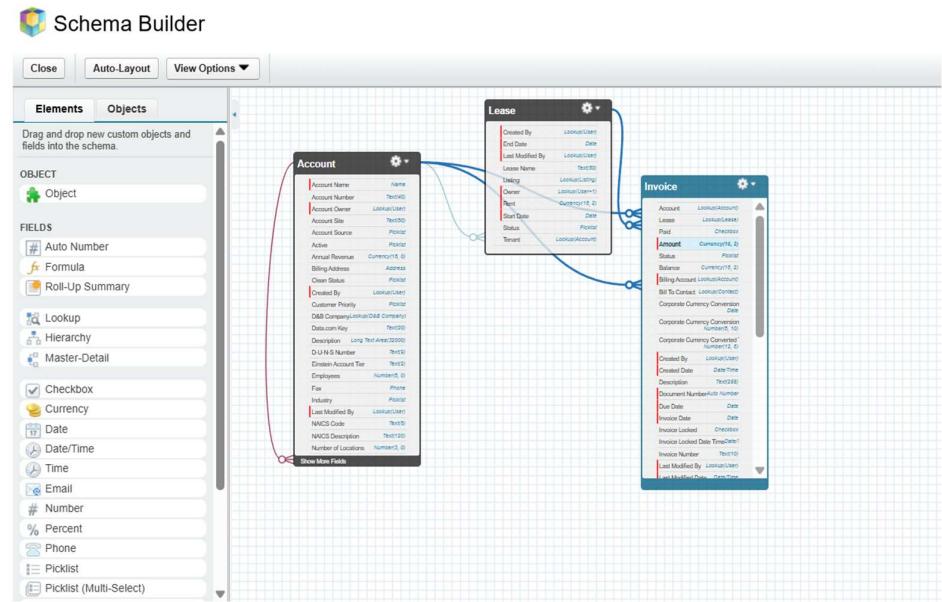
2) Lease:



3) Maintenance Ticket:



4) Invoice:



- **Lookup vs Master-Detail vs Hierarchical Relationships**
 - **Lookup:** Lease -> Listing and Invoice -> Account links are flexible associations where the child keeps its own owner/sharing and can exist without the parent; used for optional references and independent access.
 - **Master-Detail:** Invoice -> Lease was converted so every Invoice depends on a Lease, inherits owner/sharing, deletes with its parent, and enables roll-up summaries on Lease for totals/counts.
 - **Hierarchical:** On User, “HR Manager” (lookup to User) with Child Relationship Name “HR_Reports” creates a user-to-user link so a manager’s record shows the related “HR Reports” list.
- **Junction Objects** (Not applicable for this build)
- **External Objects** (Not applicable because data is stored inside Salesforce.)

Phase 4: Process Automation(Admin)

• Validation Rules

- **Created data-quality checks across objects:** Leases require valid timelines and a selected Listing; Invoices require a positive Amount for “Paid” and a Due Date for “Posted”; Tickets enforce Due Date for “Critical” and an Owner for “In Progress”; Listings require positive Price for “Active” and disallow past Go-Live dates.
- Each rule blocks the save with a clear message next to the relevant field or at the page top, ensuring consistent records for reporting and automation.

o Lease :

The screenshot shows the Salesforce Object Manager interface for the 'Lease' object. The left sidebar lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The main content area is titled 'Validation Rules' and displays three items, sorted by Rule Name. The table has columns for RULE NAME, ERROR LOCATION, and ERROR MESSAGE.

RULE NAME	ERROR LOCATION	ERROR MESSAGE
Lease_Dates_Required_When_Status_Pendi	Top of Page	Enter both Start Date and End Date for Pending leases.
Lease_End_After_Start	End Date	End Date must be after Start Date.
Lease_Required_Listing	Listing	Select the Listing for this Lease.

○ Invoice:

The screenshot shows the Salesforce Object Manager for the 'Invoice' object. On the left, a sidebar lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The main content area is titled 'Validation Rules' and displays three items, sorted by Rule Name. The table has columns for 'RULE NAME', 'ERROR LOCATION', and 'ERROR MESSAGE'. The rules are:

RULE NAME	ERROR LOCATION	ERROR MESSAGE
Invoice_DueDate_Not_Past_On_Create	Due_Date__c	Due Date cannot be in the past for new invoices.
Invoice_DueDate_Required_When_Posted	Due_Date__c	Set a Due Date for Posted invoices.
Invoice_Paid_Requires_Amount	Amount__c	Enter a positive Amount before marking Paid

○ Maintenance Ticket:

The screenshot shows the Salesforce Object Manager for the 'Maintenance Ticket' object. On the left, a sidebar lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The main content area is titled 'Validation Rules' and displays two items, sorted by Rule Name. The table has columns for 'RULE NAME', 'ERROR LOCATION', and 'ERROR MESSAGE'. The rules are:

RULE NAME	ERROR LOCATION	ERROR MESSAGE
Ticket_Critical_Requires_DueDate	Due Date	Critical tickets must have a Due Date.
Ticket_Status_Progress_Requires_Owner	Top of Page	Assign an Owner before moving to In Progress.

○ Listing:

The screenshot shows the Salesforce Object Manager interface for the 'Listing' object. The left sidebar lists various setup options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, and Scoping Rules. The main content area is titled 'Validation Rules' and displays two items. The first rule, 'Listing_Active_Requires_Price', is associated with the 'Price' field and has an error message: 'Provide a positive Price for Active listings.' The second rule, 'Listing_GoLive_After_Today_When_Active', is associated with the 'Go Live Date' field and has an error message: 'Go-Live Date cannot be in the past for Active listings.' A 'New' button is located in the top right corner of the validation rules list.

Rule Name	Error Location	Error Message
Listing_Active_Requires_Price	Price	Provide a positive Price for Active listings.
Listing_GoLive_After_Today_When_Active	Go Live Date	Go-Live Date cannot be in the past for Active listings.

○ User Hierarchical:

The screenshot shows the Salesforce Object Manager interface for the 'User' object. The left sidebar lists various setup options: Details, Fields & Relationships, User Page Layouts, User Profile Page Layouts, Lightning Record Pages, Buttons and Links, Compact Layouts, Field Sets, Object Limits, Related Lookup Filters, Search Layouts, and List View Button Layout. The main content area is titled 'Validation Rules' and displays one item. The rule, 'HR_Manager_Cannot_Be_Self', is associated with the 'HR Manager' field and has an error message: 'A user cannot be their own HR Manager.' and is marked as active. A 'New' button is located in the top right corner of the validation rules list.

Rule Name	Error Location	Error Message	Active
HR_Manager_Cannot_Be_Self	HR Manager	A user cannot be their own HR Manager.	✓

- **Workflow Rules:**

- **Invoice Overdue Rule:** When an Invoice is Posted and the due date is in the past, the rule checks Overdue and sends an overdue notice to finance for timely collections.
- **Lease Activation Rule:** On Lease status change to Active, the rule stamps the activation date and emails the tenant contact and lease owner for immediate confirmation.
- **Critical Ticket Rule:** When a Maintenance Ticket is created with Priority = Critical and Status = New, the rule emails Facilities and creates a same-day “Acknowledge Critical Ticket” task.

The screenshot shows the Salesforce Setup interface with the following details:

- Left Navigation Bar:**
 - Setup
 - Home
 - Object Manager
 - Search bar: Wor
 - Process Automation
 - Workflow Actions
 - Email Alerts
 - Field Updates
 - Outbound Messages
 - Send Actions
 - Tasks
 - Workflow Rules (highlighted)
 - User Interface
 - Console Settings
 - Translation Workbench
 - Export
 - Import
 - Translate
- Workflow Rules Page Content:**
 - SETUP Workflow Rules**
 - Configure your organization's workflow by creating workflow rules. Each workflow rule consists of:
 - Criteria that cause the workflow rule to run.
 - Immediate actions that execute when a record matches the criteria. For example, Salesforce can automatically send an email that notifies the account team when a new high-value opportunity is created.
 - Time-dependent actions that queue when a record matches the criteria, and execute according to time triggers. For example, Salesforce can automatically send an email reminder to the account team if a high-value opportunity is still open ten days before the close date.
 - Quick Tips:**
 - Useful Sample Workflow Rule
 - Video Tutorial (English Only)
 - Troubleshooting Workflow
 - View:** All Workflow Rules | Create New View

Action	Rule Name +	Description	Object	Active
Edit Del Activate	Invoice_Mark_Overdue		Invoice	<input type="checkbox"/>
Edit Del Activate	Invoice_Overdue_Notify		Invoice	<input type="checkbox"/>
Edit Del Activate	Lease_Activated_Notify		Lease	<input type="checkbox"/>
Edit Del Activate	Ticket_Critical_Notify		Maintenance Ticket	<input type="checkbox"/>

• Process Builder:

- **Created Three Processes:** Invoice overdue marking and email, Lease activation date stamp and notification, and Critical Maintenance ticket alert with task; these cover the core billing, leasing, and service triggers for Phase 4.
- Kept one process per object with clear criteria (using ISPICKVAL and PRIORVALUE) and immediate actions, avoiding overlap and duplicate firings; more flows can be added later if scope expands.

The screenshot shows the Salesforce Process Builder interface. At the top, there's a banner with a message about Flow Builder. Below it, the main header says 'Process Builder' and 'My Processes'. A 'New' button is visible on the right. The main area is a table with columns: 'PROCESS', 'DESCRIPTION', and 'LAST MODIFIED'. It lists three processes:

PROCESS	DESCRIPTION	LAST MODIFIED
> PB_Invoice_Overdue	Automate overdue handling on invoices: when a post...	9/23/2025
> PB_Lease_Activated_Notify	Stamp activation date and notify when Status becom...	9/23/2025
> PB_Ticket_Critical_Notify	Notify Facilities and create acknowledgment task for ...	9/23/2025

• Email Alerts:

- **Three alerts configured:** Invoice Overdue Notice, Lease Activated, and Critical Ticket Created, each tied to its object and using the verified org-wide no-reply sender for consistent delivery.
- **Wired Automation and Tested:** Actions added in Process Builder, activated, Deliverability set to All Email, and end-to-end test emails received successfully with correct merge fields and recipients.

The screenshot shows the Salesforce Email Alerts interface. On the left, there's a sidebar with navigation links: 'Email', 'Email Address Internationalization', 'Email Attachments', 'Process Automation', 'Workflow Actions', and 'Email Alerts' (which is highlighted). A global search bar at the top says 'Email a'. The main area is titled 'Email Alerts' and shows a table of 'All Email Alerts'. The table has columns: 'Action', 'Description', 'Email Template Name', 'Object', and 'Last Modified Date'. It lists three email alerts:

Action	Description	Email Template Name	Object	Last Modified Date
Edit Del	Send critical ticket notification to Facilities/Ops for immediate action.	Critical Ticket Created	Maintenance Ticket	9/23/2025
Edit Del	Send lease activation notice to tenant contact and lease owner.	Lease Activated	Lease	9/23/2025
Edit Del	Send overdue invoice notice to selected users.	Invoice Overdue Notice	Invoice	9/23/2025

- **Field Updates:**

- Implemented field updates in Process Builder as immediate actions so data is written before any paired email alerts; for example, Overdue__c is set to True on Invoice, Activation__Date__c is stamped to TODAY() on Lease, and Listing.Status__c is set to Closed/Leased when a Lease activates.
- **Followed platform execution behaviour and considerations:** Field Updates run prior to emails, can re-evaluate workflow if enabled, and are tracked in field history when auditing is turned on; documented for future migration to Flow as Process Builder approaches end of support.

