

A CRM APPLICATION FOR LAPTOP RENTALS

1. Project Overview:

This project is dedicated to developing a robust CRM application tailored for managing laptop rentals within a business environment using the Salesforce platform. The primary goal is to tackle operational challenges, including handling rental requests efficiently, monitoring inventory, and facilitating effective communication with customers. Leveraging Salesforce's strengths in automation, workflow optimization, and data storage, this CRM application aims to:

1. **Optimize the Rental Workflow:** Streamline the booking and return processes to reduce time and minimize manual intervention required for each rental.
2. **Enhance Customer Satisfaction:** Send timely email notifications to customers for booking confirmations and return reminders.
3. **Increase Data Accuracy and Insightful Reporting:** Provide real-time visibility into laptop inventory and rental status, empowering staff to make informed, quick decisions.

2. Objective Goals:

1. **Streamline the laptop rental and return processes** to minimize manual effort, enhancing efficiency and accuracy.
2. **Strengthen customer management practices** to improve service quality and foster lasting customer relationships.
3. **Implement precise tracking and reporting for laptop inventory** to ensure accurate availability and effective asset management.

Specific outcomes:

- A customized Salesforce CRM application designed to manage rental services with an intuitive interface, allowing users to easily view, manage, and track rental activity.
- Automated workflows streamline the handling of rental requests, provide real-time status updates, and send email notifications.
- Comprehensive reports and dashboards deliver real-time insights into inventory levels, rental activity, and customer engagement.

3. Salesforce Key Features and Concepts Utilized:

This section details the core Salesforce functionalities and tools used in the Laptop Rentals CRM application.

- **Custom Objects and Fields:**

- **Laptop_Bookings__c:** A custom object created to manage each rental booking, featuring fields such as:

- Customer Name
 - Email__c
 - Amount__c
 - Core__c
 - Laptop_Type__c
 - Status

- **Laptops__c:** An additional custom object representing inventory items, which tracks details like model, specifications, and availability status.

- **Apex Triggers and Classes:**

- Developed an AfterInsert trigger (LaptopBooking) to send automated confirmation emails when a booking is made. The LaptopBookingHandler class formats and personalises these emails with customer details.

- **Process Automation with Process Builder and Flows:**

- Designed a Process Builder flow to manage booking status changes (e.g., from "Booked" to "In Use" to "Returned") without manual updates.

- **Validation Rules for Data Accuracy:**

- Added rules to enforce data quality, requiring key fields like Email and Amount for complete booking records.

- **Reports and Dashboards:**

Created dashboards and reports to provide insights on inventory, rental volumes, popular laptop models, and customer demographics, supporting strategic planning and resource allocation.

4. Detailed Steps to Solution design:

The solution was carefully designed in multiple steps, covering data models, user - interface, and business logic. Here's an overview:

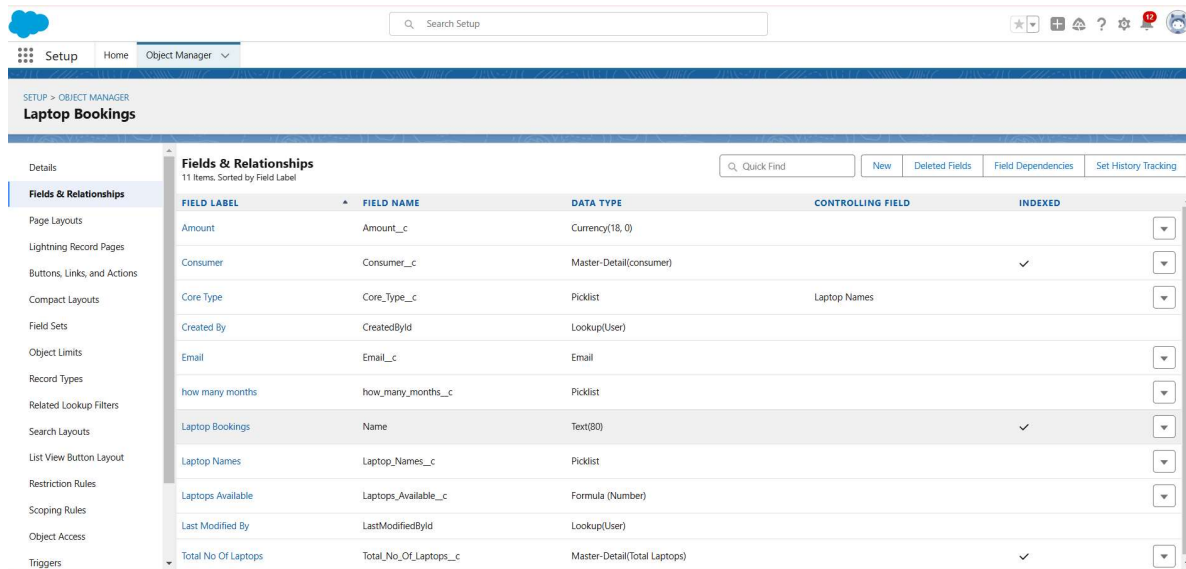
- **Data Model Design:**

- Created Laptop_Bookings__c and Laptops__c custom objects.

- Established relationships between Laptop_Bookings__c and standard Salesforce objects (Account or Contact) to connect customers with their respective bookings.

- Additional fields, such as **Email__c**, **Amount__c**, **Core__c**, and **Laptop_Type__c**, are used to store booking-specific data. Relationships between objects are established to link the **Laptop_Bookings__c** object with other standard or custom objects (e.g., Account, Contact) to enhance data integrity and support comprehensive reporting.

Fields Included in the **LaptopBookings** object:



FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(18, 0)		
Consumer	Consumer__c	Master-Detail(consumer)		✓
Core Type	Core_Type__c	Picklist	Laptop Names	
Created By	CreatedById	Lookup(User)		
Email	Email__c	Email		
how many months	how_many_months__c	Picklist		
Laptop Bookings	Name	Text(80)		✓
Laptop Names	Laptop_Names__c	Picklist		
Laptops Available	Laptops_Available__c	Formula (Number)		
Last Modified By	LastModifiedById	Lookup(User)		
Total No Of Laptops	Total_No_Of_Laptops__c	Master-Detail(Total Laptops)		✓

User Interface (UI) Design:

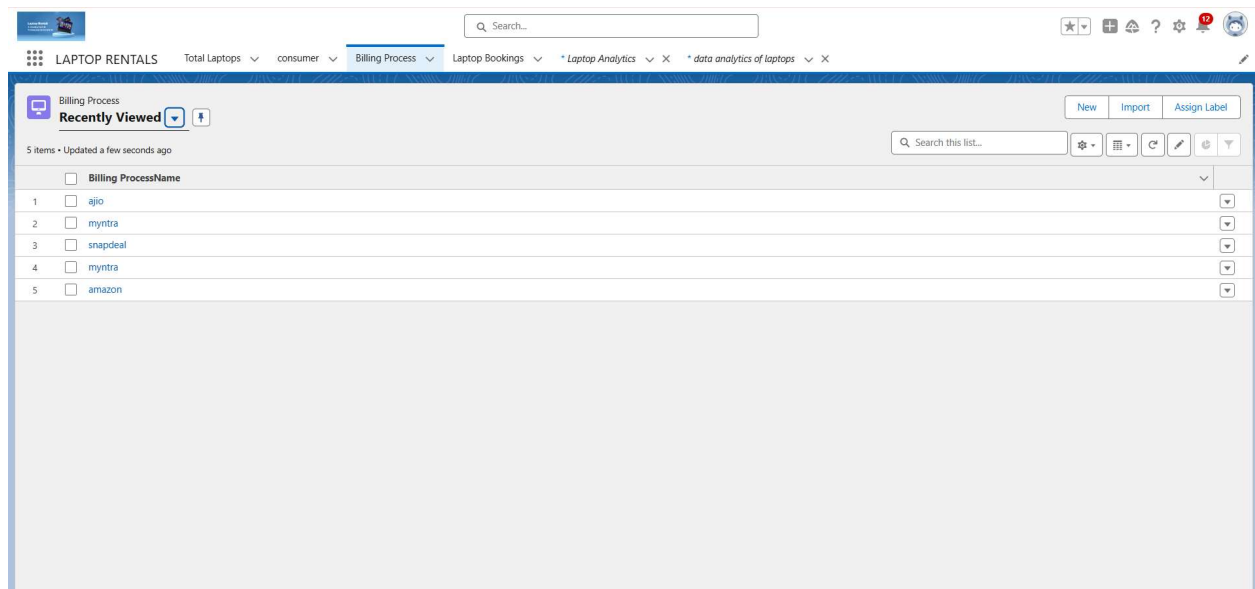
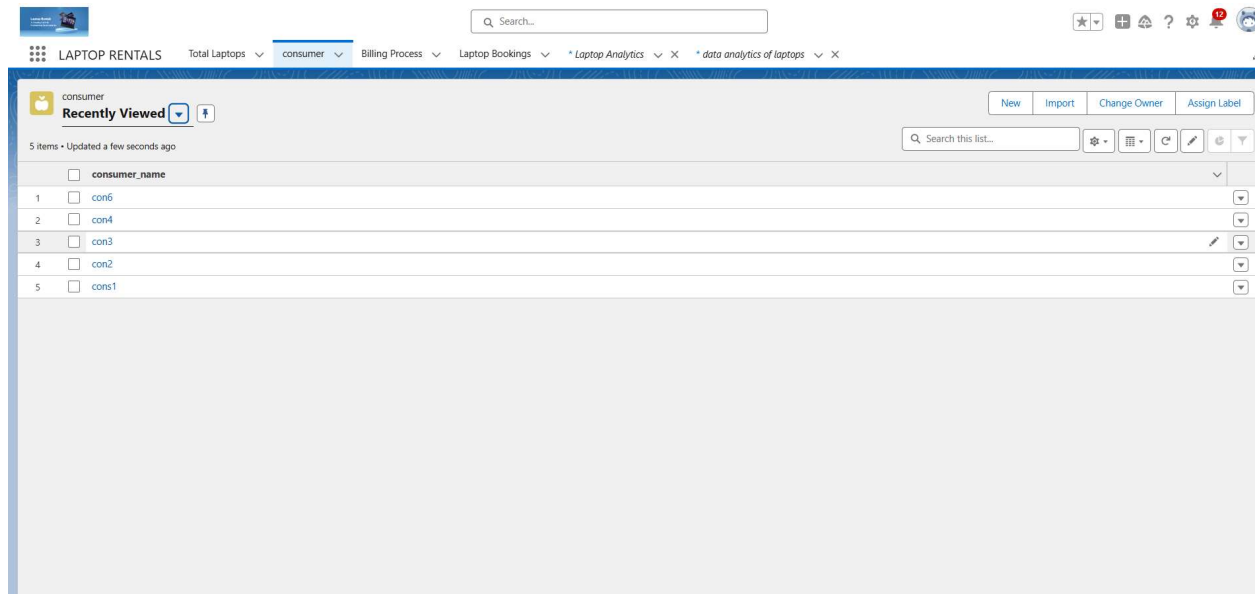
The custom Lightning app Laptop Rentals features easy navigation with tabs for key components, including Bookings, Reports, and Dashboards.

- 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.

Navigation Items on Laptop Rental Application:

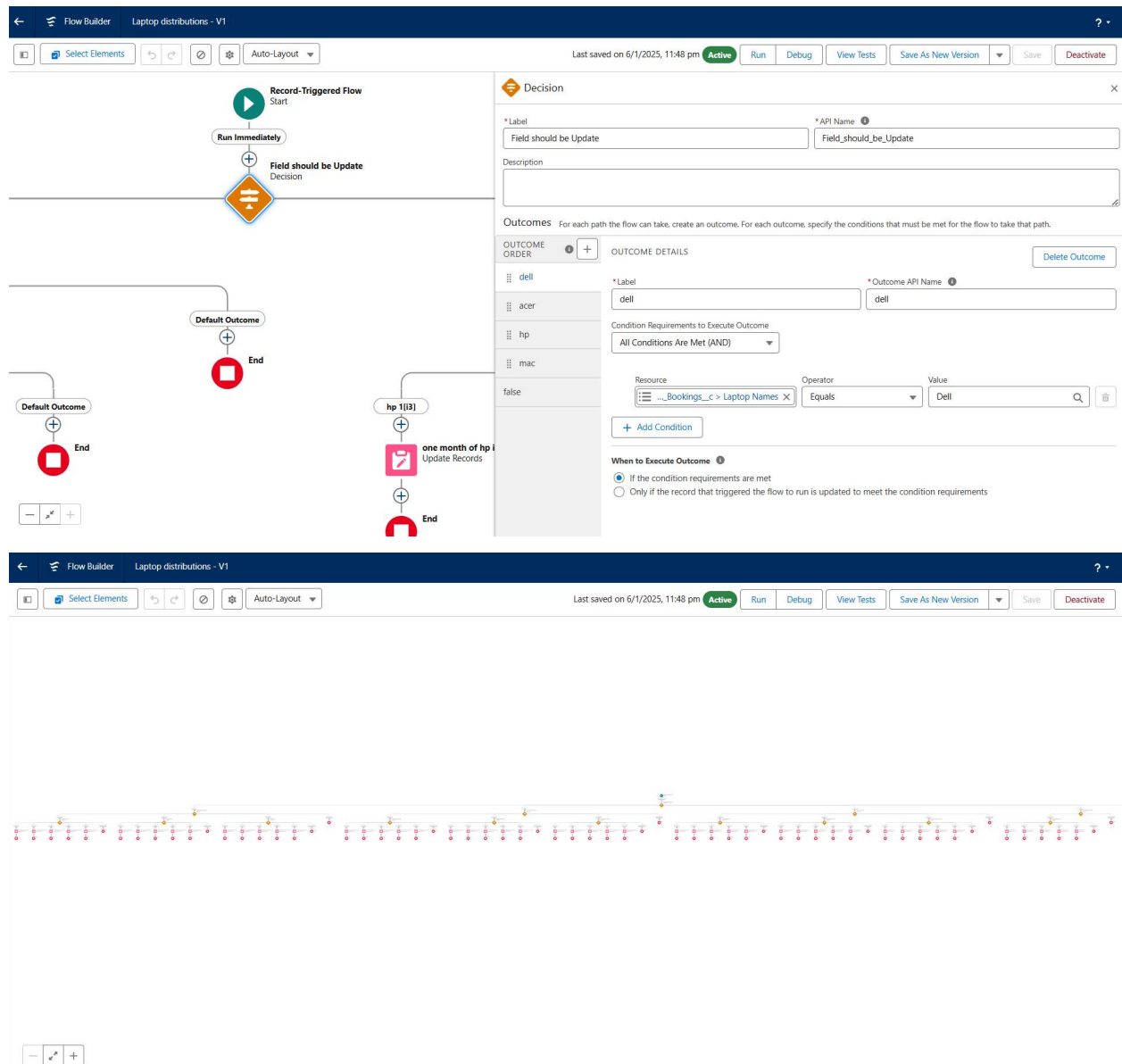



Business Logic Design:

- Developed the LaptopBookingHandler class to handle email notifications using Messaging.SingleEmailMessage.

- Added the AfterInsert trigger on Laptop_Bookings__c to initiate sendEmailNotification method, ensuring customers receive a welcome and confirmation email after booking.

Flow Automation:





SetupHomeObject Manager

Search Setup

▼


+

🏠

?

⚙️

12



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

Restriction Rules

Scoping Rules

Object Access


Triggers


Validation Rules


1 Items. Sorted by Rule Name


New







RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
Phonenumberoremailblankrule	Top of Page	Please fill the phone number and email id	✓	Vigna Bavana, 05/01/2025, 12:43 pm


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

Restriction Rules

Scoping Rules

Object Access

Triggers

consumer Validation Rule

Back to consumer

Help for this Page

Validation Rule Detail

Edit

Clone

Rule Name	Phonenumberemailblankrule	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	Vigna Bayana 05/01/2025, 12:43 pm	Modified By	Vigna Bayana 05/01/2025, 12:43 pm

Edit

Clone

Apex class:

Created Apex class with name of **LaptopBookingHandler**

The screenshot shows the Salesforce 'Apex Classes' page. The class name is 'LaptopBookingHandlerTest'. It is in the 'Active' status, created by 'Vigna Bavana' on 07/01/2025 at 6:58 pm. The 'Class Body' tab is selected, displaying the following code:

```
1  @isTest
2  public class LaptopBookingHandlerTest {
3
4      @isTest
5      static void testLaptopBookingTrigger(){
6
7          Laptop_Bookings__c testBooking = new Laptop_Bookings__c(
8              Consumer__c = 'SnapDear',
9              Email__c = 'test@example.com',
10             Laptop_Names__c = 'Dell',
11             Total_No_Of_Laptops__c = '10',
12             Name = 'Test User',
13             how_many_months__c = '3'
14         );
15
16         Test.startTest();
17         insert testBooking;
18
19         testBooking.how_many_months__c = '4';
20         update testBooking;
21
22         Test.stopTest();
23         Integer sentEmailCount = Limits.getEmailInvocations();
24         System.assertEquals(1, sentEmailCount, 'One email should have been sent');
25     }
26 }
```

