

A CRM APPLICATION FOR LAPTOP RENTALS

1. Project Review

This project focuses on creating a comprehensive **CRM application for managing laptop rentals** for a business on the Salesforce platform. The objective is to address the operational challenges of managing rental requests, tracking inventory, and ensuring smooth communication with customers. By utilising Salesforce's capabilities in automation, workflow management, and data storage, this project aims to:

- **Streamline the rental process:** Automate booking and return processes, reducing the time and manual work required to manage each rental.
- **Enhance customer experience:** Provide timely email updates to customers about booking confirmation and return reminders.
- **Improve data accuracy and reporting:** Maintain real-time insights on laptop inventory and rental statuses, helping staff make informed decisions quickly.

This CRM application provides the **Laptop Rentals team** with an efficient way to manage and monitor all rental activities, supporting their mission to deliver high-quality service and optimised resource management.

2. Objectives

Business Goals:

- Automate the laptop rental and return process to minimize manual intervention.
- Improve customer relationship management and enhance service quality for rental customers.
- Ensure accurate tracking and reporting of laptop inventory.

Specific Outcomes:

- A custom Salesforce CRM application for managing rentals, with a streamlined interface for users to view, manage, and track rentals.
- Automated workflows to handle rental requests, status updates, and email notifications.
- Reports and dashboards for real-time insights on inventory, rentals, and customer activity.

3. Salesforce Key Features and Concepts Utilized

This section outlines the core Salesforce functionalities and tools applied within the CRM application for Laptop Rentals.

- **Custom Objects and Fields:**
 - Created a custom object Laptop_Bookings__c to manage each rental booking, with fields such as Customer Name, Email__c, Amount__c, Core__c, Laptop_Type__c, and Status.
 - Set up a Laptops__c object to represent inventory items, tracking details like model, specifications, and availability status.
- **Apex Triggers and Classes:**
 - Developed an **AfterInsert Trigger** (LaptopBooking) to automatically send emails when a booking is made. The LaptopBookingHandler class contains methods to format and dispatch these emails, personalising them with customer details.
- **Process Builder and Flows:**
 - Implemented a Process Builder flow to manage the lifecycle of each booking, automating actions such as status changes (e.g., from "Booked" to "In Use" to "Returned") without requiring manual updates.
- **Validation Rules:**
 - Added validation rules to ensure data quality, such as requiring certain fields to be filled (e.g., Email__c for customer contact and Amount__c for booking costs), preventing incomplete records from being saved.
- **Reports and Dashboards:**
 - Created dashboards with reports on metrics such as **current inventory**

4. Detailed Steps to Solution Design

User Interface (UI) Design:

The custom Lightning app "Laptop Rentals" features easy navigation with tabs for key components such as bookings, reports, and dashboards.

- Configured **Page Layouts** for Laptop_Bookings__c and Laptops__c with relevant fields, sections, and related lists for ease of access.
- Designed dashboards for quick visual insights on active rentals, availability, and top-performing laptops.
- Custom Lightning components may be added to enhance specific sections, such as displaying a chart of most rented laptop models.

Screenshot: Navigation items in the laptop rentals app

The screenshot displays the 'Laptop Rentals' Lightning app interface. At the top, there is a navigation bar with a search bar and several icons. Below the navigation bar, the 'Dashboards' section is active, showing a table of recent dashboards. The table has columns for Dashboard Name, Description, Folder, Created By, Created On, and Subscribed. A single dashboard is listed: 'data analytics of laptops' with a description of 'total amount of data in dashboards' and a folder of 'total rent amount'. The dashboard was created by 'Chinimilli R S S Pavan Kumar' on '27/10/2024, 9:51 am'. The left sidebar shows navigation options like 'Recent', 'Created by Me', 'Private Dashboards', 'All Dashboards', 'FOLDERS', 'All Folders', 'Created by Me', 'Shared with Me', 'FAVORITES', and 'All Favorites'.

DASHBOARD	Dashboard Name	Description	Folder	Created By	Created On	Subscribed
Recent	data analytics of laptops	total amount of data in dashboards	total rent amount	Chinimilli R S S Pavan Kumar	27/10/2024, 9:51 am	

Search...

LAPTOP RENTALS Total Laptops consumer Laptop Bookings Billing Process Reports * Recent | Dashboards

Laptop Bookings Recently Viewed

5 items • Updated a few seconds ago

Search this list...

