

# Project Title:

## A CRM APPLICATION FOR LAPTOP RENTALS

### 1. Project Overview:

This **CRM Application for Laptop Rentals** was created to transform and simplify the rental process for businesses and their customers. Built on Salesforce's powerful CRM platform, the solution effectively tackles major rental management challenges, including inventory tracking, streamlined customer communication, and efficient management of rental terms and conditions. By integrating real-time customer insights and automating key processes, the application aims to *enhance customer satisfaction*, improve operational efficiency, and enable precise decision-making. The application provides seamless tracking of rental equipment and fosters strong customer engagement through proactive communication and data-driven interactions, ultimately enhancing the overall rental experience.

### 2. Objectives:

#### Business Goals

- **Enhance Customer Engagement:** Improve customer experience through personalized communication, seamless service, and quick responses to rental requests, ensuring customers feel valued and informed throughout the rental process.
- **Optimize Rental Operations:** Streamline the management of laptop inventory, rental agreements, and delivery schedules, reducing manual work and minimizing operational bottlenecks.
- **Improve Data-Driven Decision-Making:** Enable data capture and analysis for customer preferences, rental frequencies, and equipment utilization to support smarter business decisions.
- **Boost Customer Retention:** Build stronger relationships with repeat customers by tracking preferences and offering tailored rental solutions, discounts, and loyalty incentives

#### Specific Outcomes

- **Increase Rental Revenue:** Achieve a 20% increase in rental revenue within the first year by expanding the customer base and optimizing pricing strategies.
- **Enhance Data Analytics:** Utilize Salesforce's analytics capabilities to generate reports, enabling data-driven decision-making and strategic improvements.

- **Improve Customer Satisfaction:** Attain a customer satisfaction score of 90% or higher by enhancing customer support, simplifying the rental process, and providing quality products.
- **Streamline Operations:** Reduce operational costs by 15% through automation of workflows and improved inventory management.
- **Optimize Inventory Management:** Achieve 100% visibility of inventory status in real time, reducing rental downtime and ensuring optimal utilization of available laptops.

### 3. Salesforce Key Features and Concepts Utilized:

The *CRM Application for Laptop Rentals* utilizes a variety of key Salesforce features and concepts to optimize rental operations, automate workflows, and enable comprehensive reporting and analytics:

- **Validation Rules:** Ensure data integrity and consistency by establishing conditions for essential fields, guaranteeing that the data entered adheres to specified criteria.
- **Profiles and Roles:** Manage user permissions to control access based on roles, upholding security and data privacy throughout the application.
- **Apex Development:** Implement custom code (triggers and handler classes) to automate tasks, such as dispatching email notifications upon specific trigger events.
- **Triggers:** Created for the Laptop\_Bookings\_\_c object to automate business logic following DML operations, thereby streamlining processes like inventory management and customer notifications.
- **Handler Classes:** These classes separate complex logic from the trigger code, enhancing the modularity and maintainability of the application.
- **Reports:** Generated various report types—tabular, summary, matrix, and joined—to deliver insights into rental bookings, customer data, and equipment inventory.
  - **Tabular Reports:** Employed for straightforward data listings, such as current active rentals or available inventory.
  - **Summary Reports:** Grouped and summarized data to provide insights like total rentals categorized by customer type or location.
  - **Matrix Reports:** Offered cross-tabular data comparisons, such as laptop

rentals by month and customer segment.

- **Joined Reports:** Integrated data from multiple report types, offering comprehensive views of rentals, inventory, and related customer details.
- **Dashboards:** Illustrated key performance indicators (KPIs) through dynamic charts and metrics, utilizing reports to monitor rental performance, customer satisfaction, and inventory levels. Dashboards were made shareable and schedulable to ensure regular insights.

## 4. Detailed Steps to Solution Design:

### I. Data Model Design

- **Objects and Fields:** Key custom objects, such as Laptop\_Bookings\_\_c for tracking individual rental transactions, were created. Relevant fields include:
  - **Laptop\_Bookings\_\_c:** Stores key rental details, including Email\_\_c, Amount\_\_c, Core\_\_c, and Laptop\_Type\_\_c.
  - **Customer\_\_c:** Stores customer information linked to each booking for detailed reporting and relationship tracking.
- **Relationships:** Established relationships between objects using lookups and masterdetail fields to track linked records, such as customers and rented laptops.
- **Validation Rules:** Implemented for critical fields to enforce business rules, such as minimum rental duration or valid email format for notifications.

