

A CRM APPLICATION FOR LAPTOP RENTALS

1. Project Overview

This project involves developing a robust **CRM application** for managing **laptop rentals** on the Salesforce platform. The primary goal is to address operational challenges such as handling rental requests, tracking inventory, and ensuring seamless communication with customers. Leveraging Salesforce's automation, workflow management, and data storage capabilities, this solution aims to achieve the following:

Key Objectives

- **Optimizing Rental Operations:** Automate booking and return workflows to minimize manual effort and reduce processing time.
- **Enhancing Customer Engagement:** Send timely email notifications for booking confirmations and return reminders to maintain smooth communication.
- **Ensuring Data Accuracy and Insights:** Provide real-time visibility into inventory and rental statuses to enable faster, well-informed decisions.

This CRM application empowers the **Laptop Rentals team** with a centralized and efficient way to manage rental operations. It ensures high-quality service delivery while maximizing resource management and operational efficiency.

2. Objectives

Business Goals

- **Automate rental and return processes**
Minimize manual intervention by streamlining laptop rental operations.
- **Enhance customer relationship management**
Improve service quality and strengthen relationships with rental customers.
- **Ensure accurate tracking and reporting**
Maintain precise inventory data and generate reliable reports for better decision-making.

Specific Outcomes

- **Custom Salesforce CRM Application**

Develop a tailored CRM solution with a user-friendly interface for viewing, managing, and tracking rentals.

- **Automated Workflows and Notifications**

Implement automated processes to handle rental requests, status updates, and email alerts efficiently.

- **Reports and Dashboards**

Provide real-time insights into inventory, rentals, and customer activity through dynamic reports and dashboards.

3. Salesforce Key Features and Concepts Utilized

This section highlights the essential Salesforce functionalities and tools integrated into the CRM application for Laptop Rentals.

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

- **After Insert Trigger (LaptopBooking):** Developed to automatically send email notifications upon booking. The `LaptopBookingHandler` class formats and dispatches these emails, personalizing them with customer details.

Process Builder and Flows

- **Lifecycle Management:** Implemented a Process Builder flow to automate the lifecycle of each booking, managing status changes (e.g., from "Booked" to "In Use" to "Returned") without manual intervention.

Validation Rules

- **Data Quality Assurance:** Established validation rules to maintain data integrity, requiring essential fields (e.g., `Email__c` for customer contact and `Amount__c` for booking costs) to be filled before allowing record saving, thus preventing incomplete entries.

Reports and Dashboards

- **Strategic Insights:** Developed dashboards with reports on key metrics, including:
 - Current inventory levels
 - Total rentals over time
 - Top laptop models in demand
 - Customer demographics

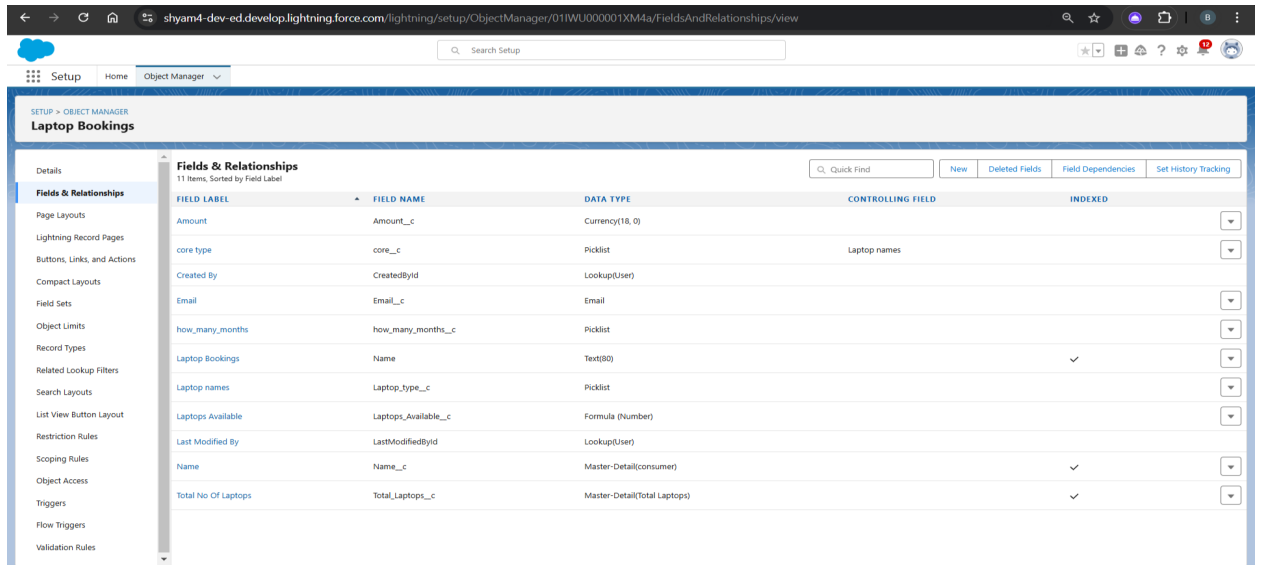
These reports are accessible to management for informed strategic planning and resource allocation.

