

# A CRM APPLICATION FOR LAPTOP RENTALS

## 1.PROJECT OVERVIEW

The Laptop Rental CRM Solution is a comprehensive platform designed to optimize the laptop rental experience by centralizing all aspects of customer and inventory management. It enables staff to track each step of the rental journey, from initial inquiries to returns, ensuring streamlined and timely service. By consolidating customer profiles and maintaining detailed records, the CRM allows for personalized customer interactions, leading to quicker responses and higher satisfaction. Inventory monitoring provides a real-time view of stock availability, helping prevent overbooking or shortages, while the automated email system keeps customers engaged with rental reminders, special offers, and feedback requests. Data reporting tools generate analytics that offer valuable insights into rental patterns and business performance, helping guide future decisions.

Key features include:

- Centralized customer information and history tracking
- Real-time inventory monitoring and management
- Automated email outreach for reminders, offers, and feedback
- Data reporting for insight into trends and performance

## 2.OBJECTIVES

### Primary Aims:

Streamline laptop rental operations with minimal manual intervention.  
Improve customer relationship management and rental service quality.  
Ensure accurate inventory tracking and reporting.

### Deliverables Overview:

Custom Salesforce CRM app with intuitive rental management features.

Automated workflows for managing rentals, updates, and email alerts.  
Reports and dashboards providing real-time inventory and rental insights.

### **Essential Functionalities:**

Seamless Booking: Flows for laptop/processor selection and validation.  
Automated Billing: Generates billing based on device type and rental period.  
Live Inventory Management: Tracks laptop status with custom fields.  
User Access Control: Role-specific profiles and secure access.  
Optimized UI: "Laptop Rentals" app with tabs for easy navigation.

## **3.SALES FORCE KEY FEATURES AND CONCEPTSE UTILIZED**

### **1.Booking Management Customization**

Created the Laptop\_Bookings\_c object with custom fields like  
Total\_Amountc and Core\_Type\_c to capture booking details and pricing.

### **2.Data Accuracy and Role-Based Permissions**

Enforced data validation rules and defined role-based access controls to  
maintain data standards and restrict access based on user roles.

### **3.Automated Workflow and Triggers**

Used Record-Triggered Flows for updating records and fees based on input.  
Apex triggers send confirmation emails and handle booking actions via the  
LaptopBookingHandler class.

### **4.Customer Notifications**

Configured Apex to send booking confirmation emails with details like  
laptop specifications and rental costs.

### **5.Dashboards and Reporting**

Developed dashboards and reports to visualize bookings, revenue, and  
usage trends, aiding inventory and strategy decisions.

## **6.User-Friendly Lightning App**

Built the "Laptop Rentals" Lightning app with organized tabs for booking management and reports, optimizing the user experience in Salesforce Lightning.

