

A CRM APPLICATION FOR LAPTOP RENTALS

by

THULASI SETTIPALLI

**ANNAMACHARYA INSTITUTE OF
TECHNOLOGY AND SCIENCES, KADAPA**

Gmail: thulasisettipalli@gmail.com

Final Project Report on CRM Application for Laptop Rentals

1. Project Overview

The CRM Application for Laptop Rentals is a Salesforce-based solution designed to manage and streamline the process of renting laptops to customers. The system centralizes customer data, rental bookings, and inventory management within a single, user-friendly platform. Key features of the CRM include custom objects for tracking laptops, consumers, and bookings; automated workflows for task creation and approvals; validation rules to ensure accurate data entry; and role-based access control to safeguard information. With real-time dashboards and reports, businesses can monitor booking trends, inventory status, and customer activity, enabling informed decision-making. This CRM addresses the business need for efficiency, accuracy, and scalability in managing rental operations.

2. Objectives

The primary objective of building the **CRM Application for Laptop Rentals** is to provide an efficient and scalable system for managing customer interactions, rental bookings, and laptop inventory. By automating key processes such as task assignments, approvals, and validations, the CRM reduces manual effort and human error. It aims to improve customer experience through faster service and more accurate tracking. The system also ensures secure, role-based access to sensitive data, promoting accountability and compliance. Overall, the CRM adds business value by streamlining operations, enhancing data visibility through dashboards and reports, and enabling data-driven decisions to improve customer satisfaction and operational efficiency.

3. Phase 1: Requirement Analysis & Planning

❖ Understanding Business Requirements:

The business needs a centralized and automated system to manage the process of renting laptops to various customers. Currently, most of the operations such as tracking laptop availability, managing customer bookings, calculating rental duration, and sending notifications are manual and error-prone. The CRM aims to address these issues by:

- Providing a digital platform to record and track laptop bookings.
- Allowing staff to manage customer profiles and rental history efficiently.
- Automating reminders for due dates and return confirmations.
- Managing inventory with status tracking (Available, Booked, Under Maintenance).
- Enabling approval processes for high-value bookings or VIP customers.

❖ Defining Project Scope and Objectives:

This project includes the development of a custom Salesforce CRM application with the following scope:

- **Custom Objects:**

- Laptop: Stores laptop details like brand, processor type, rental cost, and availability status.
- Consumer: Stores renter details such as name, email, phone, and history.
- Laptop Booking: Tracks each rental transaction including booking and return dates.

- **Automation & Logic:**

- Flows for auto-creating tasks when a booking is made.
- Validation rules to ensure correct data input (e.g., Return Date > Booking Date).
- Approval process for bookings with a rental cost above a defined threshold.

- **Reporting & Analytics:**

- Real-time dashboards showing current bookings, revenue, and most-rented laptops.
- Reports for daily, weekly, and monthly summaries.

- **User Roles & Profiles:**

- Admin role: Full access to records, reports, and dashboards.
- Support staff: Limited access to create and update bookings only.

❖ Design Data Model and Security Model:

- **Data Model:**

- Laptop Booking has a **Master-Detail** relationship with Consumer.
- Laptop Booking has a **Lookup** relationship to Laptop.
- Custom fields track booking status, rental dates, and charges.

- **Security Model:**

- **Profiles** created for Admin and Support Staff with field-level security.
- **Role Hierarchy:** Admin > Support Staff to control record visibility.
- **Permission Sets** used to grant additional access when needed.

- **Sharing Rules** applied to allow controlled record sharing within the team.
- **Duplicate Rules** configured to prevent multiple bookings with the same email or laptop ID.

4. Phase 2: Salesforce Development - Backend & Configurations

1. Developer Org Setup

This screenshot shows my Salesforce Developer Edition org where the entire CRM application was developed. The org was configured to support custom objects, automation, and security rules specific to the laptop rental business.

The screenshot shows the Seller Home page in a Salesforce Developer Edition org. The top navigation bar includes Sales, Home, Opportunities, Leads, Tasks, Files, Accounts, Contacts, Campaigns, Dashboards, Reports, Chatter, Groups, More, and a Settings icon. The main content area is titled "Seller Home" and features a message "Good evening, THULASI. Let's get selling!". It contains six key performance indicators:

- Close Deals:** Opportunities owned by me and closing this quarter. Shows a total pipeline of \$0. Categories: \$0 Open, \$0 Won, \$0 Lost.
- Plan My Accounts:** Accounts owned by me. Shows 0 Accounts. Categories: 0 Upcoming Activity, 0 Past Activity, 0 No Activity.
- Grow Relationships:** Contacts owned by me and created in the last 90 days. Shows 0 Contacts. Categories: 0 Upcoming Activity, 0 Past Activity, 0 No Activity.
- Build Pipeline:** Leads owned by me and created in the last 30 days. Shows 0 Leads.
- My Goals:** Set personal weekly or monthly goals for emails, calls, and meetings.
- Today's Events:** Shows 0 events.

At the bottom left, there is a "To Do List" link.

2. Customization of Objects, Fields & Rules

▪ Custom Objects

This image shows the custom objects like **Total Laptops, Consumer, Laptop Bookings, Billing process** created in Object Manager. It stores key details like brand, processor type, and availability status, which are used during booking.

The screenshot shows the Object Manager page in a Salesforce Developer Edition org. The top navigation bar includes SETUP, Home, and Object Manager. The main content area is titled "Object Manager" and shows a table of custom objects. The table has columns: LABEL, API NAME, TYPE, DESCRIPTION, LAST MODIFIED, and DEPLOYED. There is one item listed:

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Total Laptops	Total_Laptops_c	Custom Object		7/10/2025	✓

Object Manager						
Label	API Name	Type	Description	Last Modified	Deployed	
consumer	consumer_c	Custom Object		7/9/2025	✓	<input type="button" value="Edit"/>

Object Manager						
Label	API Name	Type	Description	Last Modified	Deployed	
Laptop Bookings	Laptop_Bookings_c	Custom Object		7/9/2025	✓	<input type="button" value="Edit"/>

Object Manager						
Label	API Name	Type	Description	Last Modified	Deployed	
Billing Process	Billing_Process_c	Custom Object		7/9/2025	✓	<input type="button" value="Edit"/>

Creating a Custom Tabs

This image shows the custom tabs created for easy access to key objects in the application. Tabs created include:

- Laptop_c
- Laptop_Bookings_c
- Consumer_c
- Billing_Process_c

These tabs are added to the Laptop Rentals custom app using App Manager, allowing users to navigate and manage the CRM in a user-friendly way. Custom tabs make it easier for users to view, create, and modify records from the UI without using Object Manager.

Custom Tabs

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

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

Action	Label	Tab Style	Description
Edit Del	Billing Process	Computer	
Edit Del	consumer	Computer	
Edit Del	Laptop Bookings	Computer	
Edit Del	Total Laptops	Computer	

Web Tabs

New | What Is This?

No Web Tabs have been defined

Visualforce Tabs

New | What Is This?