4. Detailed Steps to Solution Design

The solution was meticulously crafted through several stages, focusing on data models, user interface design, and business logic implementation. Here's an overview of the process:

1. Data Model Design

- **Creation of Custom Objects**
Developed two custom objects: `Laptop_Bookings__c` and `Laptops__c` to manage rental data effectively.
- **Establishing Relationships**
Defined relationships between `Laptop_Bookings__c` and standard Salesforce objects (such as `Account` and `Contact`) to associate customers with their respective bookings.
- **Field Configuration**
Introduced additional fields, including `Email__c`, `Amount__c`, `Cores__c`, and `Laptop_Type__c`, to capture booking-specific information. This configuration enhances data integrity and supports comprehensive reporting by linking `Laptop_Bookings__c` with other standard and custom objects (e.g., `Account`, `Contact`).
- **Screenshot: Overview of Fields in the Laptop Bookings Object**

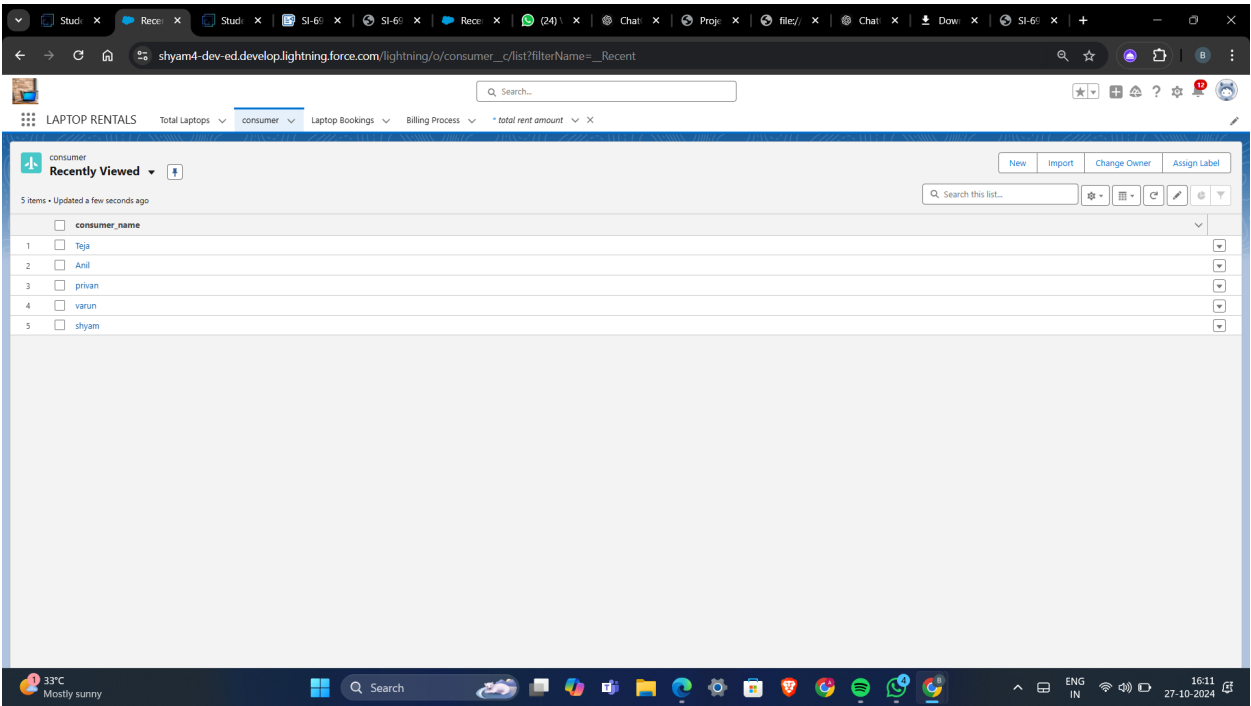
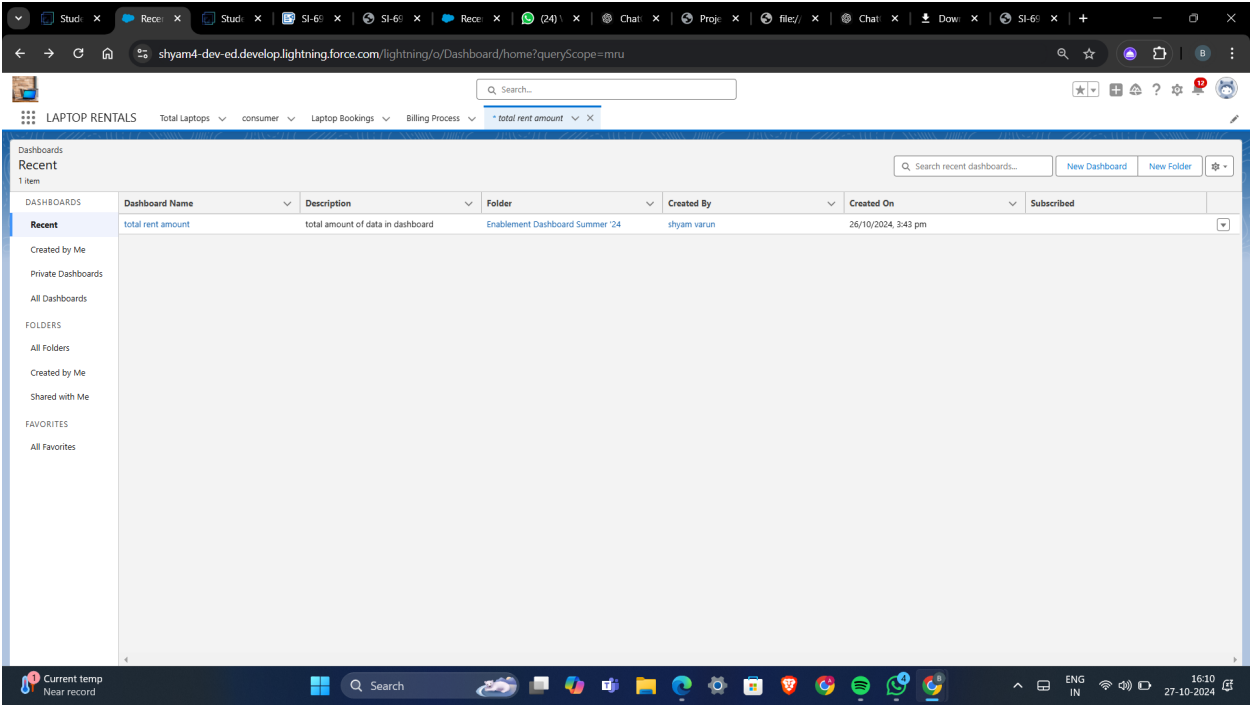


User Interface (UI) Design

The custom Lightning app, "**Laptop Rentals**," is designed for intuitive navigation, featuring tabs for key components like bookings, reports, and dashboards.

- **Page Layout Configuration**
