

# A CRM APPLICATION FOR LAPTOP RENTALS

## 1. Project Overview:

Laptop Rental CRM Platform (Version 2). This CRM platform is tailored to support a laptop rental business by integrating customer, inventory, and communication management into a single, streamlined system, enhancing customer service and operational efficiency.

### **Main Objectives:**

Rental Workflow Management: Coordinates the full rental lifecycle—from initial customer contact through return—to ensure smooth operations. Personalized Customer Support: Stores comprehensive customer records, allowing for tailored interactions and responsive service. Real-Time Inventory Tracking: Tracks laptop availability live, helping prevent overbooking and ensuring timely fulfillment. Automated Email System: Engages customers with targeted emails for updates, promotions, and feedback, fostering long-term relationships.

### **Core Features:**

Centralized Customer Records: Contains all relevant customer information for quick access. Live Inventory Overview: Keeps inventory status up-to-date and accessible. Email Automation: Delivers scheduled emails for consistent customer engagement. Insightful Reports: Provides data on customer behavior, inventory usage, and operations to guide decisions.

### **Strategic Goals:**

Automate laptop rental workflows to reduce manual tasks. Enhance CRM to improve customer service for rentals. Accurately track and report laptop inventory.

### **Anticipated Outcomes:**

Custom Salesforce CRM for rental management, offering streamlined rental tracking and management. Automated workflows for rental handling, status updates, and email notifications. Real-time reports and dashboards for insights on inventory and customer activity.

## **2.Project Objectives :**

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Real-time reports and dashboards for insights on inventory and customer activity.

### **Key Features:**

Automated Booking: Custom flows for accurate laptop and processor selection.

Billing Automation: Auto-calculates billing by laptop type, processor, and rental duration.

Inventory Control: Real-time tracking with custom fields and validation.

Security: Role-based access with custom profiles.

User-Friendly Interface: Organized tabs in the "Laptop Rentals" app for booking, customer data, and billing.

## **3.Salesforce Key Features and Strategies for Rental CRM**

### **Tailored Booking System:**

Custom object Laptop\_Bookings\_\_c manages rental records, with fields for details such as laptop model, processor type, and rental duration.

Defined fields like Laptop\_Type\_c and Rental\_Amount\_c to store booking specifics.

### **Validation for Data Quality:**

Enforced data rules to ensure accurate entries, including correct formats for contact details.

Conditions validate that rental durations exceed zero, maintaining data quality.

### **Controlled Actions:**

Assigned profiles and roles to ensure secure access, with permissions based on user responsibilities.

Tailored profiles enable field- and object-specific access as needed.

### **Automated Record Handling:**

Record-Triggered Flows simplify booking processes by updating records and calculating fees based on user inputs.

Dynamic rental amount calculations respond to laptop and processor details.

### **Event Driven Actions:**

Apex triggers facilitate automated tasks, such as sending customer emails upon booking. Business logic is contained in the LaptopBookingHandler class for modular, clean code.

### **Streamlined E-Mail Notifications:**

Apex automates personalized emails that inform customers of booking details and costs.

### **Reporting and Dashboard Creation:**

Created data reports and visual dashboards to track metrics like total rentals and popular laptop models. Graphical insights aid management in strategic decisions.

### **Intuitive Lightning App Interface:**

Designed the "Laptop Rentals" app with organized tabs for easy access to bookings, customer data, and reports. Salesforce Lightning enhances the UI, ensuring a smooth experience.

### **Visibility Management in Code:**

Access modifiers ensure appropriate visibility within Apex classes, encapsulating business logic effectively.