	<input type="checkbox"/> Laptop Bookings	
1	<input type="checkbox"/> cart	
2	<input type="checkbox"/> Rent now	
3	<input type="checkbox"/> flipkart	
4	<input type="checkbox"/> SmartInternz	
5	<input type="checkbox"/> Amazon	

Search...

LAPTOP RENTALS Total Laptops consumer Laptop Bookings Billing Process Reports * Recent | Dashboards

consumer Recently Viewed

5 items • Updated a few seconds ago

Search this list...

	<input type="checkbox"/> consumer_name	
1	<input type="checkbox"/> Surya	
2	<input type="checkbox"/> Rohith	
3	<input type="checkbox"/> Ram	
4	<input type="checkbox"/> Kalyan	
5	<input type="checkbox"/> Pavan	

Business Logic Design:

- Developed the LaptopBookingHandler class to handle email notifications using Messaging.SingleEmailMessage.
- Added the AfterInsert trigger on Laptop_Bookings__c to initiate the

sendEmailNotification method, ensuring customers receive a welcome and confirmation email after booking.

Screenshot:Flow Automation

The screenshot displays the Flow Builder interface for a process named "Laptop distributions - V1". The top navigation bar includes a "Flow Builder" tab and a "Laptop distributions - V1" title. The interface is divided into a left sidebar with a "Select Elements" button and a main workspace. The workspace shows a flow diagram starting with a "Record-Triggered Flow Start" event, followed by a "Run Immediately" action, and then a "Field should be Updated" decision. The decision node is highlighted, and its configuration panel is open on the right. The configuration panel for the decision node includes a "Label" field with the text "Field should be Updated", an "API Name" field with the text "Field_should_be_Updated", and a "Description" field. Below these fields is an "Outcomes" section with a table listing outcomes: "dell", "acer", "hp", and "mac". The "dell" outcome is selected, and its configuration is shown in the "OUTCOME DETAILS" section. This section includes a "Label" field with the text "dell", an "Outcome API Name" field with the text "dell", a "Condition Requirements to Execute Outcome" dropdown menu set to "All Conditions Are Met (AND)", and a "Resource" field with the text "..._Bookings_c > Laptop names". The "Operator" field is set to "Equals", and the "Value" field is set to "Dell".

Flow Builder | Laptop distributions - V1

Auto-Layout | Last saved on 25/10/2024, 08:29 pm | Active | Run | Debug | View Tests | Save As New Version | Save | Deactivate

Record-Triggered Flow Start

Run Immediately

Field should be Updated Decision

Decision

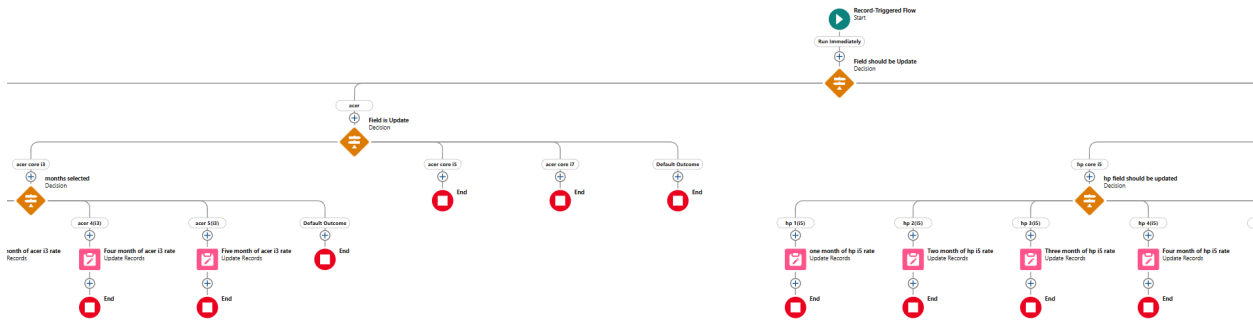
* Label: Field should be Updated

* API Name: Field_should_be_Updated

Description

Outcomes For each path the flow can take, create an outcome. For each outcome, specify the conditions that must be met for the flow to take that path.

