

CRM Application for Laptop Rental

Project Overview

This project is focused on creating a **Laptop Booking System** for managing laptop rentals and bookings. The system utilizes **Salesforce** as the primary platform to manage customer data, laptop bookings, and financial details. The project involves creating various objects, reports, dashboards, validation rules, and triggers to automate processes like email notifications and pricing updates.

Project Objectives :

1. **Automated Booking and Notifications:** Automate the process of laptop bookings and send personalized email notifications to customers with booking details and rental information.
2. **Dynamic Pricing and Reports:** Implement dynamic pricing based on customer selection and generate insightful reports for tracking laptop bookings and rental amounts.
3. **User Role Management:** Set up customized user roles and profiles (e.g., Owner, Agent) to control access and ensure secure management of data.
4. **Real-time Monitoring and Dashboards:** Create dashboards and email subscriptions to enable real-time monitoring of laptop bookings and rental data for owners.

Features and Functionalities of the Project:

1. **Laptop Booking Management:**
 - Users can select laptops from various types (e.g., Dell, HP, Acer) and configurations (e.g., Core i3, i7, Bionic chip).
 - Bookings are created based on customer preferences, with options for rental duration (e.g., 1 to 5 months).
 - Automated calculation of the rental amount based on laptop type and duration.
2. **Automated Email Notifications:**
 - Upon booking confirmation, customers receive an email with booking details, including laptop type, core configuration, rental amount, and other

relevant information.

- Email content is dynamically generated based on the customer's selection during booking.

3. Role-based Access Control:

- Profiles such as "Owner" and "Agent" are created to define user permissions and access to different parts of the system.
- Owners have full access to manage bookings, reports, and dashboards, while agents are limited to specific functionalities.

4. Custom Validation Rules:

- Validation rules ensure that key fields like phone number and email are filled before finalizing the booking.
- Custom error messages guide users to input correct information, preventing incomplete bookings.

5. Reports and Dashboards:

- Custom reports track laptop booking details, rental amounts, and customer data.
- Dashboards provide a visual representation of key metrics such as total rental amount, popular laptop models, and booking trends.
- Reports can be shared via email subscriptions to keep stakeholders updated with real-time data.

6. Dynamic Pricing and Rate Updates:

- Rental amounts are dynamically updated based on the number of months selected for the rental.
- Different rates are applied based on laptop model (e.g., Dell Core i3, Dell Core i7, etc.).

7. Trigger-based Automation:

- Triggers automatically execute actions like sending email notifications when certain conditions are met (e.g., after a booking is created or updated).
- Automation helps reduce manual effort and ensures timely communication with customers.

8. Flow-based Process Automation:

- Flows are used to manage and automate complex business processes, such as determining rental amounts based on laptop type and core configuration.
- These flows ensure accurate and efficient handling of data without requiring manual intervention.

Milestone 1: Salesforce Introduction

Overview of Salesforce as a CRM Platform

Salesforce is a leading cloud-based CRM (Customer Relationship Management) platform, offering comprehensive solutions for managing customer relationships, automating workflows, and providing deep insights through data-driven analytics. In the context of a CRM application for laptop ~~rental~~, Salesforce provides the tools and flexibility needed to customers.

Creating Developer Account

Creating a developer org in salesforce.

1. Go to <https://developer.salesforce.com/signup>

On the sign up form, enter the following details :

1. First name & Last name
2. Email
3. Role : Developer
4. Company : College or Company Name
5. County : India
6. ~~Postal Code~~Zip code : pin code
7. Username : should be a combination of your name and company