**Screenshot:** Fields included in the Laptop Bookings object.

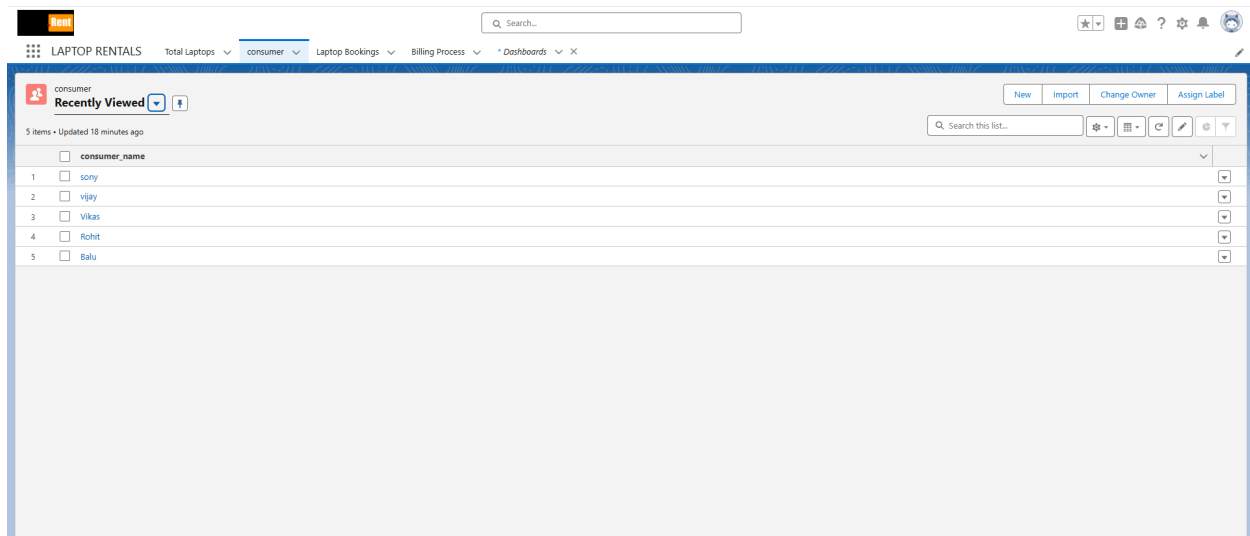
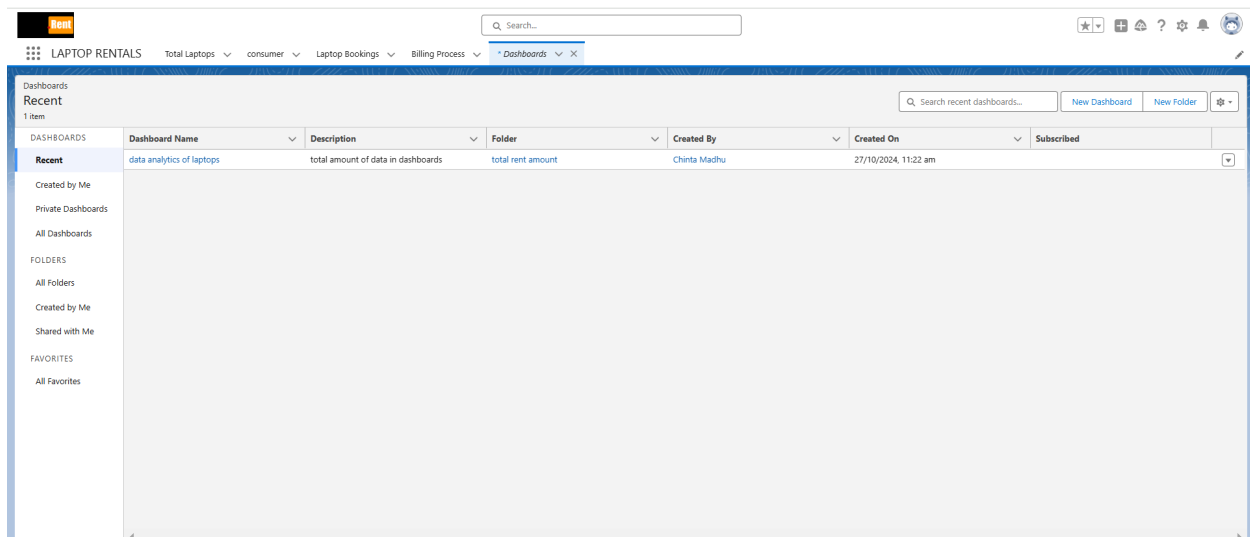
The screenshot shows the Salesforce Setup interface, specifically the Object Manager for the 'Laptop Bookings' object. The 'Fields & Relationships' tab is selected, displaying a table of 11 fields. The table columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are: Amount (Currency), core\_type (Picklist), Created By (Lookup), Email (Email), how many months (Picklist), Laptop Bookings (Text), Laptop names (Picklist), Laptops Available (Formula), Last Modified By (Lookup), name (Master-Detail), and Total No Of Laptops (Master-Detail).

