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PROJECT TITLE: A CRM APPLICATION FOR LAPTOP RENTALS

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MAHATMA GANDHI INSTITUTE OF TECHNOLOGY

A CRM APPLICATION FOR LAPTOP RENTALS

1. PROJECT OVERVIEW

This project is focused on developing a **CRM Application for Laptop Rentals** using this to address the challenges of managing rental services efficiently and improving customer interactions. The goal is to deliver a comprehensive solution by leveraging Salesforce's Lightning App framework, custom objects, validation rules, and automated workflows. Through this project, we aim to enhance operational efficiency, streamline rental processes, ensure data accuracy, and improve customer engagement via automated email communication. This system supports the long-term goals of enhancing customer satisfaction, optimizing resource management, and driving business growth in the laptop rental industry.

2. OBJECTIVES

Business goals:

- Enhance customer satisfaction by providing a seamless rental experience through efficient communication and prompt service.
- Optimize resource management by accurately tracking laptop inventory, rental durations, and availability.
- Automate routine tasks such as sending notifications, updating inventory, and generating reports to save time and reduce errors.
- Support data-driven decision-making with real-time insights through dashboards and reports.
- Strengthen customer relationships by implementing personalized communication strategies.

Specific Outcomes:

Key Deliverables:

- A Salesforce-based Lightning App tailored for managing laptop rentals.
- Custom objects and fields to track laptops, rental orders, and customer details.
- Automated workflows for inventory updates, email notifications, and rental approval processes.
- Role-based profiles and hierarchy for secure data access.

- Interactive dashboards and reports for analyzing rental trends and performance metrics.

Key Outcomes:

- Reduced processing time for rental orders and inventory updates.
- Enhanced customer engagement through timely and personalized email communication.
- Improved data accuracy and integrity through validation rules and automated workflows.
- Real-time visibility into business operations, enabling strategic planning.
- Increased operational efficiency, leading to better customer satisfaction and business growth.

3. SALESFORCE KEY FEATURES AND CONCEPTS UTILIZED

- **Object Creation:** Custom objects like *Total Laptops*, *Consumer*, *Laptop Bookings*, and *Billing Process* were created to manage application-specific data alongside standard Salesforce objects like users and reports.
- **Tabs:** Custom tabs were developed for custom objects to improve navigation and facilitate record management, while Lightning Component and Web Tabs were also utilized for enhanced functionality and easy access to external content.
- **The Lightning App:** A custom Lightning app was built to bundle related objects, tabs, and utilities, providing a centralized interface for users.
- **Fields:** Custom fields were created within objects like *Consumer* and *Laptop Bookings*, with relationships defined between objects to maintain data integrity and ensure smooth interactions.
- **Validation Rules:** Validation rules were set up to maintain data quality, such as ensuring that either a phone number or email is provided in the *Consumer* object.
- **Profiles:** Standard and custom profiles were configured to control user access and permissions, ensuring the right users have access to specific data and functions.
- **Roles and Hierarchy:** Roles were defined to manage data visibility and hierarchical access, ensuring that users could access the relevant information based on their roles within the organization.
- **Users:** User accounts were created to allow specific individuals to log in and interact with the application, with access controlled by their role and permissions.
- **Flows:** Flows were implemented to automate business processes, like automatically calculating amounts based on laptop types, and guiding users through data entry using screen flows.
- **Apex:** Apex classes and triggers were utilized to implement advanced business logic and

automate tasks, such as handling data changes during record insertions or updates.

- **Reports:** Various report types, including Tabular and Summary Reports, were generated to provide insights into data, group records, and analyze application performance.
- **Dashboards:** Dashboards were created to display key metrics and data trends visually, providing real-time insights into business activities and outcomes.
- **Automation Features:** Salesforce's automation tools like flows and validation rules were used extensively to automate repetitive tasks, improve workflow efficiency, and maintain data integrity throughout the application.

4. DETAILED STEPS TO SOLUTION DESIGN

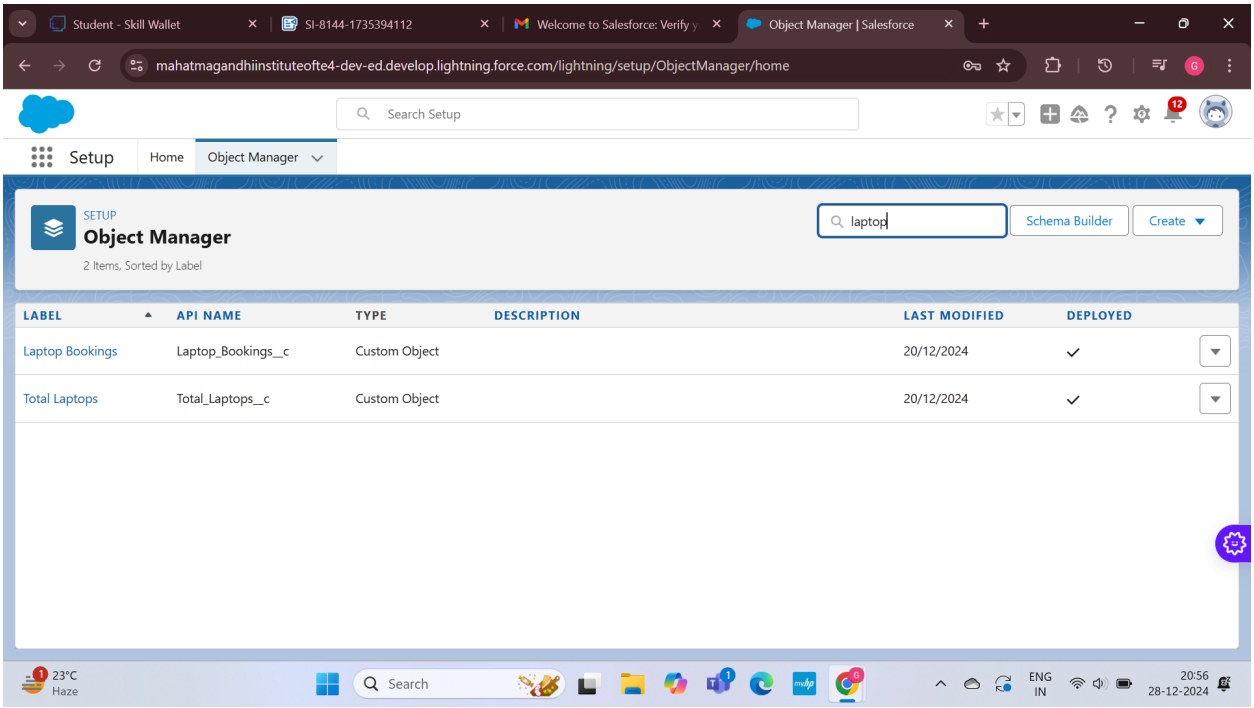
The solution has been designed to address business requirements by leveraging Salesforce's powerful features, including object creation, validation rules, profiles, flows, reports, and dashboards. This section will detail the steps taken to create the data model, user interface, and business logic for the application.

Object Creation

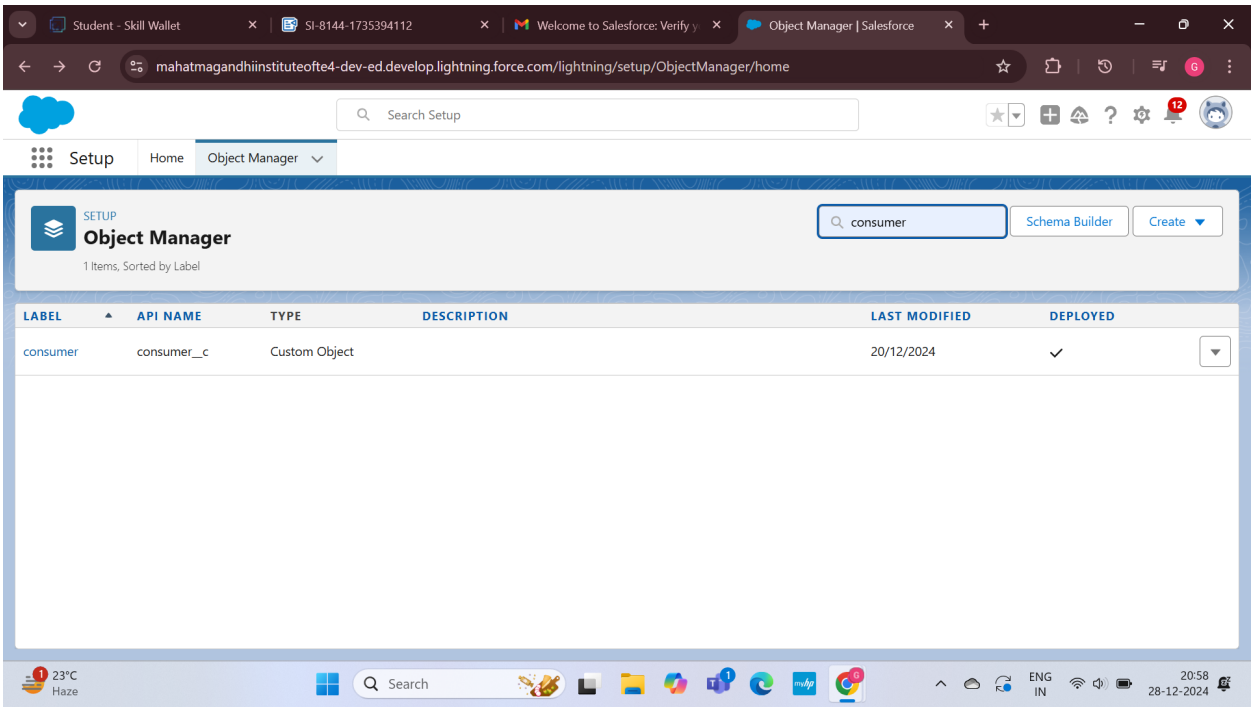
To store and manage relevant data, custom objects were created. These custom objects were designed based on the business requirements of managing laptops, bookings, consumers, and billing processes.