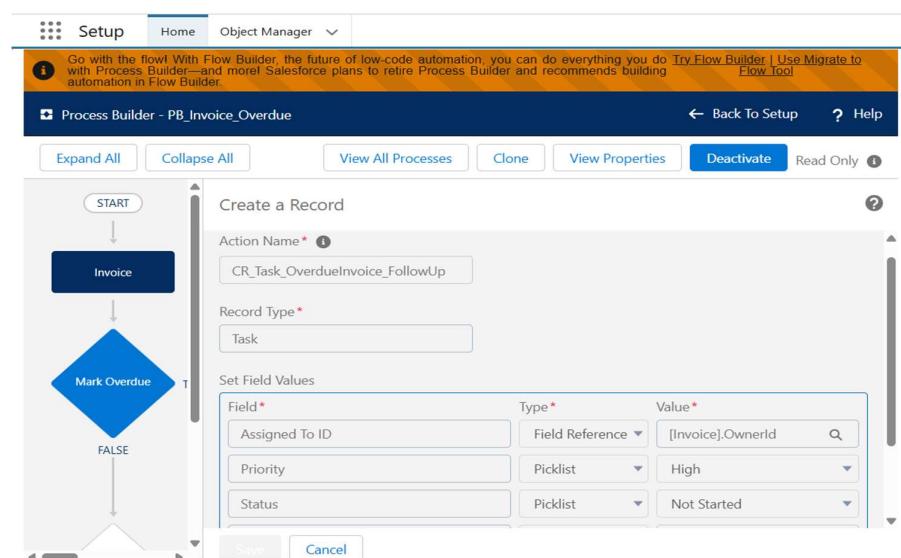
The screenshot shows the Salesforce Setup interface with the following details:

- Header:** Includes the Salesforce logo, a search bar labeled "Search Setup", and various navigation icons.
- Navigation Bar:** Shows "Setup" as the active tab, along with "Home" and "Object Manager".
- Left Sidebar:** Contains sections for "Process Automation" and "Workflow Actions", with "Field Updates" currently selected.
- Page Title:** "SETUP Field Updates" with a gear icon.
- Section Header:** "All Workflow Field Updates" with a "Help for this Page" link.
- Table:** A list of workflow field updates with the following data:

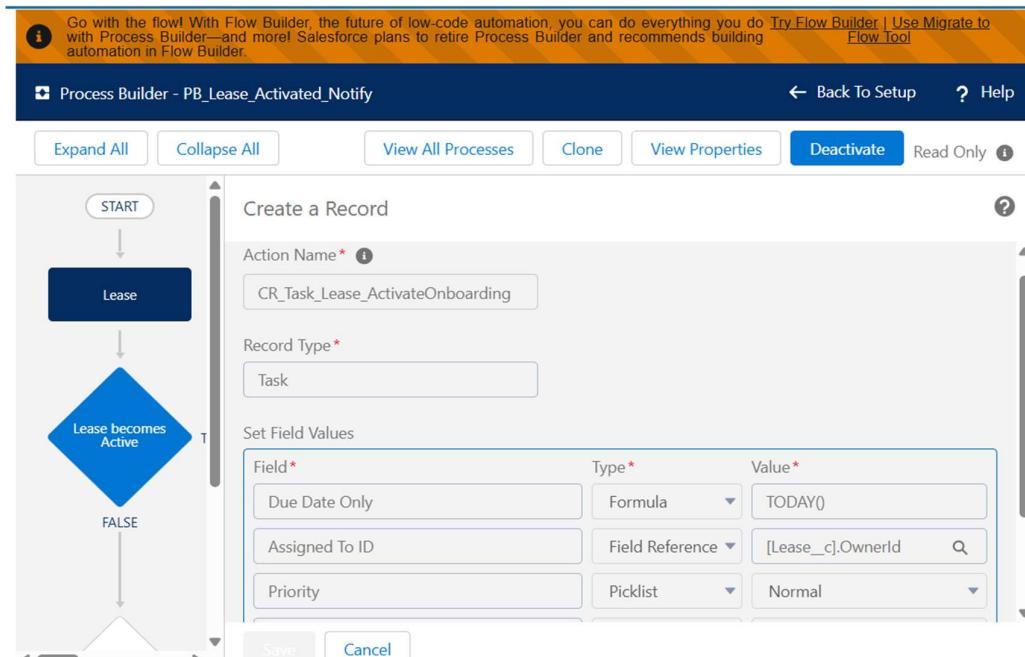
Action	Name	Field to Update	Operation	Value	Last Modified
Edit Del	Changes the case priority to high.	Case: Priority	Value	High	9/15/2022
Edit Del	EU_Invoice_SetOverdueTrue	Invoice: Overdue__c	Value	True	9/23/2022
Edit Del	EU_Lease_SetActivationDate	Lease: Activation Date	Formula	TODAY()	9/23/2022
Edit Del	EU_Listing_CloseOnLease	Listing: Status	Value	Closed	9/23/2022
- Page Navigation:** Includes links for "View: All Workflow Field Updates" and "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" and a "Create New View" button.
- Bottom:** A footer with links for "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" and a "Create New View" button.

- **Tasks:**

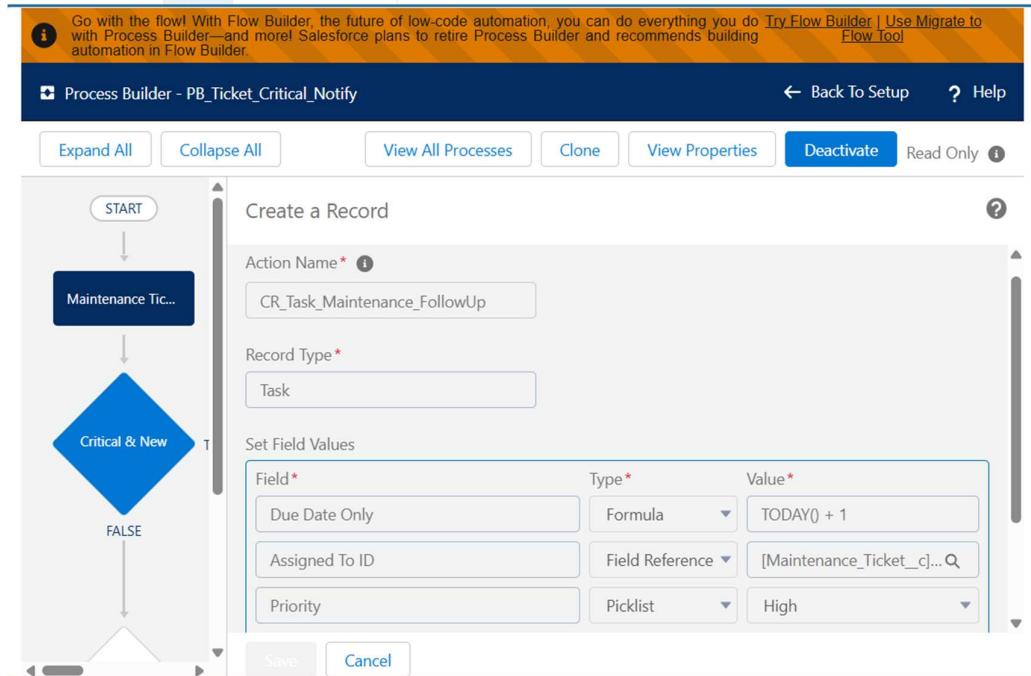
- **Overdue Invoice Task (Process Builder):** Created “CR_Task_OverdueInvoice_FollowUp” when an invoice becomes overdue; assigns to Invoice Owner, Subject “Follow up: Overdue Invoice,” Priority High, Status Not Started, Related To = Invoice.



- **Lease Activation Task (Process Builder):** Created “CR_Task_Lease_ActivateOnboarding” when Lease Status = Active; assigns to Lease Owner, Subject “Activate tenant onboarding,” Due Date TODAY(), Related To = Lease.



- **Maintenance Ticket Task(Process Builder):** Created “CR_Task_Maintenance_FollowUp” on ticket criteria; assigns to Ticket Owner with clear subject and priority, Related To = Maintenance Ticket for SLA tracking.



- **Approval Process:** Not implemented for Smart Property Portal CRM in this release, as current workflows don't require multi-step record approvals; all required actions are handled with Process Builder immediate actions and emails.
- **Flow Builder:** Not used in this phase; equivalent logic (field updates, tasks, and email alerts) was delivered via Process Builder to keep automation centralized and avoid tool overlap.
- **Custom Notifications:** Not configured; stakeholder alerts for these use cases are fulfilled via standard Email Alerts paired with Process Builder criteria.

Phase 5: Apex Programming(Developer)

• Classes & Objects:

- **Implemented a Lean Model:** Invoice__c looks up to Lease__c, and Listing__c has a required self-lookup (Listing_API_Listing_c__c) to support hierarchy and validations.
- Apex follows the trigger-handler pattern with async jobs (queueable/schedulable) operating on these objects, keeping triggers lightweight and orchestration-focused.

Objects:

The screenshots show the Salesforce Object Manager interface with the following details:

- Lease**: Custom Object created on 9/22/21.
- Lease__c**: Custom Object created on 9/22/21.
- Listing**: Custom Object created on 9/20/21.
- Listing__c**: Custom Object created on 9/23/21.

The screenshot shows the Salesforce Schema Builder interface with the following object definitions:

- Invoice**:
 - Account: Lookup(Account)
 - Amount: Currency(16, 2)
 - Balance: Currency(16, 2)
 - Billing Account: Lookup(Account)
 - Bill To Contact: Lookup(Contact)
 - Corporate Currency Conversion Rate: Number(16, 10)
 - Corporate Currency Conversion Total: Number(12, 6)
 - Created By: Lookup(User)
 - Created Date: Date/Time
 - Description: Text(255)
 - Document Number: Auto Number
 - Due Date: Date
 - Invoice Date: Date
 - Invoice Locked: Checkbox
 - Invoice Locked Date Time: Date/Time
 - Invoice Number: Text(10)
 - Last Modified By: Lookup(User)
 - Last Modified Date: Date/Time
 - Lease: Lookup(Lease)
 - Net Credits Applied: Formula (Currency)
- Lease**:
 - Activation Date: Date
 - Created By: Lookup(User)
 - End Date: Date
 - Last Modified By: Lookup(User)
 - Lease Name: Text(80)
 - Listing: Lookup(Listing)
 - Listing (API Listing__c): Lookup(Listing)
 - Owner: Lookup(User+1)
 - Rent: Currency(16, 2)
 - Start Date: Date
 - Status: Picklist
 - Tenant: Lookup(Account)
 - Total Billed: Roll-Up Summary (COUNT Invoice)
 - Total Invoices: Roll-Up Summary (COUNT Invoice)
- Listing**:
 - Activation Date: Date
 - Buy: Picklist
 - Created By: Lookup(User)
 - End Date: Date
 - Go Live Date: Date
 - Last Modified By: Lookup(User)
 - Listing: Lookup(Account)
 - Listing (API Listing__c): Text(18)
 - Listing Name: Text(80)
 - Listing Type: Picklist
 - Owner: Lookup(User+1)
 - Price: Currency(16, 2)
 - Record Type: Record Type
 - Region: Picklist
 - Rent: Picklist
 - Start Date: Date
 - Status: Picklist

Apex Classes:

The screenshot shows the Salesforce Setup interface. In the top navigation bar, 'Setup' is selected. Below it, there's a search bar with 'Apex' typed in. The main content area is titled 'Most Recently Used' and shows a list of 10 items. The columns are 'NAME', 'TYPE', and 'OBJECT'. The items listed are:

NAME	TYPE	OBJECT
InvoiceAsyncUtilsTest	Apex Class	
InvoiceAsyncUtils	Apex Class	
InvoiceTriggerHandlerTest	Apex Class	
LeaseTriggerHandlerTest	Apex Class	
Tanu Wadaskar	User	
SFDC_DevConsole	Debug Level	
InvoiceTriggerHandler	Apex Class	
InvoicePostingQueue	Apex Class	
LeaseTrigger	Apex Trigger	Lease
LeaseTriggerHandler	Apex Class	

The sidebar on the left has categories like Email, Custom Code, Environments, and Jobs, with 'Apex Classes' currently selected. A message at the bottom says 'Didn't find what you're looking for? Try using Global Search.'

• Apex Triggers:

- Implemented one trigger per object with logic routed to handler classes, ensuring bulk-safe operations, clear before/after context handling, and easy maintenance.
- The Lease trigger auto-generates invoices when status becomes Active, and the Invoice trigger orchestrates due-date posting via async jobs, keeping trigger bodies lightweight and focused.