OUTCOME ORDER	OUTCOME DETAILS
1	<p>* Label: dell</p> <p>* Outcome API Name: dell</p> <p>Condition Requirements to Execute Outcome: All Conditions Are Met (AND)</p> <p>Resource: ..._Bookings_c > Laptop names</p> <p>Operator: Equals</p> <p>Value: Dell</p>
2	acer
3	hp
4	mac
5	Default Outcome



Validation rules:

Setup

Home

Object Manager

SETUP > OBJECT MANAGER

consumer

Details

Fields & Relationships

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

consumer Validation Rule

[Back to consumer](#)

Help for this Page

Validation Rule Detail

Edit

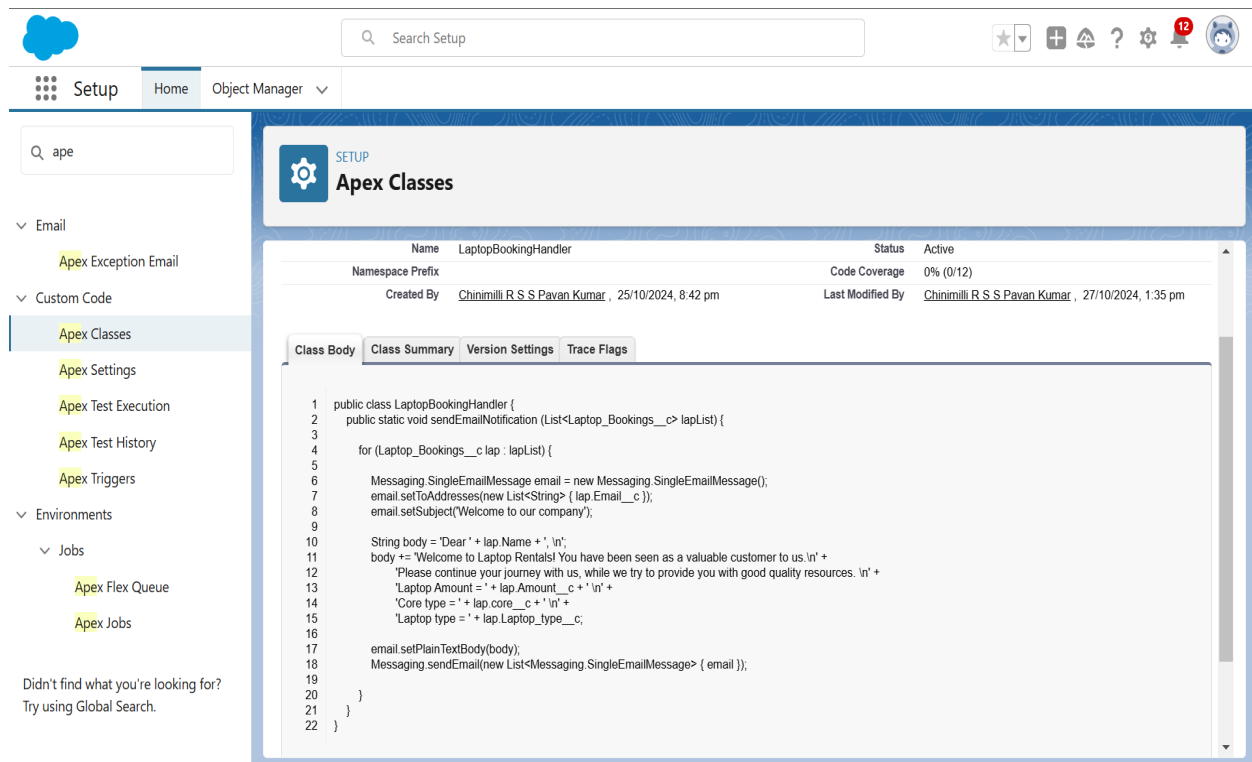
Clone

Rule Name	Phonenumberoremailblankrule	Active	✓
Error Condition Formula	OR(ISBLANK(Phone_number__c), ISBLANK(Email__c))		
Error Message	Please fill the phone number and email id	Error Location	Top of Page
Description	phone number and email number should not be blank		
Created By	Chinimilli R S S Pavan Kumar, 25/10/2024, 2:03 am	Modified By	Chinimilli R S S Pavan Kumar, 25/10/2024, 2:03 am