### **DML operations for Data Updates**

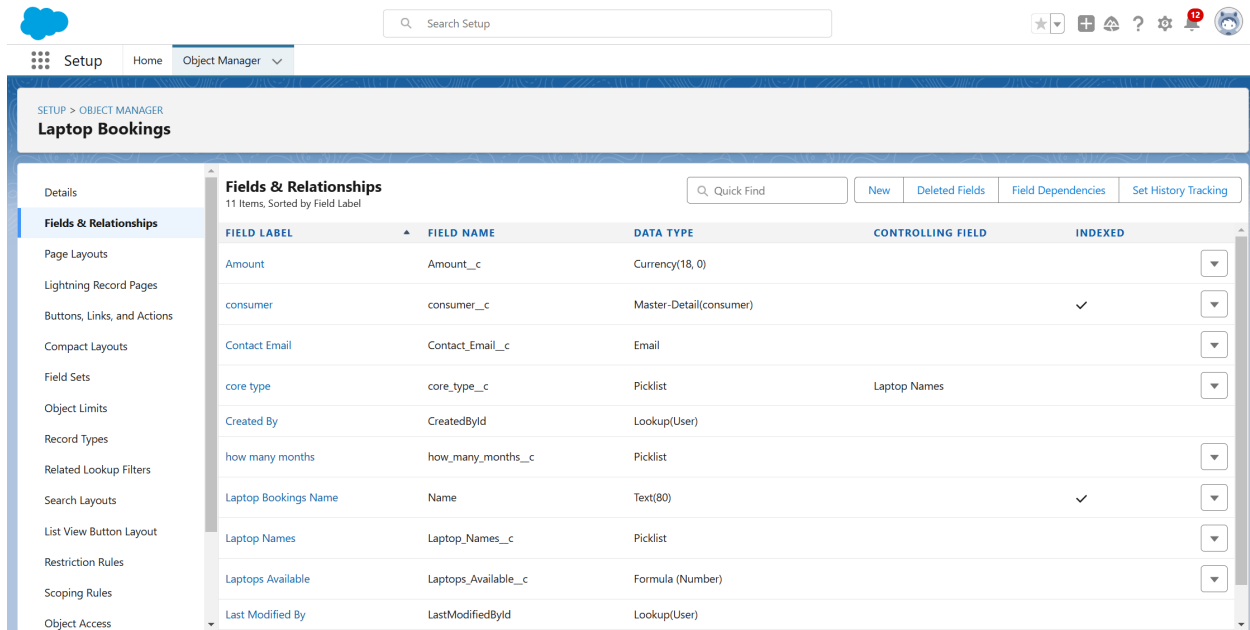
Automations handle data updates, inserting or modifying records as needed to streamline business processes.

## **4. Structured solution design steps:**

### **Data models:**

- Introduced custom objects Laptop\_Bookings\_c and Laptops\_c to record all laptop rental details.
- Linked Laptop\_Bookings\_\_c with Salesforce's core objects (e.g., Account and Contact) for effective customer association.

- Integrated fields like Email\_c, Amountc, Coresc, and Laptop\_Type\_c to store critical rental data.
- Established a relational framework between objects, supporting robust data integrity and enhancing report generation.



The screenshot shows the Salesforce Setup interface. At the top, there's a navigation bar with 'Setup', 'Home', and 'Object Manager'. Below this, the 'Laptop Bookings' object is selected. The left sidebar lists various setup options like 'Details', 'Fields & Relationships', 'Page Layouts', etc. The main content area displays the 'Fields & Relationships' section for 'Laptop Bookings', showing a list of 11 fields sorted by Field Label. The fields are listed in a table with columns: FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED.

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 Names	
Created By	CreatedBy	Lookup(User)		
how many months	how_many_months__c	Picklist		
Laptop Bookings Name	Name	Text(80)		✓
Laptop Names	Laptop_Names__c	Picklist		
Laptops Available	Laptops_Available__c	Formula (Number)		
Last Modified By	LastModifiedBy	Lookup(User)		

## User interface structure:

The "Laptop Rentals" app provides a user-friendly interface, including tabs such as Bookings, Reports, and Dashboards for straightforward access.

Page Layouts for Laptop\_Bookings\_c and Laptops\_c are tailored to highlight essential fields, organized into sections for easy visibility and usability.