The screenshot shows the 'Apex Triggers' list view in the Salesforce Setup. The top navigation bar has 'SETUP' selected. The main content area is titled 'Apex Triggers' and includes a 'Help for this Page' link. The page displays a table of triggers with columns: Action, Name, Namespace Prefix, sObject Type, API Version, Status, Size Without Comments, Last Modified By, and Has Trace Flags. There are two triggers listed:

Action	Name	Namespace Prefix	sObject Type	API Version	Status	Size Without Comments	Last Modified By	Has Trace Flags
Edit Del	InvoiceTrigger		Invoice	64.0	Active	351	Tanu Wadaskar	9/24/2025, 7:25 AM
Edit Del	LeaseTrigger		Lease	64.0	Active	196	Tanu Wadaskar	9/24/2025, 10:55 AM

The sidebar on the left has categories like Email, Custom Code, Environments, and Jobs, with 'Apex Triggers' currently selected. A message at the bottom says 'Didn't find what you're looking for? Try using Global Search.'

- **Trigger Design Pattern:**

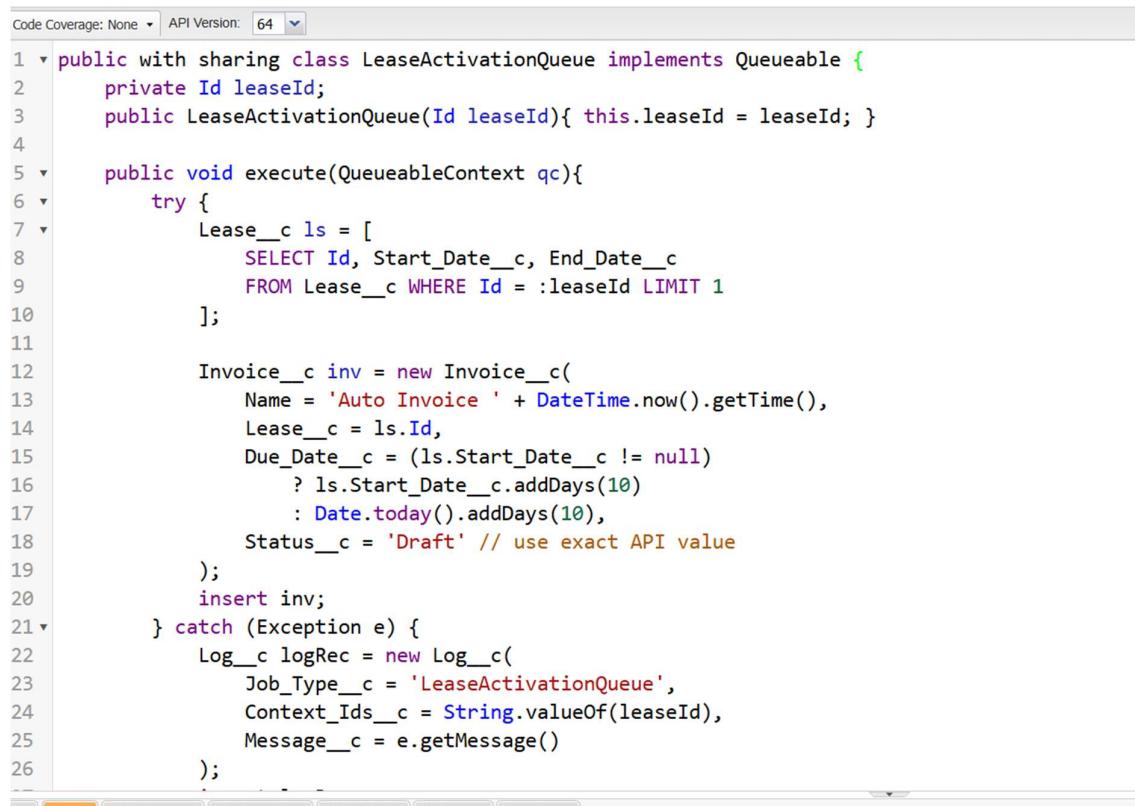
- **Adopted the trigger design pattern:** one trigger per object delegates to a handler class that routes context (before/after insert/update/delete), preventing recursion and keeping logic bulk-safe and testable.
- Handlers perform orchestration only; heavy work is moved to services/queueables, enabling clear separation of concerns and easier maintenance.

The screenshot shows the Salesforce Setup interface with the 'Apex Classes' page selected. The left sidebar includes links for Email, Custom Code (with 'Apex Classes' highlighted), Test, Environments, and Jobs. A search bar at the top left is set to 'Apex'. The main content area has a header 'Apex Classes' with a gear icon. Below the header is a table with columns: Action, Name, Namespace Prefix, API Version, Status, Size Without Comments, Last Modified By, and Has Trace Flags. The table lists various Apex classes, such as 'BatchInvoiceOverdue', 'BatchLeaseRenewalPreview', 'InvoiceAsyncUtils', etc., along with their details like API version (64.0), status (Active), and last modified by (Tanu Wadaskar). At the bottom of the table, there is a link 'Show me fewer▲ records per list page'.

Action	Name	Namespace Prefix	API Version	Status	Size Without Comments	Last Modified By	Has Trace Flags
Edit Del Security	BatchInvoiceOverdue		64.0	Active	2,510	Tanu Wadaskar	9/24/2025, 9:47 AM
Edit Del Security	BatchLeaseRenewalPreview		64.0	Active	1,504	Tanu Wadaskar	9/24/2025, 10:02 AM
Edit Del Security	InvoiceAsyncUtils		64.0	Active	341	Tanu Wadaskar	9/24/2025, 12:40 PM
Edit Del	InvoiceAsyncUtilsTest		64.0	Active	1,339	Tanu Wadaskar	9/24/2025, 12:43 PM
Edit Del Security	InvoiceConstants		64.0	Active	159	Tanu Wadaskar	9/24/2025, 6:47 AM
Edit Del Security	InvoiceDomain		64.0	Active	1,148	Tanu Wadaskar	9/24/2025, 6:47 AM
Edit Del Security	InvoiceFactory		64.0	Active	3,045	Tanu Wadaskar	9/24/2025, 8:31 AM
Edit Del Security	InvoicePostingQueue		64.0	Active	843	Tanu Wadaskar	9/24/2025, 11:03 AM
Edit Del Security	InvoiceSelector		64.0	Active	365	Tanu Wadaskar	9/24/2025, 2:18 AM
Edit Del Security	InvoiceService		64.0	Active	614	Tanu Wadaskar	9/24/2025, 2:18 AM
Edit Del Security	InvoiceTriggerHandler		64.0	Active	1,210	Tanu Wadaskar	9/24/2025, 11:16 AM
Edit Del	InvoiceTriggerHandlerTest		64.0	Active	1,789	Tanu Wadaskar	9/24/2025, 12:34 PM
Edit Del Security	LeaseActivationQueue		64.0	Active	914	Tanu Wadaskar	9/24/2025, 10:40 AM
Edit Del Security	LeaseTriggerHandler		64.0	Active	1,324	Tanu Wadaskar	9/24/2025, 10:55 AM
Edit Del	LeaseTriggerHandlerTest		64.0	Active	1,172	Tanu Wadaskar	9/24/2025, 12:33 PM
Edit Del Security	NightlyOverdueSchedule		64.0	Active	205	Tanu Wadaskar	9/24/2025, 9:55 AM
Edit Del Security	WeeklyLeasePreviewSchedule		64.0	Active	204	Tanu Wadaskar	9/24/2025, 10:07 AM

- **SOQL & SOSL** : Used selective SOQL to load related records in handlers and avoid governor limits; SOSL reserved for cross-object keyword search scenarios.
- **Collections**: Lists aggregate DML updates, Sets prevent duplicate Ids in bulk contexts, and Maps enable O(1) joins from parent Id to child data during trigger processing.
- **Control Statements**: Applied if/else and loops with early exits and size checks to keep trigger logic bulk-safe and performant.

Note: Refer same screenshot for all the above three sections.



```

1 public with sharing class LeaseActivationQueue implements Queueable {
2     private Id leaseId;
3     public LeaseActivationQueue(Id leaseId){ this.leaseId = leaseId; }
4
5     public void execute(QueueableContext qc){
6         try {
7             Lease__c ls = [
8                 SELECT Id, Start_Date__c, End_Date__c
9                 FROM Lease__c WHERE Id = :leaseId LIMIT 1
10            ];
11
12            Invoice__c inv = new Invoice__c(
13                Name = 'Auto Invoice ' + DateTime.now().getTime(),
14                Lease__c = ls.Id,
15                Due_Date__c = (ls.Start_Date__c != null)
16                    ? ls.Start_Date__c.addDays(10)
17                    : Date.today().addDays(10),
18                Status__c = 'Draft' // use exact API value
19            );
20            insert inv;
21        } catch (Exception e) {
22            Log__c logRec = new Log__c(
23                Job_Type__c = 'LeaseActivationQueue',
24                Context_Ids__c = String.valueOf(leaseId),
25                Message__c = e.getMessage()
26            );

```

• Batch Apex

- Processes large data volumes by chunking records into manageable batches, ensuring governor-limit safety for periodic lease/invoice jobs.
- Start/execute/finish pattern enables pre/post processing and logging around the core batch logic.

The screenshot shows the 'Apex Jobs' page in the Salesforce Setup. It displays a table of scheduled and batch apex jobs. One job failed with an error message about a custom field name.

Action	Submitted Date	Job Type	Status	Status Detail	Total Batches	Batches Processed	Failures	Submitted By	Completion Date	Apex Class	Apex Method	Apex Job ID
	9/24/2025, 10:09 AM	Scheduled Apex	Queued		0	0	0	Wadaskar, Tanu		WeeklyLeasePreviewSchedule		707gK00000Dvuue
	9/24/2025, 10:03 AM	Batch Apex	Completed		0	0	0	Wadaskar, Tanu	9/24/2025, 10:03 AM	BatchLeaseRenewalPreview		707gK00000Dvxv2
	9/24/2025, 9:56 AM	Scheduled Apex	Queued		0	0	0	Wadaskar, Tanu		NightlyOverdueSchedule		707gK00000DvbkD
	9/24/2025, 9:48 AM	Batch Apex	Failed		0	1	1	Wadaskar, Tanu	9/24/2025, 9:48 AM	BatchInvoiceOverdue		707gK00000DvfJN

Percent of Asynchronous Apex Used: 0%
You have currently used 0 asynchronous Apex operations out of an allowed 24-hour organization limit of 250,000. To learn about how this limit is calculated and what contributes to it, see the [Lightning Platform Apex Limits](#) topic.

• Queueable Apex:

- Runs transactional background tasks with richer context than future methods, used to create/post invoices without blocking user actions.
- Captures record Ids and chains follow-up work when needed for reliability.

The screenshot shows the 'Apex Class Detail' page for the 'InvoicePostingQueue' class. It displays the class body with code for executing queueable tasks.

```

1 public with sharing class InvoicePostingQueue implements Queueable, Database.AllowableCallouts {
2     private List<Id> invoiceIds;
3     public InvoicePostingQueue(List<Id> invoiceIds){this.invoiceIds = invoiceIds;}
4
5     public void execute(ExecutionContext qc){
6         try {
7             List<Invoice__c> invs = [
8                 SELECT Id, Name, Status_c__c, Lease__c
9                 FROM Invoice__c
10                WHERE Id IN :invoiceIds
11            ];
12            for(Invoice__c i : invs){
13                if(i.Status_c__c == 'Draft'){
14                    i.Status_c__c = 'Sent';
15                }
16            }
17            if(!invs.isEmpty()){
18                update invs;
19            }
20            // TODO: add email/PDF/notifications if required
21        } catch (Exception e){
22            System.debug('InvoicePostingQueue error ids=' + invoiceIds + ' msg=' + e.getMessage());
23        }
24    }
25 }

```

Apex Class
LeaseActivationQueue

Apex Class Detail

Name	LeaseActivationQueue	Status	Active
Namespace Prefix		Code Coverage	0% (0/14)
Created By	Tanu Wadaskar , 9/24/2025, 10:31 AM	Last Modified By	Tanu Wadaskar , 9/24/2025, 1:34 PM

Class Body **Class Summary** **Version Settings** **Trace Flags**

```

1 public with sharing class LeaseActivationQueue implements Queueable {
2     private Id leaseId;
3     public LeaseActivationQueue(Id leaseId){this.leaseId = leaseId; }
4
5     public void execute(QueueableContext qc){
6         try {
7             Lease__c ls = [
8                 SELECT Id, Start_Date__c, End_Date__c
9                 FROM Lease__c
10                WHERE Id = :leaseId LIMIT 1
11            ];
12
13            Invoice__c inv = new Invoice__c(
14                Name = 'Auto Invoice ' + DateTime.now().getTime(),
15                Lease__c__Is_Id,
16                Due_Date__c__c = (ls.Start_Date__c != null)
17                    ? ls.Start_Date__c.addDays(10)
18                    : Date.today().addDays(10),
19                Status__c__c = Draft // replace with exact field API name and value if different
20            );
21            insert inv;
22        } catch (Exception e) {
    
```

Salesforce - Developer Edition

• Scheduled Apex:

- Automates time-based jobs (nightly overdue checks, weekly previews), removing manual intervention and ensuring consistency.
- Schedules are configurable in Scheduled Jobs with clear Next Run visibility.