Set up page layouts for **Laptop_Bookings__c** and **Laptops__c**, incorporating relevant fields, sections, and related lists to facilitate easy access to information.
- **Dashboard Design**
Created dashboards that provide quick visual insights into active rentals, laptop availability, and top-performing models.
- **Enhanced Lightning Components**
Integrated custom Lightning components to enrich specific sections, such as displaying a chart of the most rented laptop models for enhanced user experience.

Screenshot: Key Navigation Items for the Laptop Rentals Application



shyam4-dev-ed.develop.lightning.force.com/lightning/o/Laptop_Bookings__c/list?filterName=__Recent

LAPTOP RENTALS

Laptop Bookings

Recently Viewed

9 items • Updated a few seconds ago

Search this list...

| | <input type="checkbox"/> Laptop Bookings | |
|---|--|--|
| 1 | <input type="checkbox"/> triangle | |
| 2 | <input type="checkbox"/> frank | |
| 3 | <input type="checkbox"/> user | |
| 4 | <input type="checkbox"/> google | |
| 5 | <input type="checkbox"/> amazon | |
| 6 | <input type="checkbox"/> figma | |
| 7 | <input type="checkbox"/> smart internz | |
| 8 | <input type="checkbox"/> netflix | |
| 9 | <input type="checkbox"/> macbook | |

shyam4-dev-ed.develop.lightning.force.com/lightning/o/Total_Laptops__c/list?filterName=__Recent