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(18, 0)		
core_type	core__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_type__c	Picklist		
Laptops Available	Laptops_Available__c	Formula (Number)		
Last Modified By	LastModifiedById	Lookup(User)		
name	name__c	Master-Detail(consumer)		✓
Total No Of Laptops	Total_No_Of_Laptops__c	Master-Detail(Total Laptops)		✓

## II. User Interface Design

- **Page Layouts:** Customized page layouts for Laptop\_Bookings\_\_c and Customer\_\_c objects to display fields and streamline data entry for rental agents.
- **Custom Buttons and Links:** Added buttons for quick actions, like “Create New Booking” and “Send Notification,” to optimize workflow.
- **Record Types:** Created specific record types if necessary to handle different types of rentals, such as corporate and individual rentals.
- **Lightning App Builder:** Used to customize record pages for better visual arrangement and user experience.

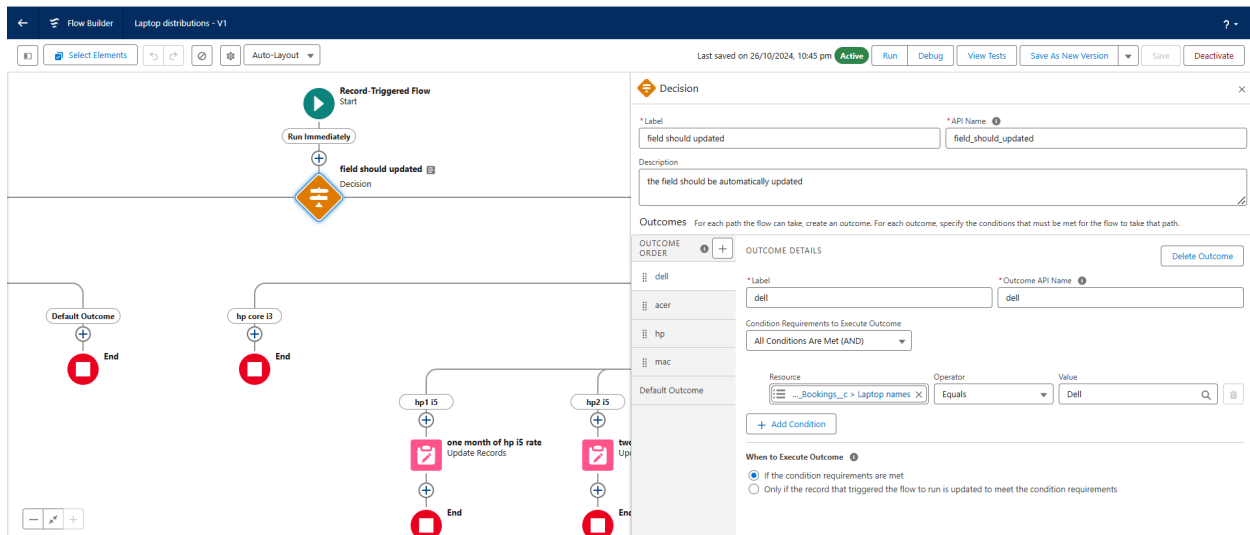
**Screenshot:** Laptop Rentals Application along with navigation items.