Edit

Clone

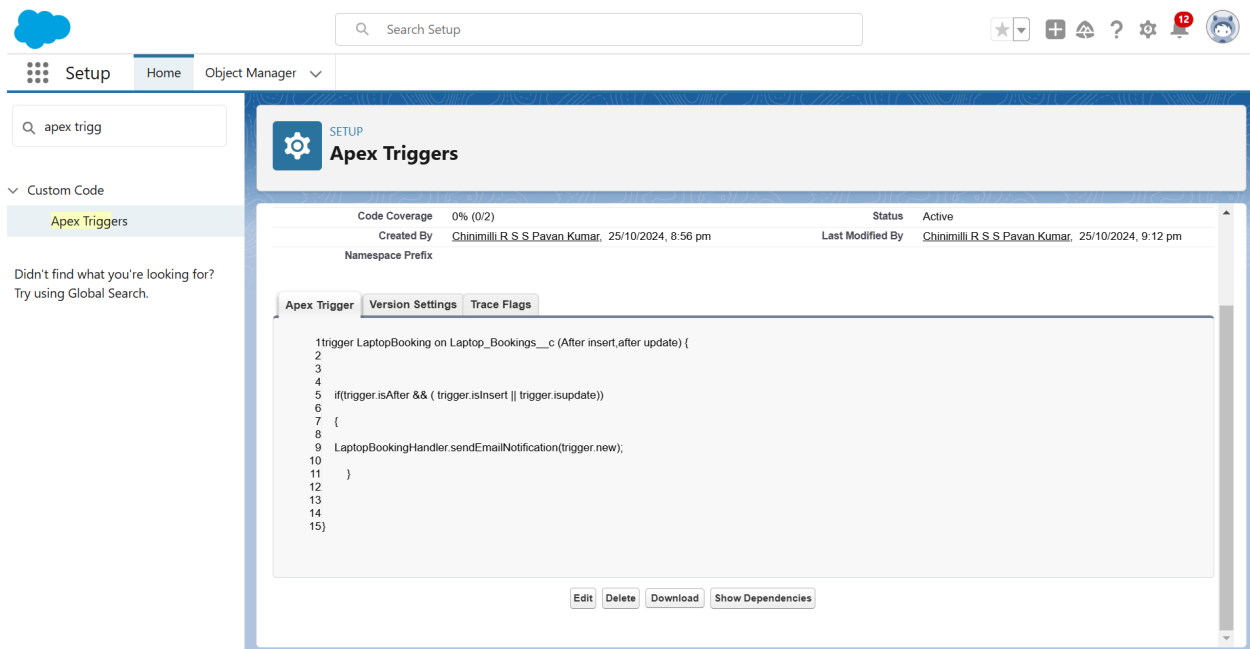
Creating the Apex class: class name for the apex class is LaptopBookingHandler



The screenshot displays the Salesforce Setup interface. On the left, a navigation menu shows 'Setup' with sub-items like 'Email', 'Custom Code', 'Apex Classes', 'Apex Settings', 'Apex Test Execution', 'Apex Test History', 'Apex Triggers', 'Environments', 'Jobs', 'Apex Flex Queue', and 'Apex Jobs'. The 'Apex Classes' item is selected. The main content area is titled 'Apex Classes' and shows details for the 'LaptopBookingHandler' class. The class is active, has a namespace prefix, and was created by Chinimilli R.S.S Pavan Kumar on 25/10/2024 at 8:42 pm. The code coverage is 0% (0/12). The class body is displayed in a code editor, showing the following code:

```
1 public class LaptopBookingHandler {
2     public static void sendEmailNotification (List<Laptop_Bookings__c> lapList) {
3
4         for (Laptop_Bookings__c lap : lapList) {
5
6             Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
7             email.setToAddresses(new List<String> { lap.Email__c });
8             email.setSubject('Welcome to our company');
9
10            String body = 'Dear ' + lap.Name + ', \n';
11            body += 'Welcome to Laptop Rentals! You have been seen as a valuable customer to us.\n' +
12                'Please continue your journey with us, while we try to provide you with good quality resources. \n' +
13                'Laptop Amount = ' + lap.Amount__c + ' \n' +
14                'Core type = ' + lap.core__c + ' \n' +
15                'Laptop type = ' + lap.Laptop_type__c;
16
17            email.setPlainTextBody(body);
18            Messaging.sendEmail(new List<Messaging.SingleEmailMessage> { email });
19
20        }
21    }
22 }
```

Creating apex trigger: LaptopBooking trigger



Reports and Dashboards:


Reports and dashboards in Salesforce provide valuable insights into the Laptop Rentals CRM application, helping the business monitor bookings, revenue, and customer trends effectively.