LAPTOP RENTALS

Total Laptops

Recently Viewed

5 items • Updated a few seconds ago

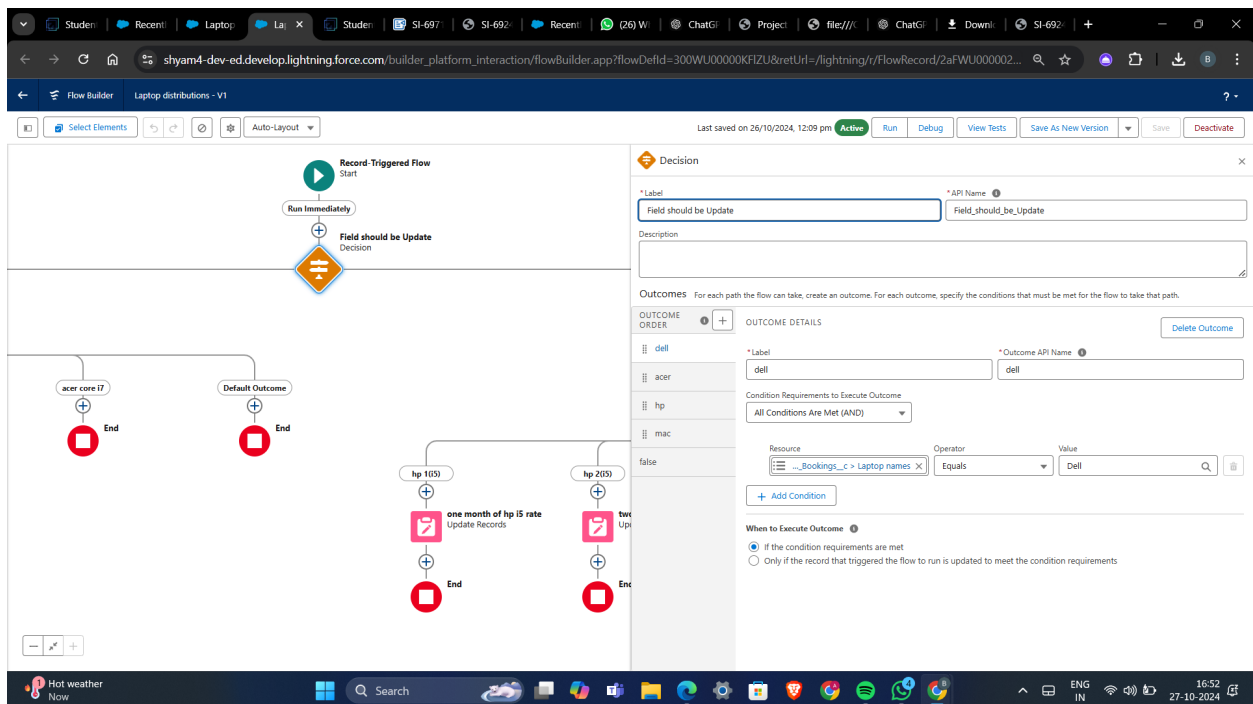
Search this list...

| | <input type="checkbox"/> Total Laptops | |
|---|--|--|
| 1 | <input type="checkbox"/> 1 | |
| 2 | <input type="checkbox"/> 3 | |
| 3 | <input type="checkbox"/> 2 | |
| 4 | <input type="checkbox"/> 4 | |
| 5 | <input type="checkbox"/> 5 | |

Business Logic Design:

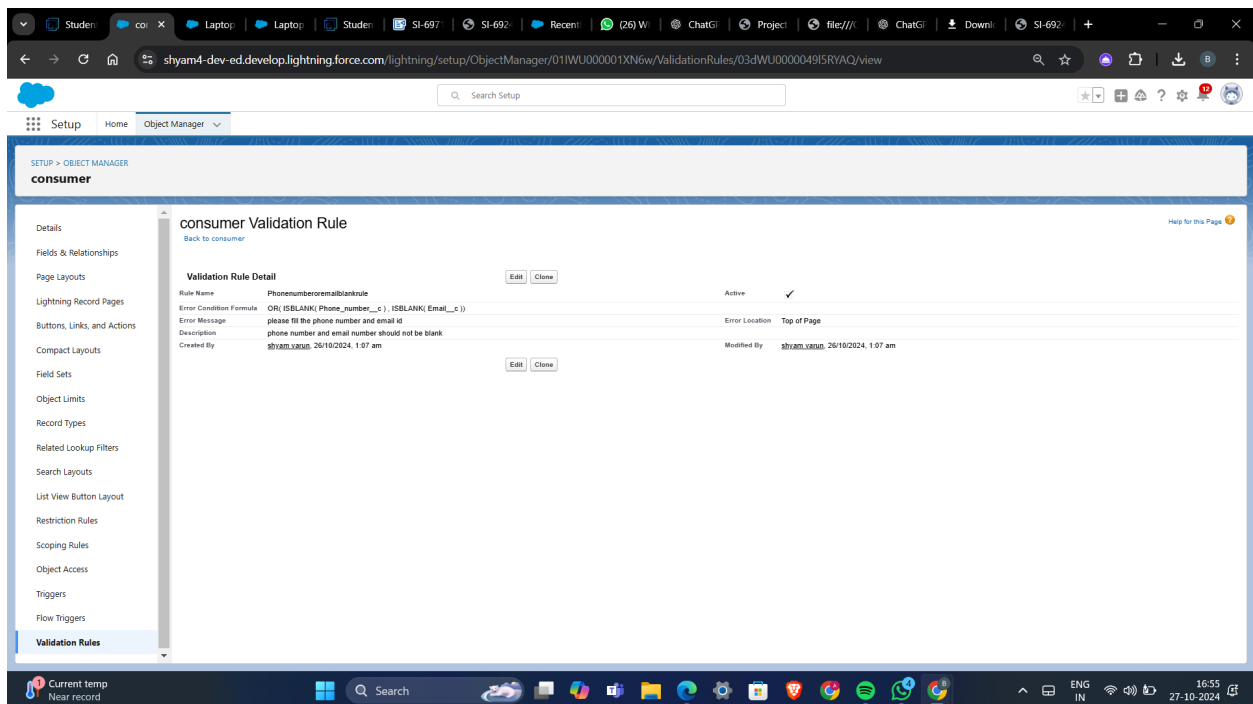
- **LaptopBookingHandler Class:** Implemented the `LaptopBookingHandler` class to manage the process of sending email notifications through the `Messaging.SingleEmailMessage` class.
- **AfterInsert Trigger:** Established an `AfterInsert` trigger on the `Laptop_Bookings__c` object to invoke the `sendEmailNotification` method, ensuring that customers receive a welcome and confirmation email immediately following their booking.

Screenshot : FlowAutomation





Screenshot : Validation rules



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

The screenshot shows the Salesforce Lightning Setup interface. The left sidebar contains a navigation menu with categories like Email, Custom Code, Environments, and Jobs. The main content area is titled 'Apex Classes' and displays details for the 'LaptopBookingHandler' class. The class is created by 'shyam.varun' on 26/10/2024 at 1:54 pm. The class body is visible, showing a public class definition with a static void method 'sendEmailNotification' that iterates over a list of bookings and sends email messages. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 17:01 on 27-10-2024.

Apex Class Detail

| Name | Status |
|----------------------|--------|
| LaptopBookingHandler | Active |

Code Coverage: 0% (0/19)
Last Modified By: shyam.varun, 26/10/2024, 2:36 pm

Class Body

```
1 public class LaptopBookingHandler {
2
3     public static void sendEmailNotification(List<Laptop_Bookings__c> lapList) {
4         if(lapList == null || lapList.isEmpty()) {
5             return; // Exit if the list is null or empty
6         }
7
8         List<Messaging.SingleEmailMessage> emailsToSend = new List<Messaging.SingleEmailMessage>();
9
10        for (Laptop_Bookings__c lap : lapList) {
11            if (String.isNotBlank(lap.Email__c)) { // Check for a valid email address
12                Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
13                email.setToAddresses(new List<String>{lap.Email__c});
14                email.setSubject('Welcome to our company');
15
16                // Ensure these fields exist and replace with correct names if necessary
17                String amount = lap.Amount__c != null ? String.valueOf(lap.Amount__c) : 'NA';
18                String coreType = lap.Core_Type__c != null ? lap.Core_Type__c : 'NA';
19                String laptopType = lap.Laptop_Type__c != null ? lap.Laptop_Type__c : 'NA';
20
21                String body = String.format(
22                    'Dear {0},',
23                    'Welcome to Laptop Rentals! You are a valued customer to us so we\'re',
24                    'Please continue your journey with us as we strive to provide you with quality resources so +',
25                    'Laptop Amount: {1} or +',
26                    'Core Type: {2} or +',
27                    'Laptop Type: {3} or +',
28                    'new List<String>{lap.Name, amount, coreType, laptopType}
29                );
30
31                email.setHtmlBody(body);
32                emailsToSend.add(email);
33            }
34        }
35
36        // Send all emails in one call to avoid governor limits
37        if (emailsToSend.isEmpty()) {
38            Messaging.sendEmail(emailsToSend);
39        }
40    }
41 }
```