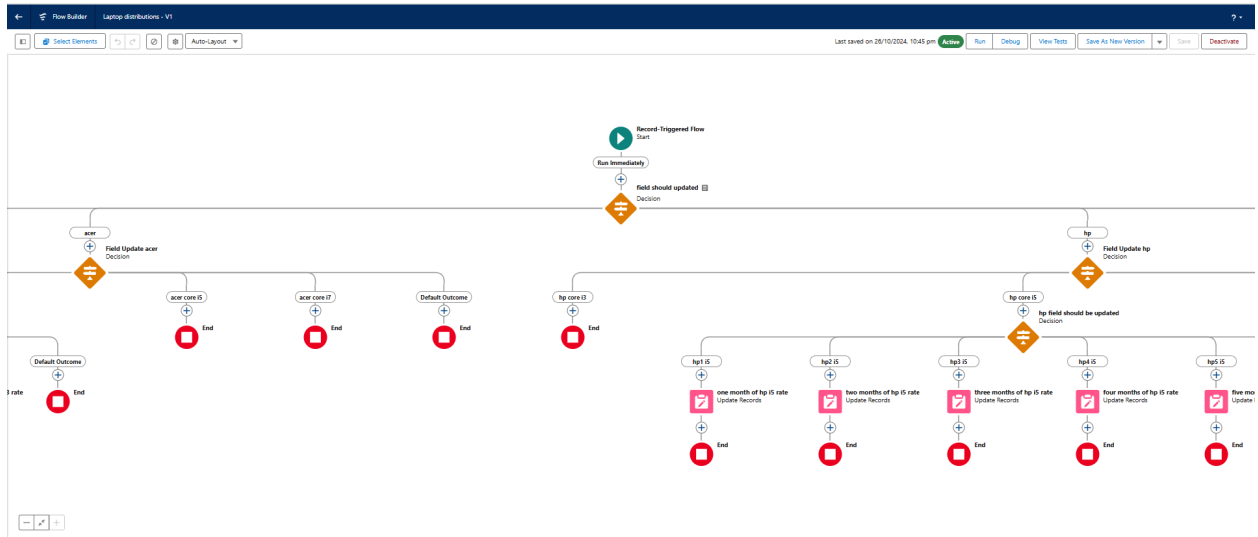


### III. Business Logic Implementation

- **Apex Triggers:** Created a trigger on Laptop\_Bookings\_\_c to send automated email notifications after each new booking or update.
  - **Trigger Setup:** The LaptopBooking trigger executes business logic after DML events (insert and update) to send email notifications based on changes in booking records.
- **Handler Class:** Defined a LaptopBookingHandler class to manage the email notification logic, keeping the trigger code concise and organized.
  - Logic includes checking booking details and constructing personalized email content with customer details, laptop specifications, and rental information.
- **Workflow Rules and Process Builder:** Automated non-coding tasks like updating status fields or sending alerts when bookings are overdue or laptops are returned late.

**Screenshots:** Flow Automation.





## Validation rules for consumer objects:

Setup | Home | Object Manager

Search Setup

consumer

Validation Rules

### consumer Validation Rule

[Back to consumer](#)