SCHEDULED JOBS

All Scheduled Jobs

The All Scheduled Jobs page lists all of the jobs scheduled by your users. Multiple job types may display on this page. You can delete scheduled jobs if you have the permission to do so.

Percentage of Scheduled Jobs Used: 2%

You have currently used 2 scheduled Apex jobs out of an allowed organization limit of 100 active or scheduled jobs. To learn about how this limit is calculated and what contributes to it see the [Lightning Platform Apex Limits](#) topic.

View: [All Scheduled Jobs](#) [Create New View](#)

Action	Job Name	Submitted By	Submitted	Started	Next Scheduled Run	Type	Cron Trigger ID
Del	Metalytics Data Loader Job for Org : 00DgK00000BhfUc	User_Integration	9/15/2025, 6:06 AM	9/24/2025, 12:25 PM	9/25/2025, 12:25 PM	Autonomous Data Loader Job	08egK00000BV5LI
Manage Del Pause Job	Nightly Overdue	Wadaskar_Tanu	9/24/2025, 9:56 AM		9/25/2025, 1:00 AM	Scheduled Apex	08egK00000C2Vcs
	Program Milestone Computation Cron Job	Process_Automated	9/15/2025, 6:05 AM	9/24/2025, 11:59 AM	9/24/2025, 4:59 PM	Program Milestone Computation Cron Job	08egK00000BV5LG
	Program Status Update Cron Job	Process_Automated	9/15/2025, 6:05 AM	9/24/2025, 5:01 AM	9/24/2025, 8:00 PM	Program Status Update Cron Job	08egK00000BV5LH
Manage Del Pause Job	Weekly Lease Preview	Wadaskar_Tanu	9/24/2025, 10:09 AM		9/29/2025, 6:00 AM	Scheduled Apex	08egK00000C2o1v

• Future Methods:

- Lightweight, fire-and-forget operations for non-critical updates, keeping synchronous flows responsive.
- Annotated with @future and limited to static methods without complex chaining.

- **Exception Handling:**

- Try/catch guards around SOQL/DML route failures to logs and prevent user-visible errors in triggers and async jobs.
- Error context (job type, record Ids, message) is captured for faster troubleshooting.

```
public void execute(QueueableContext qc){
    try {
        Lease__c ls = [
            SELECT Id, Start_Date__c, End_Date__c
            FROM Lease__c WHERE Id = :leaseId LIMIT 1
        ];

        Invoice__c inv = new Invoice__c(
            Name = 'Auto Invoice ' + DateTime.now().getTime(),
            Lease__c = ls.Id,
            Due_Date__c = (ls.Start_Date__c != null)
                ? ls.Start_Date__c.addDays(10)
                : Date.today().addDays(10),
            Status__c = 'Draft' // use exact API value
        );
        insert inv;
    } catch (Exception e) {
        Log__c logRec = new Log__c(
            Job_Type__c = 'LeaseActivationQueue',
            Context_Ids__c = String.valueOf(leaseId),
            Message__c = e.getMessage()
        );
        insert logRec;
    }
}
}
```

- **Test Classes:**

- Validate trigger orchestration and async flows using Test.startTest()/Test.stopTest(), asserting expected outcomes.
- Provide deployment confidence even when org-required fields complicate seed data.

The screenshot shows the 'Apex Test Execution' page under the 'SETUP' tab. At the top, there's a header with a gear icon and the title 'Apex Test Execution'. Below the header, a sub-header reads 'Apex Test Execution'. A note says 'Click Select Tests to choose one or more Apex unit tests and run them. To see the current code coverage for an individual class or your organization, go to the [Apex Classes](#) page.' There are tabs for 'Select Tests...', 'Developer Console', 'Options...', and 'View Test History'. A 'Help for this Page' link is at the top right. The main area has a table with columns 'Abort', 'Status', 'Class', and 'Result'. It shows a test run from '2025-09-24 13:54:14, tanuwadaskar522445@agentforce.com, (3 test classes run)'. Three tests are listed: 'InvoiceAsyncUtilsTest' (0/1 Test Methods Passed), 'InvoiceTriggerHandlerTest' (0/2 Test Methods Passed), and 'LeaseTriggerHandlerTest' (0/1 Test Methods Passed). At the bottom, there's a footer with tabs for 'Detail', 'Duration', 'Class', 'Method', 'Pass/Fail', 'Error Message', and 'Stack Trace'.

- **Asynchronous Processing:**

- Uses Queueable, Batch, and Scheduled Apex to offload heavy or periodic tasks for scalability and better UX.
- Apex jobs and Flex Queue surfaces are monitored to verify successful execution and diagnose issues.

Note: Refer the same screenshot from the Schedule Apex section.

Phase 6: User Interface Development

- **Lightning App Builder:**

- Built a custom Lightning page and placed the Availability Search LWC.
- Activated the page for the intended app and profiles.

The screenshot shows the Lightning App Builder interface with a custom page configuration. The top navigation bar includes 'Desktop' and 'Shrink To View' options. The main area displays a grid of components and sections:

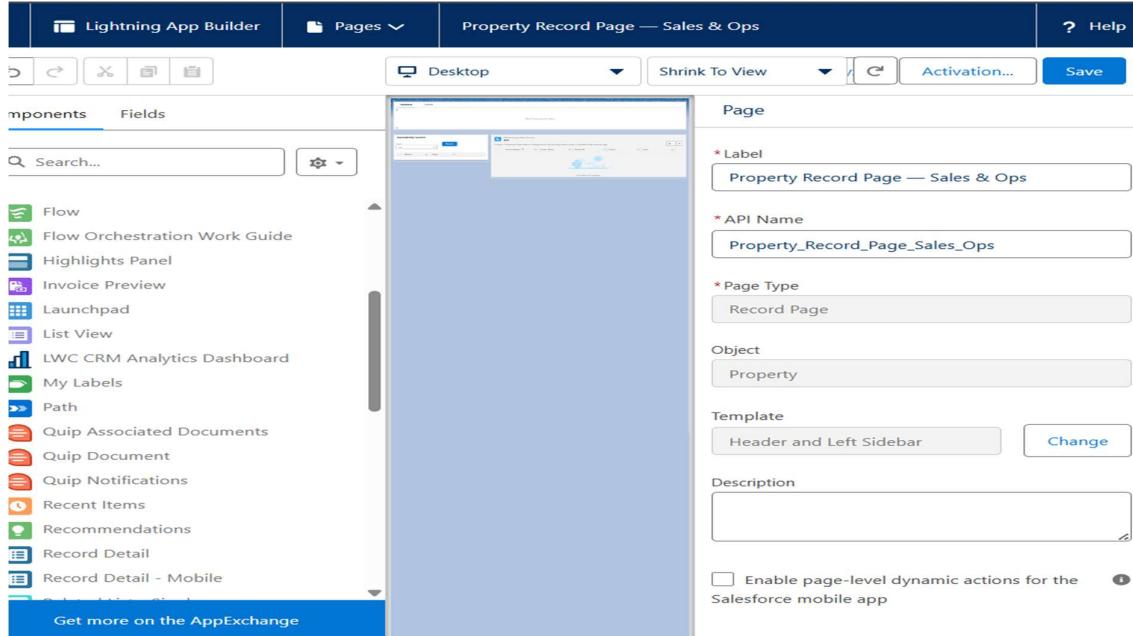
- Section 1:** A 2x2 grid of 'View Report' buttons, each with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 2:** A 2x2 grid of 'View Report' buttons, each with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 3:** A single 'View Report' button with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 4:** A single 'View Report' button with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 5:** A single 'View Report' button with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 6:** A single 'View Report' button with a note: "The source report is based on a report type that is inaccessible to the dashboard's running user."
- Section 7:** A 'Availability Search' component with a search bar set to 'All' and a placeholder 'Name'.
- Section 8:** An 'API Anomaly Event Stores' component showing a table with columns: Event Name, Event Date, Event ID, Score, and User. It displays a single row with a cactus icon and the message 'No items to display.'
- Section 9:** A 'Row Component: Create a Case' component with a note: "This is a placeholder. Rows don't run in the canvas."
- Section 10:** Two empty slots labeled 'Add Component(s) Here'.

On the right side, there are several sidebar panels with labels and dropdowns:

- Page:** (dropdown)
- * Label:** (dropdown) **Availabi**
- * API Narr:** (dropdown) **Availabi**
- * Page Typ:** (dropdown) **App Pag**
- Template:** (dropdown) **Header**
- Description:** (text input field)
- Actions:** (button)

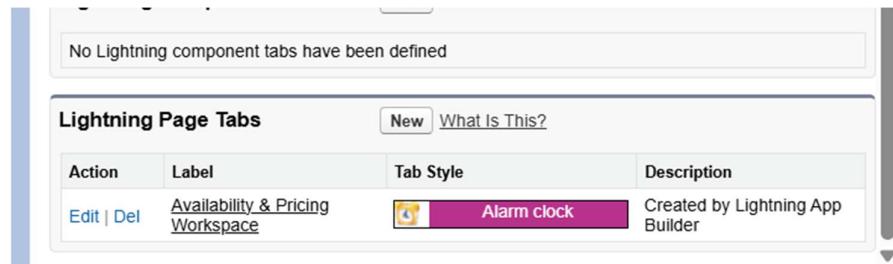
- **Record Pages:**

- Customized the Property record page to surface search or related utilities.
- Activated the record page for the app/Org Default as needed.



- **Tabs:**

- Added the custom page/object to the app's navigation for quick access.
- Ensured users have visibility through app assignments.



- **Home Page Layouts:**

- Tailored the Home layout to show key KPIs and the search utility.
- Activated for the target app and profile.

The screenshot displays the 'Enablement Dashboard' on a desktop screen. The dashboard features a grid of report cards, an 'Availability Search' section, an 'API Anomaly Event Stores' table, and a 'Flow Component: Create a Case' placeholder. To the right, a sidebar lists configuration options for a page component:

- Page**: Available
- * Label**: Available
- * API Name**: Available
- * Page Type**: App Page
- Template**: Header
- Description**: (empty)
- Actions**: (empty)

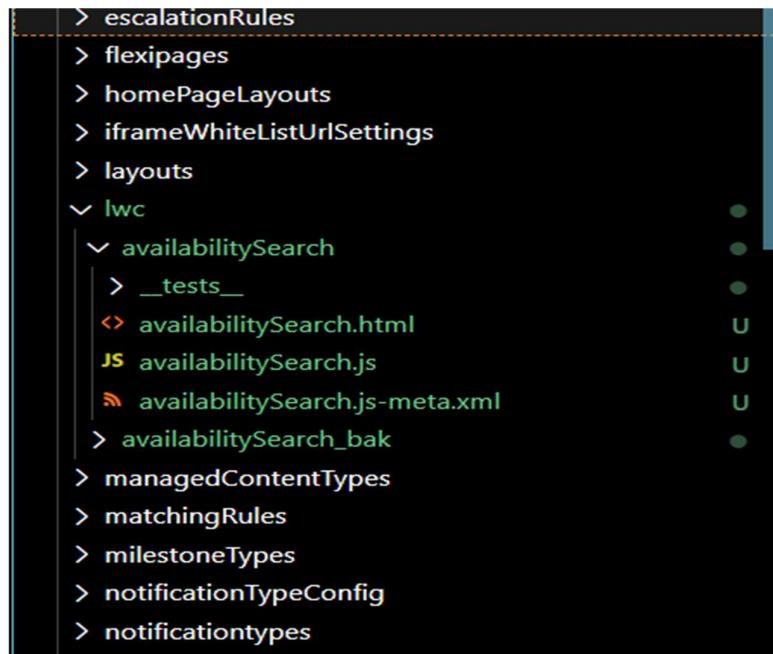
- **Utility Bar:**

- Added Availability Search as a Utility item for app-wide access.
- Verified the icon appears in the app footer and opens a slide-out panel.