Creating apex trigger: LaptopBooking trigger ,

The screenshot shows the Salesforce Lightning Setup interface for the Apex Trigger 'LaptopBooking'. The left sidebar is the same as the previous screenshot. The main content area is titled 'Apex Triggers' and displays details for the 'LaptopBooking' trigger. The trigger is created by 'shyam.varun' on 26/10/2024 at 1:59 pm. The trigger body is visible, showing a trigger definition that fires after insert or update on the 'Laptop_Bookings__c' object and calls the 'sendEmailNotification' method of the 'LaptopBookingHandler' class. The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 17:01 on 27-10-2024.

Apex Trigger Detail

| Name | sObject Type |
|---------------|-----------------|
| LaptopBooking | Laptop Bookings |

Code Coverage: 0% (0/2)
Created By: shyam.varun, 26/10/2024, 1:59 pm
Last Modified By: shyam.varun, 26/10/2024, 2:38 pm

Apex Trigger

```
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
9         LaptopBookingHandler.sendEmailNotification(trigger.new);
10    }
11
12
13
14
15 }
```

Reports and Dashboards:

shyam4-dev-ed.develop.lightning.force.com/lightning/r/Report/00OWU000006nJMD2A2/view?queryScope=userFolders

LAPTOP RENTALS

Total Laptops consumer Laptop Bookings Billing Process Laptop distributions | Flow laptop_report total rent amount

Report: consumer with Laptop Bookings and Total Laptops

laptop_report

Enable Field Editing

Search

Add Chart

Filter

Copy

Edit

Total Records10

Total Amount₹27,400

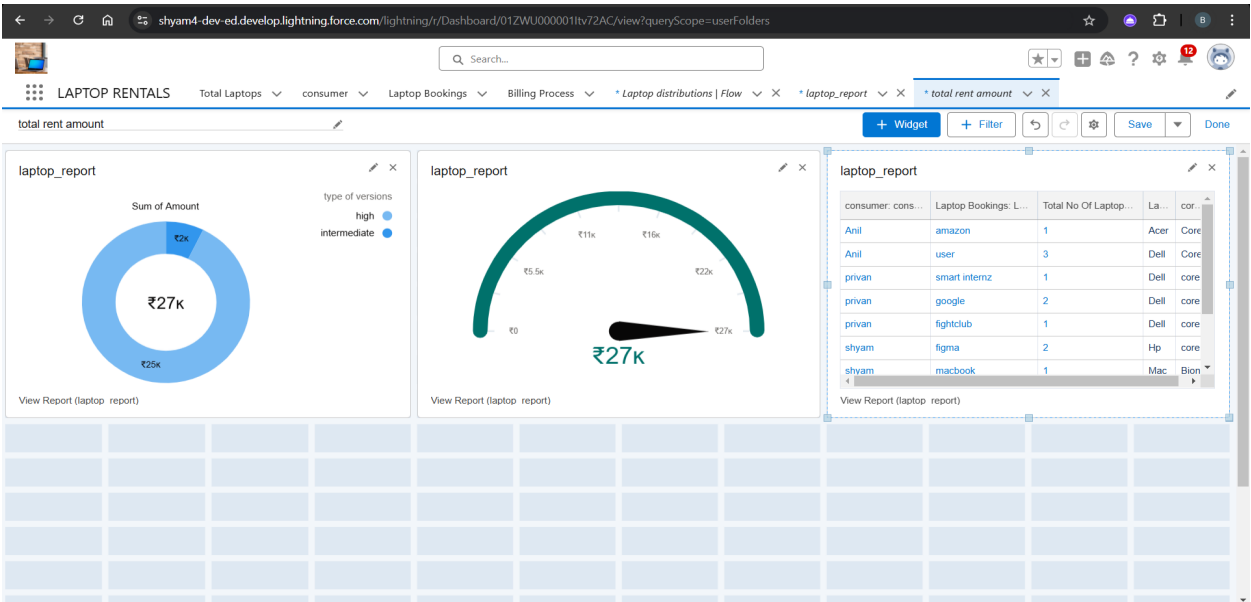
| type of versions | consumer: consumer_name | Laptop Bookings: Laptop Bookings | Total No Of Laptops: Total Laptops | Laptop names | core type | Amount |
|------------------|-------------------------|----------------------------------|------------------------------------|--------------|-------------|---------|
| intermediate (2) | privan | smart internz | 1 | Dell | core i3 | ₹1,000 |
| | privan | fightclub | 1 | Dell | core i3 | ₹1,000 |
| Subtotal | | | | | | ₹2,000 |
| high (8) | Teja | netflix | 4 | Acer | Core i5 | ₹2,000 |
| | Anil | amazon | 1 | Acer | Core i5 | ₹5,100 |
| | shyam | figma | 2 | Hp | core i3 | ₹3,400 |
| | shyam | macbook | 1 | Mac | Bionic chip | ₹1,700 |
| | privan | google | 2 | Dell | core i3 | ₹2,000 |
| | Anil | user | 3 | Dell | Core i7 | ₹6,000 |
| | Teja | frank | 3 | Hp | Core i5 | ₹3,400 |
| | varun | triangle | 1 | Acer | core i3 | ₹1,800 |
| Subtotal | | | | | | ₹25,400 |
| Total (10) | | | | | | ₹27,400 |