The objects created for this are given in the below image:

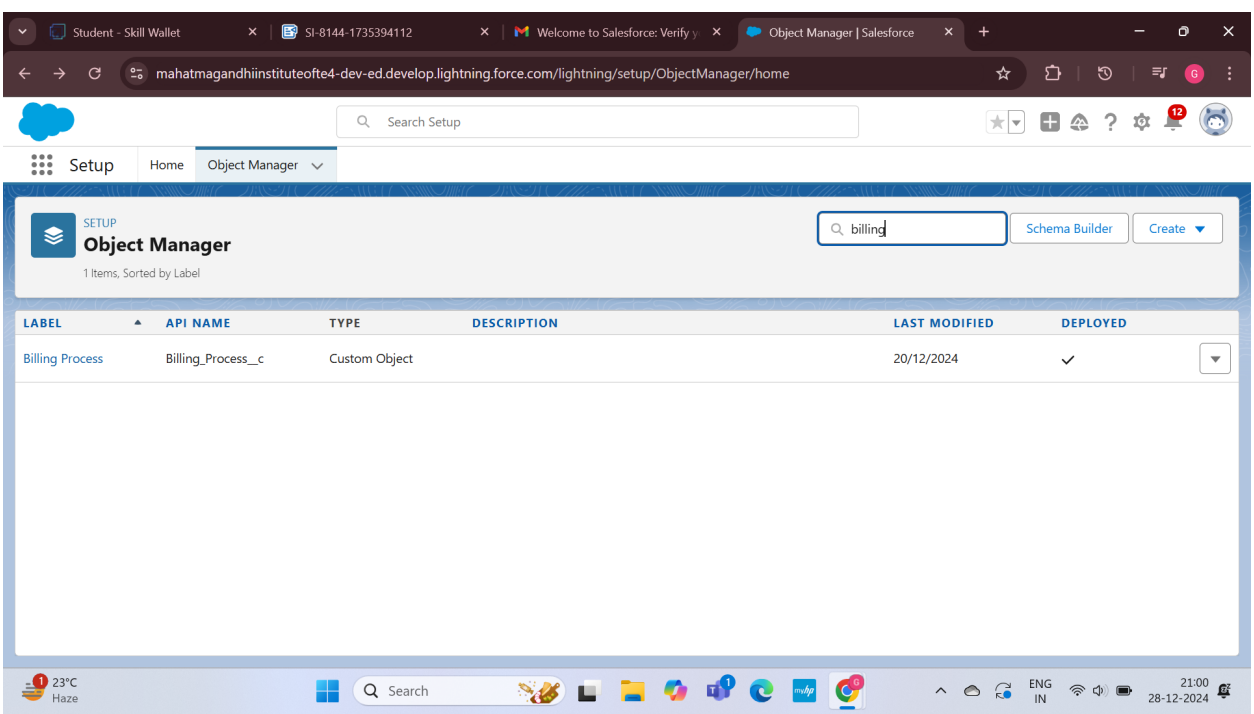
Objects for Total Laptops and Laptop Bookings are:



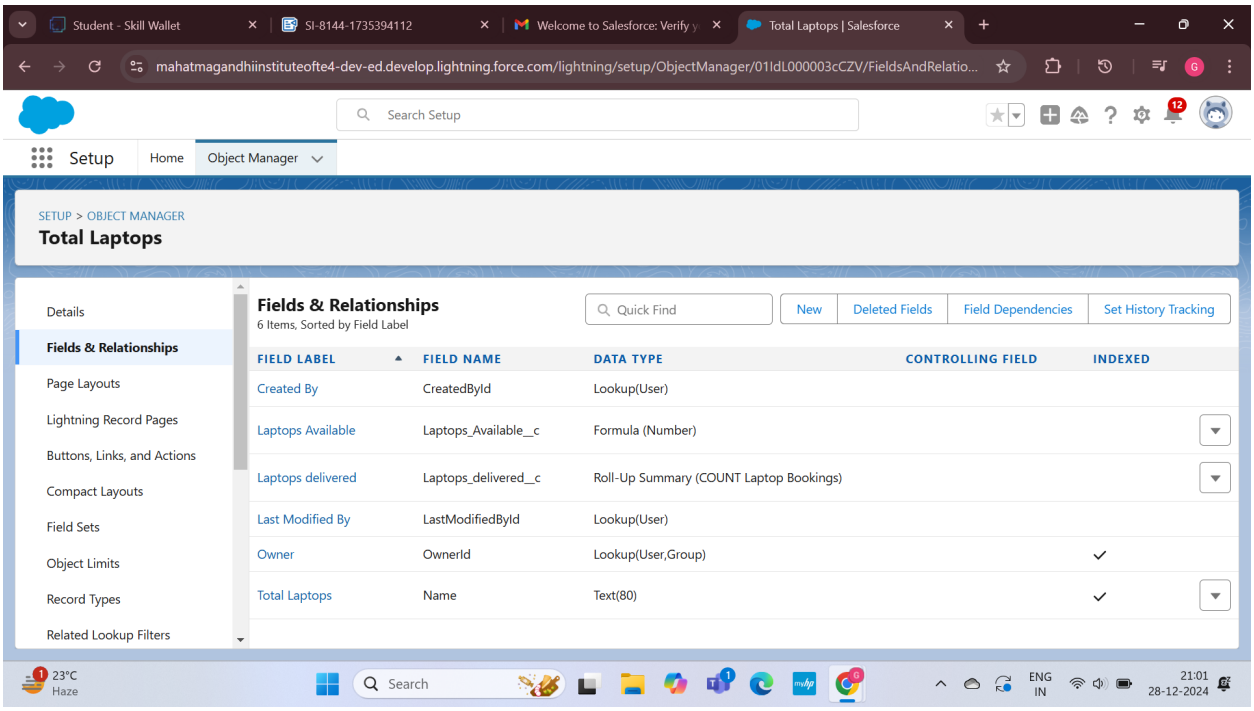
Object creation for consumer is in below image:



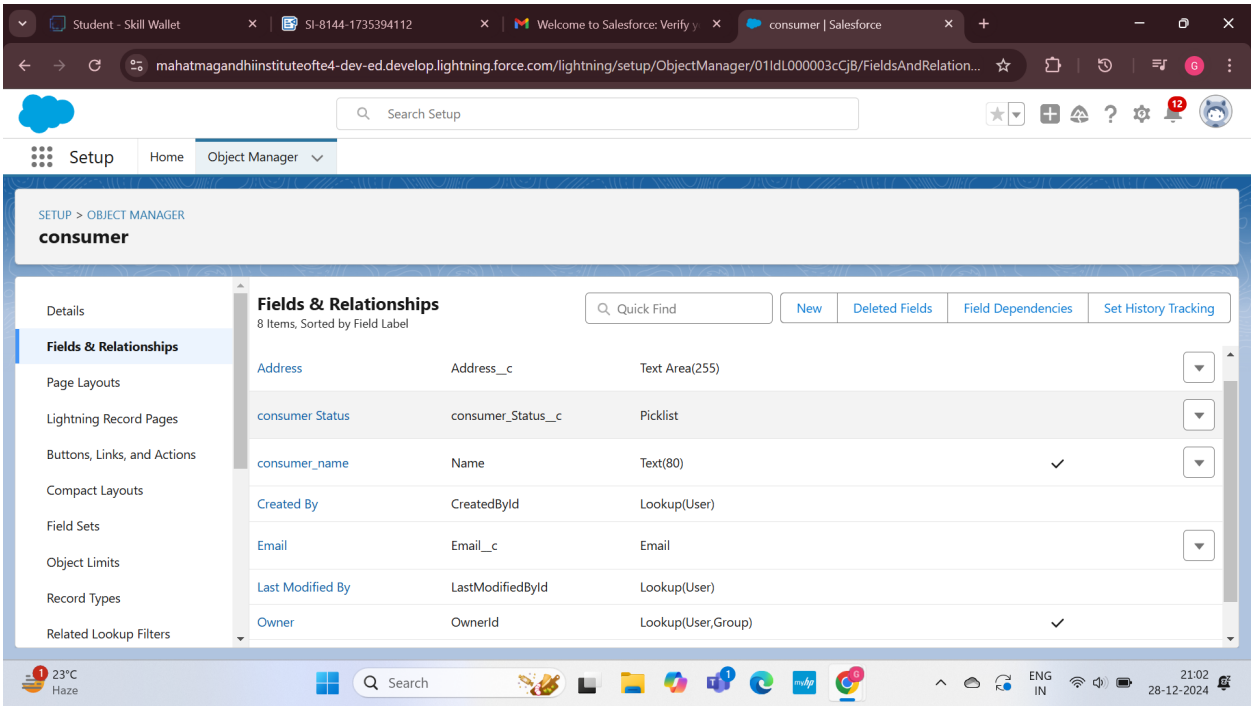
Object for Billing process is in below image:



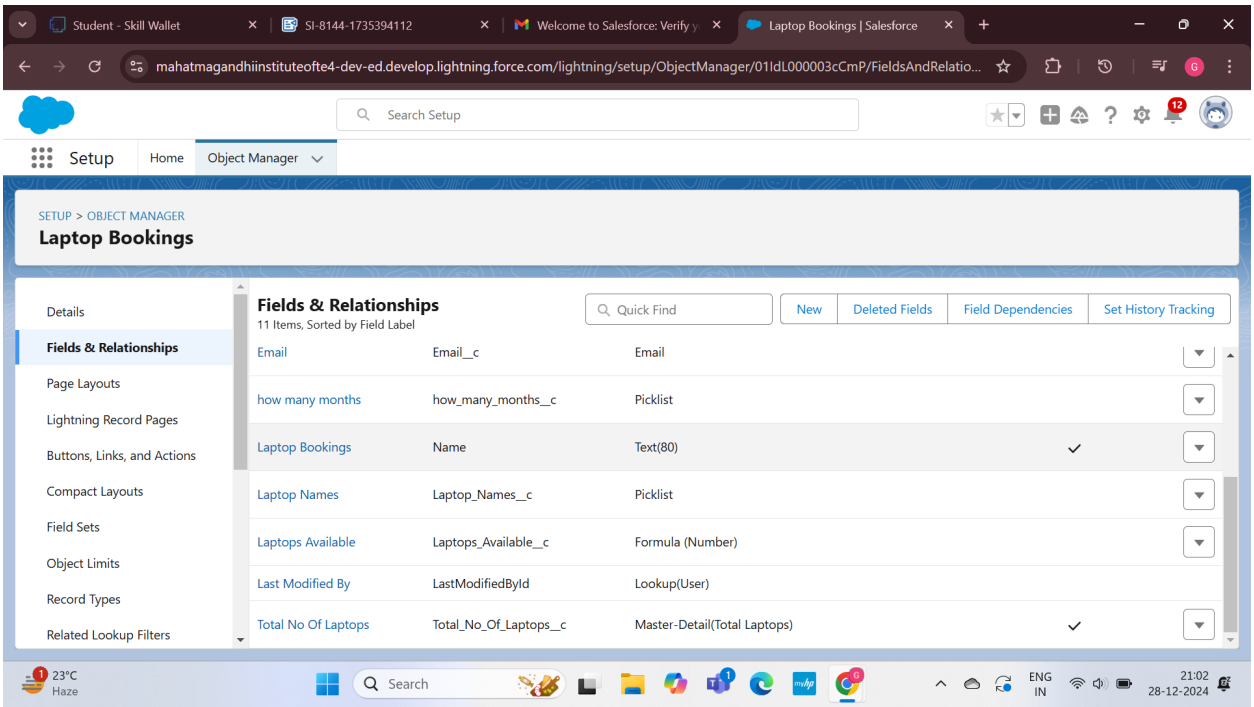
- **Total Laptops Object**: This object holds information about all the available laptops in the system.