The screenshot shows the 'App Settings' interface with the 'Utility Items (Desktop Only)' tab selected. On the left, there's a sidebar with options like 'App Details & Branding', 'App Options', 'Navigation Items', and 'User Profiles'. The main area is titled 'Utility Items (Desktop Only)' with the sub-instruction 'Give your users quick access to productivity tools and add background utility items to your app.' Below this is a section titled 'Add Utility Item' with a dropdown for 'Utility Bar Alignment' set to 'Default'. A list of utility items is shown, with 'availabilitySearch' currently selected. The right side of the screen displays the properties for 'availabilitySearch', including its label ('availabilitySearch'), icon ('fallback X'), panel width ('340'), and panel height ('480'). There's also a checkbox for 'Start automatically'.

- **LWC (Lightning Web Component):**

- Implemented a reusable LWC with clean markup and controller logic.
- Exposed via meta XML for App, Record Page, and Utility Bar targets.



- **Apex with LWC:**

- Queried Property__c with safe filters and limits, returned rows for the LWC.
- Invoked from LWC to fetch data on demand.

```

EXPLORER ... availabilitySearch.js-meta.xml U JS availabilitySearch.js.bak X availabilitySearch.html.bak PropertySearch.cls U PropertySearch.cls-meta.xml U D A* R ...
SMART-PROPERTY-PORTAL
> config
> force-app\main\default
> apexEmailNotifications
> applications
> appMenus
> appointmentSchedulingPolicies
> approvalProcesses
> assignmentRules
> aura
> autoResponseRules
< classes
  InvoiceDomain.cls U
  InvoiceDomain.cls-meta.xml U
  InvoiceSelector.cls U
  InvoiceSelector.cls-meta.xml U
  InvoiceService.cls U
  InvoiceService.cls-meta.xml U
  PropertySearch.cls U
  PropertySearch.cls-meta.xml U
force-app > main > default > classes > PropertySearch.cls > PropertySearch
1  public with sharing class PropertySearch {
2    public class ResultRow {
3      @AuraEnabled public Id id;
4      @AuraEnabled public String name;
5      @AuraEnabled public String propertyType;
6    }
7    @AuraEnabled(cacheable=true)
8    public static List<ResultRow> search(String propertyTypeFilter) {
9      String typeFilter = propertyTypeFilter == null ? '' : propertyTypeFilter.trim();
10     String sql = 'SELECT Id, Name, Property__c FROM Property__c';
11     if (String.isNotBlank(typeFilter)) {
12       sql += ' WHERE Property__c = :typeFilter';
13     }
14     sql += ' ORDER BY Name LIMIT 200';
15     List<ResultRow> out = new List<ResultRow>();
16     for (Property__c p : Database.query(sql)) {
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS HISTORY powershell + v ⌂ ... | ⌂ ...
Changed availabilitySearch LightningComponentBundle force-app\main\defaul...
  
```

- **Events in LWC:**

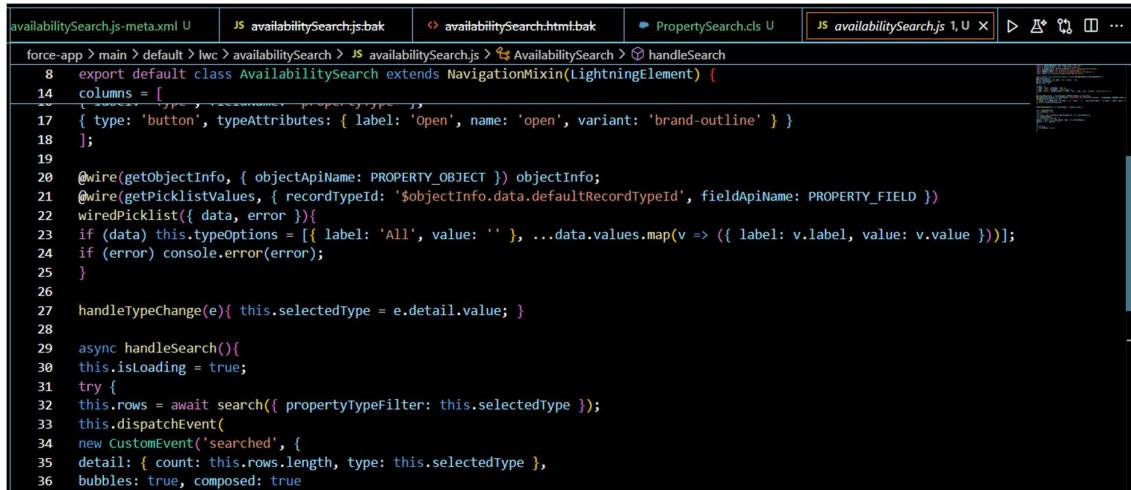
- Emitted “searched” event with count and type for parent orchestration.
- Enabled analytics/toast or cross-component refresh in a parent.

```

availabilitySearch.js-meta.xml U JS availabilitySearch.js.bak X availabilitySearch.html.bak PropertySearch.cls U JS availabilitySearch.js 1,U X D A* R ...
force-app > main > default > lwc > availabilitySearch > JS availabilitySearch.js > AvailabilitySearch > handleSearch
8  export default class AvailabilitySearch extends NavigationMixin(LightningElement) {
26
27    handleTypeChange(e){ this.selectedType = e.detail.value; }
28
29    async handleSearch(){
30      this.isLoading = true;
31      try {
32        this.rows = await search({ propertyTypeFilter: this.selectedType });
33        this.dispatchEvent(
34          new CustomEvent('searched', {
35            detail: { count: this.rows.length, type: this.selectedType },
36            bubbles: true, composed: true
37          })
38        );
39      } finally {
40        this.isLoading = false;
41      }
42    }
43
  
```

- **Wire Adapters:**

- Dynamically loaded picklist values for a validated filter experience.
- Used defaultRecordTypeId from getObjectInfo to scope values.



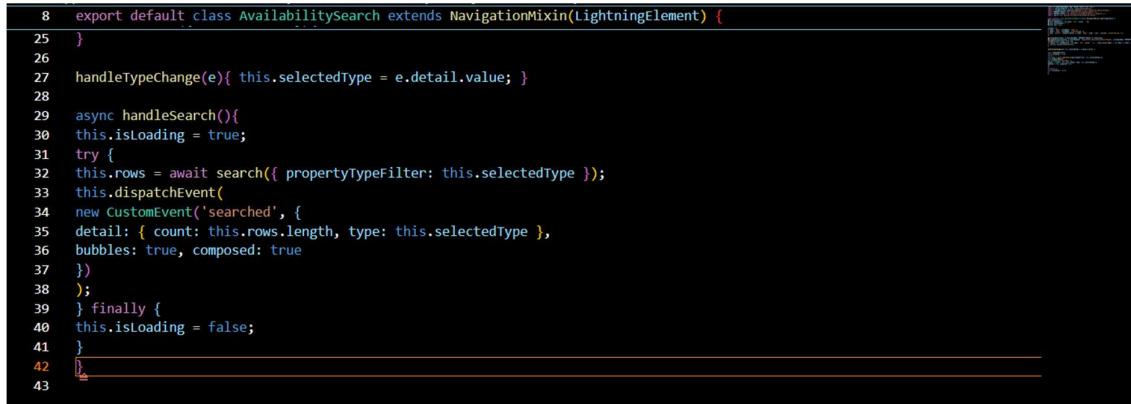
```

availabilitySearch.js-meta.xml U JS availabilitySearch.js.bak availabilitySearch.html.bak PropertySearch.cls U JS availabilitySearch.js 1,U X D A* W ...
force-app > main > default > lwc > availabilitySearch > JS availabilitySearch.js > AvailabilitySearch > handleSearch
8 export default class AvailabilitySearch extends NavigationMixin(LightningElement) {
14 columns = [
17   { type: 'button', typeAttributes: { label: 'Open', name: 'open', variant: 'brand-outline' } }
18 ];
19
20 @wire(getObjectInfo, { objectApiName: PROPERTY_OBJECT }) objectInfo;
21 @wire(getPicklistValues, { recordTypeId: '$objectInfo.data.defaultRecordTypeId', fieldApiName: PROPERTY_FIELD })
22 wiredPicklist({ data, error }) {
23   if (data) this.typeOptions = [{ label: 'All', value: '' }, ...data.values.map(v => ({ label: v.label, value: v.value }))];
24   if (error) console.error(error);
25 }
26
27 handleTypechange(e){ this.selectedType = e.detail.value; }
28
29 async handleSearch(){
30   this.isLoading = true;
31   try {
32     this.rows = await search({ propertyTypeFilter: this.selectedType });
33     this.dispatchEvent(
34       new CustomEvent('searched', {
35         detail: { count: this.rows.length, type: this.selectedType },
36         bubbles: true, composed: true
37       })
38     );
39   } finally {
40     this.isLoading = false;
41   }
42 }
43

```

- **Imperative Apex Calls:**

- Used imperative Apex for controlled execution on button click.
- Added loading state and error handling patterns.



```

8 export default class AvailabilitySearch extends NavigationMixin(LightningElement) {
25 }
26
27 handleTypechange(e){ this.selectedType = e.detail.value; }
28
29 async handleSearch(){
30   this.isLoading = true;
31   try {
32     this.rows = await search({ propertyTypeFilter: this.selectedType });
33     this.dispatchEvent(
34       new CustomEvent('searched', {
35         detail: { count: this.rows.length, type: this.selectedType },
36         bubbles: true, composed: true
37       })
38     );
39   } finally {
40     this.isLoading = false;
41   }
42 }
43

```

- Triggered Apex imperatively on button click to fetch Property__c data with filters, avoiding automatic wire execution.
- Managed loading state and emitted a “searched” CustomEvent after response for parent orchestration/analytics.

- **Navigation Service:**

- Implemented standard __recordPage navigation to view Property__c.
- Improved productivity by deep-linking directly from results.

```
3 import { getObjectInfo, getPicklistValues } from 'lightning/objectInfoAPI';
4 import PROPERTY_OBJECT from '@salesforce/schema/Property__c';
5 import PROPERTY_FIELD from '@salesforce/schema/Property__c.Property__c';
6 import search from '@salesforce/apex/PropertySearch.search';
7
8 export default class AvailabilitySearch extends NavigationMixin(LightningElement) {
9   @api defaultCity = '';
10  @track typeOptions = [{ label: 'All', value: '' }];
11  @track selectedType = '';
12  @track rows = [];
13
14  columns = [
15    { label: 'Name', fieldName: 'name' },
16    { label: 'Type', fieldName: 'propertyType' },
17    { type: 'button', typeAttributes: { label: 'Open', name: 'open', variant: 'brand-outline' } }
18  ];
19
20  @wire(getObjectInfo, { objectApiName: PROPERTY_OBJECT }) objectInfo;
21  @wire(getPicklistValues, { recordTypeId: '$objectInfo.data.defaultRecordTypeId', fieldApiName: PROPERTY_FIELD })
22  wiredPicklist({ data, error }) {
23    if (data) this.typeOptions = [{ label: 'All', value: '' }, ...data.values.map(v => ({ label: v.label, value: v.value }))];
24  }
25}
```

Phase 7: Integration & External Access:

- **Named Credentials:**

- A named credentials centralizes the endpoint URL and its authentication, letting integrations reference a single secure config instead of hardcoding secrets; this simplifies maintenance when endpoints or tokens change.
- In this org, the Petstore_NC named credential centralizes the Petstore API endpoint and its “No Auth” external credential, so no separate remote site entry or token handling was needed for the flow action; this keeps secrets out of configuration/code and shortens callout setup for Apex and Flow.

The screenshot shows the Salesforce Setup interface with the following details:

Setup tab selected in the top navigation bar.