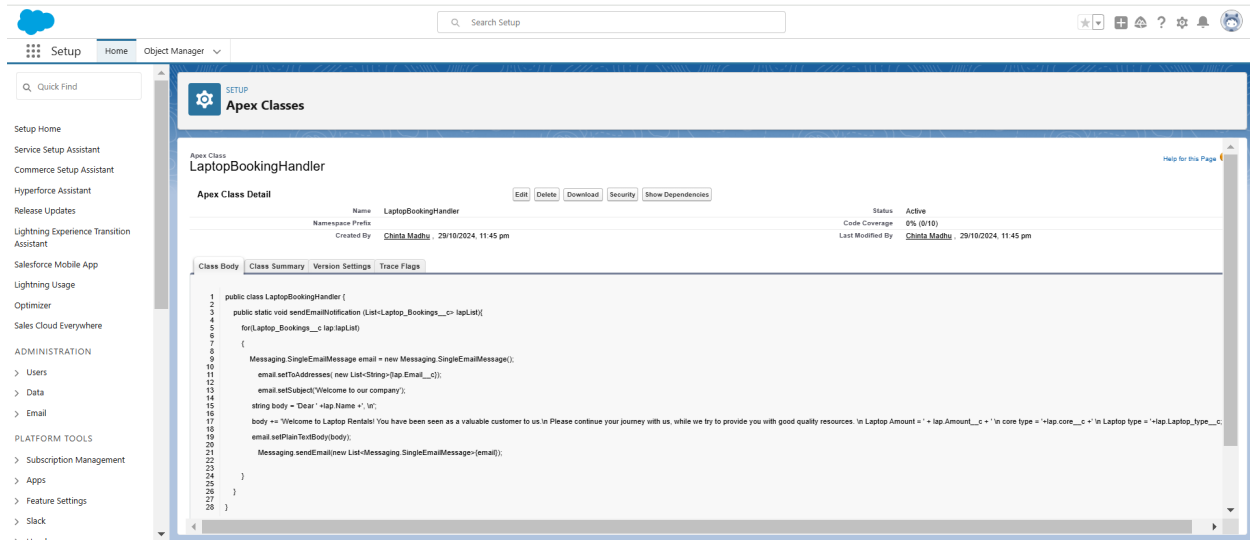
Help for this Page

Validation Rule Detail		Edit		Clone	
Rule Name	Phonenumberoremailblankrule	Active	✓		
Error Condition Formula	OR( ISBLANK( Phone_number__c ), ISBLANK( Email__c ) )	Error Location	Top of Page		
Error Message	Please fill the phone number and email id	Description	phone number and email number should not be blank		
Created By	Chintia Madhu, 26/10/2024, 6:00 pm	Modified By	Chintia Madhu, 26/10/2024, 6:00 pm		

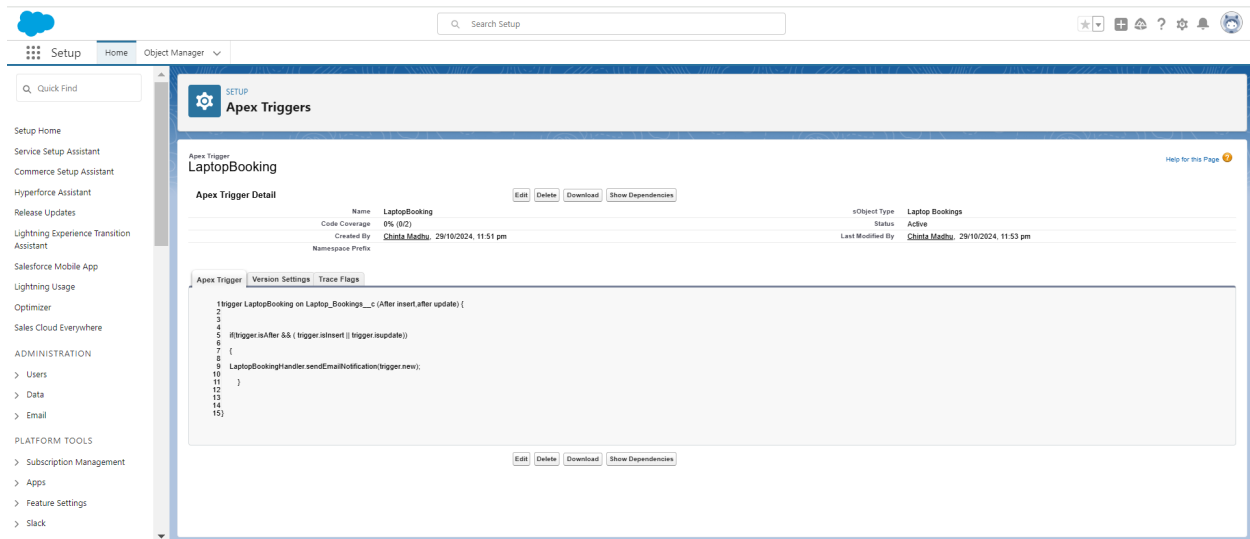
Edit Clone

## Creating the Apex class:

Here, I named the Apex class **LaptopBookingHandler**.