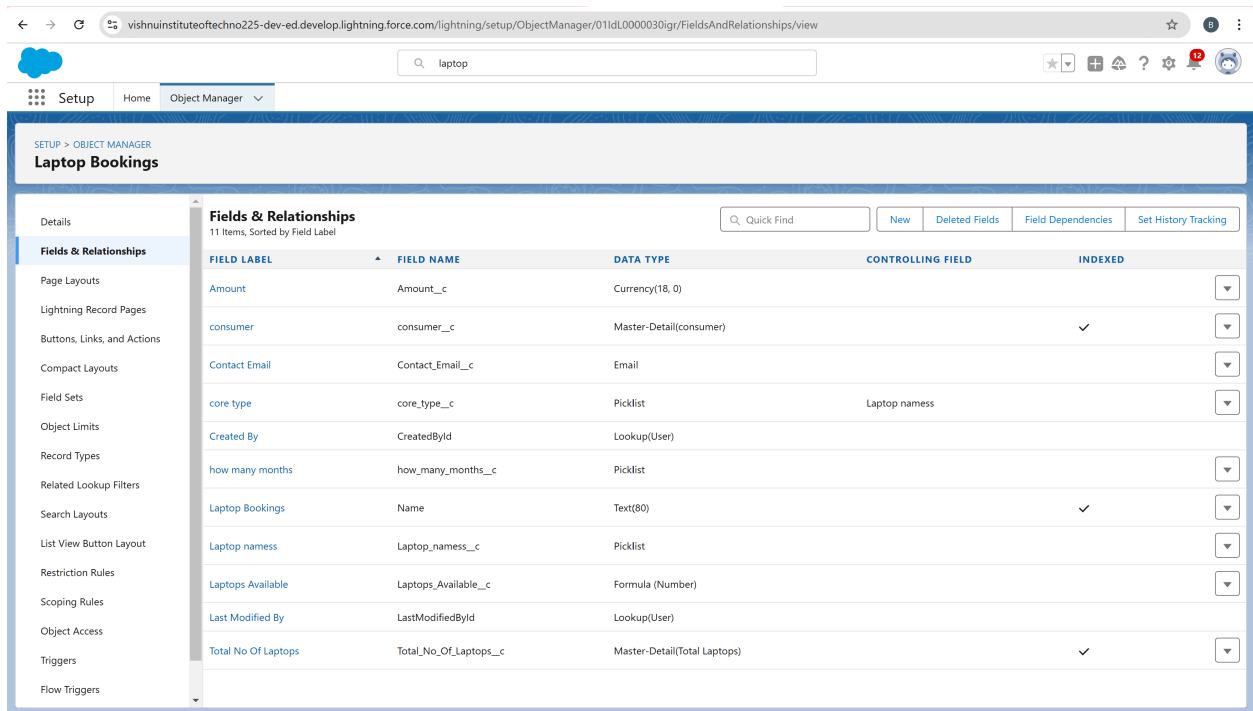
## **4.STEP-BY-STEP SOLUTION DESIGN**

The solution was thoughtfully developed through a series of steps, focusing on data modeling, user interface, and business logic. Here's a summary of the approach:

### **1. Data Models**

- Database Structure & Object Customization
- Developed Laptop\_Bookings\_c and Laptops\_c objects for centralizing rental data.
- Configured connections between Laptop\_Bookings\_\_c and standard Salesforce entities like Account and Contact for linking customer records.
- Included key fields such as Email\_c, Amountc, Coresc, and Laptop\_Type\_c to capture specific booking information.
- Built relationships across custom and standard objects to ensure seamless data flow and insightful reporting options.

Screenshot: Fields included in laptop bookings object are :



Setup > OBJECT MANAGER

**Laptop Bookings**

Details

**Fields & Relationships**

11 Items, Sorted by Field Label

Quick Find New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(18, 0)		
consumer	consumer__c	Master-Detail(consumer)		✓
Contact Email	Contact_Email__c	Email		
core type	core_type__c	Picklist	Laptop name__c	
Created By	CreatedBy	Lookup(User)		
how many months	how_many_months__c	Picklist		
Laptop Bookings	Name	Text(80)		✓
Laptop name__c	Laptop_name__c	Picklist		
Laptops Available	Laptops_Available__c	Formula (Number)		
Last Modified By	LastModifiedBy	Lookup(User)		
Total No Of Laptops	Total_No_Of_Laptops__c	Master-Detail(Total Laptops)		✓

## 2.User Interface Structure

- The "Laptop Rentals" custom Lightning app is designed for easy navigation, featuring tabs for Bookings, Reports, and Dashboards to streamline user access.
- Page Layouts for Laptop\_Bookings\_c and Laptops\_c display organized sections and fields, offering users a clear view of relevant information.
- Visual Dashboards are set up to provide quick snapshots of rentals in progress, inventory levels, and high-demand laptop models.
- Custom Lightning components can be utilized to enhance specific sections, such as adding a chart for the most frequently booked laptops.

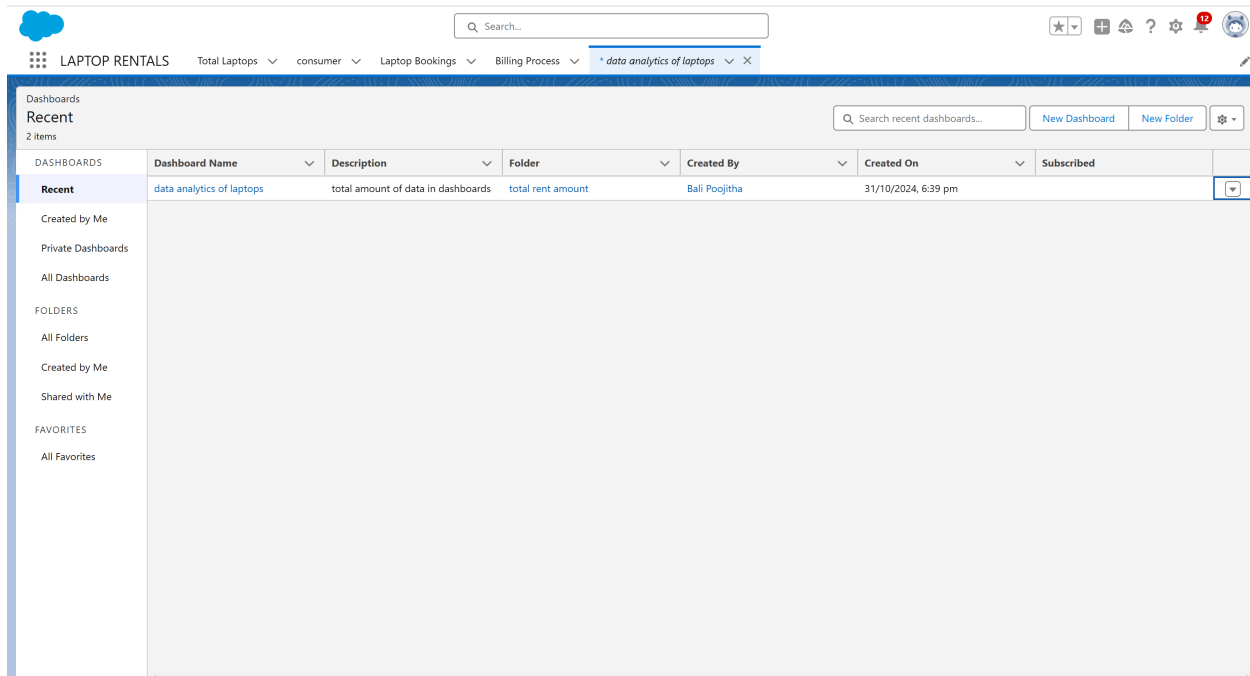
## Screenshot:Records along with navigation items