Row Counts

Detail Rows

Subtotals

Grand Total



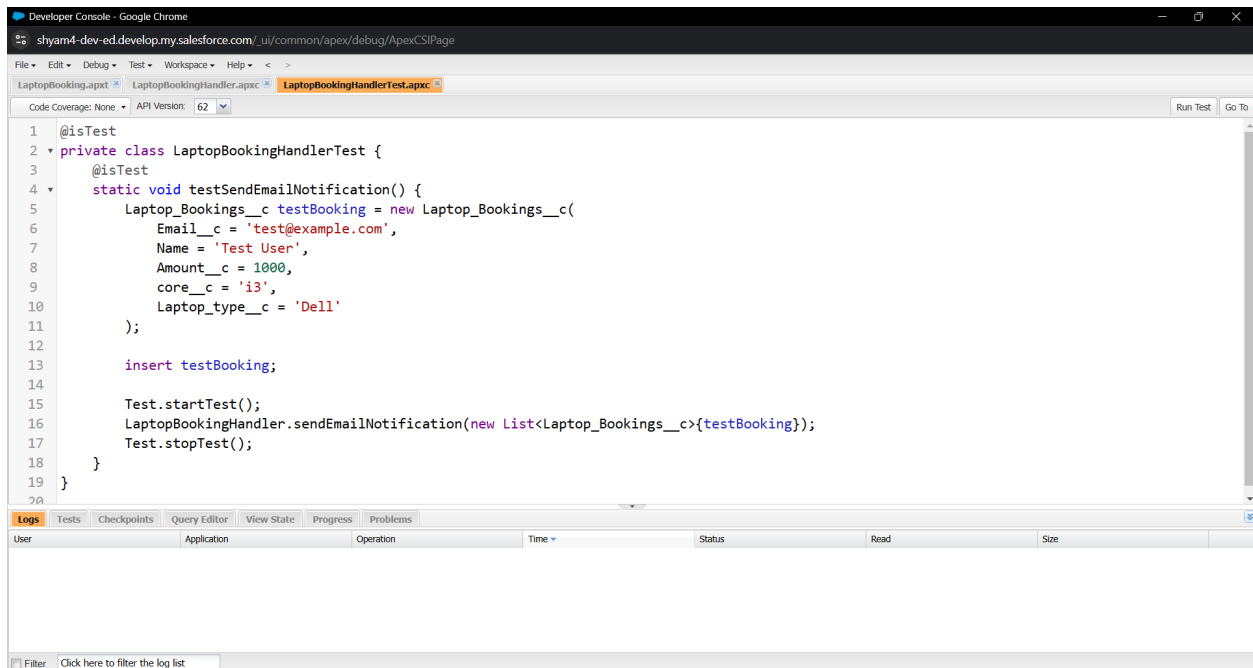
5. Testing and Validation

Testing Approaches:

- **Unit Testing:**
 - All **Apex classes and triggers** were rigorously tested, ensuring at least **75% code coverage** to comply with Salesforce standards.
 - Unit tests verified:
 - **Booking confirmation emails** are triggered correctly upon new bookings.
 - **Inventory statuses** update automatically based on the booking lifecycle.
- **User Interface (UI) Testing:**
 - Confirmed that **UI elements render correctly** on page layouts.
 - Verified that all **required fields and related lists** are accessible as per design.
 - Ensured users only have access to fields and records **permitted by their profile settings**.