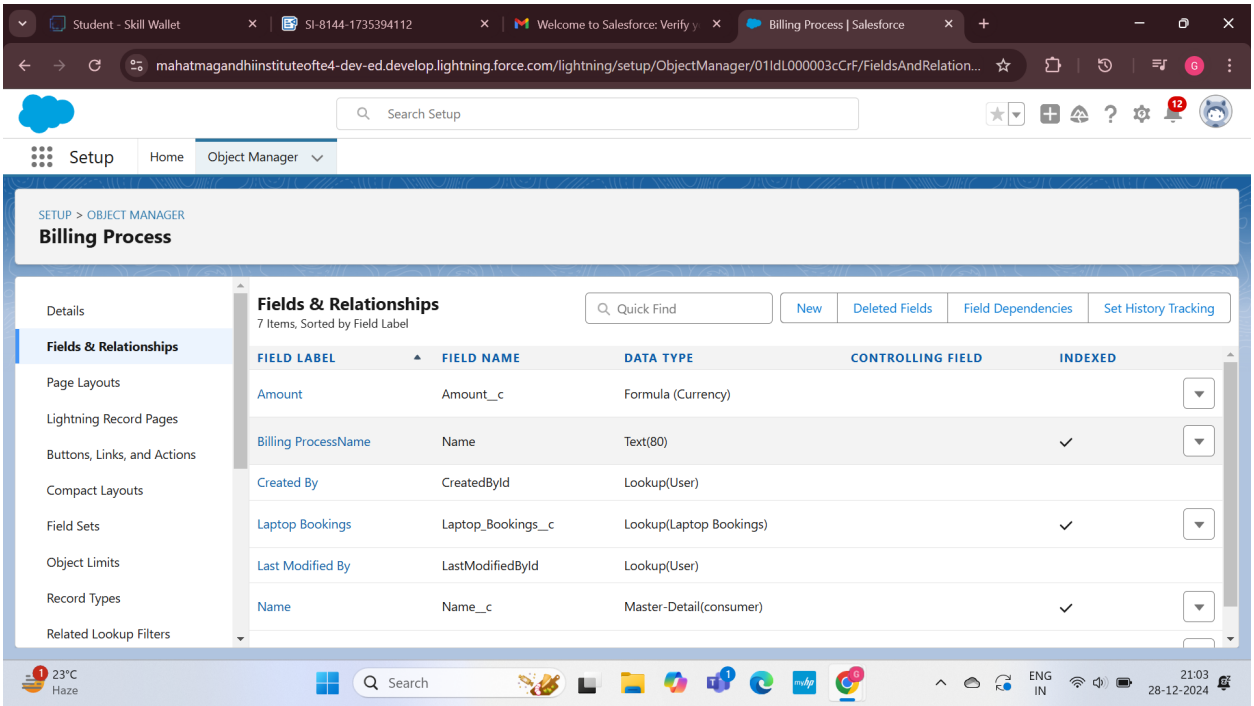
- **Consumer Object**: This stores data about consumers renting the laptops, such as personal details and contact information.



- **Laptop Bookings Object**: This object manages the laptop rental details, such as laptop type, booking date, and rental duration.



- **Billing Process Object**: This object is responsible for managing the financial aspects of the rental, including billing information and payment status.

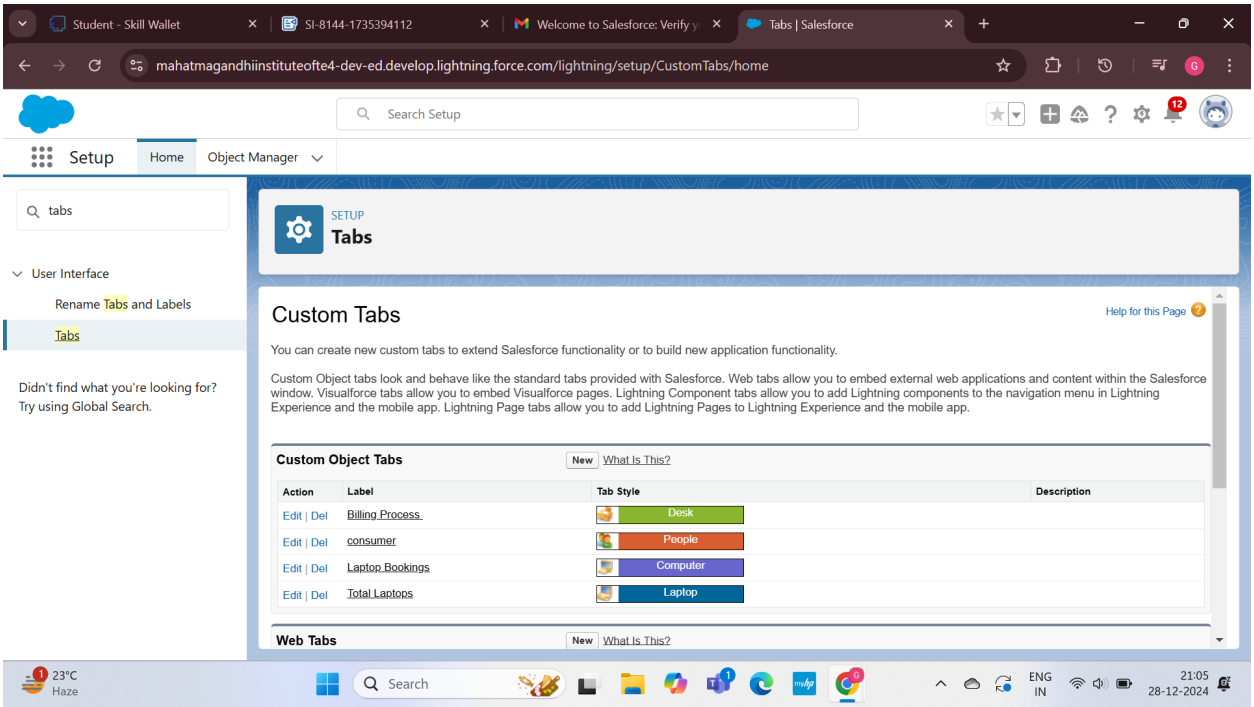


These objects are linked together through **relationships** to maintain data consistency. For example, the *Laptop Bookings* object has a lookup relationship to both the *Total Laptops* and *Consumer* objects to link the booking to a specific laptop and consumer.

Tabs

To ensure a smooth user experience, custom tabs were created for each object. Tabs are used as the user interface elements that allow users to access and manage records for each custom object.

- **Custom Tabs**: Created custom tabs for the objects—*Total Laptops*, *Consumer*, *Laptop Bookings*, and *Billing Process*—so that users could easily navigate between different parts of the CRM system.



- **Lightning Component Tabs**: These tabs were used to add custom Lightning components for enhanced functionality, such as displaying laptop types or calculating amounts for billing.

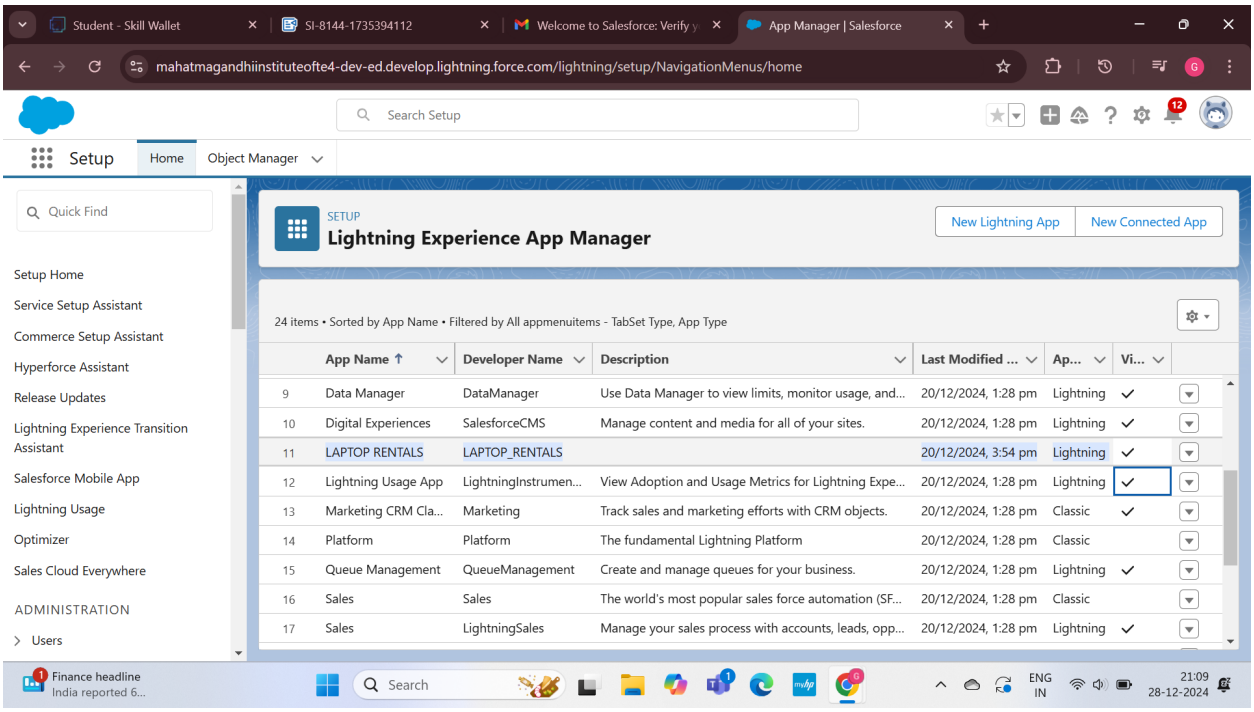
The Lightning App

The next step in the design process was creating a custom *Lightning App* that bundles related tabs and objects into one convenient interface for users. This app is the heart of the user experience, enabling seamless navigation.

- The Lightning App consolidates the custom objects and their tabs (like *Laptop Bookings*,

Total Laptops, and *Consumer*) into a single app that can be accessed via the Salesforce navigation menu.