▪ Custom Fields

This image demonstrates the custom fields created for the custom objects in the application: Total Laptops, Consumer, Laptop Bookings, and Billing Process. Each object was customized with fields necessary to capture business-specific data required for the laptop rental process.

1. Consumer (Object: Consumer_c)

Captures customer details for laptop rental bookings.

- Full_Name_c – Text field for consumer name
- Email_c – Email field for communication
- Phone_c – Phone number
- Address_c – Text Area for address details

SETUP > OBJECT MANAGER

consumer

Fields & Relationships				
8 Items, Sorted by Field Label				
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address_c	Text Area(255)		
consumer Status	consumer_Status_c	Picklist		
consumer_name	Name	Text(80)	✓	
Created By	CreatedBy	Lookup(User)		
Email	Email_c	Email		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)	✓	
Phone number	Phone_number_c	Phone		

2. Laptop Bookings (Object: Laptop_Bookings__c)

Tracks all booking-related activity for laptops.

- Booking_Name__c – Booking reference/name
- Booking_Date__c – Start date of the rental
- Return_Date__c – Expected return date
- How_Many_Months__c – Rental duration in months
- Amount__c – Total cost (auto-calculated or manually entered)
- Consumer__c – Lookup field to link to Consumer
- Laptop__c – Lookup to Laptop object
- Email__c – To send confirmation emails
- Approval_Status__c – Picklist (Pending, Approved, Rejected)

The screenshot shows the Salesforce Object Manager interface for the 'Laptop Bookings' object. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The main area displays the 'Fields & Relationships' section, which lists 12 items sorted by Field Label. The columns include FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. Key fields shown include 'Amount__c' (Currency), 'Consumer__c' (Master-Detail), 'Core_Type__c' (Picklist), 'Email__c' (Email), 'how_many_months__c' (Picklist), 'Laptop_Bookings__c' (Name), 'Laptop_Names__c' (Picklist), 'Laptops_Available__c' (Formula Number), 'Last_Modified_By' (Lookup), 'Total_Laptops__c' (Master-Detail), and 'Total_No_Of_Laptops__c' (Lookup). The 'Fields & Relationships' section also includes links for Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, Restriction Rules, Scoping Rules, Object Access, Triggers, Flow Triggers, and Validation Rules.

4. Billing Process (Object: Billing_Process__c)

Handles billing logic if applicable.

- Amount__c: This is a calculated field (Formula) that may derive its value from the duration of the rental and base rate per month.
- Laptop_Booking__c: A lookup relationship connecting billing records to bookings, enabling traceability and reporting.
- Payment_Mode__c: Helps track the customer's preferred mode of payment, useful for analytics and finance.
- Master-Detail Relationship with Consumer ensures that billing cannot exist without a linked customer.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Formula (Currency)		
Billing Process Name	Name	Text(80)		
Created By	CreatedBy	Lookup(User)		
Laptop Booking	Laptop_Booking__c	Lookup(Laptop Booking)		
Last Modified By	LastModifiedBy	Lookup(User)		
Name	Name__c	Master-Detail(consumer)		
Payment Mode	Payment_Mode__c	Picklist		

4. Total Laptops (Object: Laptop__c)

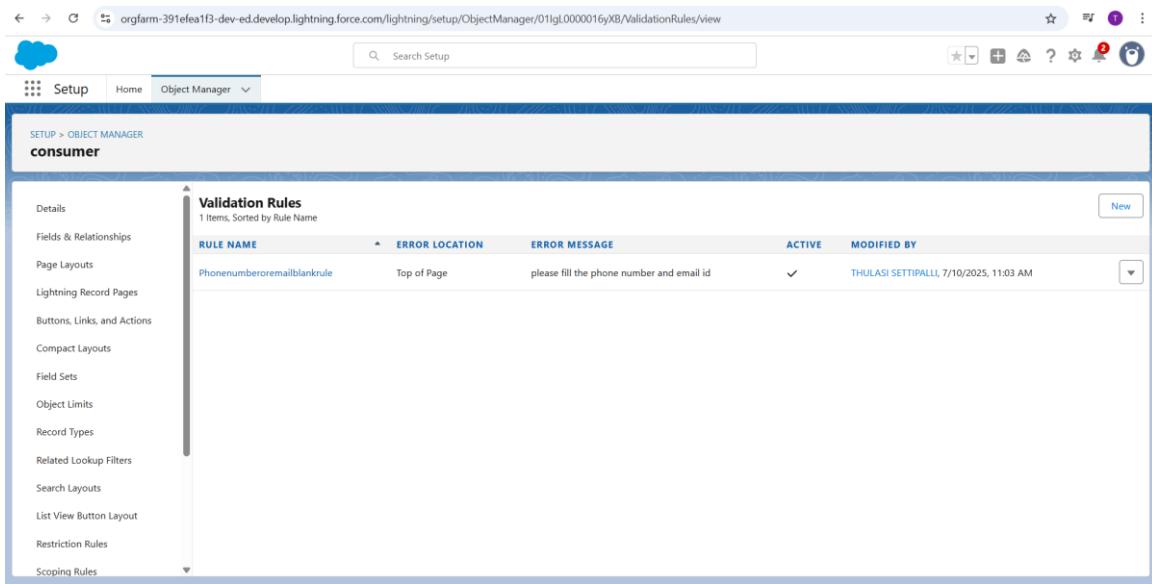
Used to store inventory and technical specifications of laptops.

- Laptop_Name__c – Name/Model of the laptop
- Core_Type__c – Dropdown (i3, i5, i7, etc.)
- Total_Laptops__c – Number of units available
- Laptops_Available__c – Number of laptops currently available
- Laptop_Type__c – Category (e.g., Gaming, Business)
- Availability_Status__c – Checkbox or picklist (Available/Not Available)

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Laptops Available	Laptops_Available__c	Formula (Number)		
Laptops delivered	Laptops_delivered__c	Roll-Up Summary (COUNT Laptop Bookings)		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		
Total Laptops Name	Name	Text(80)		