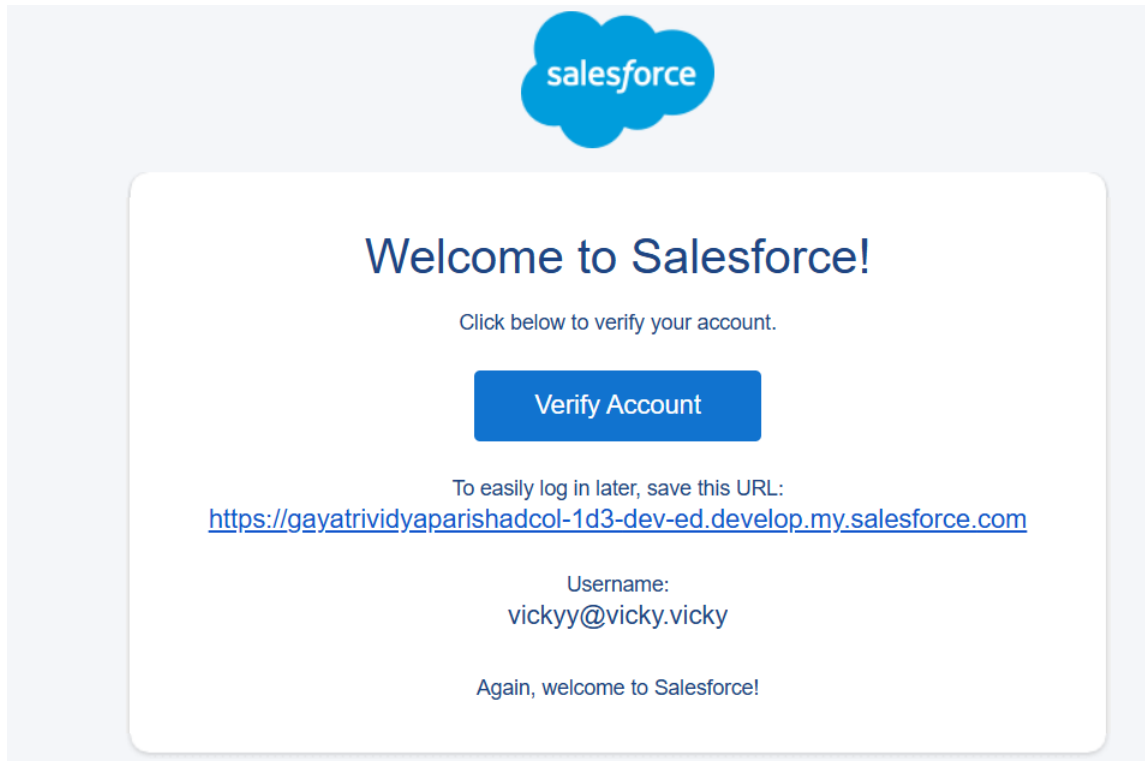
This need not be an actual email id, d; you can give anything in the format :

username@organization.com

Click on sign me up after filling these.

Account Activation

1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 5-~~10mins~~ 10 mins.



1. Click on Verify Account
2. Give a password and answer a security question and click on change password.
3. Give a password and answer a security question and click on change password.
4. Then you will redirect to your salesforce setup page.

1. Object: Laptop Bookings

Purpose:

The "Laptop Bookings" object is central to the project as it holds the records of each laptop booking transaction. It captures crucial details of the booking-booking, such as laptop type, core type, rental duration, and amount, enabling the tracking of all booking activities.

Key Fields:

- **Laptop Name:** Stores the name of the laptop model (e.g., Dell, Acer, HP).
- **Core Type:** Represents the processor type (e.g., Core i3, Core i5, Core i7).
- **Amount:** The rental cost for the laptop based on selected configurations.

- **Email:** Customer's email address for sending booking notifications.
- **How Many Months:** The rental duration in months.
- **Amount Due:** Calculates the total cost based on laptop type, core type, and rental duration.

Procedure:

- When a booking is created or updated, the information related to laptop models, core types, and rental period is entered into these fields.
- Validation rules ensure data integrity, such as checking if all necessary fields are populated.
- Automated email notifications are sent to the consumer based on the laptop booking details.