The screenshot shows the 'Laptop Rentals' application interface. The top navigation bar includes a search bar and several icons. The main menu on the left has 'LAPTOP RENTALS' selected, with sub-items 'Total Laptops', 'consumer', 'Laptop Bookings', and 'Billing Process'. The 'Laptop Bookings' sub-item is active. The main content area displays a table of 12 laptop bookings. The table has columns for a checkbox, a sequence number, the booking name, and a dropdown menu. The bookings are listed as follows:

	<input type="checkbox"/>	Laptop Bookings	
1	<input type="checkbox"/>	acer1	
2	<input type="checkbox"/>	acer	
3	<input type="checkbox"/>	hp booking3	
4	<input type="checkbox"/>	mac booking	
5	<input type="checkbox"/>	dell booking6	
6	<input type="checkbox"/>	hp booking	
7	<input type="checkbox"/>	acer booking	
8	<input type="checkbox"/>	dell booking 5	
9	<input type="checkbox"/>	dell booking 4	
10	<input type="checkbox"/>	dellbooking 3	
11	<input type="checkbox"/>	dellbooking 2	
12	<input type="checkbox"/>	dellbooking1	

The screenshot shows the 'Laptop Rentals' application interface with the 'consumer' sub-item selected in the main menu. The main content area displays a table of 12 consumers. The table has columns for a checkbox, a sequence number, the consumer name, and a dropdown menu. The consumers are listed as follows:

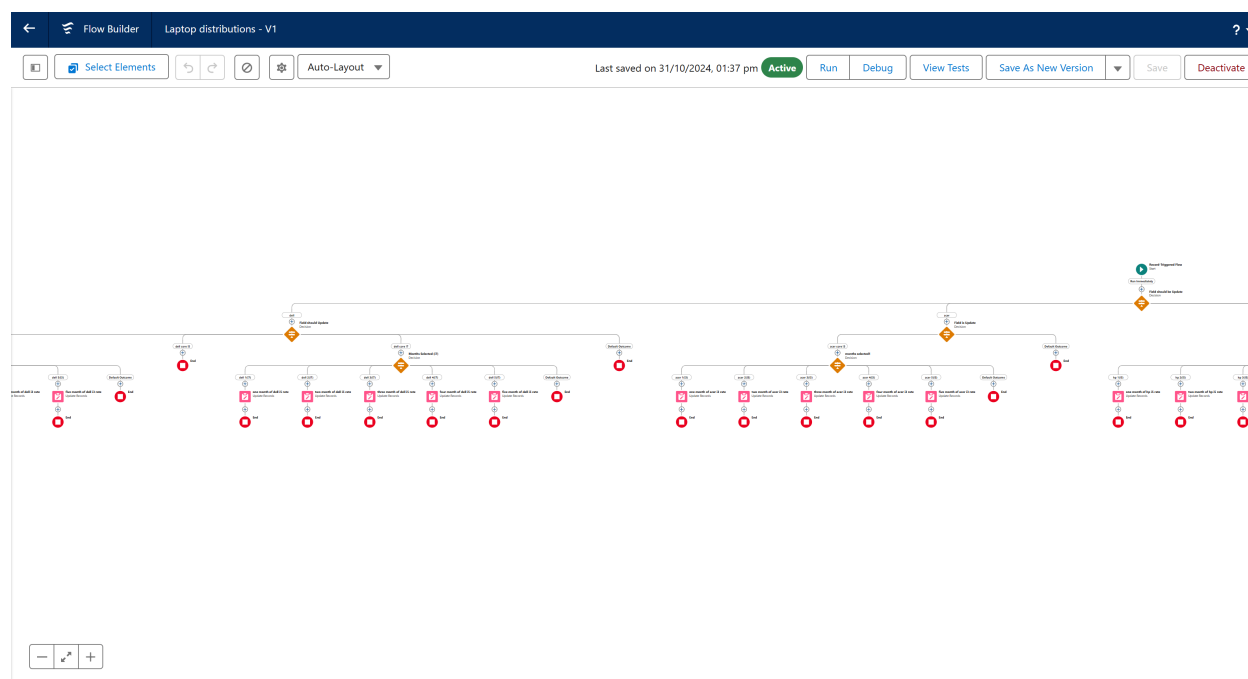
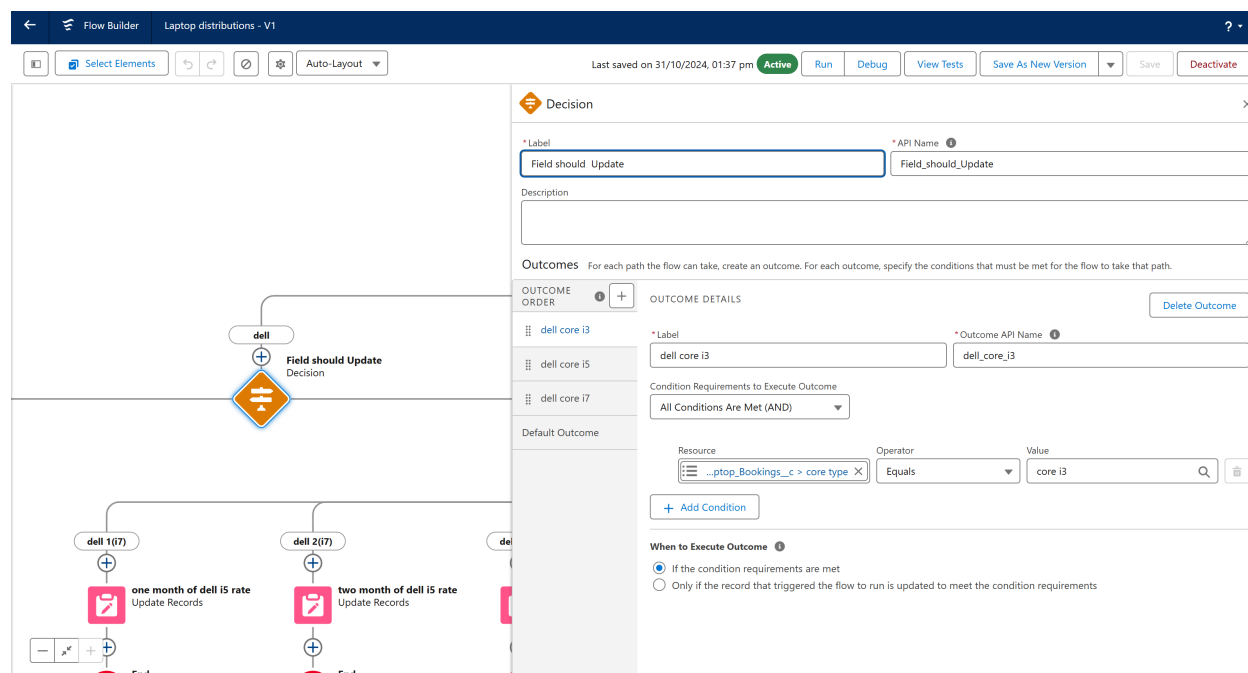
	<input type="checkbox"/>	consumer_name	
1	<input type="checkbox"/>	chinnu	
2	<input type="checkbox"/>	buddy	
3	<input type="checkbox"/>	sahasra	
4	<input type="checkbox"/>	manvitha	
5	<input type="checkbox"/>	sai	
6	<input type="checkbox"/>	anjali	
7	<input type="checkbox"/>	aditi	
8	<input type="checkbox"/>	maheswari	
9	<input type="checkbox"/>	anvi	
10	<input type="checkbox"/>	jhansi	
11	<input type="checkbox"/>	gayatri	
12	<input type="checkbox"/>	Poojitha	