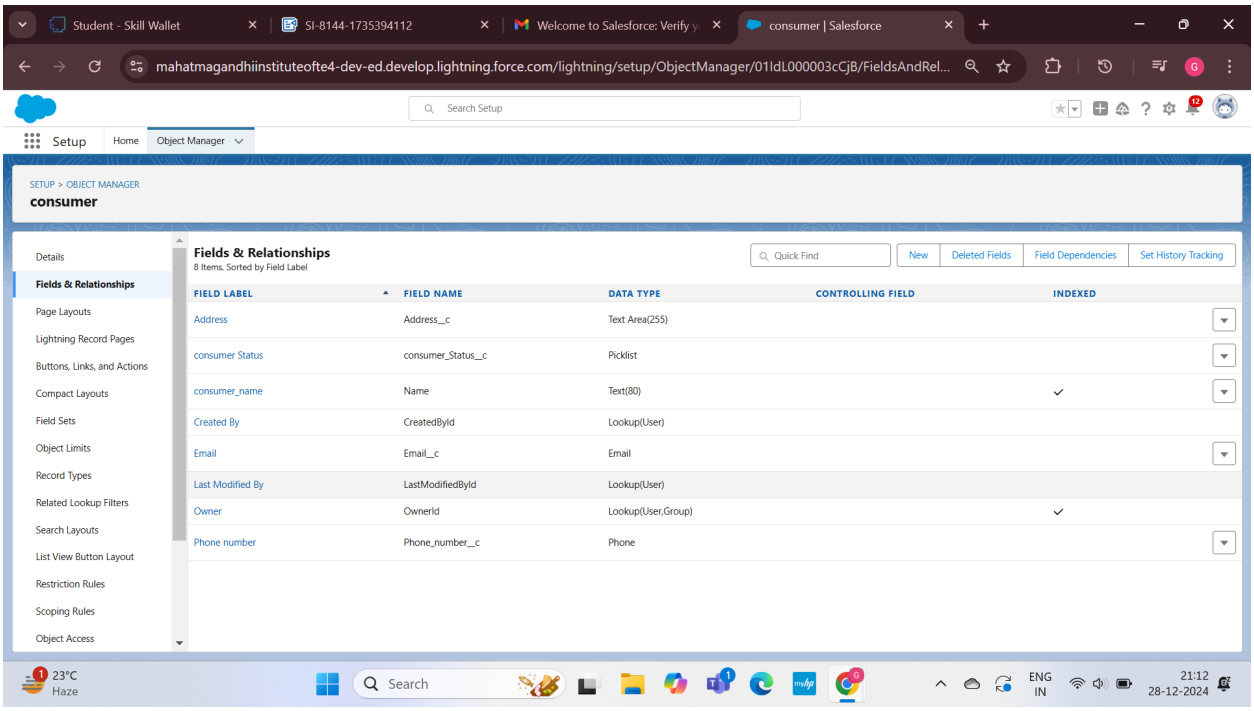
- A custom logo and color scheme were added to personalize the app, providing branding consistency.



Fields

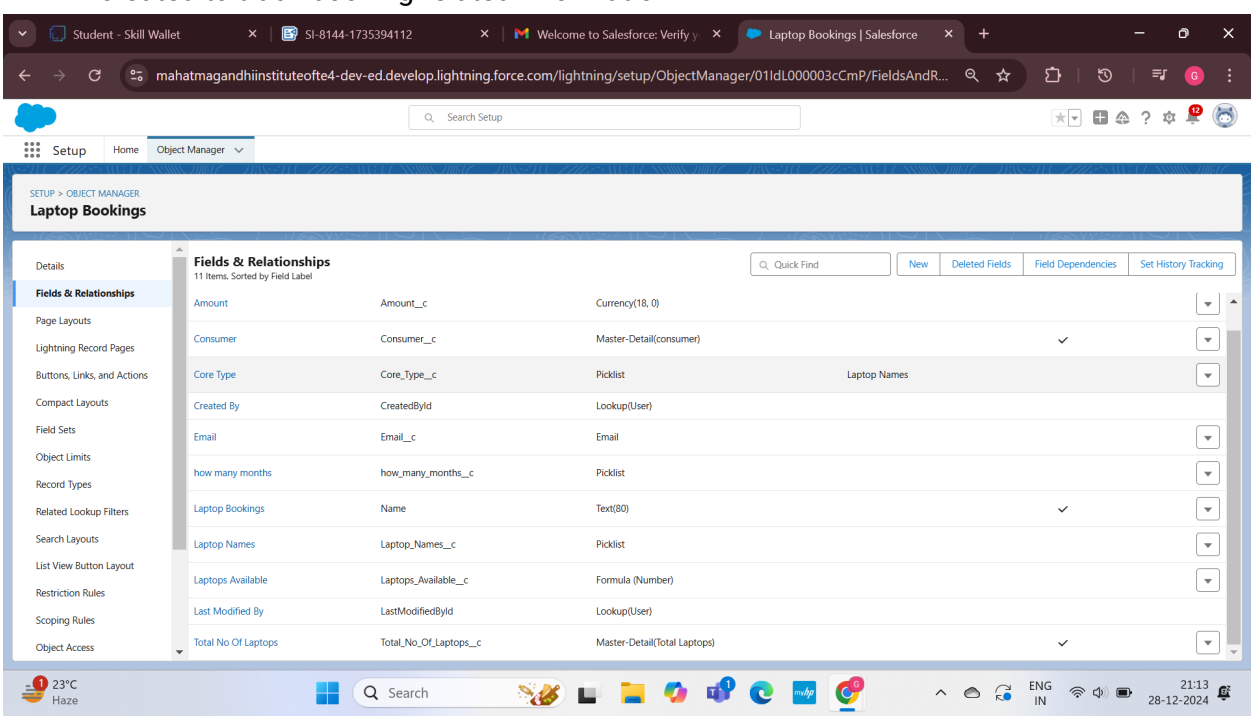
For each custom object, I created various fields to store essential data. Fields act as the columns in the database table and are critical in capturing necessary information for each object.

- **Consumer Object Fields**: Fields like *First Name*, *Last Name*, *Phone Number*, *Email*, and *Address* were added to store customer-specific details.



This image gives all the fileds created in consumer object.

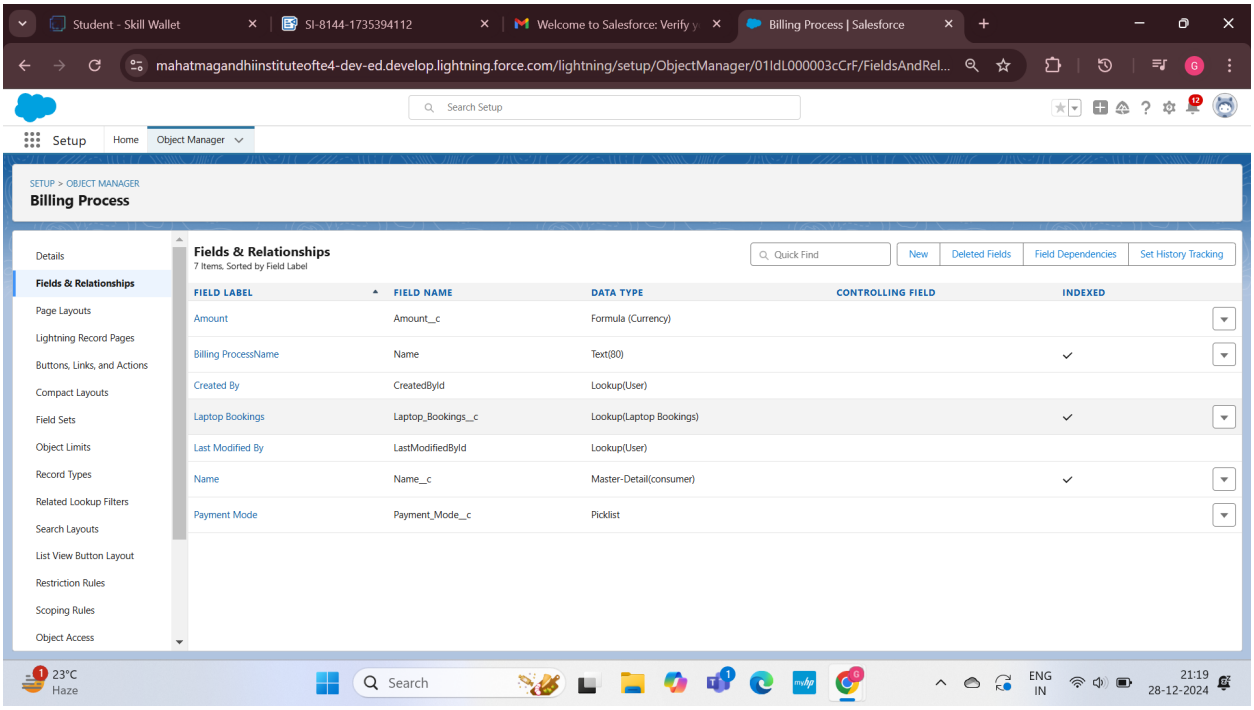
- **Laptop Bookings Object Fields**: Fields like *Laptop Type*, *how many months, Laptop Bookings, Laptop Names*, Laptops Available,Total no of Laptops and *Amount* were created to track booking-related information.



There are total of 11 fields created for Laptop Bookings object.

- **Billing Process Fields**: Fields for *Billing ProcessName, Name*, *Amount*, and *Payment*

Mode,Laptop Bookings were included to manage the billing details for each laptop rental.

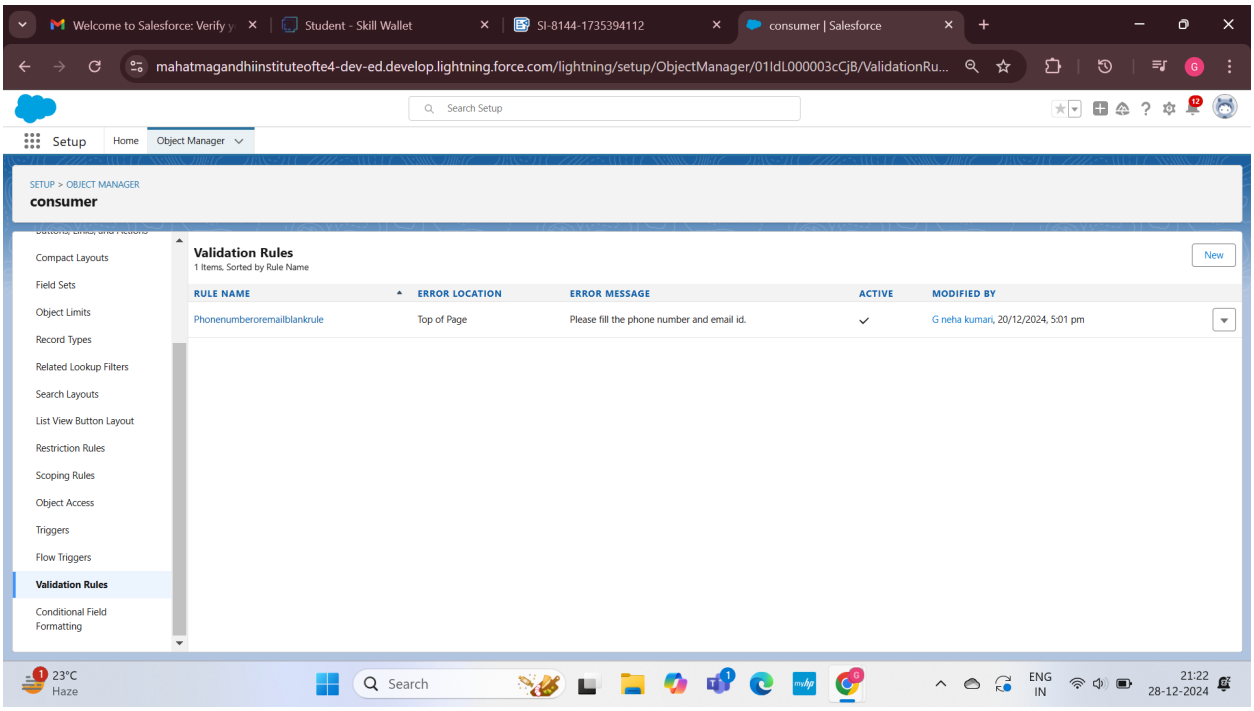


- **Total Laptops Fields:** Fields laptops available, Laptops delivered, Total Laptops.