The screenshot shows the Salesforce Setup interface. The left sidebar contains a navigation menu with options like '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', and 'Restriction Rules'. The main content area is titled 'Edit Custom Object: Laptop Bookings' and contains the 'Custom Object Definition Edit' form. The form includes sections for 'Custom Object Information' (with fields for Label, Plural Label, and Starts with vowel sound) and 'The Object Name is used when referencing the object via the API.' (with fields for Object Name and Description). The 'Object Name' field is set to 'Laptop_Bookings' and the 'Description' field is empty. The 'Context-Sensitive Help Setting' is set to 'Open the standard Salesforce.com Help & Training window' and the 'Content Name' is set to 'None'.

2. Object: Total Laptops

Purpose:

This object keeps track of the total number of laptops available for rent. It helps manage the inventory of laptops and monitor booking patterns.

Key Fields:

- **Laptop Name:** Identifies the laptop model.
- **Quantity Available:** Tracks the number of laptops available for booking.
- **Status:** Represents whether a laptop is available, booked, or out of service.

Procedure:

- The quantity available is updated whenever a booking is made or a laptop is returned.
- This object is critical for maintaining up-to-date inventory status, allowing agents to check laptop availability before confirming a booking.

The screenshot shows the Salesforce Setup interface for the 'Total Laptops' custom object. The left sidebar contains a 'Details' menu with options: 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, and Scoping Rules. The main content area is titled 'Edit Custom Object: Total Laptops' and includes a 'Custom Object Definition Edit' section with 'Save', 'Save & New', and 'Cancel' buttons. Below this is the 'Custom Object Information' section, which contains fields for 'Label' (Total Laptops), 'Plural Label' (Total Laptops), and 'Starts with vowel sound' (unchecked). It also includes a 'Description' field and a 'Context-Sensitive Help Setting' section with radio buttons for 'Open the standard Salesforce.com Help & Training window' (selected) and 'Open a window using a Visualforce page'. At the bottom, there is a 'Content Name' dropdown menu set to 'None' and a section for 'Enter Record Name Label and Format'.

3. Object: Consumers

Purpose:

The "Consumers" object stores information about the customers who are renting laptops. This object is key for managing customer details and tracking their booking history.

Key Fields:

- **First Name & Last Name:** Customer's full name for identification.
- **Email Address:** Used for communication and notifications.
- **Phone Number:** Customer's contact number.
- **Laptop Bookings:** A relationship field that links each consumer to their corresponding laptop bookings.

Procedure:

- Consumers are added when they make their first booking, and their details are stored for future bookings.

- Agents can reference this object when handling customer queries or updates.

The screenshot shows the Salesforce Setup interface. The left sidebar contains a navigation menu with options like Setup, Home, and Object Manager. The main content area is titled 'Edit Custom Object consumer'. It includes a 'Custom Object Definition Edit' header with 'Save', 'Save & New', and 'Cancel' buttons. Below this is the 'Custom Object Information' section, which contains fields for Label (consumer), Plural Label (consumer), and Object Name (consumer). There are also checkboxes for 'Starts with vowel sound' and 'Context Sensitive Help Setting'. A 'Description' text area is also present. At the bottom, there is a 'Content Name' dropdown menu set to 'None'.

4. Object: Billing Process

Purpose:

This object handles the financial aspects of the booking system, tracking payments, due amounts, and payment statuses. It ensures that all transactions are recorded and payments are processed correctly.

Key Fields:

- Amount Due:** The amount a consumer owes based on their laptop booking.
- Payment Status:** Tracks whether the consumer has paid, is pending, or has overdue payments.
- Booking Reference:** Links the billing record to a specific laptop booking.

Procedure:

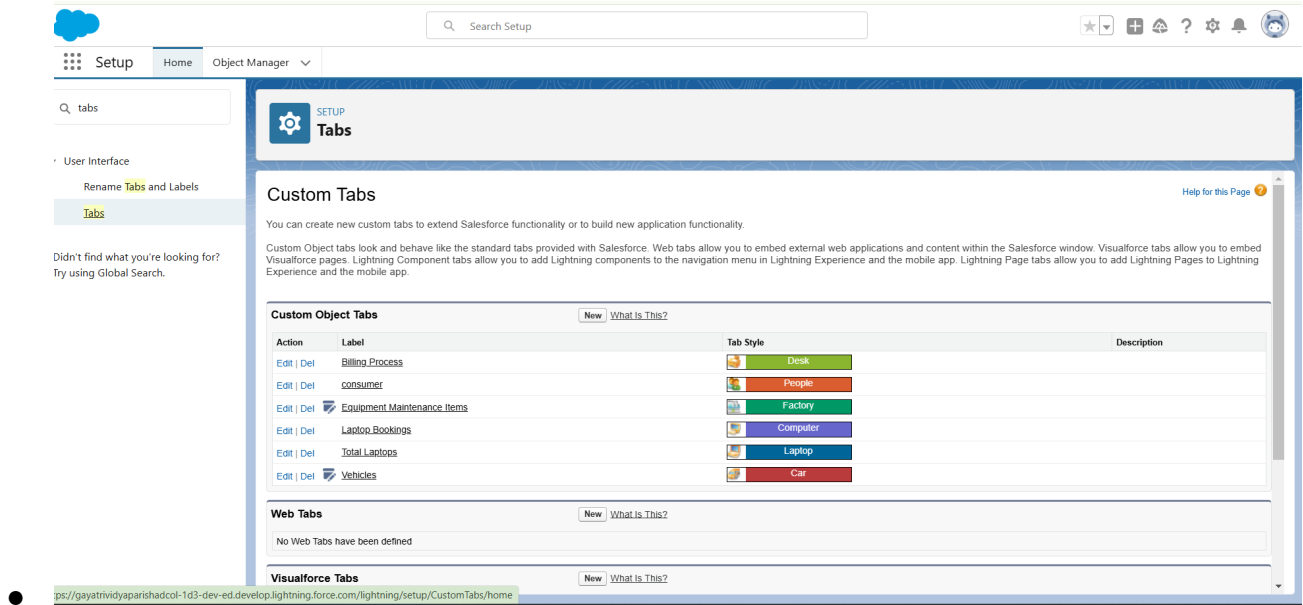
- When a laptop booking is confirmed, a billing record is automatically created.
- The billing status is updated as payments are processed, and automated reminders are sent to consumers for overdue payments.

3. Tabs

Tabs are used to access different objects and records in Salesforce. For this project,

custom tabs have been created for the following objects:

- **Laptop Bookings:** Displays the records of all laptop bookings.
- **Consumers:** Displays customer details and their respective bookings.
- **Total Laptops:** Displays the available laptop inventory.
- **Billing Process:** Displays the billing information for each booking.



These tabs make it easy for users to access the necessary information for managing bookings and customer data.

4. The Lightning App

The project is implemented within a Salesforce Lightning app, which provides a modern, responsive user interface for interacting with the system. The app is customized to include tabs for each object, making it easy for users to navigate between different sections of the system.

Procedure:

- Create a new Lightning App via **App Manager**.
- Add custom tabs for the objects created in the system.
- Customize the app layout to provide a user-friendly interface for managing laptop bookings.

5. Fields

Fields are crucial to store the necessary data for each object. The key fields created for each object include:

- **Laptop Bookings Object:**
 - **Laptop Name:** Name of the rented laptop (e.g., Dell i3, Acer i7).
 - **Core Type:** Processor type (e.g., i3, i7).
 - **Amount:** Total rental amount.
 - **Amount Due:** Outstanding amount to be paid.
 - **Rental Duration:** Duration for which the laptop is rented.
- **Consumers Object:**
 - **First Name:** Customer's first name.
 - **Last Name:** Customer's last name.
 - **Email Address:** Customer's email address for sending notifications.
 - **Phone Number:** Customer's phone number.
- **Total Laptops Object:**
 - **Laptop Name:** Laptop model name.
 - **Quantity Available:** Number of laptops available for rent.
- **Billing Process Object:**
 - **Amount Due:** The amount to be paid by the customer.
 - **Payment Status:** Payment status (Paid, Pending, Overdue).
 - **Booking Reference:** Links to the corresponding booking record.