Dashboards are designed to offer visual insights on active rentals, inventory levels, and frequently rented laptops.

Specific sections may include custom Lightning components, such as a chart to showcase the most popular laptops among users.

LAPTOP RENTALS

Total Laptops

consumer

Laptop Bookings

Billing Process

data analytics of laptops

Q Search...

★

+

?

⚙

12

Dashboards

Recent

1 item

Q Search recent dashboards...

New Dashboard

New Folder

DASHBOARDS

Recent

Created by Me

Private Dashboards

All Dashboards

FOLDERS

All Folders

Created by Me

Shared with Me

FAVORITES

All Favorites

Dashboard Name	Description	Folder	Created By	Created On	Subscribed
data analytics of laptops	total amount of data in dashboards	total rent amount	Gayatri torati	31/10/2024, 5:49 pm	

LAPTOP RENTALS

Total Laptops

consumer

Laptop Bookings

Billing Process

data analytics of laptops

Q Search...

★

+

?

⚙

12

Laptop Bookings

Recently Viewed

New

Import

Assign Label

12 items • Updated a few seconds ago

Q Search this list...

	Laptop Bookings Name	
1	hp2	
2	acer4	
3	acer3	
4	hp1	
5	hp	
6	mac	
7	acer2	
8	Acer	
9	Dell booking 4	
10	Dell booking 3	
11	Dell booking 1	
12	Dell booking 2	

The screenshot shows a Salesforce interface for a 'LAPTOP RENTALS' system. The 'consumer' tab is selected, displaying a list of 14 consumers. The interface includes a search bar, navigation tabs, and a list of items with checkboxes and dropdown menus.

	consumer_name	
1	<a href="#">torati</a>	▼
2	<a href="#">gopal</a>	▼
3	<a href="#">sudheen</a>	▼
4	<a href="#">prasad</a>	▼
5	<a href="#">murali</a>	▼
6	<a href="#">siva</a>	▼
7	<a href="#">nirmala</a>	▼
8	<a href="#">subbu</a>	▼
9	<a href="#">santosh</a>	▼
10	<a href="#">pranavi</a>	▼
11	<a href="#">pranav</a>	▼
12	<a href="#">minnu</a>	▼
13	<a href="#">poojitha</a>	▼
14	<a href="#">Gayatri</a>	▼

## Business Logic Framework:

To ensure smooth operation and data consistency, the business logic relies on an array of Salesforce tools, including validation rules, flows, Apex triggers, and handler classes. Validation rules enforce essential conditions, like email formatting standards and minimum rental times, to maintain data quality. Record-Triggered Flows automatically adjust the total rental amount based on specific laptop selections, reducing manual input errors. Apex triggers and handler classes support more sophisticated functions, such as sending confirmation emails and updating calculations if certain attributes are modified.

**Automated Email Notifications:** The LaptopBookingHandler class was designed to facilitate automated notifications using Messaging.SingleEmailMessage. An AfterInsert trigger on the Laptop\_Bookings\_\_c object launches the sendEmailNotification method as soon as a booking is finalized, promptly sending customers a welcome and confirmation email.

Flow Builder

Laptop distributions - V1

?

Select Elements

Auto-Layout

Last saved on 31/10/2024, 12:38 pm Active Run Debug View Tests Save As New Version Save Deactivate

Record-Triggered Flow Start

Run Immediately

Field should be updated Decision

hp 1(5)

one month of hp 15 rate Update Records

End

hp 2(5)

second month of hp 15 rate Update Records

End

hp 3(5)

hp 4(5)

hp 5(5)

Decision

\* Label hp field should be updated \* API Name hp\_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

Delete Outcome

hp 1(5)

\* Label hp 1(5) \* Outcome API Name hp\_1\_5

Condition Requirements to Execute Outcome All Conditions Are Met (AND)

Resource ...kings\_c > how many months Operator Equals Value 1

+ Add Condition

When to Execute Outcome

☒ If the condition requirements are met

☐ Only if the record that triggered the flow to run is updated to meet the condition requirements

Flow Builder

Laptop distributions - V1

?