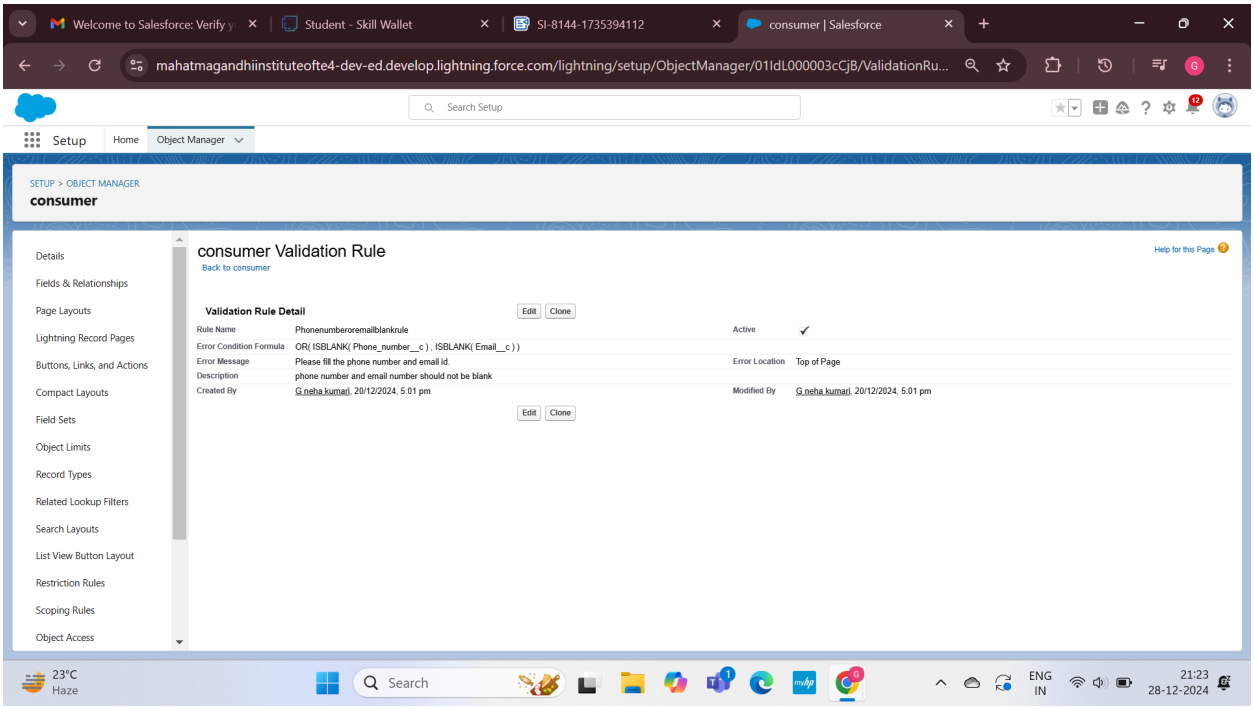
Validation Rules

To ensure that only valid data is entered into the system, validation rules were applied to enforce business logic and data quality.

- For instance, I created a validation rule in the *Consumer Object* called *phonenumberoremailblankrule* to ensure that either a phone number or an email address must be provided when creating or updating a record.



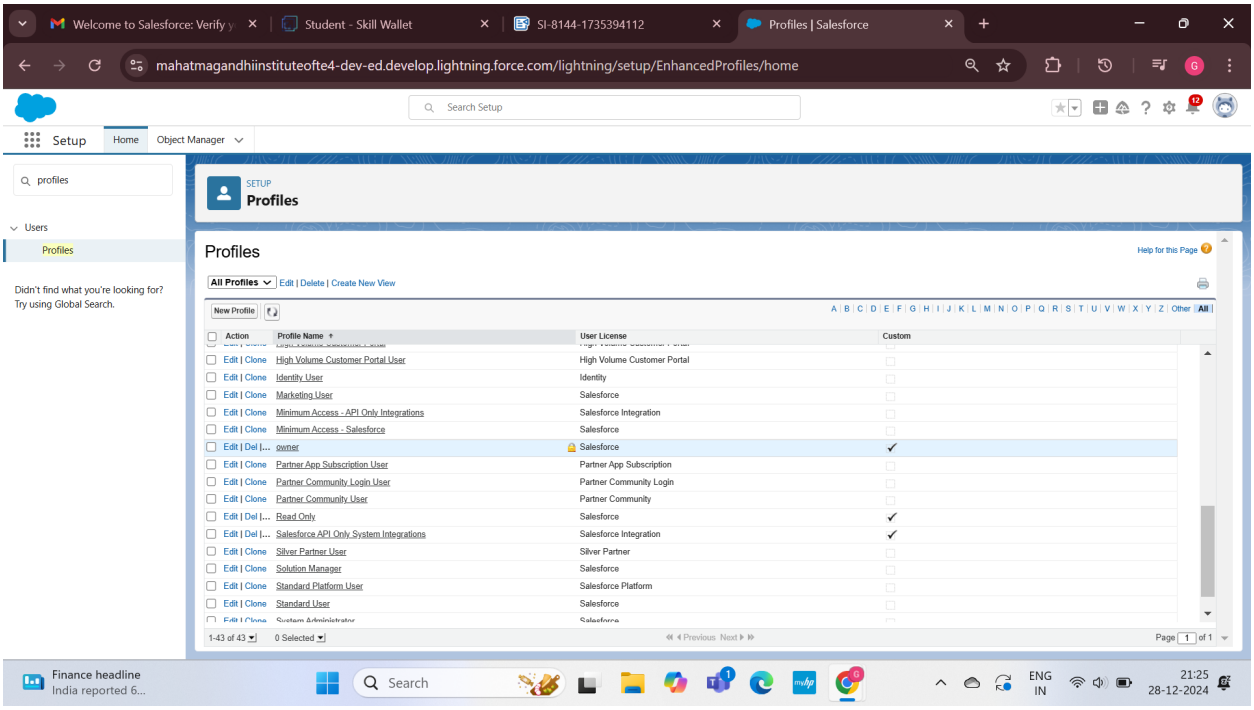
Below images describes what the validation rule for consumer object looks like and which is used for email and phone number validation:

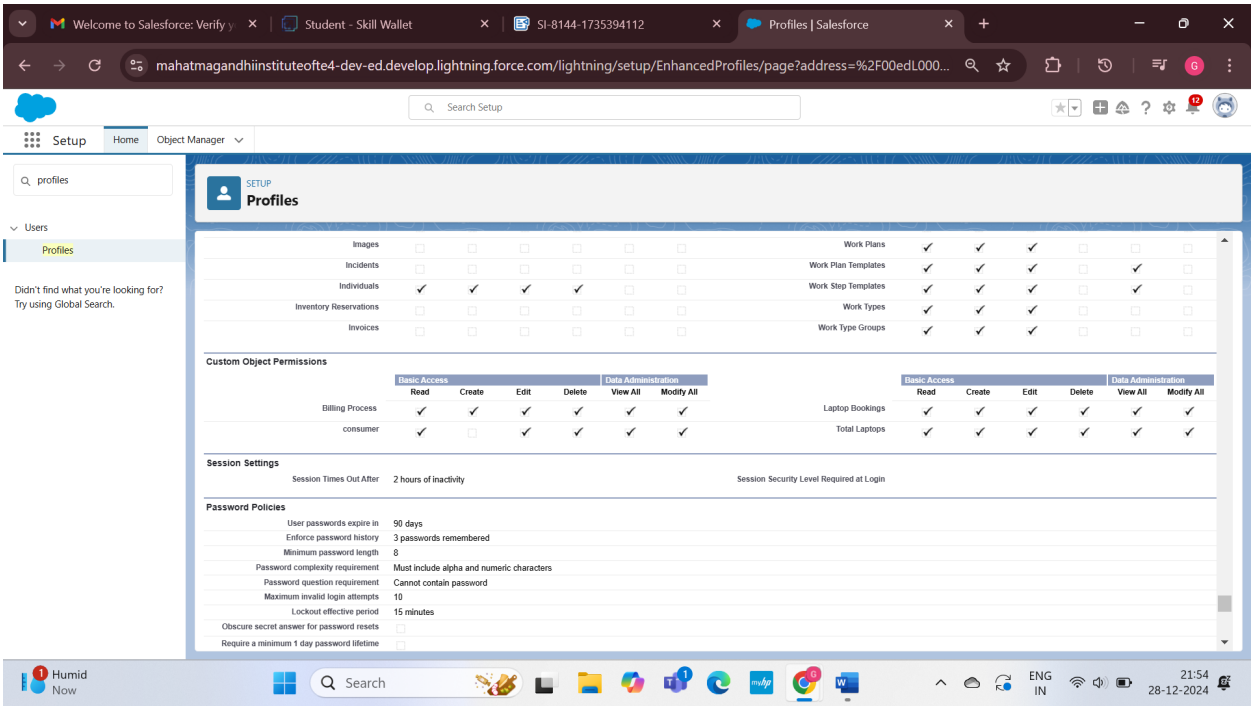


Profiles

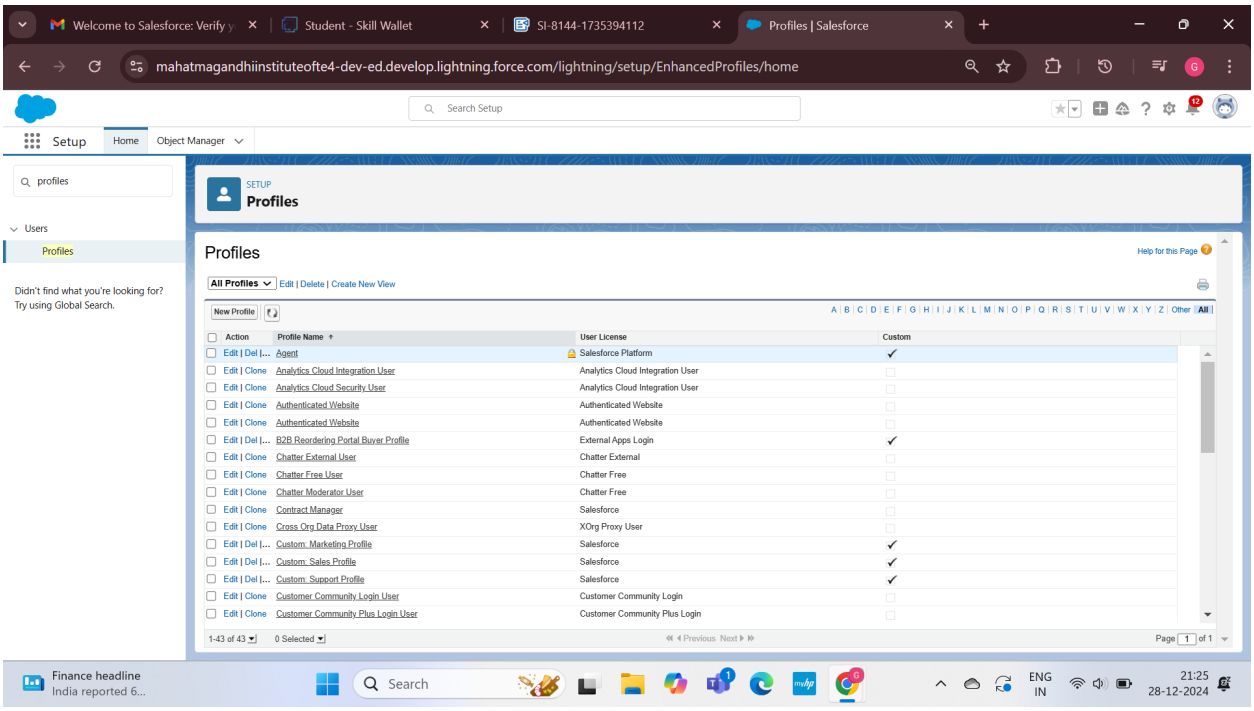
Profiles in Salesforce are used to define the permissions and access rights for users. For this system, I created the following profiles:

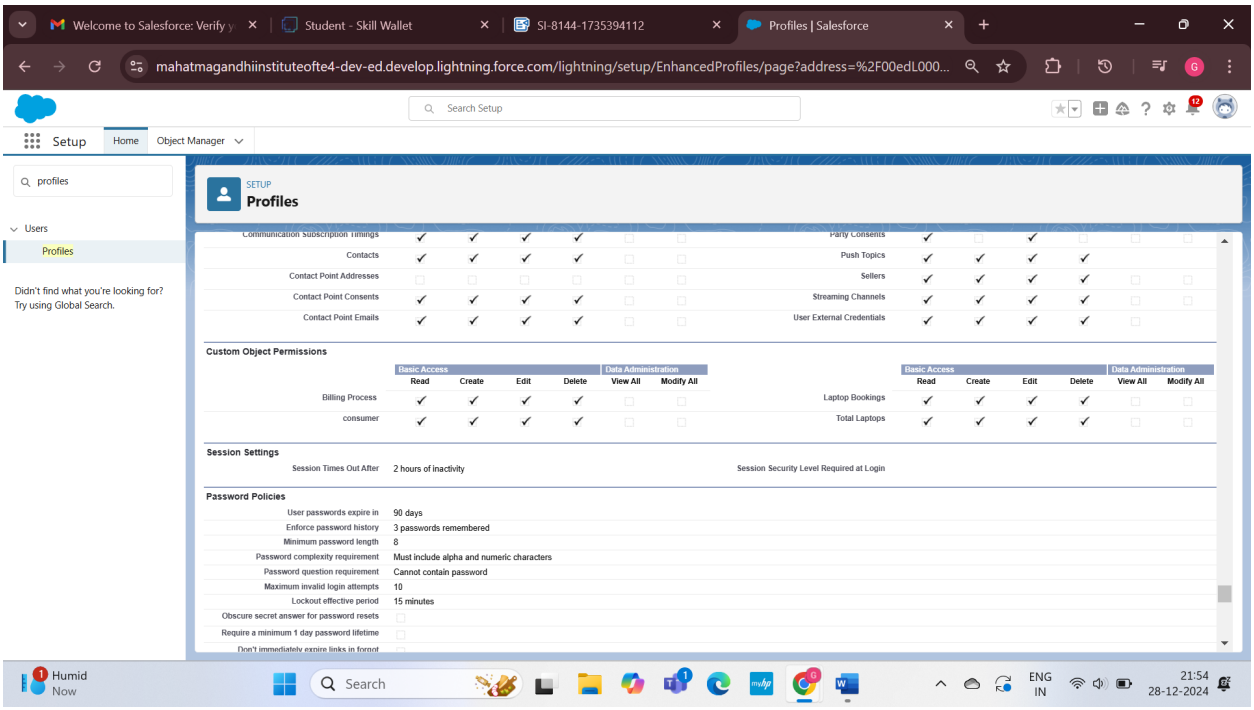
- **Owner Profile**: This profile grants full access to all objects and records.





- **Agent Profile**: This profile is for customer service representatives who can view and update records related to laptop bookings but not change configurations or billing information.



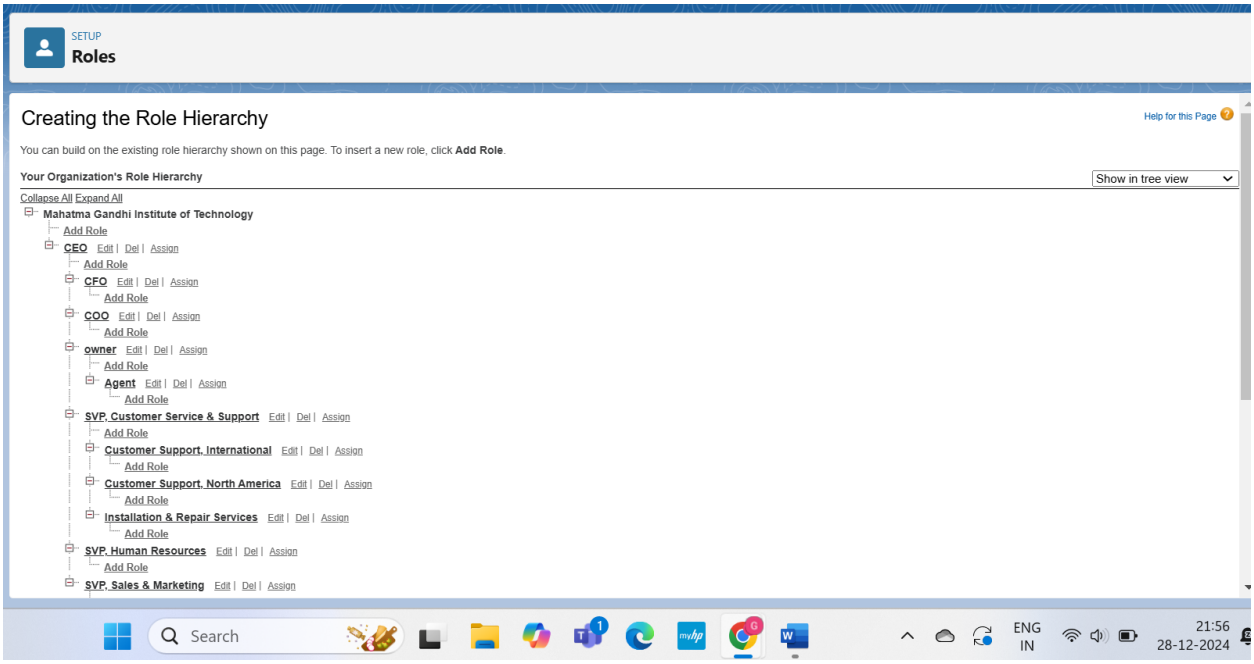


Roles and Hierarchy

Roles are used in Salesforce to manage data visibility. I defined roles to ensure that different levels of users had the appropriate access to records.

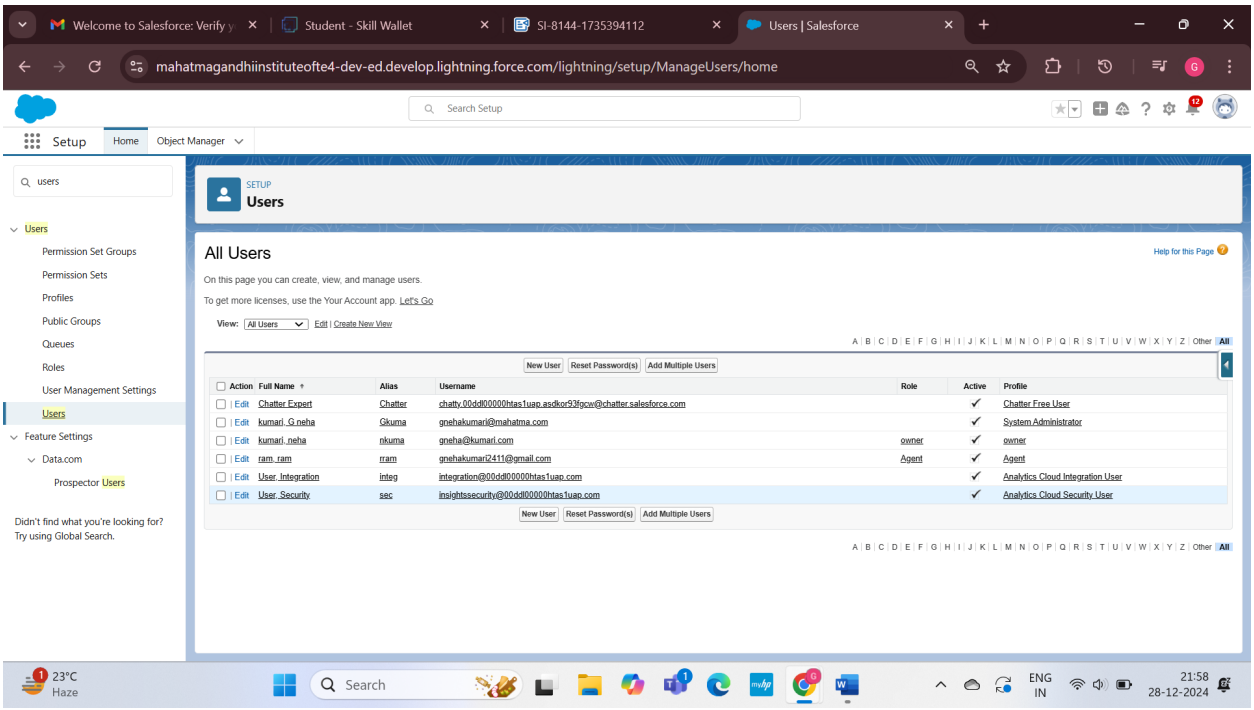
- **Owner Role**: The owner role had access to all records, including consumer and booking data.