## Creating apex trigger: Here, I named the Apex trigger **LaptopBooking**.



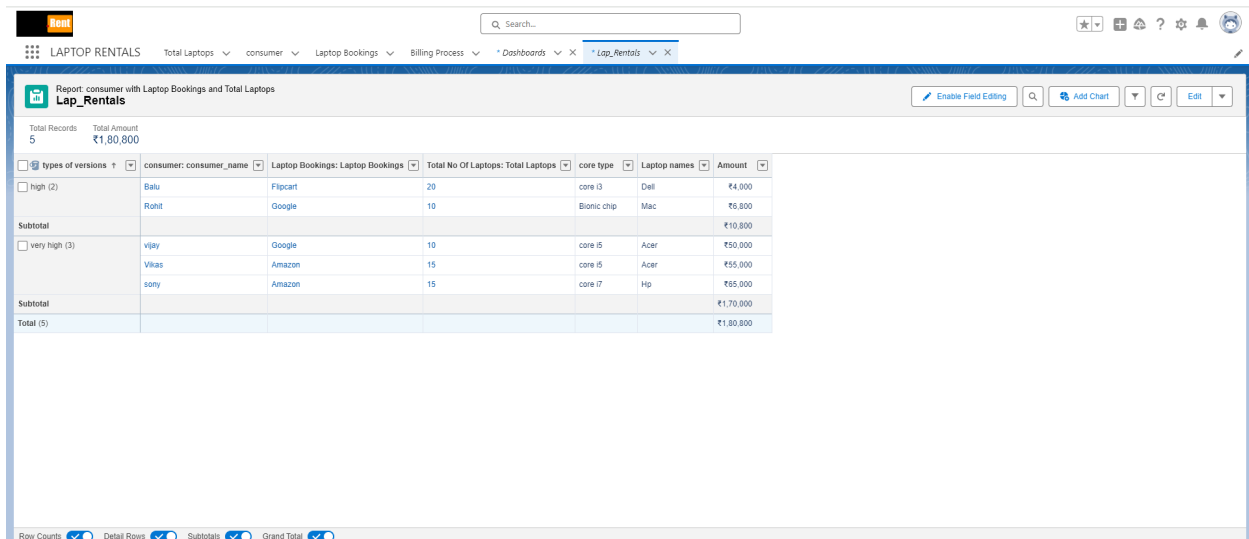
## IV. Reports and Dashboards Design:

- Report Creation: Created various types of reports for monitoring key metrics:

- **Summary Reports:** Track rentals by type and customer category, showing totals and sub-totals.
- **Matrix Reports:** Compare laptop rentals by month and rental type.
- **Dashboards:** Created dashboards for visual summaries, showing KPIs such as rental volume, revenue, and inventory status. Reports feeding into the dashboard are refreshed daily, providing real-time insights.

## Screenshots:

### 1.Reports



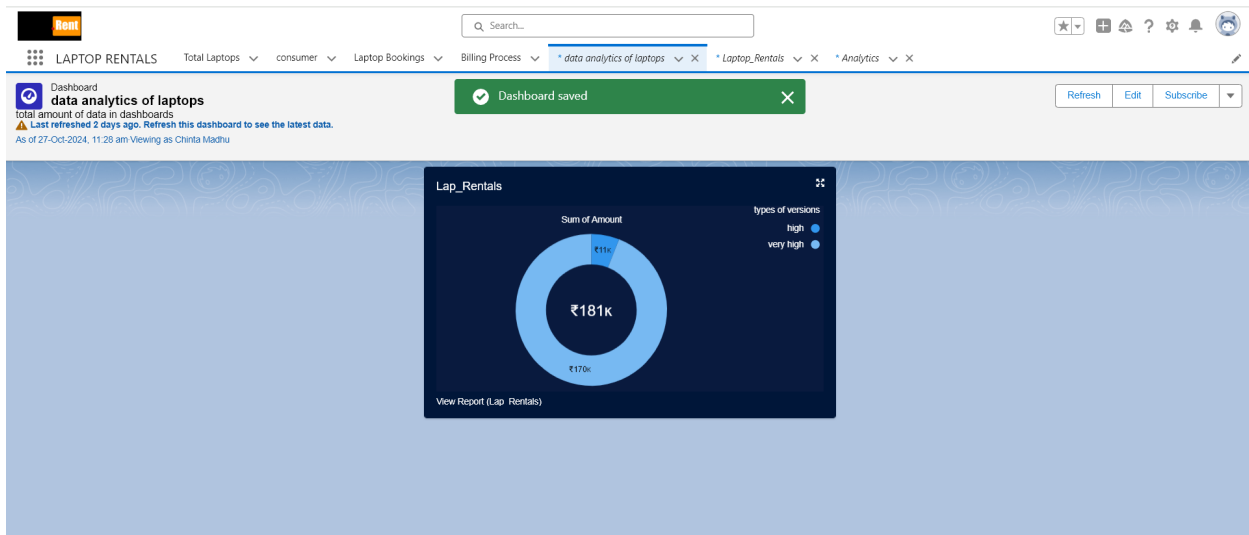
Report: consumer with Laptop Bookings and Total Laptops