6. Validation Rule

Validation rules are used to ensure data integrity and enforce business logic. For example, we can create a validation rule to ensure that the **Amount Due** field in the **Laptop Bookings** object is not left empty:

Sample Validation Rule:

- **Rule Name:** "Amount Due Validation"
- **Formula:** ISBLANK(Amount_Due__c)
- **Error Message:** "Amount Due cannot be empty."

This validation rule ensures that every laptop booking has an associated amount due for payment.

7. Profiles

Profiles in Salesforce determine what a user can see and do within the platform. For this project, we have created custom profiles to manage permissions for different users:

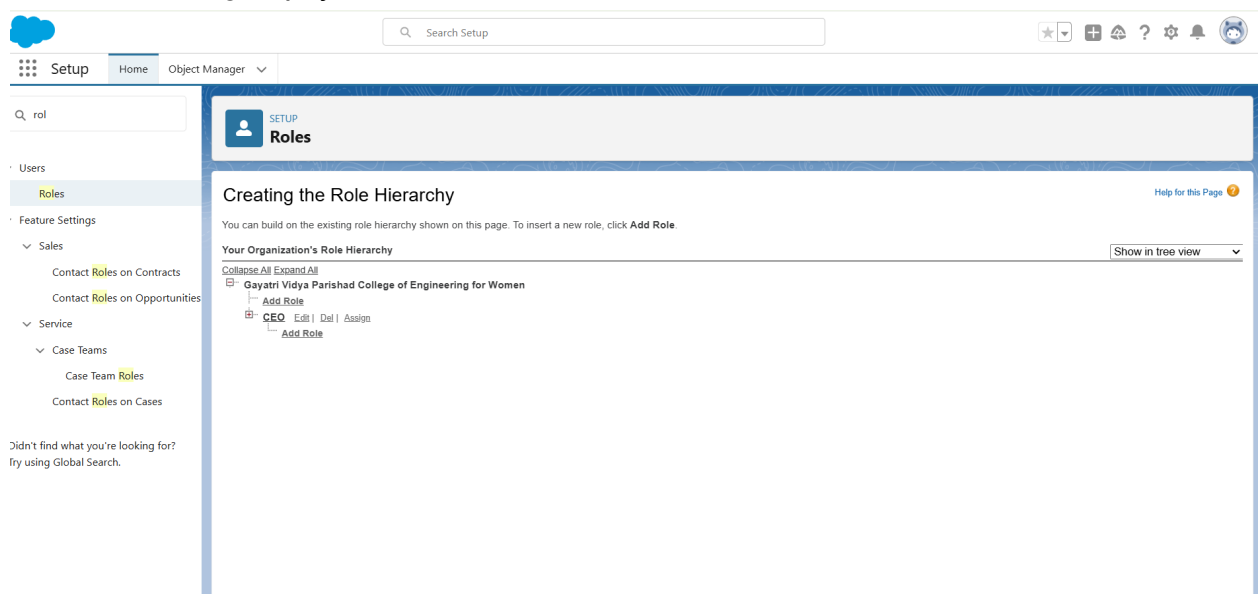
- **Admin Profile:** Full access to all objects, reports, and dashboards. Admins can create, edit, and delete records.
- **Sales Rep Profile:** Limited access to create and edit laptop bookings, but cannot modify system settings or view certain sensitive data.
- **Customer Profile:** Limited to viewing their own bookings and the associated payment details.

8. Roles and Hierarchy

Salesforce roles and hierarchies define the visibility of data across users. The role hierarchy ensures that managers or administrators can see all data, while lower-level users have restricted access.

Role Setup:

- **Admin Role:** Has access to all data and can manage system settings.
- **Sales Manager Role:** Has access to sales-related data and can monitor booking trends.
- **Customer Support Role:** Can view customer and booking details but has no access to billing or payment data.



9. Users

Users are created and assigned roles and profiles in Salesforce. For this project, the following users were created:

- **Admin User:** Has full access to manage the entire system.
- **Sales Rep User:** Responsible for managing laptop bookings and customer details.
- **Customer Support User:** Helps customers with booking issues and payment inquiries.