▪ Validation Rules

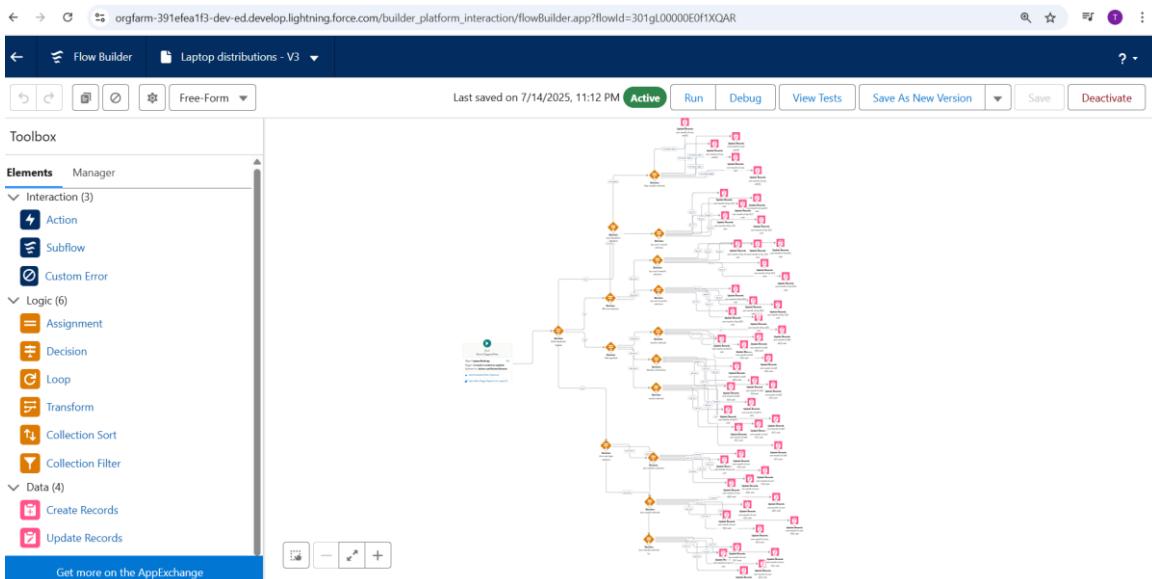
This screenshot displays a validation rule that ensures the return date is always after the booking date. It prevents logical errors in rental duration and improves data accuracy.



The screenshot shows the 'Validation Rules' section within the 'Object Manager' for the 'consumer' object. The left sidebar lists various setup options like Fields & Relationships, Page Layouts, and Buttons. The main area displays a table titled 'Validation Rules' with one item: 'Phonenumberoremailblankrule'. The table includes columns for Rule Name, Error Location, Error Message, Active status, and Modified By (THULASI SETTIPALLI, 7/10/2025, 11:03 AM). The error message is 'please fill the phone number and email id'.

▪ Flow – Task Creation

This flow automatically creates a follow-up task once a new booking is submitted. It demonstrates business process automation using Salesforce Flow Builder.



The screenshot shows the 'Flow Builder' interface for a flow named 'Laptop distributions - V3'. The top navigation bar includes 'Run', 'Debug', 'View Tests', 'Save As New Version', 'Save', and 'Deactivate'. The left sidebar is the 'Toolbox' with categories like Interaction, Logic, and Data. The main area displays a complex flow diagram with many nodes and connections, representing the logic for creating follow-up tasks.

▪ Apex Classes, Triggers

Apex Trigger

This trigger runs after a booking record is created and sends a confirmation email to the consumer. It automates communication and ensures a smooth customer experience.

```

trigger LaptopBooking on Laptop_Bookings__c (after insert, after update) {
    if (Trigger.isAfter && (Trigger.isInsert || Trigger.isUpdate)) {
        LaptopBookingHandler.sendEmailNotification(Trigger.new);
    }
}

```

The screenshot shows the Salesforce Apex Editor interface. The top navigation bar includes File, Edit, Debug, Test, Workspace, Help, and a Go To button. Below the navigation is a code coverage and API version dropdown set to None and 64 respectively. The main area displays the Apex trigger code. At the bottom, there's a tabs section with Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected, showing no errors.

Apex Class

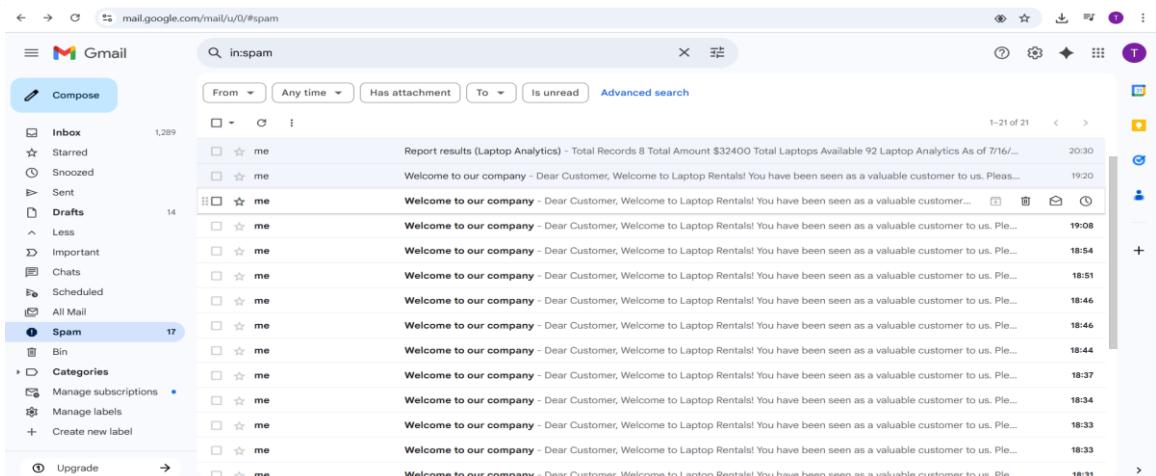
This Apex class checks for overdue bookings and flags them. It contains reusable logic that supports future enhancements like scheduled notifications.

```

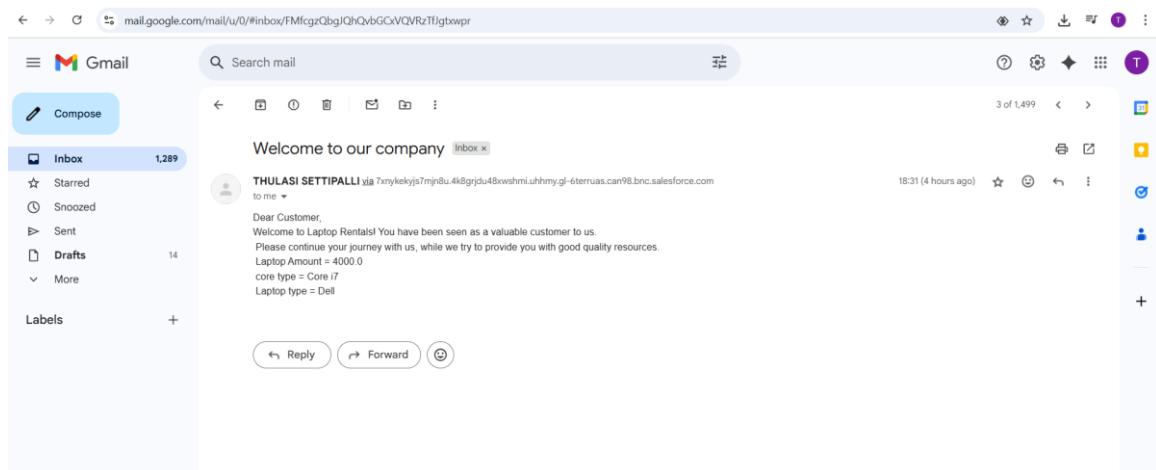
public class LaptopBookingHandler {
    public static void sendEmailNotification (List<Laptop_Bookings__c> lapList){
        for(Laptop_Bookings__c lap:lapList)
        {
            Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
            email.setToAddresses( new List<String>{lap.Email__c});
            email.setSubject('Welcome to our company');
            string body = 'Dear Customer, \n';
            body += 'Welcome to Laptop Rentals! You have been seen as a valuable customer to us.\n Please continue your journey with us, while we tr...
            email.setPlainTextBody(body);
            Messaging.sendEmail(new List<Messaging.SingleEmailMessage>{email});
        }
    }
}

```

The screenshot shows the Salesforce Apex Editor interface. The top navigation bar includes File, Edit, Debug, Test, Workspace, Help, and a Go To button. Below the navigation is a code coverage and API version dropdown set to None and 64 respectively. The main area displays the Apex class code. At the bottom, there's a tabs section with Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected, showing no errors.