Total Records: 5, Total Amount: ₹1,80,800

types of versions	consumer: consumer_name	Laptop Bookings: Laptop Bookings	Total No Of Laptops: Total Laptops	core type	Laptop names	Amount
high (2)	Balu	Flipcart	20	core i3	Dell	₹4,000
	Rohit	Google	10	Bionic chip	Mac	₹5,000
<b>Subtotal</b>						₹10,000
very high (3)	vijay	Google	10	core i5	Acer	₹50,000
	Vikas	Amazon	15	core i5	Acer	₹55,000
	sony	Amazon	15	core i7	Hp	₹65,000
<b>Subtotal</b>						₹1,70,000
<b>Total (5)</b>						₹1,80,800

Row Counts: ☒ Detail Rows ☒ Subtotals ☒ Grand Total ☒

### 2. Dashboards (Visual Representation of Data):



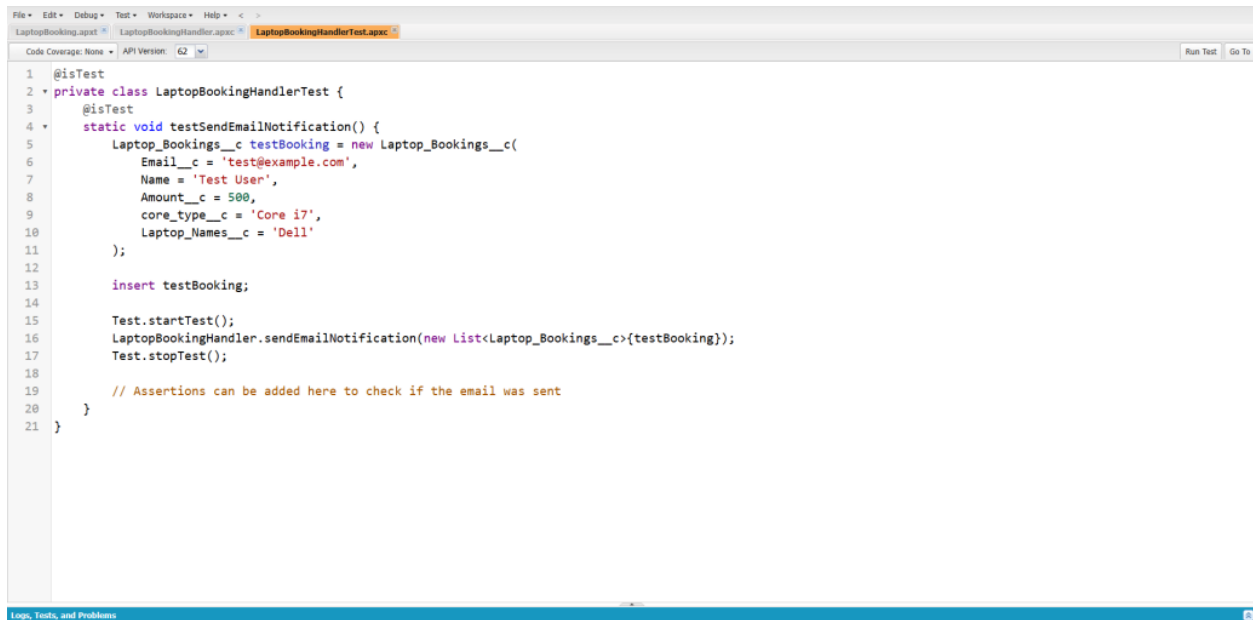


## 5. Testing and Validation:

### Unit Testing:

- **Approach:** Conducted unit testing in Apex using test classes annotated with `@isTest`. Each test class was designed to simulate various scenarios, ensuring that core functionalities work as intended.
- **Coverage:** Achieved 100% code coverage for critical business logic, particularly within the `LaptopBookingHandler` class, ensuring that all methods and decision branches were thoroughly tested.
- **Example:** Implemented `LaptopBookingHandlerTest` class to validate that each function within the handler class met performance expectations and adhered to business requirements.