Reports

- **Tabular Reports:** Used for simple lists, such as a full list of active laptop bookings or consumer records, giving a quick snapshot of data.
- **Summary Reports:** Offers data with grouped subtotals, such as revenue grouped by laptop type, making it easy to identify high-performing categories.

Dashboards

- **Revenue Overview:** Shows total rental revenue over time, helping track financial performance.
- **Popular Laptops:** Displays the most rented laptop types, aiding in inventory and marketing decisions.
- **Customer Insights:** Provides data on customer types, helping target future marketing campaigns more effectively.



Search...

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⚙️

12

👤

LAPTOP RENTALS

Total Laptops

consumer

Laptop Bookings

Billing Process

Reports

Recent | Dashboards

Report: consumer with Laptop Bookings and Total Laptops

Enable Field Editing

Q

Add Chart

▼

↺

Edit

▼

Total Records

5

Total Amount

₹26,100

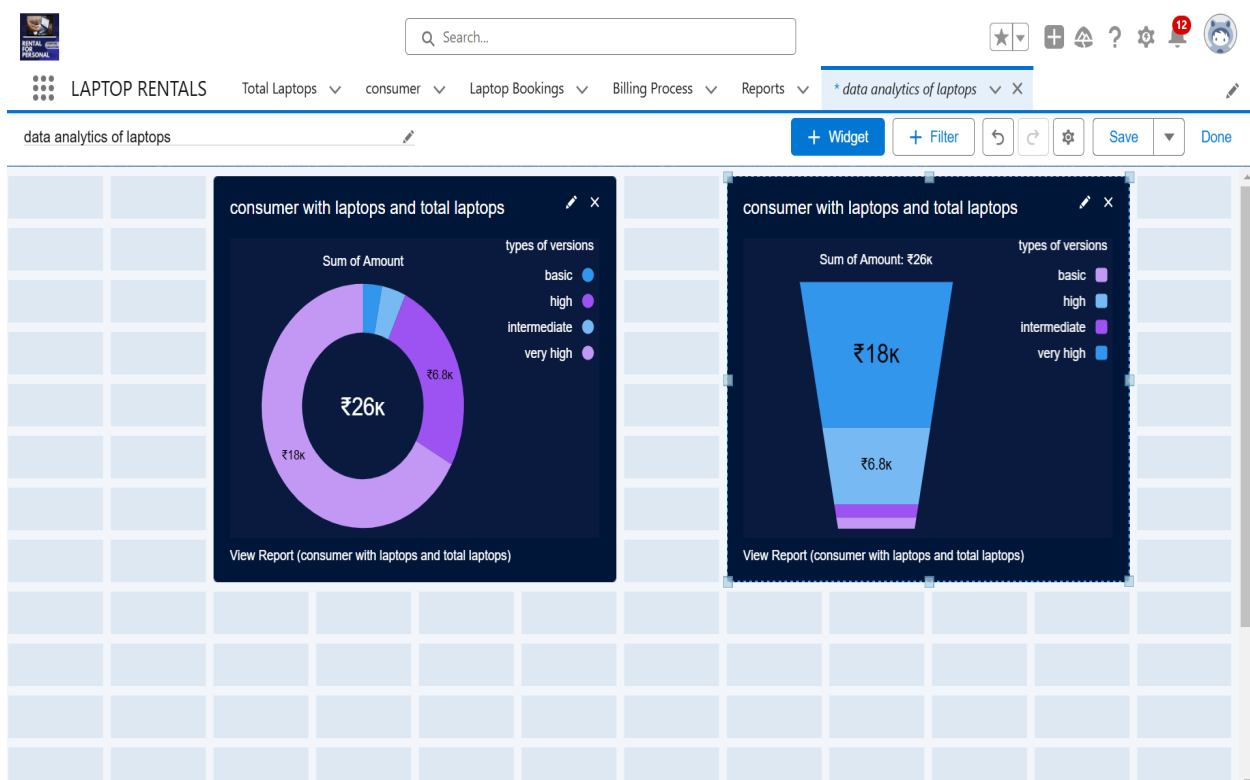
types of versions	consumer: consumer_name	Laptop Bookings: Laptop Bookings	Total No Of Laptops: Total Laptops	Laptop names	core type	Amount
basic (1)	Rohith	SmartInternz	1	Acer	core i5	₹800
Subtotal						₹800
Intermediate (1)	Surya	Amazon	1	Dell	core i3	₹1,000
Subtotal						₹1,000
high (2)	Ram	flipkart	2	Hp	core i7	₹1,700
	Kalyan	Rent now	3	Mac	Bionic chip	₹5,100
Subtotal						₹6,800
very high (1)	Pavan	cart	4	Hp	core i7	₹17,500
Subtotal						₹17,500
Total (5)						₹26,100