Users are assigned specific profiles based on their job responsibilities, ensuring appropriate access levels.

The screenshot shows the Salesforce Setup interface. On the left, the 'Setup' menu is open, and 'Users' is selected under 'User Management Settings'. The main content area displays the 'User Detail' for a user named 'ram ram'. The user's email is 'ram02@gmail.com', and their username is 'ram02@ram.ram'. The user is assigned the 'Agent' profile and 'Salesforce Platform' role. The 'Active' checkbox is checked. The 'Marketing User' checkbox is also checked, while others like 'Offline User', 'Knowledge User', 'Flow User', 'Service Cloud User', 'Site.com Contributor User', 'Site.com Publisher User', 'WDC User', 'Mobile Push Registrations', 'Data.com User Type', 'Accessibility Mode (Classic Only)', 'Debug Mode', and 'High-Contrast Palette on Charts' are unchecked. The 'Receive Approval Request Emails' checkbox is checked, and the 'Federation ID' is set to 'Only if I am an approver'.

10. Flows

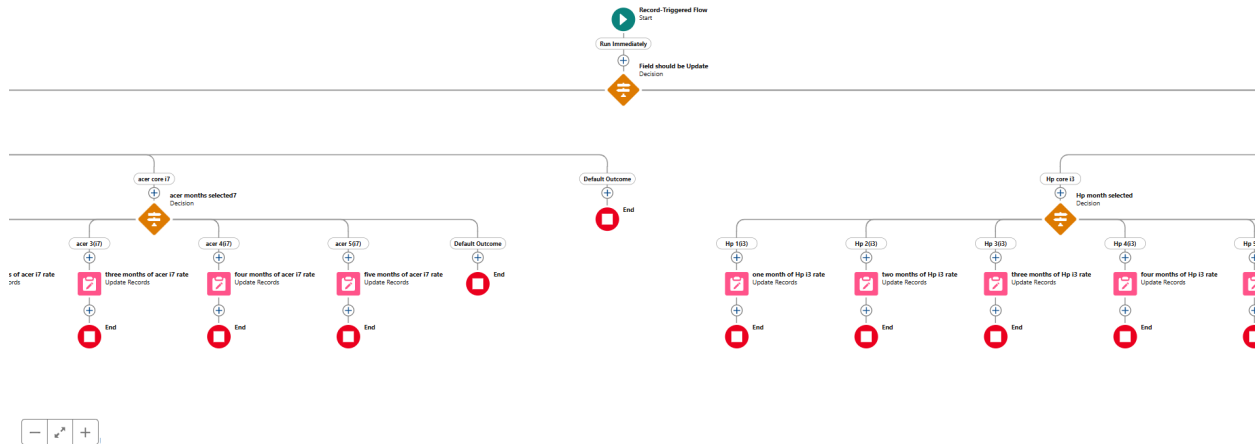
Flows are used to automate processes and ensure smooth business operations. In this project, we use record-triggered flows to automate email notifications and updates for laptop bookings.

Sample Flow:

- **Flow Type:** Record-Triggered Flow
- **Triggering Event:** When a new laptop booking is created or updated.

- **Actions:**

- Send email notification to the customer with booking details.
- Update the **Total Laptops** object to reflect the change in inventory.



Flows help automate routine tasks, improving efficiency and reducing manual effort.

11. Apex

Apex code is used for complex logic and integration tasks that cannot be achieved with point-and-click tools. For this project, an Apex trigger is used to send email notifications after a laptop booking is created.