Search bar: Named Credentials

Left sidebar: Security, Named Credentials (highlighted)

Middle section:

- SETUP > EXTERNAL SERVICES**
- PetstoreAPI** (Service Name)
- Edit**, **Save As**, **Delete** buttons

Service name	Creation source	Description
PetstoreAPI	From API specification	

Type	Named credentials	Created by
OpenApi	Petstore_NC	Tanu Wadaskar

Created date	Last modified by
September 25, 2025 at 12:24 PM	Tanu Wadaskar

Last modified date
September 25, 2025 at 12:33 PM

Operations (1 Items · Sorted by Operation Name)

Operation Name ↑	D	Input parameters
getLastCreditRating	Get last credit rating by accountId	accountId

- **External Services:**

- Registered PetstoreAPI from an OpenAPI spec and activated the getLastCreditRating operation, making it callable in Flow without custom Apex.
- Linked the registration to Petstore_NC so endpoint and auth are centrally managed and reusable across flows and future integrations.

External Services

Total Registrations	Active Operations	Total Operations	Active Objects	Total Objects
1 used of 150	1 used of 1,250	1 used of 10,000	2 used of 1,250	2 used of 10,000

1 Items · Sorted by External Service Name · Last refreshed a few seconds ago

External Service Name ↑	D	Active Operations	Total Operations	Active Objects
PetstoreAPI	1	1	1	2

- **Web Services (REST/SOAP):**

- Consumed a REST operation through a Flow action that accepts Account Id as input and returns rating fields for display.
- Avoided hand-written HTTP logic by using platform-generated actions from the External Service definition.

Operations			
1 Items · Sorted by Operation Name			
Operation Name ↑	Description	Input parameters	Output parameters
getLastCreditRating	Get last credit rating by accountid	accountid Description: Salesforce Account Id Type: String	404 Description: Not found Type: Object Apex Class: PetstoreAPI_ErrorResponse
			200 Description: Credit rating found Type: Object Apex Class: PetstoreAPI_CreditRatingResponse
			responseCode Description: response code Type: Integer
			default Description: Default response Type: String

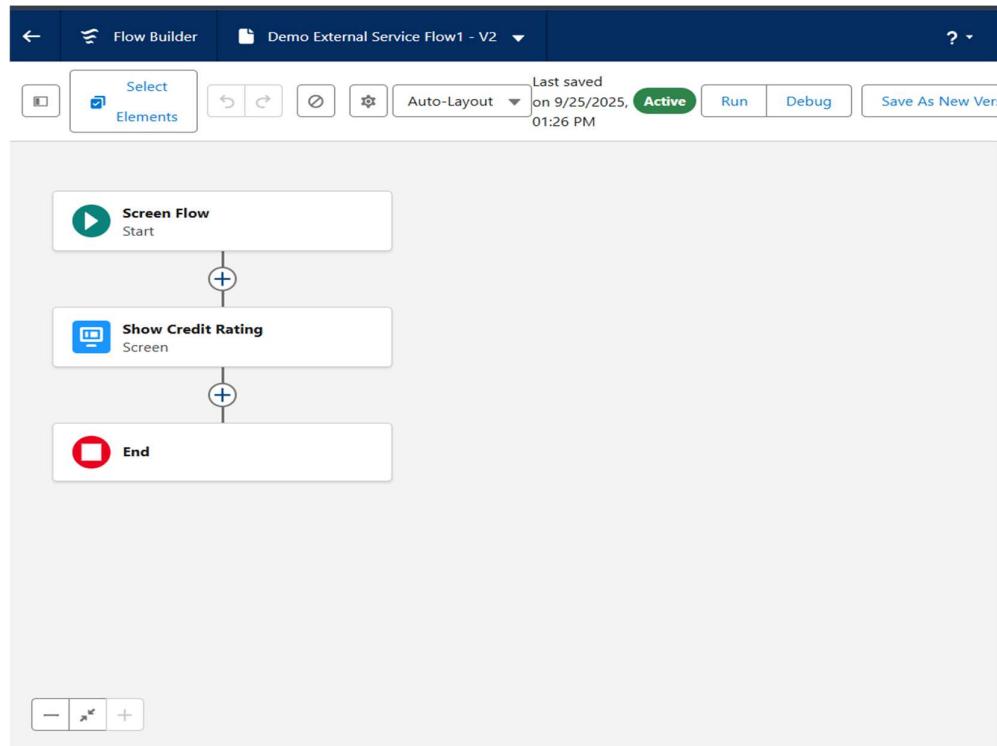
- **Callouts:**

- Executed the callout path from Flow Debug, validating inputs and the user-facing screen behaviour for the integration step.
- Structured the flow to handle outcomes gracefully, keeping UI responsive even when the upstream service is unavailable.

Note: Refer the same screenshot from the Web Services section.

- **Platform Events:**

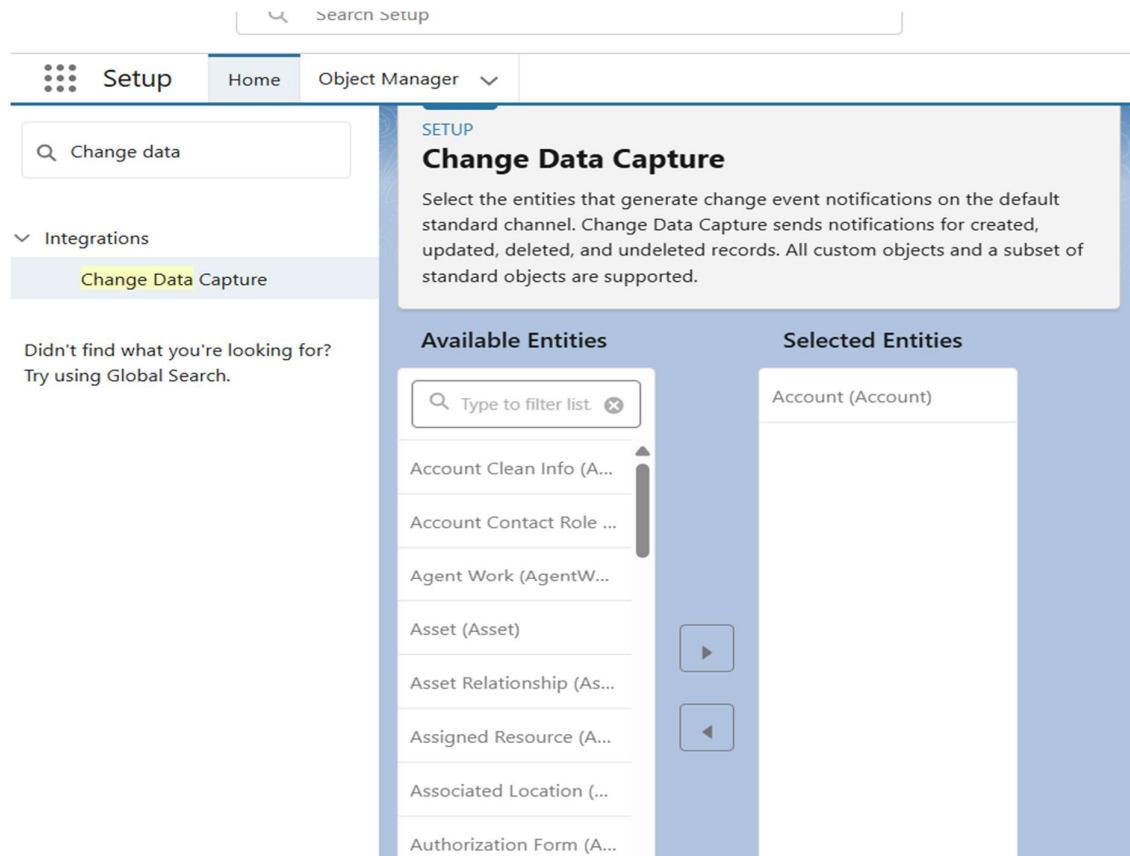
- Designed a Credit_Rating_Event__e event model (AccountId, Rating, Score, AsOf) to broadcast credit updates to subscribers asynchronously.
- Prepared a Flow “Create Records” publisher step to emit events right after a successful service response.



Note: Publisher step to emit Credit_Rating_Event__e will be inserted after re-enabling the service action; event schema is prepared.

- **Change Data Capture:**

- Enabled CDC for Account to stream create/update/delete events to downstream listeners for near real-time data sync.
- Documented the Selected Entities view as evidence of enablement for audit and deployment tracking.

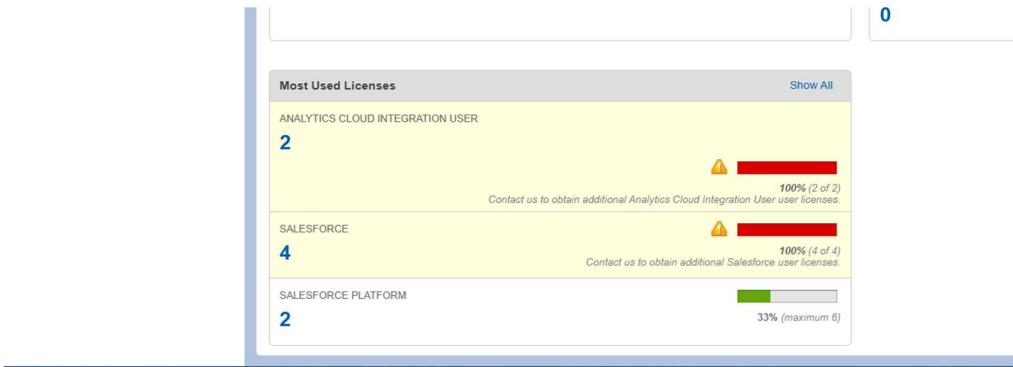
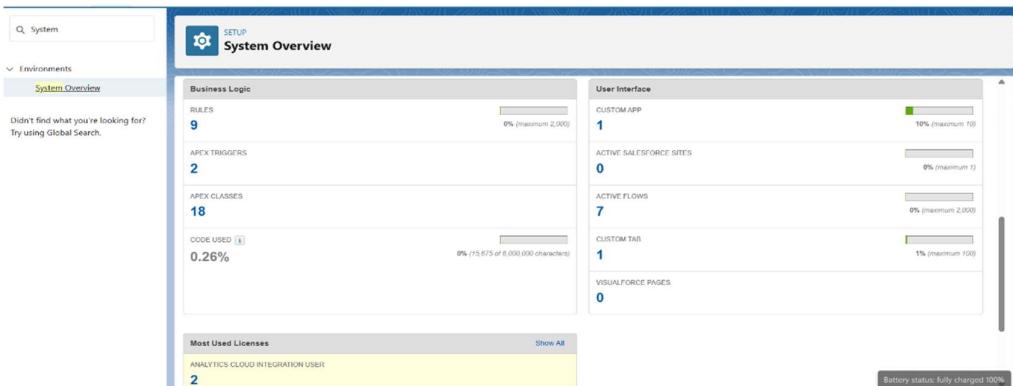
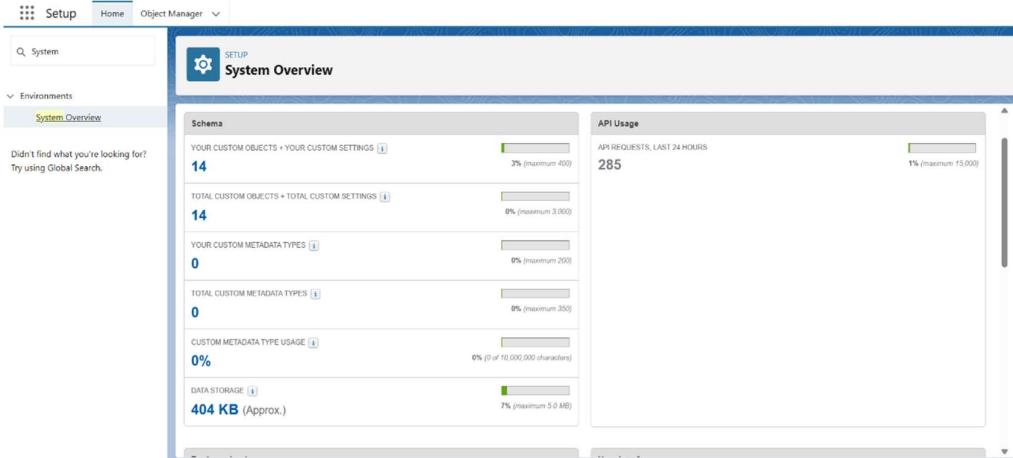


- **Salesforce Connect:**

- **Purpose:** Salesforce Connect virtualizes external data (via OData/other adapters) so records can be viewed in Salesforce without storing them; this is useful only if the Smart Property Portal must browse or report on data that lives in another system in real time.
- **Current Status:** Not implemented because the project doesn't require external data virtualization at this stage; will be revisited if a future phase needs read-through access to external property listings, contracts, or documents without replication.