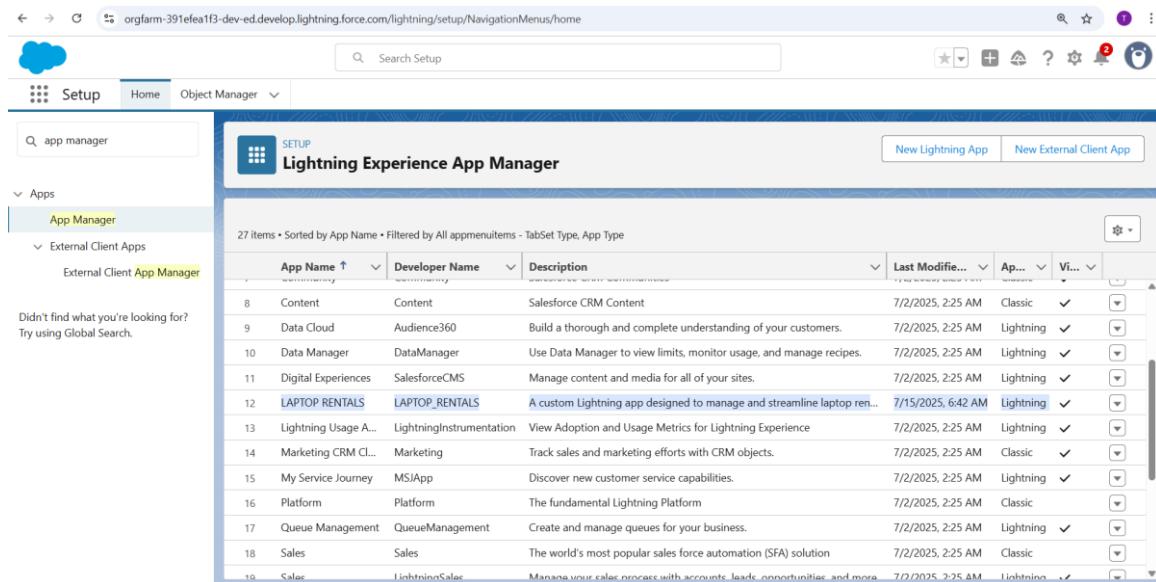
Result:



5. Phase 3: UI/UX Development & Customization

▪ Lightning App Setup (App Manager)

This screenshot shows the custom “**Laptop Rentals CRM**” Lightning App created using App Manager. It includes tabs for Laptop, Booking, and Consumer objects, allowing easy navigation for users.



▪ User Management

This screenshot captures user creation and profile assignment. Admin and Support Staff users are assigned different profiles to restrict or allow access to certain fields and records, ensuring data privacy and role-based visibility.

All Users

On this page you can create, view, and manage users.

To get more licenses, use the Your Account app. [Let's Go](#)

Action	Full Name	Alias	Username	Role	Active	Profile
<input type="checkbox"/> Edit	Chatter Expert	Chatter	chatty.00dg000006terruas.gfbflogobss@chatter.salesforce.com		<input checked="" type="checkbox"/>	Chatter Free User
<input type="checkbox"/> Edit	EPIC_OrgFarm	OEPIC	epic.th.158afddab0@orgfarm.salesforce.com		<input checked="" type="checkbox"/>	System Administrator
<input checked="" type="checkbox"/> Edit	ram_ram	ram	ram@ram.com	Agent	<input checked="" type="checkbox"/>	Agent
<input type="checkbox"/> Edit	SETTIPALLI_THULASI	thu	thulasisettipalli095@agentforce.com		<input checked="" type="checkbox"/>	System Administrator
<input type="checkbox"/> Edit	User_Integration	integ	integration@00dg000006terruas.com		<input checked="" type="checkbox"/>	Analytics Cloud Integration User
<input type="checkbox"/> Edit	User_Security	sec	insightsecurity@00dg000006terruas.com		<input checked="" type="checkbox"/>	Analytics Cloud Security User
<input checked="" type="checkbox"/> Edit	y_vicky	v.y	y@vicky.com	owner	<input checked="" type="checkbox"/>	owner

▪ Reports

This report shows all active laptop bookings with fields like Booking Date, Return Date, and Status. Reports are designed to track key metrics, reduce delays, and provide insights to staff and managers.

Laptop Bookings
Recently Viewed

8 items • Updated 5 minutes ago

1	acer 1(3)
2	dell 1(3)
3	1
4	mac(bionic chip)
5	hp(5)
6	acer(3)
7	dell(7)
8	dell(3)

Reports
Recent

1 item

REPORTS	Report Name	Description	Folder	Created By	Created On	Subscribed
Recent	Laptop Analytics		Private Reports	THULASI SETTIPALLI	7/13/2025, 11:07 AM	<input checked="" type="checkbox"/>

Report: Total Laptops with Laptop Bookings and consumer Laptop Analytics

Total Records	Total Amount	Total Laptops Available
8	\$22,800	92
<input type="checkbox"/> types of versions <input type="button" value="▼"/>		
<input type="checkbox"/> high (4)	dell(7)	Thulasi Settipalli \$2,000 47
	hp(5)	Thulasi Settipalli \$3,400 45
	mac(bionic chip)	Thulasi Settipalli \$8,500 45
	1	Thulasi Settipalli \$5,100 45
Subtotal		
		\$19,000 92
<input type="checkbox"/> intermediate (2)	dell 1(3)	Thulasi Settipalli \$1,000 47
	dell(3)	Thulasi Settipalli \$1,000 47
Subtotal		
		\$2,000 47
<input type="checkbox"/> basic (2)	acer 1(3)	Thulasi Settipalli \$900 45
	acer(3)	Thulasi Settipalli \$900 45
Subtotal		
		\$1,800 45
Total (8)		
		\$22,800 92

Row Counts Detail Rows Subtotals Grand Total

To Do List

▪ Dashboards

This dashboard visualizes important KPIs like Top Rented Laptops, Total Active Rentals, and Bookings by Consumer. It helps in data-driven decision making by presenting real-time analytics in an intuitive format.