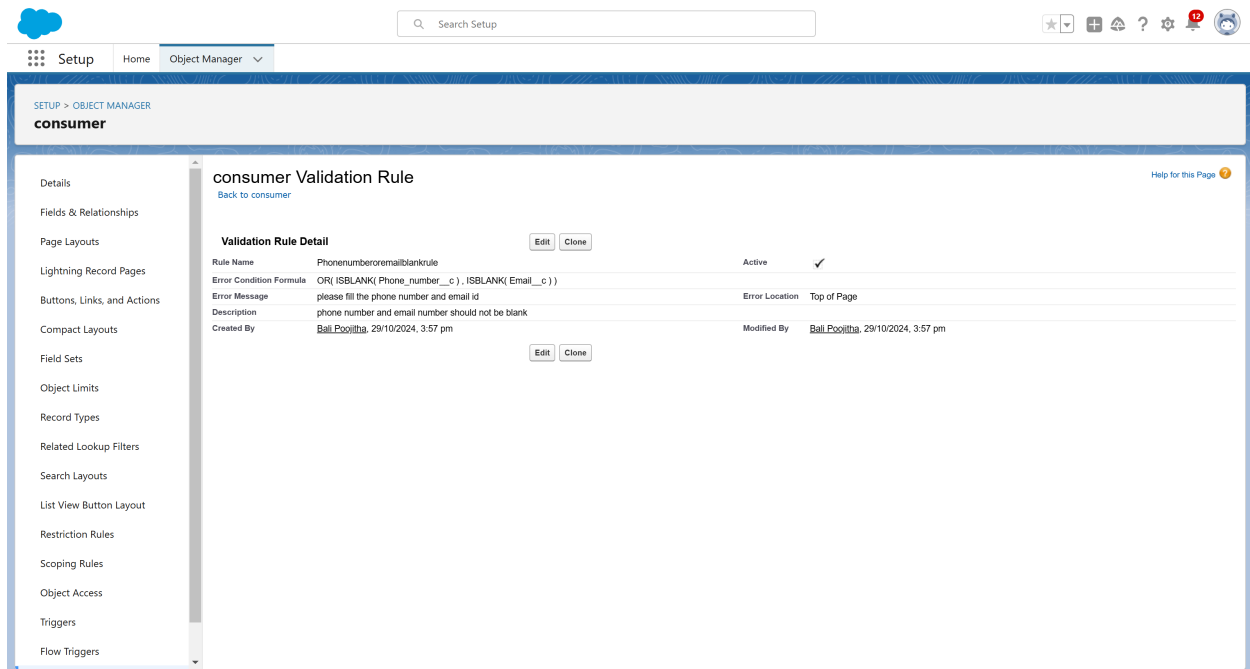
### 3.Business Logic Design

The business logic integrates validation rules, flows, Apex triggers, and handler classes to ensure efficient and reliable operations. Validation rules maintain data integrity by enforcing requirements, like proper email formatting and a minimum rental duration. Record-Triggered Flows automate core tasks such as calculating the total rental cost based on laptop specifications, including type and processor selection. Apex triggers, paired with handler classes, handle advanced actions like sending automated booking confirmation emails and adjusting rental amounts if key fields are modified.

Specifically, the LaptopBookingHandler class was developed to manage email notifications through Messaging.SingleEmailMessage. An AfterInsert trigger on Laptop\_Bookings\_\_c initiates the sendEmailNotification method, ensuring customers promptly receive welcome and confirmation emails upon booking completion.



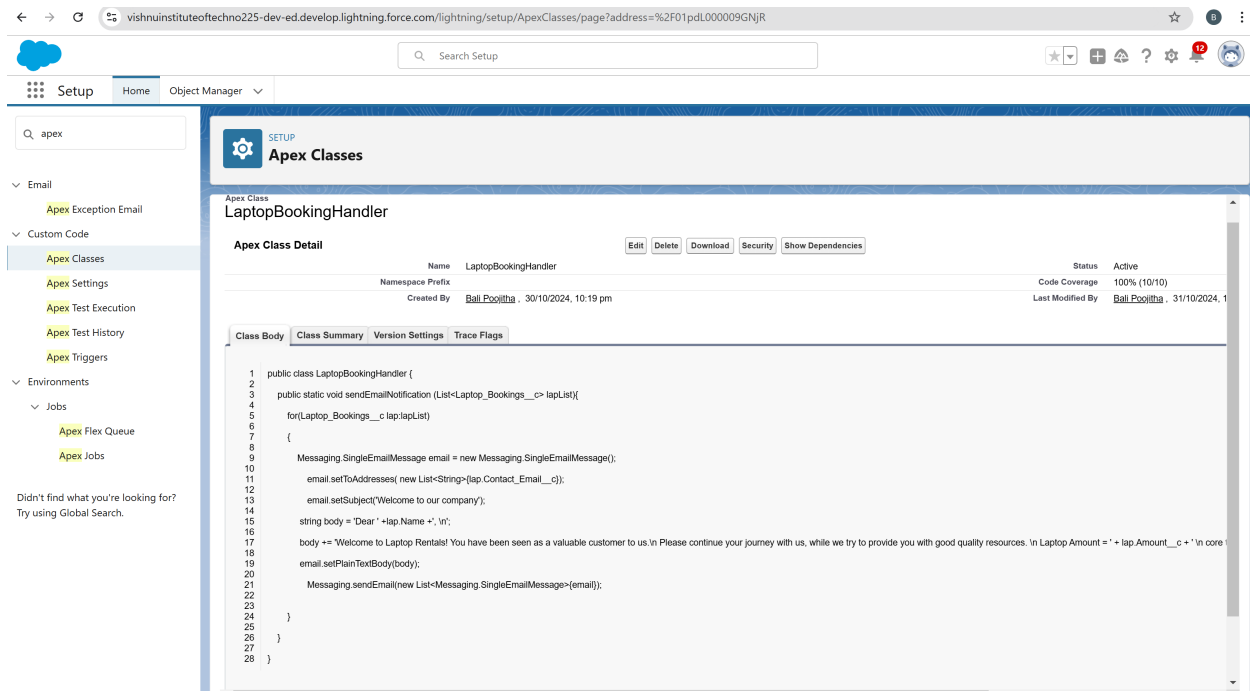
# Validation rules:



The screenshot shows the Salesforce Setup interface, specifically the 'Object Manager' section for the 'consumer' object. The left sidebar lists various setup options, with 'Validation Rules' selected. The main content area displays the 'consumer Validation Rule' details. The rule is named 'Phonenumberoremailblankrule' and is active. The error condition formula is 'OR( ISBLANK( Phone\_number\_\_c ) , ISBLANK( Email\_\_c ) )'. The error message is 'please fill the phone number and email id' and the error location is 'Top of Page'. The rule was created by 'Bali Poolitha' on 29/10/2024 at 3:57 pm.

Validation Rule Detail	
Rule Name	Phonenumberoremailblankrule
Error Condition Formula	OR( ISBLANK( Phone_number__c ) , ISBLANK( Email__c ) )
Error Message	please fill the phone number and email id
Description	phone number and email number should not be blank
Created By	Bali Poolitha, 29/10/2024, 3:57 pm

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



The screenshot shows the Salesforce Setup interface, specifically the 'Apex Classes' section. The left sidebar lists various setup options, with 'Apex Classes' selected. The main content area displays the 'LaptopBookingHandler' Apex Class details. The class is named 'LaptopBookingHandler' and is active. The class body is shown in a code editor.

```
1 public class LaptopBookingHandler {
2
3     public static void sendEmailNotification (List<Laptop_Bookings__c> lapList){
4         for(Laptop_Bookings__c lap:lapList)
5         {
6
7             Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
8
9             email.setToAddresses( new List<String>({lap.Contact_Email__c});
10
11             email.setSubject('Welcome to our company');
12
13             string body = 'Dear ' +lap.Name + ', \n';
14
15             body += 'Welcome to Laptop Rentals! You have been seen as a valuable customer to us.\n Please continue your journey with us, while we try to provide you with good quality resources. \n Laptop Amount = ' + lap.Amount__c + ' \n core
16
17             email.setPlainTextBody(body);
18
19             Messaging.sendEmail(new List<Messaging.SingleEmailMessage>(email));
20
21         }
22     }
23 }
24
25
26
27
28 }
```



## Creating apex trigger: LaptopBooking trigger

The screenshot shows the Salesforce Setup interface for the 'Apex Triggers' section. The left sidebar contains a search bar with 'apex' and a list of navigation items: Email, Custom Code, Apex Classes, Apex Settings, Apex Test Execution, Apex Test History, Apex Triggers (selected), and Environments. The main content area displays the 'Apex Trigger Detail' for the 'LaptopBooking' trigger. The trigger is active, has 100% code coverage (2/2), and was created by 'Bali Poolitha' on 30/10/2024 at 10:17 pm. The trigger code is shown in a text editor, and the bottom of the page has a footer with 'Didn't find what you're looking for? Try using Global Search.'

Apex Trigger Detail

Name	Code Coverage	sObject Type	Status
LaptopBooking	100% (2/2)	Laptop Bookings	Active

Created By: Bali Poolitha, 30/10/2024, 10:17 pm  
Last Modified By: Bali Poolitha, 31/10/2024, 12:39 pm  
Namespace Prefix:

```
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 }
```

## 7.Reports and Dashboards

Using Salesforce reports and dashboards, the Laptop Rentals CRM system helps visualize and manage key metrics such as bookings, revenue flow, and customer patterns to aid business planning.

### Reports

- **List Views (Tabular Reports):** Creates straightforward lists, like active laptop bookings or client records, for a quick reference to core data.
- **Grouped Revenue (Summary Reports):** Compiles data by categories, such as earnings by laptop type, to pinpoint high-demand products.