Apex Triggers:

Created an APEX Trigger with name of **LaptopBooking**

The screenshot shows the Salesforce 'Apex Triggers' page. The trigger name is 'LaptopBooking'. It is in the 'Active' status, created by 'Vigna Bavana' on 07/01/2025 at 1:18 pm. The 'Apex Trigger' tab is selected, displaying the following code:

```
1 trigger LaptopBooking on Laptop_Bookings__c (After insert,after update) {
2
3
4
5     if(trigger.isAfter && ( trigger.isInsert || trigger.isupdate))
6
7     {
8         LaptopBookingHandler.sendEmailNotification(trigger.new);
9     }
10
11
12
13
14
15 }
```


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:

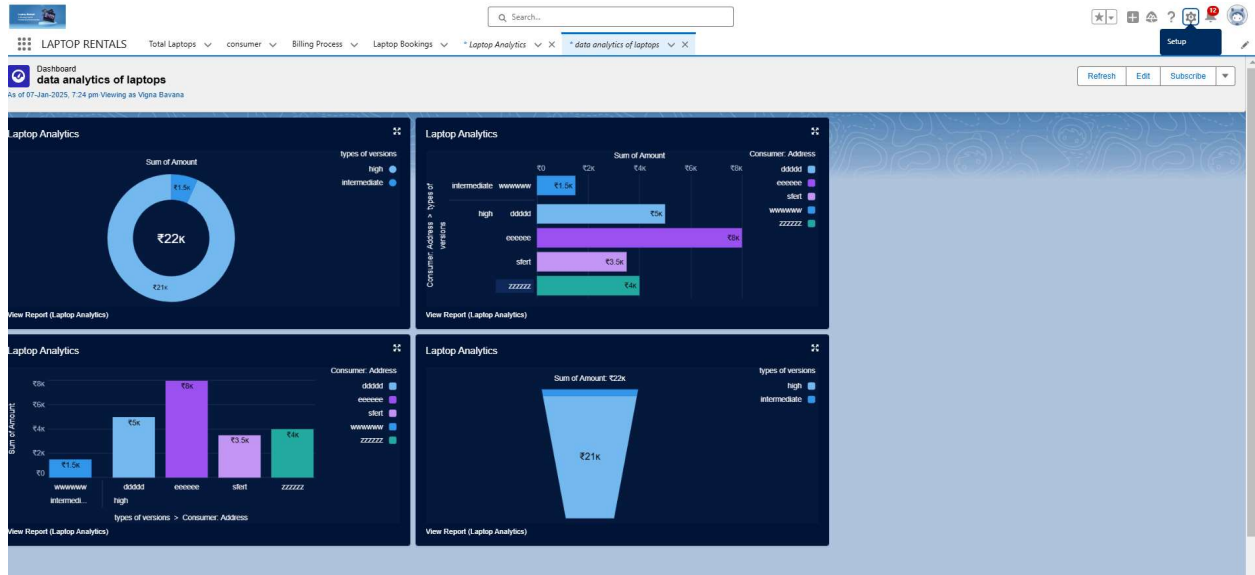
- **Tabular Reports:** Used for simple lists, such as a full list of active laptop bookings or consumer records, giving a quick snapshot of data.
- **Summary Reports:** Offers data with grouped subtotals, such as revenue grouped by laptop type, making it easy to identify high performing categories.

Dashboards:

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

The screenshot shows a Salesforce report interface. At the top, there's a navigation bar with tabs: LAPTOP RENTALS, Total Laptops, consumer, Billing Process, Laptop Bookings, Laptop Analytics (selected), and data analytics of laptops. Below the navigation bar, the report title is 'Report: Total Laptops with Laptop Bookings and consumer'. To the right of the title are buttons: 'Enable Field Editing', a search icon, 'Add Chart', and a dropdown menu. Below the title, there's a summary row: 'Total Records: 5', 'Total Amount: ₹22,000', and 'Total Laptops Available: 245'. The main table has columns: 'types of versions', 'Consumer: Address', 'Consumer: Phone number', 'Total Laptops: Total Laptops', 'Laptop Bookings: Laptop Bookings', 'Consumer: consumer_name', 'Amount', and 'Laptops Available'. The table contains data for various consumer types (intermediate, high) and their respective laptop bookings and amounts. Subtotal rows are provided for each group.