Dashboards

Recent

1 item

	Dashboard Name	Description	Folder	Created By	Created On	Subscribed
Recent	data analytics of laptops	total amount of data in dashboards	total rent amount	THULASI SETTIPALLI	7/13/2025, 11:15 AM	

Created by Me

Private Dashboards

All Dashboards

FOLDERS

All Folders

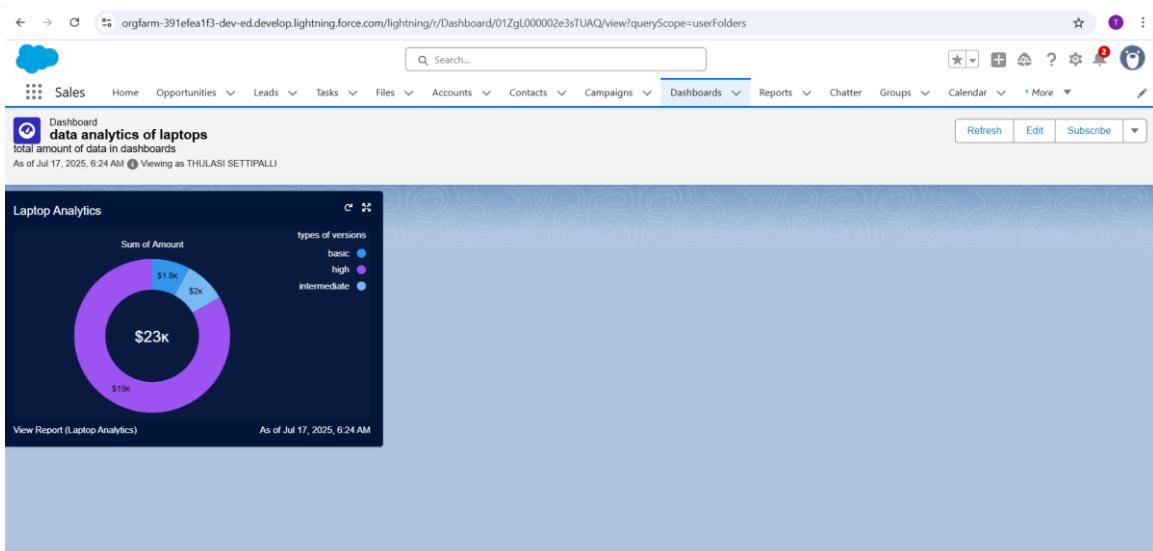
Created by Me

Shared with Me

FAVORITES

All Favorites

To Do List



To Do List

6. Phase 4: Data Migration, Testing & Security

Profiles, Roles, Role Hierarchy, Permission Sets, and Sharing Rules

- Two primary profiles were created:
 - Admin: Full access to all records and configurations.
 - Support Staff: Restricted access to create and update Laptop Bookings, but read-only access to Laptop and Consumer data.

The screenshot shows the Salesforce Setup interface for managing Profiles. The left sidebar is collapsed, and the main area is titled 'Profiles'. A search bar at the top says 'profiles'. Below it, a message says 'Didn't find what you're looking for? Try using Global Search.' The main content area displays a table of profiles:

Action	Profile Name	User License	Custom
<input type="checkbox"/>	Agent	Salesforce Platform	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Analytics Cloud Integration User	Analytics Cloud Integration User	<input type="checkbox"/>
<input type="checkbox"/>	Analytics Cloud Security User	Analytics Cloud Integration User	<input type="checkbox"/>
<input type="checkbox"/>	Anypoint Integration	Identity	<input type="checkbox"/>
<input type="checkbox"/>	Authenticated Website	Authenticated Website	<input type="checkbox"/>
<input type="checkbox"/>	Authenticated Website	Authenticated Website	<input type="checkbox"/>
<input type="checkbox"/>	B2B Reordering Portal Buyer Profile	External Apps Login	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Chatter External User	Chatter External	<input type="checkbox"/>
<input type="checkbox"/>	Chatter Free User	Chatter Free	<input type="checkbox"/>
<input type="checkbox"/>	Chatter Moderator User	Chatter Free	<input type="checkbox"/>
<input type="checkbox"/>	Contract Manager	Salesforce	<input type="checkbox"/>
<input type="checkbox"/>	Cross Org Data Proxy User	XORG Proxy User	<input type="checkbox"/>
<input type="checkbox"/>	Custom_Marketing Profile	Salesforce	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Custom_Sales Profile	Salesforce	<input checked="" type="checkbox"/>

At the bottom, there are buttons for 'Page 1 of 2' and 'Previous Next'.

This screenshot shows the same Salesforce Setup interface for Profiles, but with only one entry visible in the list:

Action	Profile Name	User License	Custom
<input type="checkbox"/>	generic	Salesforce	<input checked="" type="checkbox"/>

At the bottom, there are buttons for 'Page 1 of 1' and 'Previous Next'.

- Role hierarchy was defined as:

System Administrator

 └─ Support Executive

This hierarchy controls record visibility from top-down.

The screenshot shows the 'Roles' page in the Salesforce Setup. The sidebar on the left lists categories like 'Users', 'Feature Settings', 'Service', and 'Case Teams'. The main content area is titled 'Creating the Role Hierarchy' and displays a tree view of roles. The hierarchy starts with 'Atk' at the top, which branches into 'CEO', 'CFO', 'COO', 'owner', 'Agent', 'SVP.Customer.Service & Support', 'SVP.Human.Resources', and 'SVP.Sales & Marketing'. Each role node has 'Edit | Del | Assign' options.

■ Permission Sets

were used to provide extra permissions (like report creation or dashboard editing) to specific users without changing their profile.

Sharing Rules

were configured to ensure that Support Staff could access bookings made by other users with the same role, while still preventing access to sensitive admin-level records.

The screenshot shows the 'Validation Rules' page in the Salesforce Setup, specifically for the 'consumer' object. The left sidebar lists various setup categories. The main table displays one validation rule:

Rule Name	Error Location	Error Message	Active	Modified By
Phonenumberoremailblankrule	Top of Page	please fill the phone number and email id	✓	THULASI SETTIPALLI, 7/10/2025, 11:03 AM

The screenshot shows the Salesforce Object Manager interface. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The main content area displays a Validation Rule for the 'consumer' object. The rule is titled 'consumer Validation Rule' and has the formula `OR(ISBLANK(Phone_number_c), ISBLANK(Email_c))`. The error message is 'please fill the phone number and email id'. The rule is marked as Active and is located at the Top of Page. It was created by THULASI SETTIPALLI on 7/10/2025, 11:03 AM.

- **Preparation of Functional Test Cases**
 - **Test Case 1: Booking Record Creation**

Goal: Verify that a new Laptop Booking can be created successfully with valid input.