- **API Limits:**

- Captured an External Credential with No Authentication for the demo; production will swap to OAuth/API key based on the provider.
- Centralized auth in the Named Credential so rotation or scope changes require no flow edits.



- **OAuth & Authentication:**

- Used an External Credential with No Authentication for the demo; production will swap to OAuth/API key based on the provider.
- Centralized auth in the Named Credential so rotation or scope changes require no flow edits.

The screenshot shows the 'Named Credentials' page under the 'Security' section. The left sidebar has 'Named Credentials' selected. The main area title is 'SETUP Named Credentials'. It shows a table with one item: 'Petstore NC' (Label), 'Secured Endpoint' (Type), 'https://petstore.swagger.io/' (URL), and 'Demo NoAuth EC' (External Credential). A 'New' button is at the top right of the table.

The screenshot shows the 'External Credentials' page under the 'Security' section. The left sidebar has 'External Credentials' selected. The main area title is 'SETUP External Credentials'. It shows a table with one item: 'Demo NoAuth EC' (Label) and 'No Authentication' (Authentication Protocol). A 'New' button is at the top right of the table.

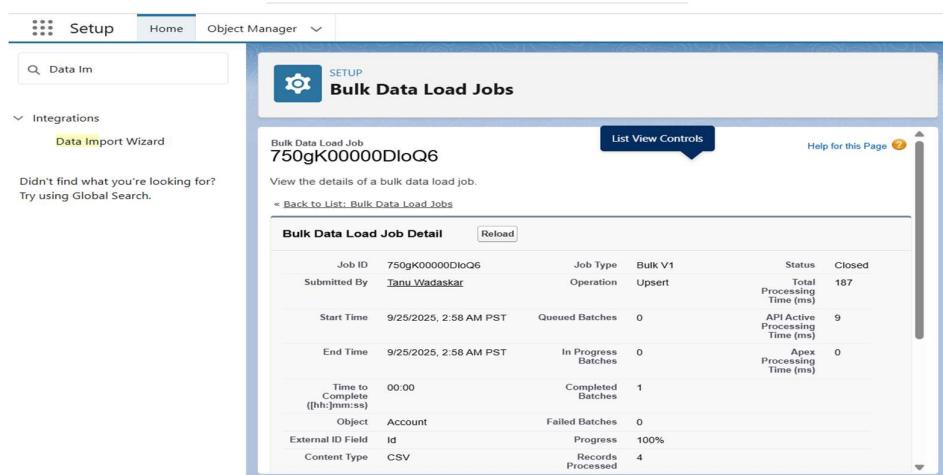
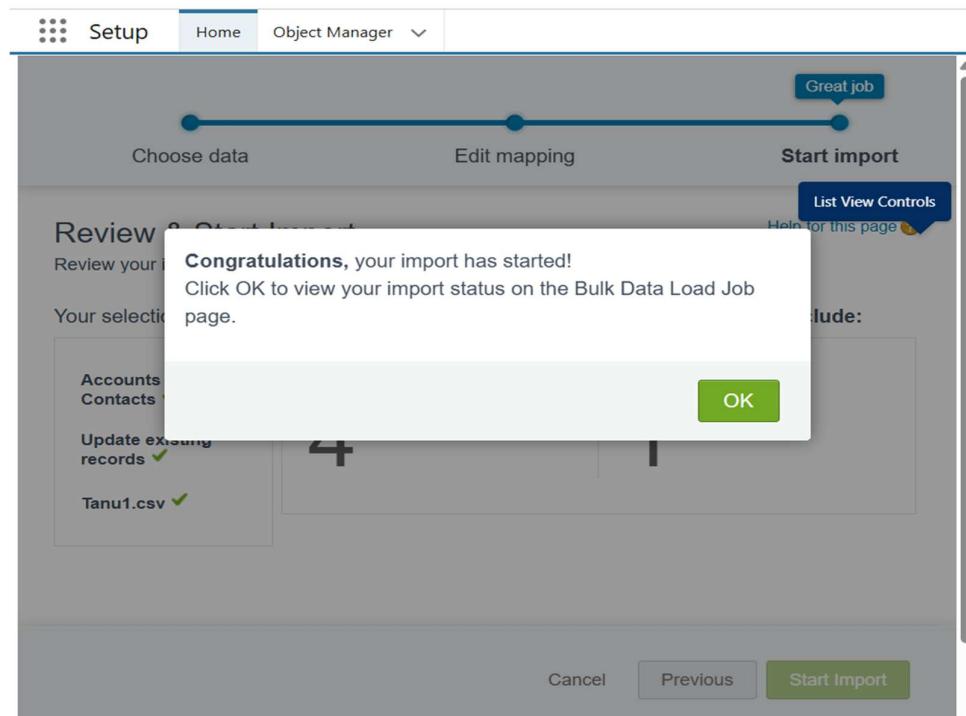
- **Remote Site Settings:**

- Not required for endpoints invoked via Named Credentials; platform handles endpoint allowlisting internally.

Phase 8: Data Management & Deployment

- **Data Import Wizard:**

- Prepared the sample CSV and verified object availability for import via the Setup navigation; execution can be repeated for Accounts/Contacts as needed.
- Import is documented for reproducibility; Data Loader will be used for bulk loads beyond Wizard limits.



- **Data Loader:**

- Desktop Data Loader could not be downloaded due to environment restrictions; steps to authenticate with OAuth and map the CSV are documented for future execution.
- For equivalence, metadata movement and data readiness were demonstrated via Salesforce CLI and the prepared CSV file.

```

● SUCCESS: The process with ID 46668 has been terminated.
PS C:\Users\Tanu\Dev\smart-property-portal> sf org login web --alias MyDevOrg --instance-url https://login.salesforce.com --set-default
● Successfully authorized tanuwadaskar522445@agentforce.com with org ID 00DgK00000BhfUcUAJ
PS C:\Users\Tanu\Dev\smart-property-portal> sf project retrieve start --manifest manifest/package.xml

————— Retrieving Metadata —————

○ Retrieving v64.0 metadata from tanuwadaskar522445@agentforce.com
using the v64.0 SOAP API

    ✓ Preparing retrieve request 57ms
    ✓ Sending request to org 3.42s
    ✓ Waiting for the org to respond 2m 23.70s
    ✓ Done 0ms

Status: Succeeded
Elapsed Time: 2m 23.02s

```

D8	A	B	C	D	E	F
1	Name	Phone	Website	BillingCity	Country	
2						
3	Acme Properties	9991112233	https://acmeprops.example	Mumbai	India	
4	Sunrise Realty	9992223344	https://sunriserealty.example	Pune	India	
5	BlueSky Estates	9993334455	https://bluesky.example	Nagpur	India	
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

- **Duplicate Rules:**

- Standard duplicate rules for Account/Contact/Lead are Active to surface potential duplicates; current action is Allow with Alert for UAT speed.
- Blocking behaviour can be enabled later by switching Action On Create/Edit to Block and activating the matching rule.

The screenshot shows the Salesforce Setup interface with the 'Duplicate Rules' page selected under 'Data > Duplicate Management'. The page displays three standard duplicate rules:

Rule Name	Description	Object	Matching Rule	Active	Last Modified By	Last Modified Date
<u>Standard Account Duplicate Rule</u>	Identify accounts that duplicate other accounts.	Account	Standard Account Matching Rule	<input checked="" type="checkbox"/>	tan	9/25/2025
<u>Standard Contact Duplicate Rule</u>	Identify contacts that duplicate other contacts and leads.	Contact	Standard Lead Matching Rule Standard Contact Matching Rule	<input checked="" type="checkbox"/>	OEPIC	9/15/2025
<u>Standard Lead Duplicate Rule</u>	Identify leads that duplicate other leads and contacts.	Lead	Standard Lead Matching Rule Standard Contact Matching Rule	<input checked="" type="checkbox"/>	OEPIC	9/15/2025

• Data Export & Backup:

- One-time export job queued from Setup → Data Export with attachments and encoding set; confirmation banner captured.
- Download link will be available after processing; this serves as the baseline org backup.

The screenshot shows the 'Data Export' page in the Salesforce Setup. The search bar at the top contains 'data expo'. The left sidebar has a 'Data' section with 'Data Export' selected. A message says 'Didn't find what you're looking for? Try using Global Search.' The main content area is titled 'Monthly Export Service' with a sub-header 'Data Export lets you prepare a copy of all your data in salesforce.com...'. A yellow banner at the top states 'Next scheduled export: A data export is currently in progress for your organization.' Below this are 'Export Now' and 'Schedule Export' buttons. A table shows export details: 'Scheduled By' (Tanu Wadaskar), 'Schedule Date' (9/25/2025), 'Export File Encoding' (ISO-8859-1 (General US & Western European, ISO-LATIN-1)).

• Change Sets:

- Outbound Change Sets menu not available in this org/profile; deployment demonstrated via CLI in the next sections.
- **Documented typical steps:** create Phase8_Starter change set, add Flow and a Custom Field, upload to target when available.

The screenshot shows the 'Package Manager' page in the Salesforce Setup. The search bar at the top contains 'pac'. The left sidebar has 'Apps' expanded, with 'Packaging' selected. Under 'Packaging', 'Installed Packages' and 'Package Manager' are listed, with 'Package Manager' selected. Other sections like 'Object Manager' and 'Console Settings' are also visible. A message says 'Didn't find what you're looking for? Try using Global Search.' The main content area has a 'Language Settings' section with 'Language extension package is Disabled'. A 'First-Generation Packages' section includes a 'REVIEW BEFORE CONTINUING' note about migrating to 2GP. At the bottom, a table lists packages: 'Action' (Edit), 'Package Name' (Phase8_Starter), and 'Description'.

- **Unmanaged Vs Managed:**

- Created an Unmanaged Package “Phase8_Starter” to group metadata for reference; unmanaged allows direct edits post-install.
- Added Definition, External Credential, Named Credential, and External Service Registration to the package.

Action	Component Name	Parent Object	Type	Included By	Owned By
	availabilitySearch		Lightning Web Component Bundle	Smart_Property_Portal_UtilityBar	
Remove	Demo_External_Service_Flow		Flow Definition	User Selected	
	Demo_NoAuth_EC		External Credential	Petstore_NC	
	Petstore_NC		Named Credential	PetstoreAPI	
	PetstoreAPI		External Service Registration	PetstoreAPI	
	Property		Custom Object	PropertySearch availabilitySearch	
	Property	Property	Custom Field	Property PropertySearch availabilitySearch	
	Property Layout	Property	Page Layout	Property	
	PropertySearch		Apex Class	availabilitySearch	
Remove	Smart_Property_Portal		App	User Selected	
	Smart_Property_Portal_UtilityBar		Lightning Page	Smart_Property_Portal	

- **ANT Migration Tool:**

- **Decision:** ANT not used for this project; modern Salesforce CLI (sf/sfdx) was used for retrieve/deploy tasks from VS Code. This aligns with current Salesforce guidance to prefer CLI over legacy Ant-based MDAPI scripts.
- **Readiness:** ANT can be introduced later if a client CI/CD pipeline mandates Ant/Jenkins jobs; sample build.xml and package.xml placeholders are documented for future adoption.