Select Elements

Auto-Layout

Last saved on 31/10/2024, 12:38 pm Active Run Debug View Tests Save As New Version Save Deactivate

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End

hp 2(5)

second month of hp 15 rate Update Records

End

hp 3(5)

hp 4(5)

hp 5(5)

hp 6(5)

third month of hp 15 rate Update Records

End

hp 7(5)

fourth month of hp 15 rate Update Records

End

hp 8(5)

fifth month of hp 15 rate Update Records

End

hp 9(5)

sixth month of hp 15 rate Update Records

End

hp 10(5)

seventh month of hp 15 rate Update Records

End

hp 11(5)

eighth month of hp 15 rate Update Records

End

hp 12(5)

ninth month of hp 15 rate Update Records

End

hp 13(5)

tenth month of hp 15 rate Update Records

End

hp 14(5)

eleventh month of hp 15 rate Update Records

End

hp 15(5)

twelfth month of hp 15 rate Update Records

End

# Validation rules:

Setup

Home

Object Manager

Search Setup

Star

Share

Help

Settings

12

Avatar

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

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	Gayatri torati, 29/10/2024, 2:32 pm	Modified By	Gayatri torati, 29/10/2024, 2:32 pm

Edit

Clone

# Creating the apex class:

Setup

Home

Object Manager

Search Setup

Star

Share

Help

Settings

12

Avatar

apex

Email

Apex Exception Email

Custom Code

Apex Classes

Apex Settings

Apex Test Execution

Apex Test History

Apex Triggers

Environments

Jobs

Apex Flex Queue

Apex Jobs

Didn't find what you're looking for?

Try using Global Search.

Apex Classes

LaptopBookingHandler

Apex Class Detail

Edit

Delete

Download

Security

Show Dependencies

Name	LaptopBookingHandler	Status	Active
Namespace Prefix		Code Coverage	0% (0/1C)
Created By	Gayatri torati, 31/10/2024, 12:58 pm	Last Modified By	Gayatri torati

Class Body

Class Summary

Version Settings

Trace Flags

```
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 +', in';
14
15       body += 'Welcome to Laptop Rentals! You have been seen as a valuable customer to us. In Please continue your journey with us, while we try to provide you with good quality resources. \n Laptop Amount = ' + lap.Amount;
16
17       email.setPlainTextBody(body);
18
19       Messaging.sendEmail(new List<Messaging.SingleEmailMessage>({email});
20
21
22 }
```



## Creating apex trigger:

The screenshot displays the Salesforce Setup interface. On the left, a navigation menu shows the 'Apex Triggers' section under 'Custom Code'. The main content area is titled 'Apex Triggers' and shows the configuration for the 'LaptopBooking' object. The 'Apex Trigger Detail' section includes a table with the following information:

Name	sObject Type
LaptopBooking	Laptop Bookings

Below the table, the 'Apex Trigger' tab is selected, showing the trigger 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
9     LaptopBookingHandler.sendEmailNotification(trigger.new);
10
11   }
12
13
14
15 }
```

The interface also includes buttons for 'Edit', 'Delete', 'Download', and 'Show Dependencies'.

## Reports and Dashboards :

The Salesforce reports and dashboards in the Laptop Rentals CRM offer valuable insights for tracking bookings, revenue, and customer trends to support business decisions effectively.

### Reports:

**Basic Tabular Reports:** Provides simple lists, such as an active rentals log or a customer database, offering an overview at a glance.

**Detailed Summary Reports:** Organizes data with grouped totals, like revenue by laptop model, to easily highlight the most popular items.

### Dashboards:

**Revenue Summary:** Tracks total income from rentals over time, giving insight into financial performance.

**Top Laptop Models:** Displays the most frequently rented laptops, guiding inventory and promotional decisions.

**Customer Analysis:** Shows data on customer demographics, helping the business refine marketing approaches.



## 5.Validation and Testing Procedures Unit Testing:

Process: Conducted unit testing using Apex test classes with the @isTest annotation, ensuring a variety of scenarios are covered for robust functionality validation.

Goal: Achieve full code coverage, particularly for essential business logic, ensuring all paths and methods are tested comprehensively.

Sample Test Class: LaptopBookingHandlerTest

UI Testing:

Validated that all UI components display as expected, with easy access to required fields and related lists. Ensured field accessibility aligns with user profile permissions.

Testing Scenarios:

Scenario 1: Verify email dispatch with correct booking details upon new booking creation.

Scenario 2: Confirm inventory automatically updates when booking status changes from "Booked" to "Returned."

Scenario 3: Check validation rules to enforce essential fields like Email\_c and Amount\_c.

Developer Console - Google Chrome

vishnuinstituteoftechno-1e1-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage

File Edit Debug Test Workspace Help

LaptopBookingHandler.apxc LaptopBooking.apxt LaptopBookingHandlerTest.apxc

Code Coverage: None API Version: 62 Run Test Go To

```
1 @isTest
2 private class LaptopBookingHandlerTest {
3     @isTest
4     static void testSendEmailNotification() {
5         consumer__c consumer = new consumer__c(
6             Name = 'John Doe',
7             Phone_number__c = '9887346134',
8             Address__c = 'Paris, France',
9             Email__c = 'johndoe@example.com',
10            consumer_Status__c = 'Student'
11        );
12        insert consumer;
13
14        Total_Laptops__c totallaptops = new Total_Laptops__c(
15            Name = '1'
16        );
17        insert totallaptops;
18
19        List<Laptop_Bookings__c> lapBookings = new List<Laptop_Bookings__c>();
20        lapBookings.add(new Laptop_Bookings__c(
21            Name = 'Booking11',
22            Contact_Email__c = consumer.Email__c,
23            consumer__c = consumer.Id
24        ));
25    }
26 }
```

Logs Tests Checkpoints Query Editor View State Progress Problems

Status Test Run

707dM00000EDF4c

Enqueued Time Thu Oct 31 2024 21:46:30 GM...

Duration

Failures 1

Total 1

Overall Code Coverage

Class	Percent	Lines
Overall	100%	
LaptopBooking	100%	2/2
LaptopBookingHandler	100%	10/10

## **6.Key Scenarios Covered by Salesforce in the Project**

### **Implementation:**

This implementation project addresses critical scenarios to streamline the rental experience for customers and staff alike:

**Automatic Notifications:** Sends confirmation emails upon booking creation and continues with status updates throughout the rental process, keeping customers informed while reducing administrative efforts for the team.

**Real-Time Inventory Updates:** Tracks laptop availability dynamically, with inventory numbers automatically adjusting as laptops are rented and returned.

**Booking Lifecycle Automation:** Automates each step of the booking process, moving rentals through the stages of "Booked," "In Use," and "Returned" without manual input.

**Role-Specific Access Control:** Configures role-based access, allowing staff to handle bookings and customer data, while customers can view only their individual rental information.

## **7.Conclusion:**

The Laptop Rentals CRM system demonstrates how Salesforce simplifies rental management, enhancing operational efficiency and customer satisfaction. By employing custom data objects, Apex automation, and user-friendly flows, the project improves data accuracy and customer communication. Key features such as automated messages and dynamic billing streamline the booking process.

Salesforce's reporting capabilities offer insights into inventory and revenue trends, helping decision-makers devise effective strategies. Additionally, data validation and secure access protect sensitive information, establishing a strong foundation for growth. This implementation showcases how Salesforce's tools can address real-world challenges, equipping the Laptop Rentals team to manage inventory, enhance customer relations, and achieve workflow efficiency.