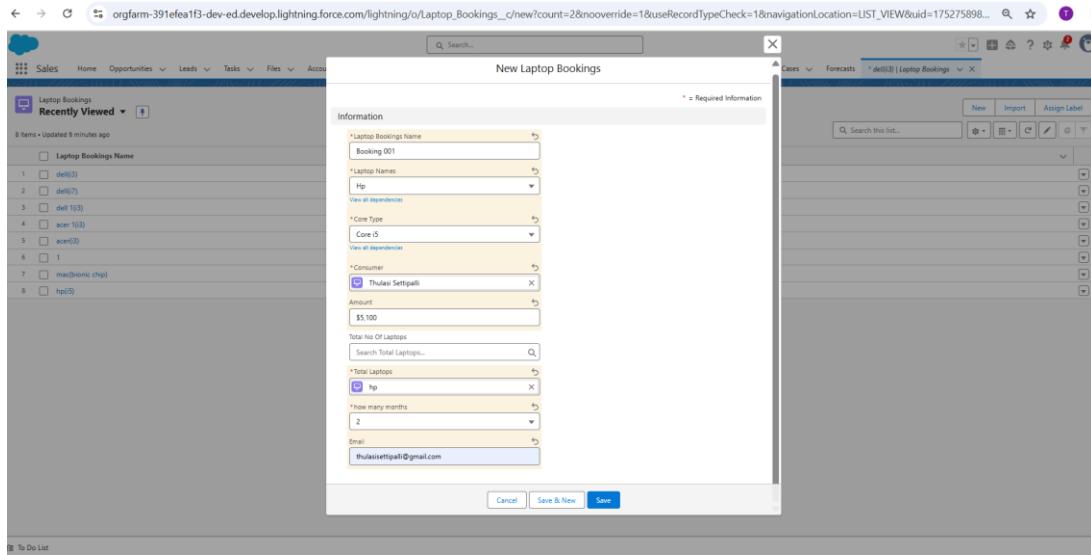
Input:

Enter details:

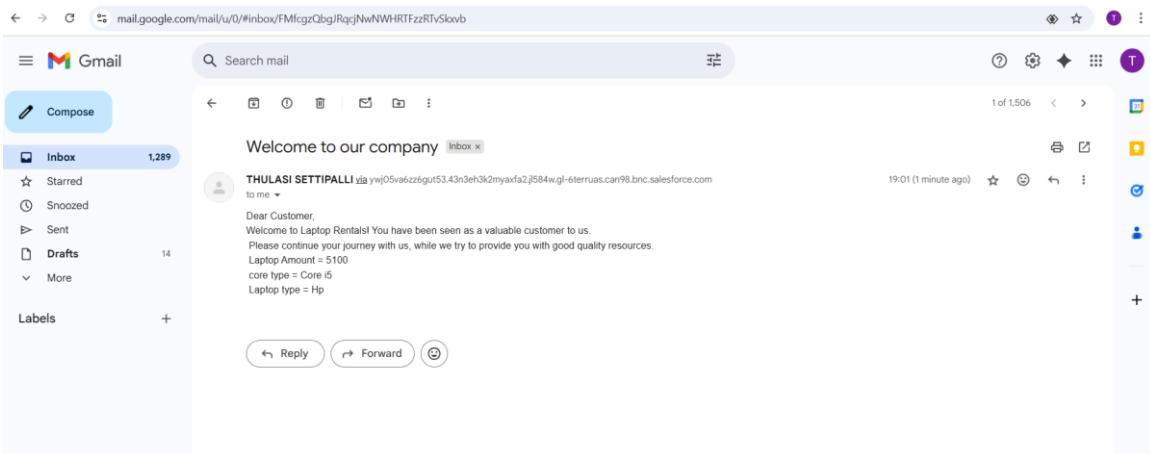
- Laptop Bookings Name: Booking 001
- Laptop Name: HP
- Core Type: i5
- Consumer: Search and select an existing consumer
- Amount: ₹5,100
- How many months: 2
- Email: thulasisettipalli@gmail.com

After entering the details when you created the record then the record will be saved as below.

✓ Expected Result:



- The record is created without any errors.
- A confirmation email is triggered (if below email limit).



➤ Test Case 2: Validation Rule (Return Date > Booking Date)

Goal: Ensure the user cannot enter invalid rental duration.

Steps:

- Enter a Return Date that is **before** the Booking Date.

- Try to Save the record.
- ✓ **Expected Result:**

Error message is shown: "**Return Date must be after Booking Date**"

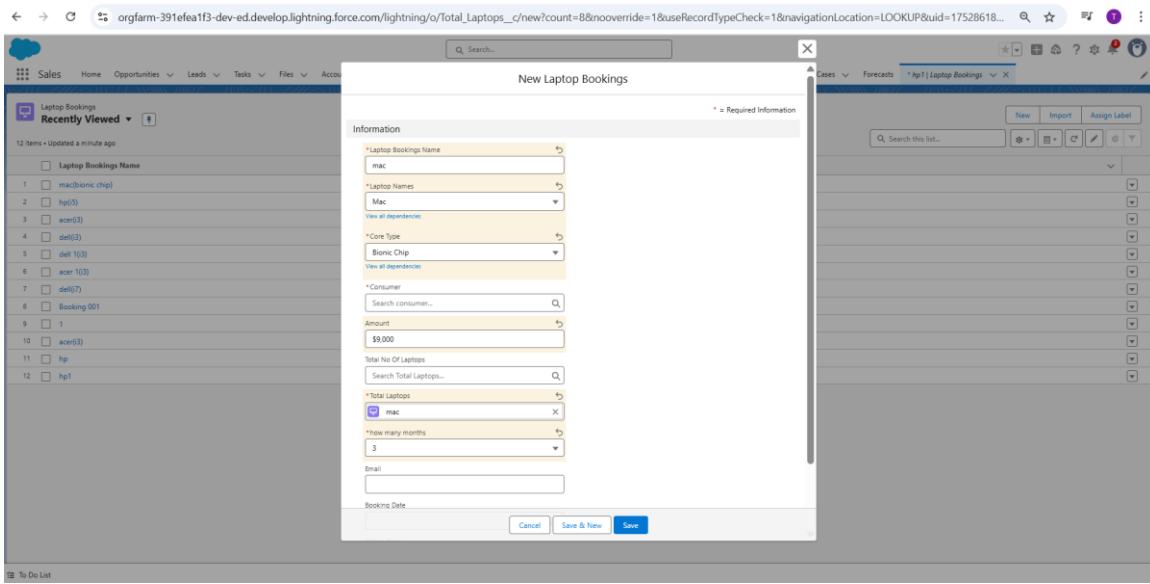
➤ Test Case 3: Required Field Validation

Goal: To verify that the system blocks save if required fields are missing.