Test Scenarios:

1. **Scenario 1: New Booking Creation**
 - **Action:** Create a new booking record.
 - **Validation:** Ensure that a **confirmation email** is sent with the correct booking details (e.g., laptop type, amount).
2. **Scenario 2: Inventory Adjustment on Booking Status Change**
 - **Action:** Change the booking status from "**Booked**" to "**Returned**."
 - **Validation:** Verify that the **inventory count updates** in real-time to reflect the returned laptop's availability.
3. **Scenario 3: Validation Rule Enforcement**
 - **Action:** Attempt to save a booking record **without providing mandatory fields** such as **Email__c** or **Amount__c**.
 - **Validation:** Confirm that the **validation rules prevent the record from being saved**, ensuring data integrity.



6. Key Scenarios Addressed by Salesforce in the Implementation Project

This section highlights the key scenarios addressed by the Salesforce-based Laptop Rental Management System, ensuring smooth operations and enhanced customer experiences.

1. Automated Booking Process

- **Scenario:** Users need a quick and seamless way to book laptops without manual intervention.
- **Salesforce Solution:**
 - Custom objects manage laptop bookings, capturing essential rental details.
 - **Record-triggered flows** automate booking confirmations, ensuring users receive immediate responses. This eliminates manual follow-ups and enhances efficiency.

2. Email Notifications

- **Scenario:** Customers expect timely updates about their bookings and other rental-related communications.
- **Salesforce Solution:**
 - **Apex triggers** automatically send email notifications when a booking is made, ensuring customers stay informed.

- These emails contain booking details, such as the laptop type, rental amount, and terms, improving customer engagement.

3. Dynamic Pricing Calculation

- **Scenario:** Rental prices vary based on laptop models, specifications, and rental duration.
- **Salesforce Solution:**
 - **Apex classes and triggers** compute rental amounts dynamically based on factors like core type and rental length.
 - This ensures customers are billed accurately and transparently, promoting trust and avoiding pricing errors.

4. Inventory Management

- **Scenario:** Proper tracking of laptop availability is critical to avoid overbookings and manage stock efficiently.
- **Salesforce Solution:**
 - Custom fields monitor stock levels in real-time, ensuring only available laptops can be booked.
 - **Validation rules** and **flows** prevent double bookings, triggering alerts if inventory reaches critical levels.

5. Validation of Data Integrity

- **Scenario:** Ensuring users enter valid and complete data (like emails and phone numbers) is crucial for effective communication and record management.
- **Salesforce Solution:**
 - **Validation rules** enforce data accuracy, ensuring that required fields like Email__c and Phone__c are correctly filled before saving.
 - This helps maintain high data quality, reduces errors, and improves communication with customers.

These scenarios demonstrate how Salesforce automates and enhances key processes in the laptoprental business. From booking automation to dynamic pricing and inventory management, the system ensures operational efficiency and delivers a seamless user experience.

7. Conclusion

The **Laptop Rentals CRM application** showcases the effective use of Salesforce's capabilities to manage and automate key processes within a rental business. By utilizing **custom objects**, **Apex programming**, and **flow automation**, the system ensures seamless data management and optimizes customer interactions. Essential features, such as **automated email notifications**, **dynamic pricing based on configurations**, and **streamlined booking processes**, have greatly

improved both **customer experience** and **operational efficiency**.

Salesforce's **reporting and dashboard tools** provide valuable insights by tracking rental trends, monitoring revenue, and supporting **data-driven decision-making**. In addition, **validation rules** and **role-based access control** ensure the integrity and security of customer data, promoting trust and accountability. These capabilities create a reliable framework for **business scalability and growth**.

Beyond meeting immediate needs, this solution lays the groundwork for future enhancements, making it adaptable to **changing business requirements**. The **integration of Salesforce features** demonstrates how the platform can be customized to address specific business scenarios, offering both **functional** and **strategic value**.

Through this project, the **Laptop Rentals team** now has a **powerful tool** to efficiently manage inventory, enhance customer satisfaction, and streamline operations. The system not only supports the current objectives but also establishes a **scalable infrastructure** for sustained growth and improved customer relationships, positioning the business for long-term success.