### Dashboards

- **Financial Overview:** Tracks rental revenue trends over different timeframes to monitor financial health.
- **Trending Laptops:** Highlights the most popular laptop models, aiding decisions for inventory restocking and promotions.
- **Customer Segmentation:** Visualizes customer types, providing insight

into targeted marketing opportunities.

LAPTOP RENTALS

Total Laptops ▼consumer ▼Laptop Bookings ▼Billing Process ▼Analytics ▼X

consumer with Laptops an... ▼X

Report: consumer with Laptop Bookings and Total Laptops

consumer with Laptops and Total laptops

Enable Field Editing

Q

Add Chart

▼

⌂

Edit ▼

Total Records  
12

Total Amount  
₹28,400

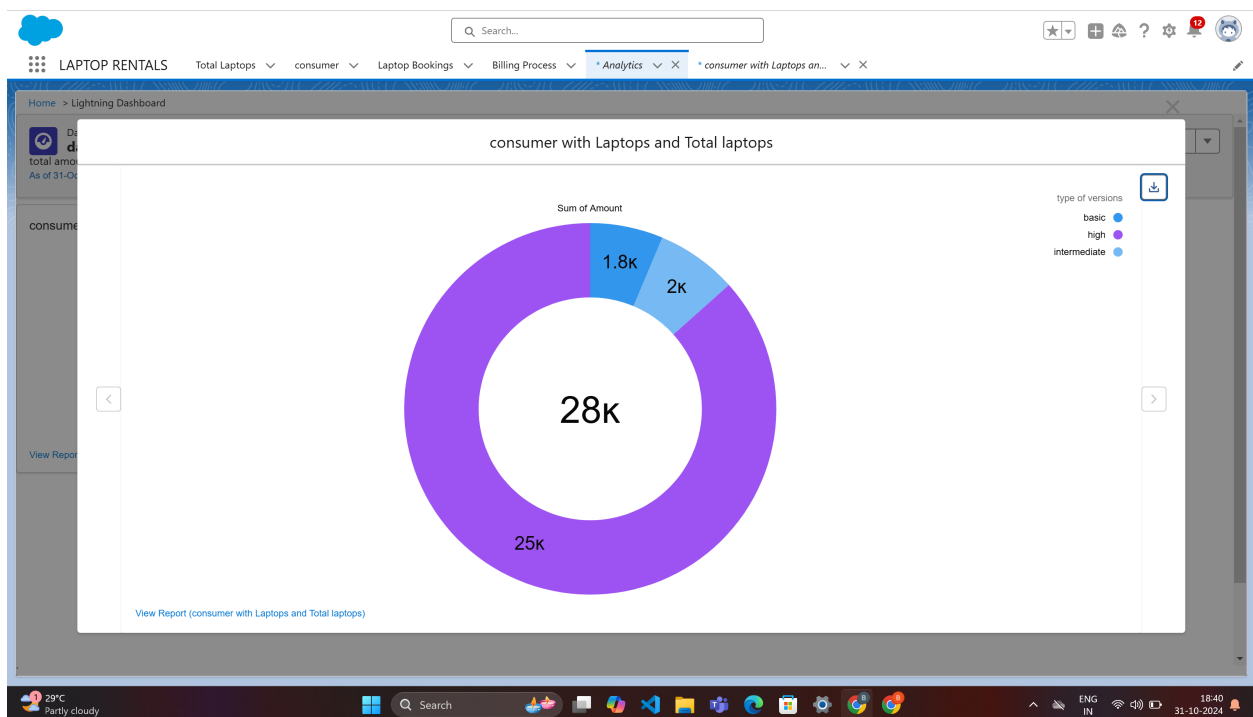
<input type="checkbox"/> type of versions +	consumer: consumer_name ▼	Laptop Bookings: Laptop Bookings ▼	Total No Of Laptops: Total Laptops ▼	Laptop names ▼	core type ▼	Amount ▼
<input type="checkbox"/> basic (2)	gayatri	dellbooking 2	1	Acer	core i3	₹900
	aditi	acer booking	1	Acer	core i3	₹900
Subtotal						₹1,800
<input type="checkbox"/> intermediate (2)	Poojitha	dellbooking 1	1	Dell	core i3	₹1,000
	maheswari	dell booking 5	1	Dell	core i3	₹1,000
Subtotal						₹2,000
<input type="checkbox"/> high (8)	sai	dell booking6	1	Dell	core i7	₹4,000
	jhansi	dellbooking 3	1	Dell	core i5	₹2,000
	anvi	dell booking 4	1	Dell	core i7	₹2,000
	manvitha	mac booking	1	Mac	bionic chip	₹3,400
	anjali	hp booking	1	Hp	core i5	₹3,400
	sahasra	hp booking3	1	Hp	core i5	₹1,700
	buddy	acer	1	Acer	core i3	₹3,600
	chinnu	acer1	1	Acer	core i5	₹4,500
Subtotal						₹24,600
Total (12)						₹28,400