Steps to Perform:

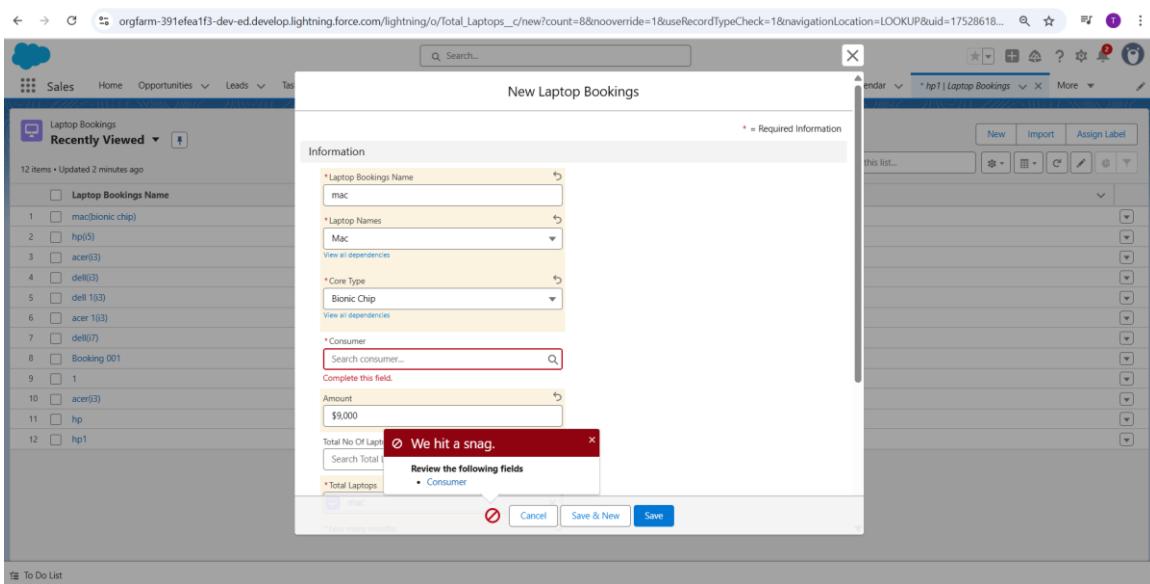
- Create a new Laptop Booking.
- Leave the Consumer or Email field blank.

- Click Save.



✓ **Expected Result:**

- Error message appears:
“Complete this field.”
- Record does not save.



➤ **Test Case 4: Monthly Booking Report Accuracy**

Goal: Ensure the monthly report shows only bookings created this month.

Steps:

- Go to Reports → Booking Summary.

- Set filter: Created Date = THIS MONTH
- Check result rows.

✓ **Expected Result:**

Only bookings created in July 2025 are shown.

Amount	Laptop Bookings: Laptop Bookings Name	Consumer	Booking Date	Laptop Bookings: Created Date
1 \$1,000	hp	Thulasi Settipalli	7/18/2025	7/18/2025
2 \$5,100	mac	Thulasi Settipalli	7/18/2025	7/18/2025
3 \$5,100	mac	Thulasi Settipalli	7/18/2025	7/18/2025
4 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
5 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
6 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
7 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
8 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
9 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
10 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
11 \$5,100	hp1	Thulasi Settipalli	7/18/2025	7/18/2025
12 \$8,500	hp	Thulasi Settipalli	7/18/2025	7/18/2025
13 \$8,500	hp	Thulasi Settipalli	7/18/2025	7/18/2025
14 \$8,500	hp	Thulasi Settipalli	7/18/2025	7/18/2025
15 \$8,500	hp	Thulasi Settipalli	7/18/2025	7/18/2025
16 \$8,500	hp	Thulasi Settipalli	7/18/2025	7/18/2025

➤ **Test Case 5: Detect & Block Duplicate Bookings**

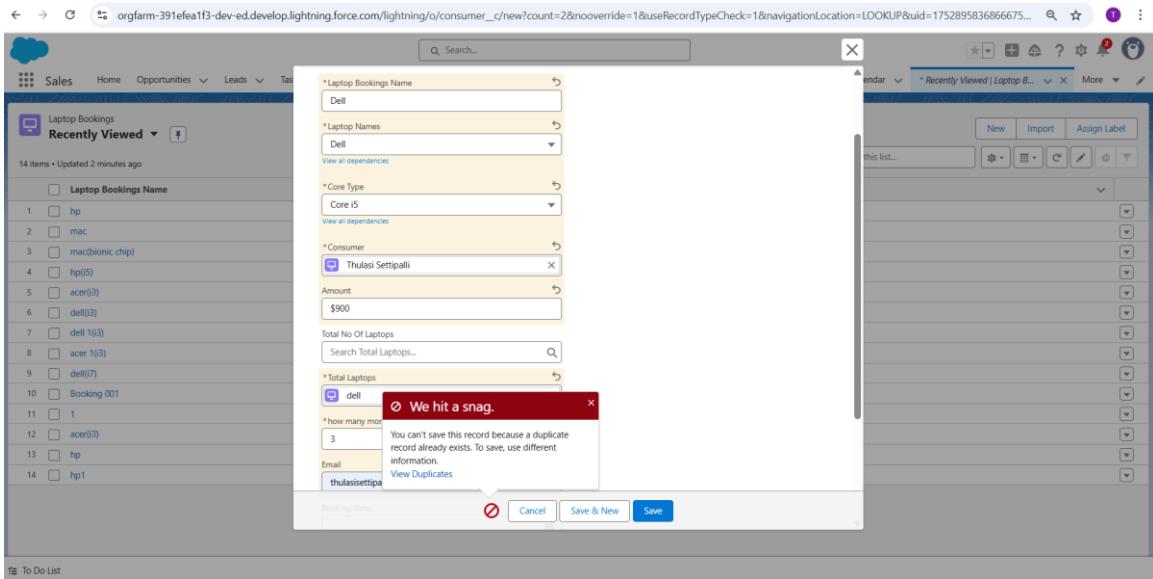
Goal: Prevent duplicate booking of same laptop by same customer on same date.

Steps:

- Create a booking with:
 - Laptop: Dell
 - Consumer: Thulasi Settipalli
 - Core Type: core i5
- Try to create another identical booking.

✓ **Expected Result:**

- Duplicate Rule blocks it with warning.
 - Uses Matching Rule + Duplicate Rule



➤ **Test Case 6: Approval Status Must Be Selected for High-Value Bookings**

Goal: To ensure that bookings with an amount greater than ₹50,000 must have an Approval Status selected, and prevent saving if it's left as “--None--”.

Steps to Perform:

- Go to the Laptop Bookings object → Click New.
- Enter:
 - Booking Name: Acer
 - Amount: ₹51,000 (*or simply enter 51000 without ₹ or comma*)
 - Booking & Return Dates: Valid future dates
 - Leave Approval Status as --None--

- Click Save.

✓ **Expected Result (Negative Test)**

- Error message appears:

“Approval Status is required for bookings above ₹50,000.”

- Record is not saved.

The screenshot shows a Salesforce Lightning page for 'Laptop Bookings'. A modal dialog box is displayed, indicating an error: 'We hit a snag.' with the message 'Review the errors on this page.' followed by a bullet point: '*Please select Approval Status for bookings above \$50,000.' Below the modal are three buttons: 'Cancel', 'Save & New', and 'Save'.

Steps for Positive Test:

- Use the same inputs as above, but this time:
 - Set Approval Status = Pending or Approved
- Click Save.

✓ Expected Result:

- Record is successfully saved.