Sample Apex Trigger:

apex

Copy code

```
trigger LaptopBooking on Laptop_Bookings__c (After insert, After update) {
    if(trigger.isAfter && (trigger.isInsert || trigger.isUpdate)) {
        LaptopBookingHandler.sendEmailNotification(trigger.new);
    }
}
```

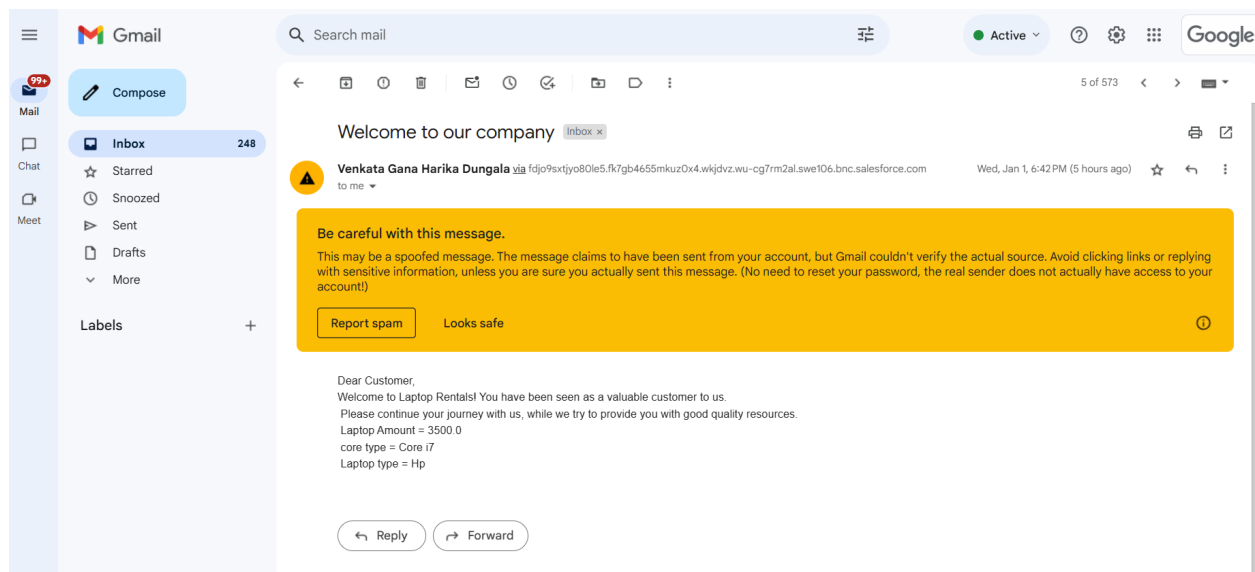
The **LaptopBookingHandler** class is responsible for sending the email notification to customers.

```

File Edit Debug Test Workspace Help < >
StringListTest.apxc ExampleTrigger.apxt LaptopBooking.apxt LaptopBookingHandler.apxc
Code Coverage: None API Version: 62 Go To
1 public class LaptopBookingHandler {
2
3     public static void sendEmailNotification (List<Laptop_Bookings__c> lapList){
4
5         for(Laptop_Bookings__c lap:lapList)
6
7         {
8
9             Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
10
11             email.setToAddresses( new List<String>{lap.Email__c});
12
13             email.setSubject('Welcome to our company');
14
15             string body = 'Dear Customer, \n';
16
17             body += 'Welcome to Laptop Rentals! You have been seen as a valuable customer to us.\n Please continue your journey with us, while we
18
19             email.setPlainTextBody(body);
20
21             Messaging.sendEmail(new List<Messaging.SingleEmailMessage>{email});
22
23         }
24     }
25 }
26

```

Result:



12. Reports

Reports are used to analyze and visualize data, providing insights into the performance of the Laptop Booking System. The following types of reports have been created:

- **Laptop Bookings Report:** Lists all bookings along with customer details and amounts due.
- **Revenue Report:** Displays total revenue generated from laptop bookings.
- **Payment Status Report:** Shows the payment status (Paid, Pending, Overdue) for each booking.

Procedure to Create Reports:

- Navigate to the **Reports** tab and create a new report.
- Choose the relevant report type (e.g., **Laptop Bookings**).
- Customize the report by adding necessary fields like **Amount**, **Amount Due**, and **Laptop Type**.