- **Agent Role**: The agent role could only see records related to their customers, but not all the system data.



Users

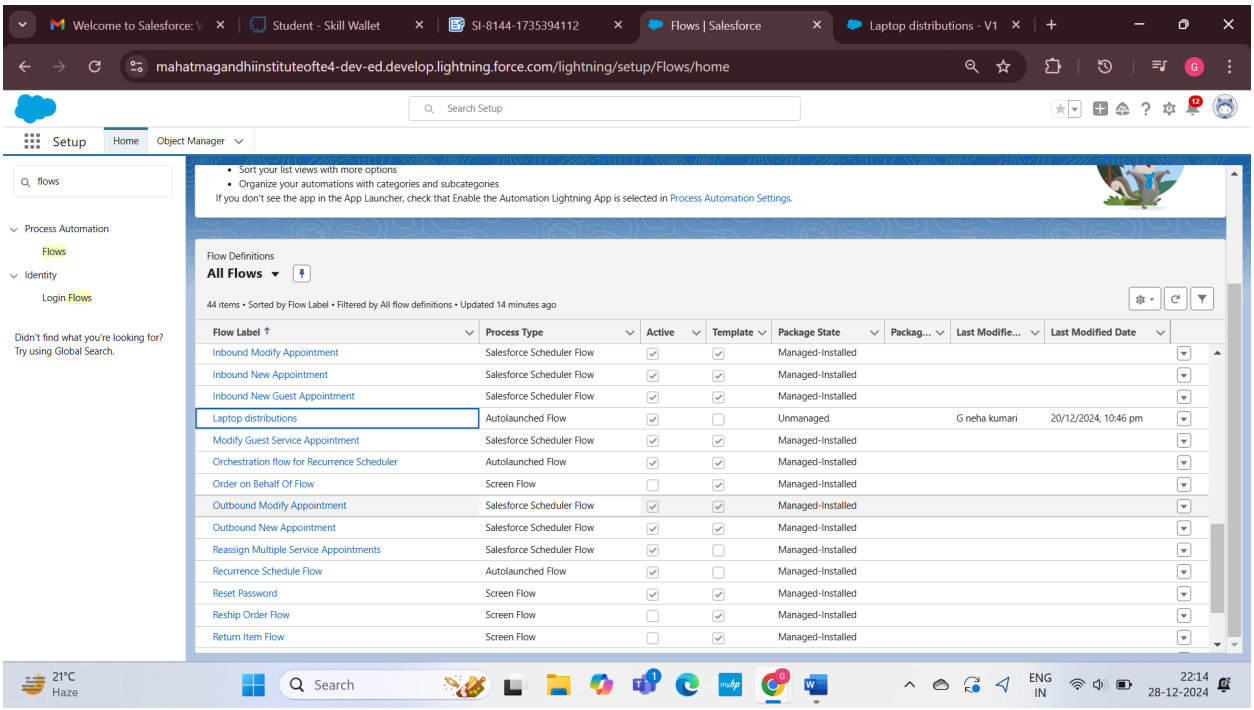
Users represent individuals who log into Salesforce to interact with the CRM system. I created user accounts for each role within the organization, assigning them the appropriate profile and role.



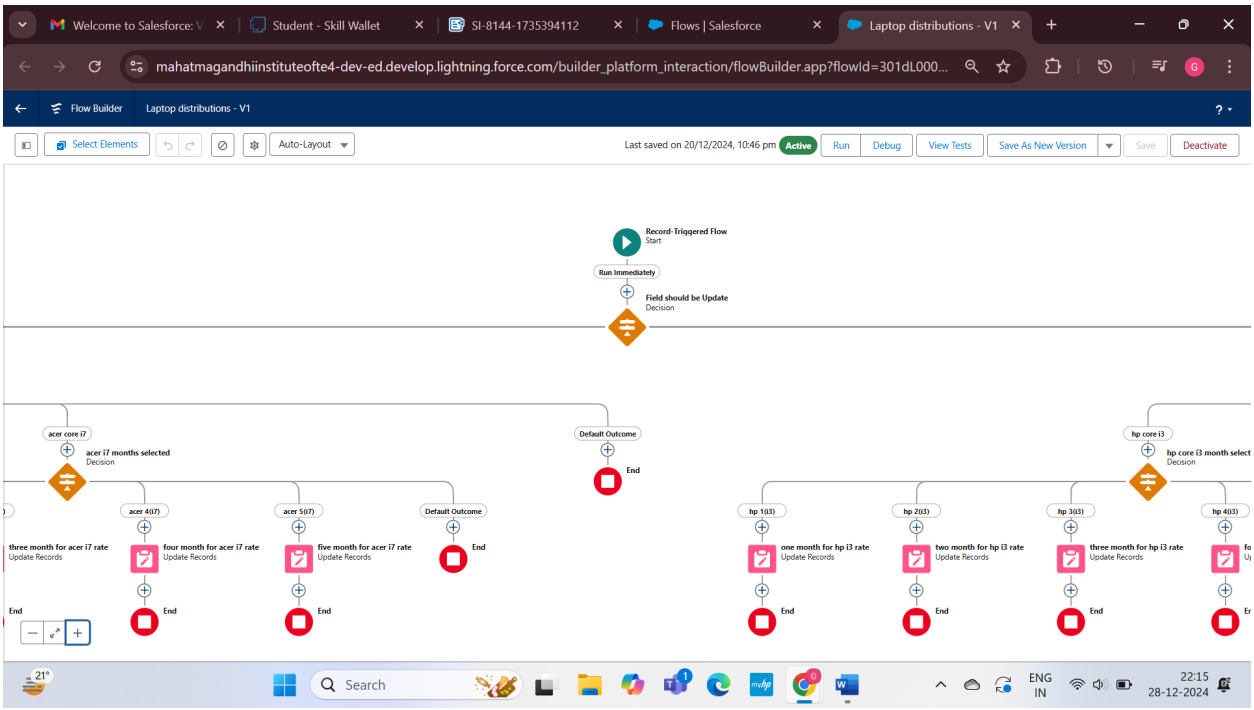
All the starting four users are created by me.

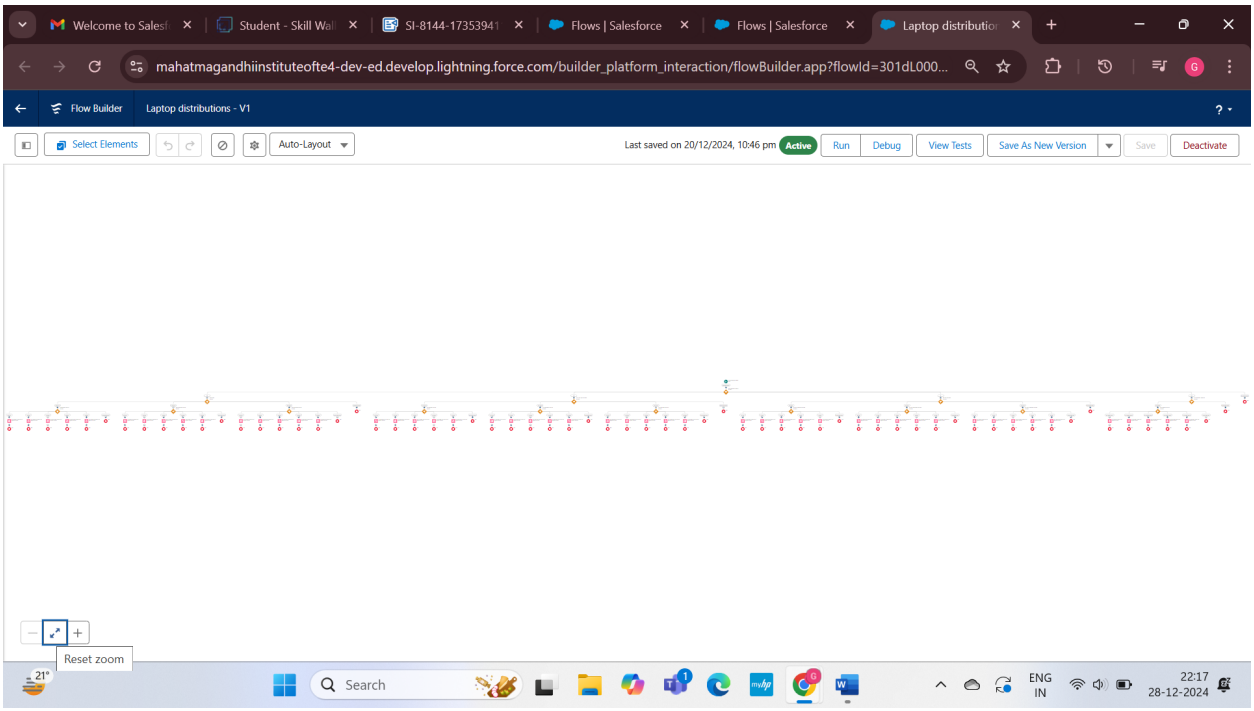
Flows

Flows in Salesforce are used to automate business processes. For this project, I created an automated flow to calculate the *Amount* field in the *Laptop Bookings* object based on the type of laptop selected.