The screenshot shows the same 'Laptop Bookings' page after the record has been saved. The form fields now reflect the input from the previous step: Amount (\$2,400), Total No Of Laptops (hp), Total Laptops (hp), how many months (2), Email (empty), Booking Date (empty), Return Date (empty), Approval Status (Pending), and Created By (empty). The right panel displays a message: 'No past activity. Past meetings and tasks marked as done show up here.'

➤ Test Case 7: Field History Tracking

Goal: Check if changes to critical fields are tracked.

Steps:

- Open a booking record.
- Update the **Amount** or **Return Date**.
- Click the **Related tab → View Field History**.

Laptop Bookings Name: hp1

Laptop Names: Hp

Core Type: Core i5

Consumer: Thulasi Settipalli

Amount: \$5,100

Total No Of Laptops: 50

Total Laptops: hp

Laptops Available: 50

how many months: 4

Email: thulasisettipalli@gmail.com

Booking Date: 7/18/2025

Return Date: 7/28/2025

Created By: THULASI SETTIPALLI, 7/18/2025, 9:56 AM

Last Modified By: THULASI SETTIPALLI, 7/18/2025, 9:57 AM

Laptop Bookings Name: hp1

Laptop Names: Hp

Core Type: Core i5

Consumer: Thulasi Settipalli

Amount: \$56,000

Total No Of Laptops: Search Total Laptops...

Total Laptops: hp

Laptops Available: 50

This field is calculated upon save

how many months: 4

Email: thulasisettipalli@gmail.com

Booking Date: 7/18/2025

Return Date: 7/31/2025

Last Modified By: THULASI SETTIPALLI, 7/18/2025, 9:57 AM

✓ Expected Result:

- History shows old and new values with timestamps.

The screenshot shows the 'Laptop Bookings Detail' page in Salesforce. At the top, there's a navigation bar with links to 'Recent Items', 'Recycle Bin', and other modules like 'Laptop Bookings History', 'Open Activities', 'Activity History', 'Billing Process', and 'Approval History'. The main section displays booking details for a laptop named 'hp1' with Core Type 'Core i5' and Consumer 'Thulasi Settipalli'. It includes fields for 'Total No Of Laptops' (1), 'Total Laptops' (1), 'Laptops Available' (50), 'how many months' (4), 'Email' ('thulasisettipalli@gmail.com'), 'Booking Date' ('7/18/2025'), 'Return Date' ('7/31/2025'), and 'Approval Status' ('Created By THULASI SETTIPALLI, 7/18/2025, 9:56 AM'). Below this is a 'Last Modified By' field ('THULASI SETTIPALLI, 7/18/2025, 10:10 AM'). A 'Laptop Bookings History' section follows, showing three history entries with details like date, user, and action (e.g., 'Changed Amount from \$56,000.00 to \$5,100.00'). At the bottom, there are sections for 'Open Activities' and 'Laptop Bookings History Help'.

➤ Test Case 8: Report & Dashboard Testing

Goal: Ensure reports display booking data correctly.

Steps:

- Go to **Reports** → **Laptop Booking Summary**.
- Check filters and groupings.
- Open the related **Dashboard**.

✓ Expected Result:

- Report shows correct bookings.
- Dashboard reflects metrics like total active rentals.

The screenshot shows the 'Laptop Rentals Dashboard' in Salesforce. The top navigation bar includes links for Sales, Home, Opportunities, Leads, Tasks, Files, Accounts, Contacts, Campaigns, Dashboards, Reports, Chatter, and more. The dashboard features three report cards under the title 'Laptop Booking Summary'. The first card is a horizontal bar chart showing the sum of amount by booking date, with values ranging from \$0 to \$14k. The second card is a donut chart showing the distribution of bookings by date, with segments for 7/18/2025 (\$1.8k), 7/21/2025 (\$5.1k), 7/25/2025 (\$5.1k), 7/26/2025 (\$900), 7/29/2025 (\$1k), 7/30/2025 (\$2k), 8/1/2025 (\$900), 8/2/2025 (\$3.4k), and 8/6/2025 (\$8.5k). The third card is a large text card displaying '\$43k'. Below the dashboard, there's a 'To Do List' section.

7. Phase 5: Deployment, Documentation & Maintenance

❖ Deployment Strategy

To move the CRM components from the development environment to a production-ready setup, the following deployment strategy was used:

- **Change Sets** were created in Salesforce to package:
 - Custom Objects (Laptop, Laptop Booking, Consumer)
 - Apex Triggers & Classes (LaptopBookingTrigger, LaptopBookingHandler)
 - Validation Rules, Flows, Approval Processes
 - Profiles, Roles, and Permission Sets
- Change Sets were uploaded from the **Developer Sandbox to Production**, ensuring proper version control and tracking.
- Pre-deployment and post-deployment validations were carried out to ensure stability after release.

Why Change Sets?

Because they are native to Salesforce, easy to manage, and ideal for deploying metadata between related orgs (Dev → UAT → Prod).

❖ System Maintenance and Monitoring

To ensure system reliability and readiness for future expansion, the following maintenance plan was established:

- **Field History Tracking** was enabled to monitor changes to critical data like return dates, amounts, and booking status.
- **Debug Logs** were configured for admins to trace and resolve errors during flow/trigger execution.
- **Scheduled Review** of reports and dashboards to track data trends and anomalies (e.g., drop in bookings or inventory shortages).
- **User Feedback Loop**: Users can report issues via Salesforce cases or internal channels for timely resolutions.
- **Regular Backup**: Periodic export of data using Salesforce's weekly data export feature.

❖ Troubleshooting Approach

Common issues such as validation failures, flow errors, or email quota limits were handled using the following methods:

- **Debug Logs** were reviewed for Apex and Flow errors. For example, the `SINGLE_EMAIL_LIMIT_EXCEEDED` error was caught and mitigated by adding logic to check email limits before sending.
- **System.debug()** statements were used inside Apex classes and triggers to verify logic during development.
- **Validation Error Messages** were customized to guide users with friendly, accurate error prompts.
- **Testing with Dummy Records** helped simulate multiple edge cases before deployment.
- A fallback mechanism was considered — e.g., if email fails, log the incident instead of blocking the transaction.

8. Conclusion

Conclusion: A CRM Application for Laptop Rentals

The project successfully delivered a fully functional Salesforce CRM solution tailored to the domain of **Laptop Rentals**. Through the use of **custom objects**, **automation tools (Flows, Validation Rules, Triggers)**, and **reporting dashboards**, the application now streamlines the entire lifecycle of laptop bookings — from consumer registration to inventory assignment and automated communication.

Key highlights of the system include:

- **Dynamic form behaviours** with validation logic
- **Automated approval process** for high-value transactions
- **Trigger-based email notifications** to enhance customer engagement
- **Dashboards** to monitor rental activity and laptop usage
- A well-defined **security model** with roles and permission sets

Final Thought:

This Salesforce application not only meets the current business requirements of laptop rentals but is also scalable for future enhancements — such as chatbot integration, mobile UI optimization, or integration with third-party payment systems.