Row Counts

Detail Rows

Subtotals

Grand Total



5. Testing and Validation

Testing Approaches:

- **Unit Testing:**
 - Each Apex class and trigger was thoroughly tested, ensuring at least 75% code coverage. Tests were designed to validate that the booking confirmation emails are sent and inventory statuses update correctly.
- **User Interface Testing:**
 - Verified that the UI elements display correctly on page layouts and that all required fields and related lists are accessible. Ensured users could access only the fields allowed by their profile permissions.
- **Test Scenarios:**
 - **Scenario 1:** Create a new booking and verify that an email is sent with the correct booking details.
 - **Scenario 2:** Test that inventory adjusts automatically when a booking status is changed from "Booked" to "Returned."
 - **Scenario 3:** Check that validation rules enforce required fields like Email__c and Amount__c.

The screenshot displays the Salesforce Setup interface. On the left, a navigation sidebar shows the 'Setup' menu with options like 'Email', 'Custom Code', 'Apex Classes', 'Apex Settings', 'Apex Test Execution', 'Apex Test History', 'Apex Triggers', 'Environments', 'Jobs', 'Apex Flex Queue', and 'Apex Jobs'. The 'Apex Classes' option is selected. The main content area is titled 'Apex Classes' and shows the details for a class named 'LaptopBookingHandlerTest'. The class is marked as 'Last Modified By: Chinimilli R.S.S Pavan Kumar, 28/10/2024, 10:19 pm'. The 'Class Body' tab is active, displaying the following Apex code:

```
1 @isTest
2 private class LaptopBookingHandlerTest {
3     @isTest
4     static void testSendEmailNotification() {
5         // Setup test data
6         Laptop_Bookings__c testBooking = new Laptop_Bookings__c(
7             Email__c = 'test@example.com',
8             Name = 'Test User',
9             Amount__c = 700,
10            core__c = 'i5',
11            Laptop_type__c = 'Acer'
12        );
13        insert testBooking;
14        Test.startTest();
15        LaptopBookingHandler.sendEmailNotification(new List<Laptop_Bookings__c>{testBooking});
16        Test.stopTest();
17    }
18 }
```

6. Key Scenarios Addressed by Salesforce in the Implementation Project

This project addresses several critical scenarios to ensure a smooth rental experience for both customers and staff:

- **Automated Notifications:** Automatically send confirmation emails when a booking is created and status updates as the rental progresses. This helps keep customers informed and reduces the workload for staff.
- **Real-Time Inventory Management:** Track the availability of laptops in real-time, updating inventory counts when laptops are rented and returned.
- **Workflow Automation for the Booking Lifecycle:** Manage booking statuses with automation, progressing each booking from "Booked" to "In Use" and finally "Returned" without manual intervention.
- **Role-Based Data Access:** Define roles and permissions so that staff can manage bookings and customers, while customers only have access to their rental information.

7. Conclusion

The Laptop Rentals CRM application demonstrates a comprehensive application of Salesforce's capabilities to manage and automate essential processes in a rental business. By leveraging custom objects, Apex programming, and flow automation, this project enables efficient data management and optimises customer interactions. Key functionalities, such as email notifications, automated pricing based on selections, and streamlined booking processes, have significantly enhanced the customer experience and operational efficiency.

Moreover, Salesforce's reporting and dashboard tools provide insightful data analysis, allowing business stakeholders to monitor rental trends, track revenue, and make data-driven decisions. Validation rules and role-based access control further ensure data integrity and secure handling of customer information, building a reliable foundation for business growth. The integration of these Salesforce features not only helps meet the immediate objectives but also sets up a scalable infrastructure for future

enhancements, making it adaptable to evolving business needs.

This project serves as a model for how Salesforce's robust platform can be tailored to a specific business scenario, providing both functional and strategic value. Through this application, the Laptop Rentals team now has a powerful tool to manage inventory, enhance customer satisfaction, and ensure efficient workflow automation, laying a strong foundation for sustained growth and improved customer relations.