types of versions	Consumer: Address	Consumer: Phone number	Total Laptops: Total Laptops	Laptop Bookings: Laptop Bookings	Consumer: consumer_name	Amount	Laptops Available
intermediate (1)	wwwwww (1)	9797979797 (1)	100	snappdeal	con3	₹1,500	49
		Subtotal				₹1,500	49
		Subtotal				₹1,500	49
		Subtotal				₹1,500	49
high (4)	dsddd (1)	9387957405 (1)	10	flipkart	con6	₹5,000	49
		Subtotal				₹5,000	49
		Subtotal				₹5,000	49
	eeeeee (1)	9595959595 (1)	2	amazon	con4	₹8,000	49
		Subtotal				₹8,000	49
		Subtotal				₹8,000	49
	sfsrt (1)	8458578452 (1)	300	ajio	cons1	₹3,500	49
		Subtotal				₹3,500	49
		Subtotal				₹3,500	49
	zzzzzz (1)	9898989898 (1)	130	mynta	con2	₹4,000	49
		Subtotal				₹4,000	49
		Subtotal				₹4,000	49
		Subtotal				₹20,500	196
Total (5)						₹22,000	245



5. Testing and Validation :

● Unit Testing:

Each Apex class and trigger was thoroughly tested, ensuring at least 75% code coverage. Tests were designed to validate that:

- Booking confirmation emails are sent correctly.
- Inventory statuses update accurately.

● 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:** Check that validation rules enforce required fields like Email__c and Amount__c.

- **Scenario 3:** Test that inventory adjusts automatically when a booking status is changed from "Booked" to "Returned."

Apex Testing class:

Create a Testing class **LaptopBookingTest.apxc**

The screenshot shows the Salesforce 'Apex Classes' page. At the top, there's a 'SETUP' icon and the title 'Apex Classes'. Below this, the 'Apex Class Detail' section shows the class name 'LaptopBookingHandlerTest' and its status 'Active'. The 'Namespace Prefix' is empty, and the 'Last Modified By' is 'Vigna Bavana' on 07/01/2025 at 6:58 pm. The 'Created By' is also 'Vigna Bavana'. Below the details, there are tabs for 'Class Body', 'Class Summary', 'Version Settings', and 'Trace Flags'. The 'Class Body' tab is selected, showing the following Apex code:

```
1 @isTest
2 public class LaptopBookingHandlerTest {
3
4     @isTest
5     static void testLaptopBookingTrigger(){
6
7         Laptop_Bookings__c testBooking = new Laptop_Bookings__c(
8             Consumer__c = 'SnapDeal',
9             Email__c = 'test@example.com',
10            Laptop_Names__c = 'Dell',
11            Total_No_Of_Laptops__c = '10',
12            Name = 'Test User',
13            how_many_months__c = '3'
14        );
15
16        Test.startTest();
17        insert testBooking;
18
19        testBooking.how_many_months__c = '4';
20        update testBooking;
21
22        Test.stopTest();
23        Integer sentEmailCount = Limits.getEmailInvocations();
24        System.assertEquals(1, sentEmailCount, 'One email should have been sent');
25    }
26 }
```

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 provide status updates as the rental progresses. This keeps 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_Booking_Lifecycle:** Manage booking statuses with automation, moving each booking from "Booked" to "In Use" and finally "Returned" without manual intervention.
- **Role-Based_Data_Access:** Define roles and permissions, allowing staff to manage bookings and customers, while customers can only access their rental information.

7. Conclusion:

The Laptop Rentals CRM application demonstrates an effective use of Salesforce to automate and manage key rental business processes. Leveraging custom objects, Apex programming, and flow automation, the project streamlines data management and enhances customer interactions. Key features like email notifications, dynamic pricing, and streamlined booking processes have improved both customer experience and operational efficiency.

Salesforce's reporting and dashboard tools offer valuable insights into rental trends, revenue tracking, and decision-making. With validation rules and role-based access, the solution ensures data security and integrity, supporting sustainable business growth. This project not only meets immediate objectives but also establishes a scalable foundation for future enhancements, positioning Laptop Rentals for long-term success in customer satisfaction and operational efficiency.