Row Counts

☒ Detail Rows

☒ Subtotals

☒ Grand Total



29°C  
Partly cloudy

Q Search

ENG  
IN

18:40  
31-10-2024

## 5. TESTING AND VERIFICATION

**Methodology:** Unit tests in Apex were implemented using classes marked with @isTest to ensure functionality validation for all scenarios.

**Objective:** Strive for 100% code coverage on all key logic elements, confirming that each method and decision path is thoroughly tested.

**Example Test Class:** LaptopBookingHandlerTest

### User Interface Testing:

Confirmed that UI components are displayed correctly on page layouts, with access to required fields and related lists. Verified that fields were accessible only according to profile permissions.

### Test Cases:

Case 1: Verify that a booking creation triggers an email with accurate booking details.

Case 2: Ensure inventory updates automatically when a booking changes from "Booked" to "Returned."

Case 3: Confirm that validation rules enforce mandatory fields, such as Email\_c and Amount\_c.

The screenshot displays the Salesforce Developer Console interface. The top pane shows the Apex code for the `LaptopBookingHandlerTest` class, which includes a test method `testSendEmailNotification`. The bottom pane shows the test results, indicating that the test passed successfully. The right sidebar displays the 'Overall Code Coverage' report, showing 100% coverage for the `LaptopBookingHandler` class.

```
14     Name = '1'
15   );
16   insert totallaptops;
17
18   List<Laptop_Bookings__c> lapBookings = new List<Laptop_Bookings__c>();
19   lapBookings.add(new Laptop_Bookings__c(
20     Name = 'Booking11',
21     Contact_Email__c = consumer.Email__c,
22     consumer__c = consumer.Id,
23     Amount__c = 900,
24     core_type__c = 'core i3',
25     Laptop_name__c = 'Dell',
26     Total_No_Of_Laptops__c = totallaptops.Id,
27     how_many_months__c = '1'
28   ));
29   insert lapBookings;
30
31   Test.startTest();
32   LaptopBookingHandler.sendEmailNotification(lapBookings);
33   Test.stopTest();
34
35   Integer sentEmailCount = Limits.getEmailInvocations();
36   System.assertEquals(1, sentEmailCount, 'One email should have been sent.');
```

Class	Percent	Lines
<b>Overall</b>	<b>100%</b>	
LaptopBooking	100%	2/2
LaptopBookingHandler	100%	10/10

## **6.Key Scenarios Handled by Salesforce in the Implementation Project**

This project addresses key scenarios to streamline the rental process for both customers and staff, ensuring efficiency, accuracy, and a seamless user experience:

### **Automated Notifications:**

Sends automated booking confirmation emails when a reservation is created, as well as follow-up notifications for any status changes throughout the rental duration.

Keeps customers updated on the status of their rentals, reducing the need for staff intervention and enhancing customer satisfaction.

### **Live Inventory Tracking:**

Monitors laptop availability in real time, updating inventory levels automatically whenever laptops are rented or returned.

Prevents overbooking by showing current stock levels, allowing staff to make informed decisions and ensuring that customers have access to available equipment.

### **Automated Booking Workflow:**

Manages the entire booking lifecycle with automated workflows, moving bookings through the stages of "Booked," "In Use," and "Returned" based on real-time updates.

Minimizes the need for manual adjustments, reducing errors and enabling staff to focus on other critical tasks.

### **Access Control Based on Role:**

Sets up role-based permissions to ensure that staff have the necessary access to manage bookings, oversee inventory, and handle customer information, while customers can only view their own rental details.

Enhances data security and privacy by restricting access to sensitive data based on user roles, ensuring compliance with business policies and industry standards.

### **7.CONCLUSION:**

The Laptop Rentals CRM platform utilizes Salesforce's functionalities to enhance rental business processes. By integrating custom objects, Apex code, and automated workflows, the solution streamlines data handling and improves customer interactions. Features like automated notifications, flexible pricing, and efficient booking systems contribute to a better customer experience and operational productivity.

Salesforce's reporting tools provide actionable insights, enabling leaders to track rental patterns and make informed decisions. With strong data validation and access controls, the application ensures data integrity and sets a solid foundation for future growth. This project exemplifies how Salesforce can be tailored to meet specific business needs, allowing the Laptop Rentals team to manage inventory effectively and automate workflows for sustained success.