Report: consumer with Laptop Bookings and Total Laptops	Enable Field Editing	Add Chart	Filter	Export	Edit
Total Records: 8	Total Amount: ₹27,200	Total Laptops Available: 390			
consumer: consumer_name	Laptop Bookings: Laptop Bookings	Amount	Laptops Available	Total No Of Laptops: Total Laptops	
intermediate (1)	Hanka	Hp core i5	₹1,500	49	Hp core i5
Subtotal			₹1,500	49	
high (7)	Surya	Dell core i3	₹5,000	48	Dell core i3
	sruthi	Dell core i3	₹5,000	48	Dell core i3
	Surya	mac	₹3,400	49	mac
	Hema	Acer core i3	₹3,600	49	Acer core i7
	Hanka	Dell Core i5	₹2,500	49	Dell Core i5
	sruthi	Hp Core i7	₹3,500	49	Hp Core i7
	Hema	Acer core i3	₹2,700	49	Acer core i3
Subtotal			₹25,700	341	
Total (8)			₹27,200	390	

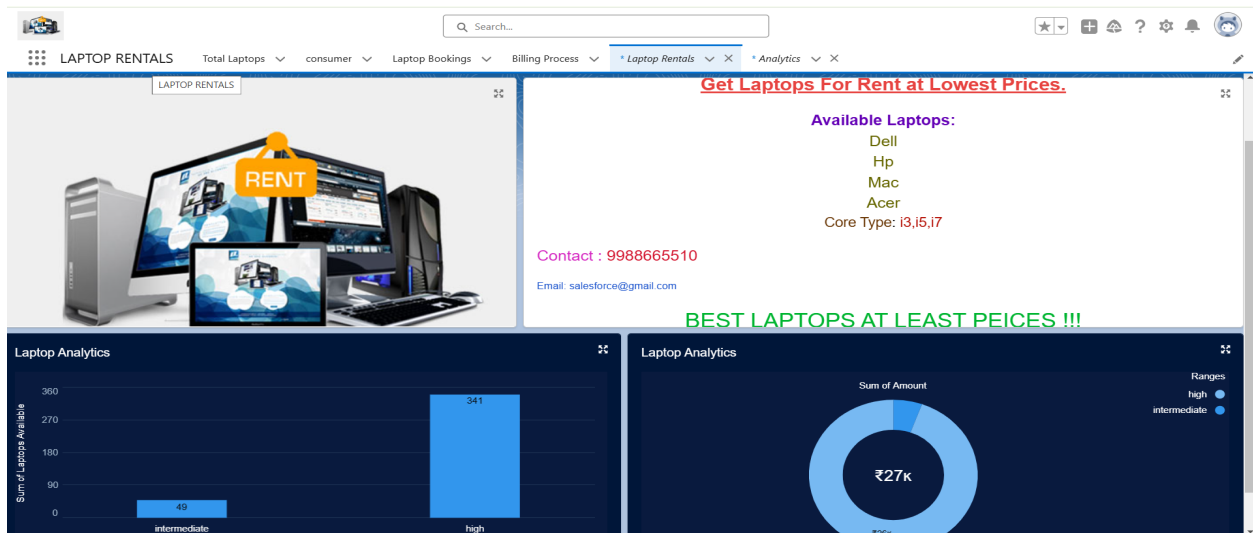
13. Dashboards

Dashboards provide a visual summary of key metrics, making it easier for admins and managers to track the performance of the Laptop Booking System. The following dashboards have been created:

- **Total Rent Amount Dashboard:** Visualizes total revenue, bookings, and payment status in real-time.
- **Booking Trends Dashboard:** Displays trends in laptop bookings over time.

Procedure to Create Dashboards:

- Go to the **Dashboards** tab and create a new dashboard.
- Select the report to be visualized.
- Add components like bar charts, pie charts, or line graphs to display data visually.



14. Conclusion

The Laptop Booking System project successfully integrates Salesforce to automate and manage the entire laptop rental process. By creating custom objects, automating workflows with flows and triggers, and generating insightful reports and dashboards, the system provides an efficient and user-friendly solution for managing laptop bookings. The integration of profiles, roles, and security settings ensures that data is accessible only to authorized users, enhancing system security and data integrity. This project demonstrates the power of Salesforce in streamlining business operations and providing real-time insights for improved decision-making.