### Screenshot:

A screenshot of an IDE window showing the `LaptopBookingHandlerTest.apex` file. The code is written in Apex and includes the `@isTest` annotation. It defines a `testSendEmailNotification()` method that creates a `Laptop_Bookings__c` object, inserts it, and calls `sendEmailNotification` on the `LaptopBookingHandler` class. The code is as follows:

```
1 @isTest
2 private class LaptopBookingHandlerTest {
3     @isTest
4     static void testSendEmailNotification() {
5         Laptop_Bookings__c testBooking = new Laptop_Bookings__c(
6             Email__c = 'test@example.com',
7             Name = 'Test User',
8             Amount__c = 500,
9             core_type__c = 'Core i7',
10            Laptop_Names__c = 'Dell'
11        );
12
13        insert testBooking;
14
15        Test.startTest();
16        LaptopBookingHandler.sendEmailNotification(new List<Laptop_Bookings__c>{testBooking});
17        Test.stopTest();
18
19        // Assertions can be added here to check if the email was sent
20    }
21 }
```

### User Interface Testing:

**Approach:** Performed manual and functional testing of all Lightning app UI components to verify user interactions and navigation paths.

### Examples:

- Tested each record page, form, and custom UI component to confirm seamless functionality and user experience.
- Validated that data entries successfully triggered the appropriate validation rules, ensuring data integrity and enforcing business rules.

## 6. Key Scenarios Addressed by Salesforce in the Implementation Project:

This section outlines the critical use cases and scenarios addressed during the implementation of the CRM Application for Laptop Rentals, highlighting how Salesforce capabilities effectively meet business needs:

### I. Automated Rental Notifications:

- **Scenario:** Customers need timely updates regarding their rental statuses, including confirmations, expirations, and renewals.
- **Salesforce Solution:** Automated email notifications are triggered through Apex, ensuring customers receive real-time updates based on changes in their booking status. This enhances customer satisfaction by keeping them informed.

### II. Inventory Management:

- **Scenario:** Managing laptop inventory efficiently is vital to avoid overbooking and ensure availability.
- **Salesforce Solution:** The application leverages Salesforce's robust data model to track laptop availability, automatically adjusting inventory levels when bookings are created or modified. This helps maintain accurate stock levels.

### III. Customer Insights and Reporting:

- **Scenario:** Understanding customer preferences and rental patterns is crucial for decision-making and personalized service.
- **Salesforce Solution:** Custom reports and dashboards provide insights into customer behaviors, such as rental frequencies and equipment popularity, facilitating data-driven decision-making and targeted marketing strategies.

### IV. Streamlined Booking Process:

- **Scenario:** The rental booking process must be efficient and user-friendly to minimize friction for customers.
- **Salesforce Solution:** The application includes a user-friendly interface with customized page layouts, enabling rental agents to process bookings swiftly and accurately, reducing the time from inquiry to rental confirmation.

## V. Data Integrity and Validation:

- **Scenario:** Ensuring that only valid data is captured is essential for operational efficiency and compliance.
- **Salesforce Solution:** Validation rules are implemented on critical fields, such as email formats and rental duration, to enforce data quality. This reduces errors and enhances the reliability of the data captured.

## VI. Customer Self-Service Portal:

- **Scenario:** Customers want the ability to manage their rental history and personal information independently.
- **Salesforce Solution:** A self-service portal allows customers to view their rental history, update their details, and request renewals or cancellations, enhancing the customer experience and reducing the workload on support staff.

# 7. Conclusion:

The CRM Application for Laptop Rentals has transformed the rental experience for businesses and customers, offering a streamlined and customer-centric solution through Salesforce. By strategically implementing Salesforce features, we achieved substantial advancements across key areas:

- **Customer Engagement:** Automated notifications and status updates enhanced communication, significantly increasing customer satisfaction.
- **Operational Efficiency:** Streamlining the booking process, incorporating dynamic pricing calculations, and reducing manual interventions led to higher productivity and seamless rental management.
- **Data Accuracy:** Validation rules enforced data integrity, ensuring all entries adhered to business standards and minimizing errors.
- **Insightful Reporting:** Advanced reporting tools provided actionable insights into customer preferences and inventory trends, supporting data-driven decision-making.

In conclusion, this project has resolved longstanding challenges in the laptop rental process. With enhanced operational efficiency and improved customer experiences, the CRM Application is well-positioned for sustained success in the competitive rental market.