- **VS Code & SFDX:**

- Salesforce CLI verified and orgs listed; org display shows alias, Org Id, API version, and username for the connected Dev org.
- Manifest-based metadata retrieve completed successfully, proving end-to-end connectivity from VS Code terminal.

```
+ fullyQualifiedOrgId : CommandNotFoundException
● PS C:\Users\Tanu\Dev\smart-property-portal> sf --version
@salesforce/cli/2.105.6 win32-x64 node-v22.19.0
● PS C:\Users\Tanu\Dev\smart-property-portal> sf org list
```

	Alias	Username	Org Id	Status
	SourceDev	tanuwadaskar...	00DgK00000BhfUcUAJ	Connected
	TargetDev	tanuwadaskar...	00DgL000007V6t8UAC	Connected

Legend: 🌿=Default DevHub, 🌸=Default Org Use --all to see

```
- SUCCESS: The process with ID 40000 has been terminated.
PS C:\Users\Tanu\Dev\smart-property-portal> sf org login web --alias MyDevOrg --instance-url https://
/login.salesforce.com --set-default
● Successfully authorized tanuwadaskar522445@agentforce.com with org ID 00DgK00000BhfUcUAJ
PS C:\Users\Tanu\Dev\smart-property-portal> sf project retrieve start --manifest manifest/package.xml
1
o ━━━━━━ Retrieving Metadata ━━━━━━
o Retrieving v64.0 metadata from tanuwadaskar522445@agentforce.com
using the v64.0 SOAP API
  ✓ Preparing retrieve request 57ms
  ✓ Sending request to org 3.42s
  ✓ Waiting for the org to respond 2m 23.70s
  ✓ Done 0ms

Status: Succeeded
Elapsed Time: 2m 23.02s
```

Phase 9: Reporting, Dashboards & Security

Review

- **Reports (Tabular, Summary, Matrix):**

- Built Tabular, Summary, and Matrix reports on Accounts with clear groupings and totals to cover core report formats required for analytics. Attach run views showing columns, groupings, and totals with names prefixed “P9 - ...”.
- Where Joined format was unavailable, substituted with separate Summary reports to be displayed together on the dashboard for combined insight. Attach Save dialogs or Details panes showing report names and the Phase9 folder.

Recent							
6 items							
REPORTS	Report N...	Description	Folder	Created By	Created On	Subscribed	
Recent	Accounts with Opportunity		Phase9	Tanu Wadaskar	9/25/2025, 6:13 AM		
Created by Me	P9 Matrix-Type by Industry		Phase9	Tanu Wadaskar	9/25/2025, 5:50 AM		
Private Reports	P9 Tabular-Accounts		Phase9	Tanu Wadaskar	9/25/2025, 5:43 AM		
Public Reports	New Accounts Report		Phase9	Tanu Wadaskar	9/25/2025, 5:40 AM		
All Reports	New Accounts Report		Phase9	Tanu Wadaskar	9/25/2025, 5:19 AM		
FOLDERS							
All Folders							
Created by Me	Which flows run, what's the status of each interview, and how long do users take to complete the screens?						
Shared with Me	Sample Flow Report: Screen Flows	Public Reports	Automated Process		9/15/2025, 6:00 AM		
FAVORITES							
All Favorites							

① History ⚡ Recent Items ⚙ To Do List

• Report Types:

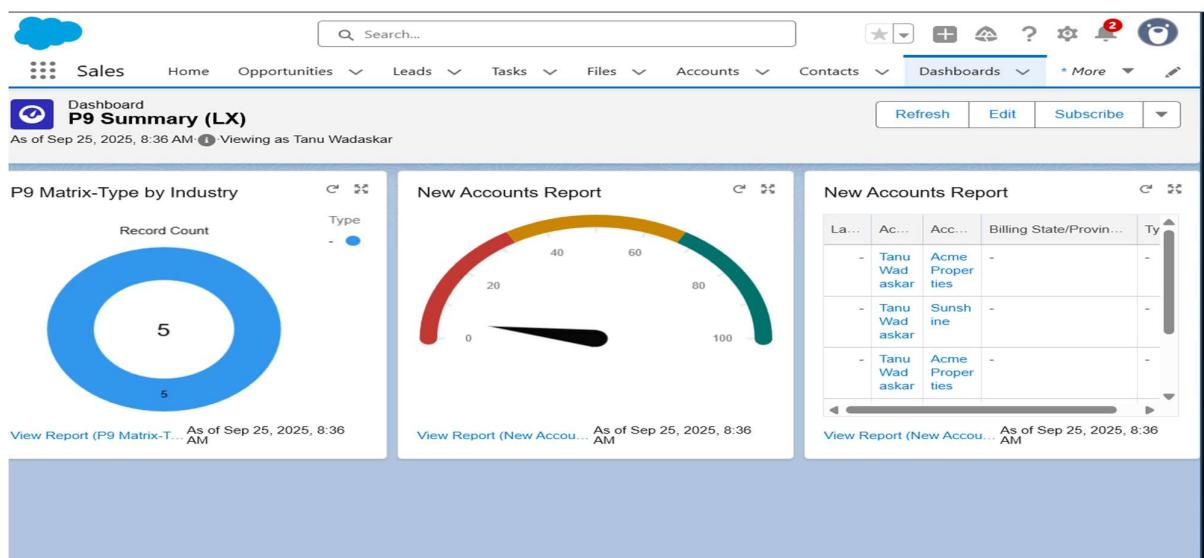
- Created a custom report type “Accounts with Opportunities (P9)” and set relationship and deployment to expose Account and Opportunity fields in one report definition.
- Edited the layout to include key fields like Account Type, Industry, and Opportunity Amount for downstream reports and dashboards.

• Dashboards:

- Built “P9 Overview” dashboard in the Phase9 folder with 3–4 components sourced from the P9 reports, including a KPI chart.
- Configured dashboard properties with a specific running user for consistent data access; cloned to make a dynamic version later.

- **Dynamic Dashboards:**

- Dynamic dashboards not available in this org/builder; the “P9 Summary” dashboard is delivered as a static dashboard with default running context to provide consistent visibility for reviewers.
- If dynamic capability is enabled later, the same components will be reused and “View dashboard as: The dashboard viewer” will be set to render data per viewer permissions; feature availability depends on edition/permissions limits.



- **Sharing Settings:**

- Set Organization-Wide Defaults: Accounts = Private; Contacts/Opportunities = Controlled by Parent to enforce least-privilege access.
- Created an Account criteria-based sharing rule: Type in [Customer - Direct/Customer - Channel] shared Read Only with Public Group “Sales Team.”

The screenshot shows the Salesforce Sharing Settings page. On the left, there's a sidebar with links like Setup Home, Service Setup Assistant, Commerce Setup Assistant, Field Service Setup Home (Beta), Hyperforce Assistant, Release Updates, Salesforce Mobile App, Lightning Usage, Optimizer, Sales Cloud Everywhere, and sections for Administration (Users, Data, Email) and Platform Tools.

Default Sharing Settings

Object	Default Internal Access	Default External Access	Grant Access Using Hierarchies
Account and Contract	Public Read/Write	Private	<input checked="" type="checkbox"/>

Other Settings

Manager Groups	<input type="checkbox"/> i
Secure guest user record access	<input checked="" type="checkbox"/> i
Require permission to view record names in lookup fields	<input type="checkbox"/> i

Sharing Rules

Account Sharing Rules

Action	Criteria	Shared With	Account and Contract	Opportunity	Case
Edit Del	Account: Type EQUALS Other	Group: Sales Team	Read Only	Private	Private

Sharing Overrides

Profiles That Override Account Sharing

- **Field Level Security:**

- Restricted visibility of a sensitive field (e.g., Annual Revenue) for Standard User by unchecking Visible in Field-Level Security.
- Verified via View Field Accessibility that Admin can see the field while Standard User cannot.

The screenshot shows the Salesforce Setup interface with the following details:

- Setup Bar:** Includes icons for Home, Object Manager, and a search bar labeled "Search Setup".
- Page Header:** "SETUP > OBJECT MANAGER" and "Account".
- Left Navigation:** A sidebar with sections like Details, 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, Hierarchy Columns, and Scoping Rules.
- Table Data:** A list of profiles and their field access status. The last column is labeled "Field Access".

Profile	Field Access
Customer Portal Manager Standard	Hidden
Einstein Agent User	Hidden
External Apps Login User	Hidden
External Identity User	Hidden
Force.com - App Subscription User	Hidden
Force.com - Free User	Hidden
Gold Partner User	Hidden
High Volume Customer Portal	Hidden
High Volume Customer Portal User	Hidden
Identity User	Hidden
Marketing User	Hidden
Minimum Access - API Only Integrations	Hidden
Minimum Access - Salesforce	Hidden
Partner App Subscription User	Hidden
Partner Community Login User	Hidden
Partner Community User	Hidden
Property Manager Profile	Hidden
Read Only	Hidden
Salesforce API Only System Integrations	Hidden
Sales User	Hidden
Silver Partner User	Hidden
Solution Manager	Hidden
Standard Platform User	Hidden
Standard User	Editable
System Administrator	Hidden
Work.com Only User	Hidden
Profiles	Field Access

• Session Settings:

- Reduced session timeout to 1-2 hours and ensured domain lock/HTTPS settings are enabled to strengthen session security.
- Documented the setting change timestamp for audit purposes.

The screenshot shows the Salesforce Setup interface with the following details:

- Left Navigation:** Shows sections like Einstein (Einstein Assessors, Einstein Bots Assessor, Einstein Conversation Insights Assessor, Sales Cloud Einstein Assessor, Service Cloud Einstein Assessor), Security (Session Management, Session Settings), and a search bar.
- Current Page:** The "Session Settings" page under the "Setup" tab.
- Session Timeout Section:**
 - Timeout Value: 2 hours (selected from a dropdown).
 - Disable session timeout warning popup (unchecked).
 - Force logout on session timeout (checked).
- Session Settings Section:**
 - Lock sessions to the IP address from which they originated (unchecked).
 - Lock sessions to the domain in which they were first used (checked).
 - Terminate all of a user's sessions when an admin resets that user's password (unchecked).
 - Force reload after Login-As-User (checked).
 - Require HttpOnly attribute (unchecked).
 - Use POST requests for cross-domain sessions (unchecked).
 - Enforce login IP ranges on every request (unchecked).
 - When embedding a Lightning application in a third-party site, use a session token instead of a session cookie (unchecked).
- Extended use of IE11 with Lightning Experience:**

EXTENDED USE OF IE11 WITH LIGHTNING EXPERIENCE HAS NOW ENDED
AS OF DECEMBER 31, THE EXTENDED PERIOD HAS ENDED, AND USE OF INTERNET EXPLORER 11 (IE 11) WITH LIGHTNING EXPERIENCE IS NO LONGER SUPPORTED. ISSUES WITH PERFORMANCE OR FUNCTIONALITY THAT AFFECT ONLY IE 11 WILL NOT BE FIXED. PLEASE SWITCH TO A SUPPORTED BROWSER.

• Login IP Ranges:

- Added a demo profile IP range (e.g., 0.0.0.0-255.255.255.255 or a local subnet) to demonstrate profile-based login restrictions.
- Explained that ranges can be tightened per office/VPN CIDRs for production.

The screenshot shows the Salesforce Setup interface with the following details:

- Left Navigation:** Shows sections like Users (Profiles), and a search bar.
- Current Page:** The "Profiles" page under the "Setup" tab.
- Profile Details:**
 - Login Hours:** No login hours specified.
 - Login IP Ranges:**

Action	IP Start Address	IP End Address	Description
Edit Del	0.0.0.0	255.255.255.255	Phase 9 demo range.
 - Enabled Apex Class Access:** No Apex Classes enabled.
 - Enabled Visualforce Pages:** No Visualforce Pages enabled.

- **Audit Trail:**

- Captured Setup Audit Trail entries showing today's configuration actions (Sharing Settings, FLS, Session, Dashboard).
- Noted that the log retains recent admin actions and can be exported if needed for compliance.

The screenshot shows the Salesforce Setup Audit Trail interface. At the top, there are navigation links: Home, Object Manager, and a search bar labeled "Audit". Below the search bar, a sidebar on the left shows a "Security" section with a link to "View Setup Audit Trail". A message at the bottom of this sidebar says: "Didn't find what you're looking for? Try using Global Search." The main content area is titled "View Setup Audit Trail" and contains a table with four rows of audit trail data. The table has columns for Date, User, Source Namespace Prefix, Action, Section, and Del. The data is as follows:

Date	User	Source Namespace Prefix	Action	Section	Del
9/25/2025, 6:51:07 AM PDT	tanuwadaskar522445@agentforce.com		Added Login IP Range to Standard User from 0.0.0 to 255.255.255.255	Manage Users	
9/25/2025, 6:46:53 AM PDT	tanuwadaskar522445@agentforce.com		Session Security Level for Multi-Factor Authentication was set to High Assurance	Session Settings	
9/25/2025, 6:46:53 AM PDT	tanuwadaskar522445@agentforce.com		Session Security Level for Passwordless Login was set to Standard	Session Settings	
9/25/2025, 6:46:53 AM PDT	tanuwadaskar522445@agentforce.com		Session Security Level for Lightning Login was set to Standard	Session Settings	