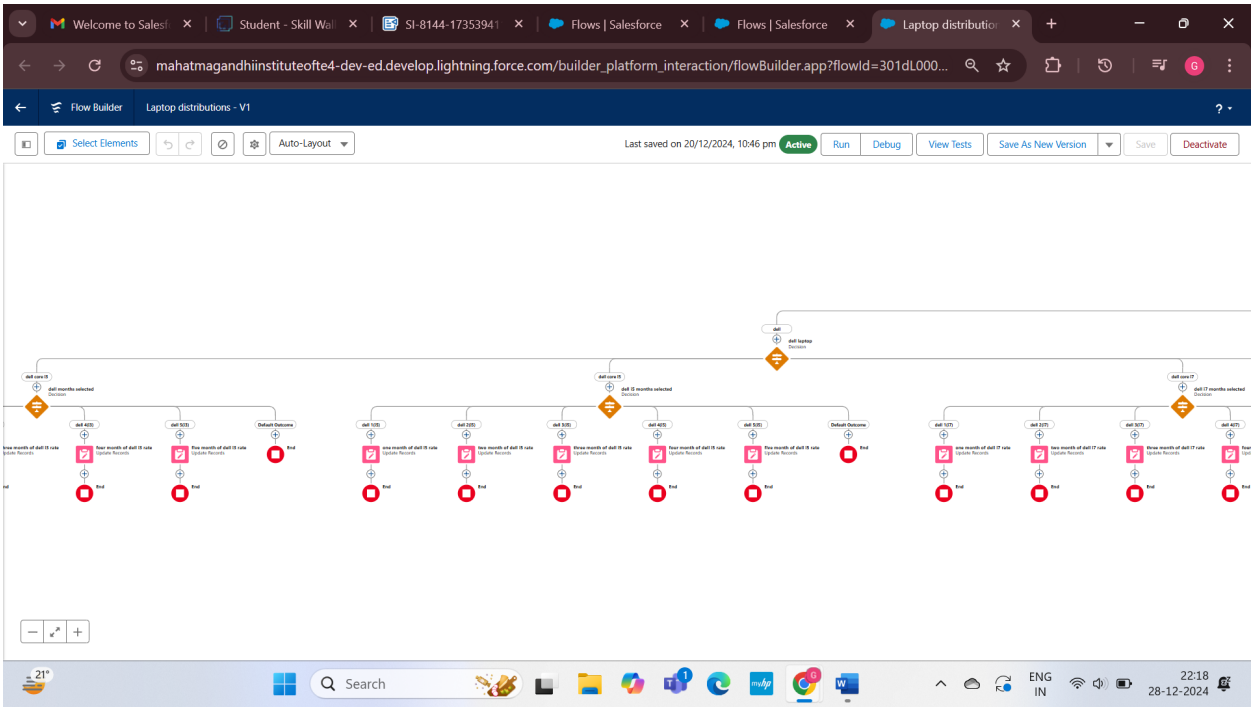


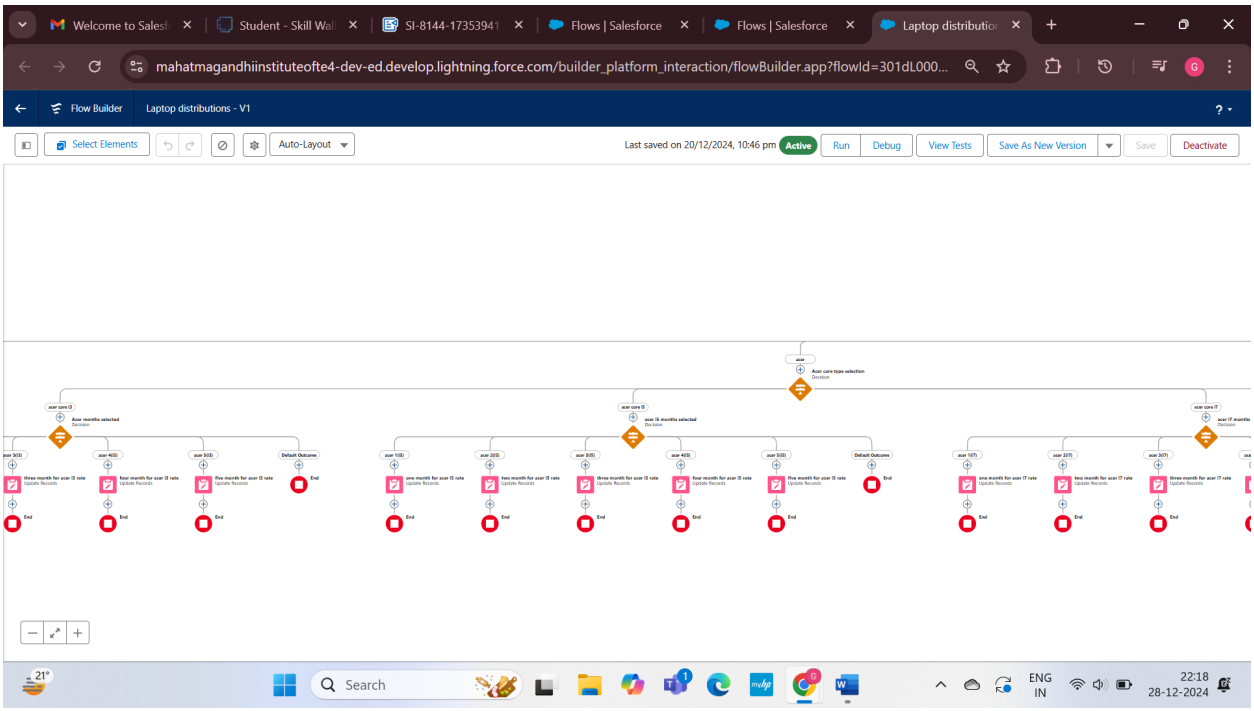
- The flow guides users through the booking process, ensuring the correct laptop type is selected and the amount is calculated automatically based on predefined pricing logic.
- Here below flow chart describes the laptops of dell,hp,acer and mac, which specifies the types of core used(i3,i5,i7) and for how many months how much does it costs based on count of laptopts.





Overview of the flow designed for Laptop Bookings.

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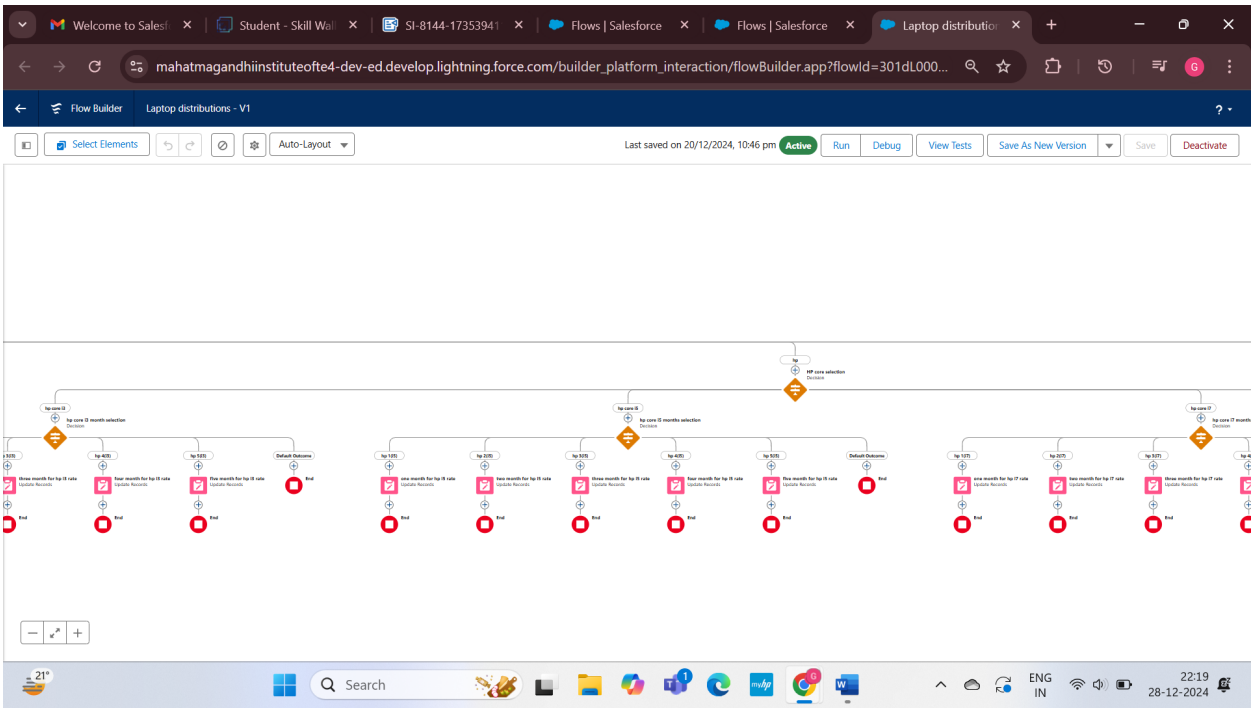
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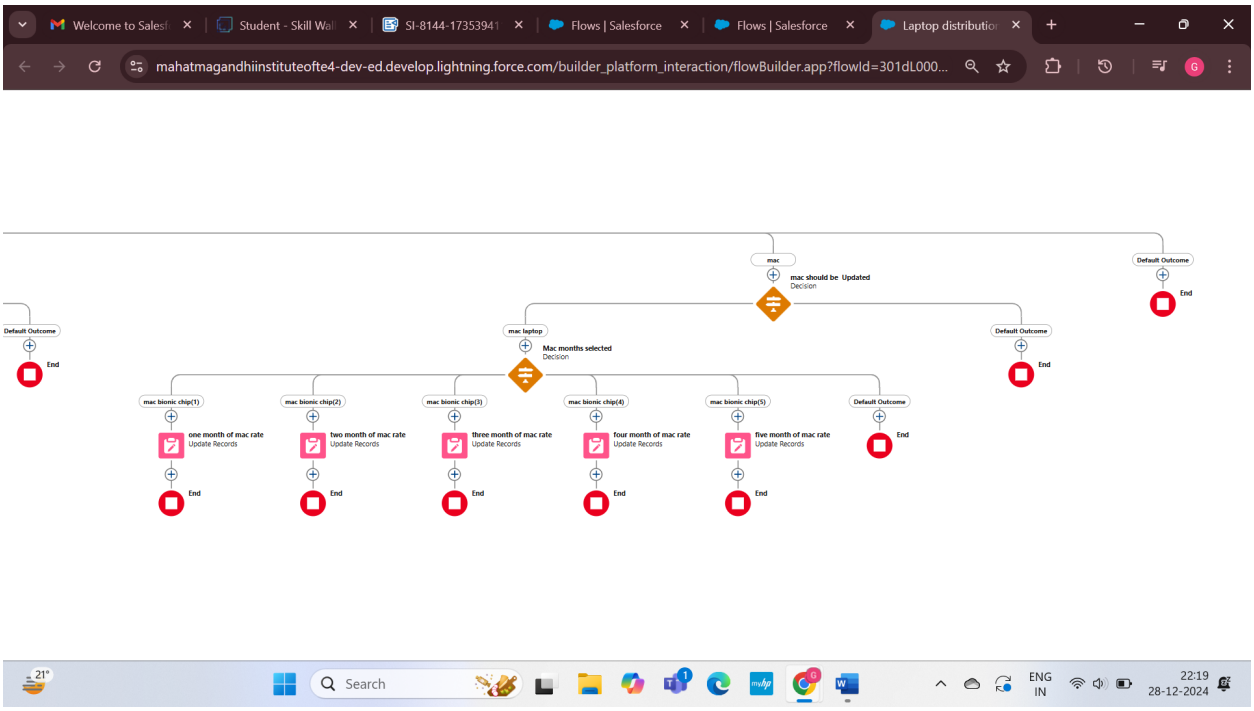
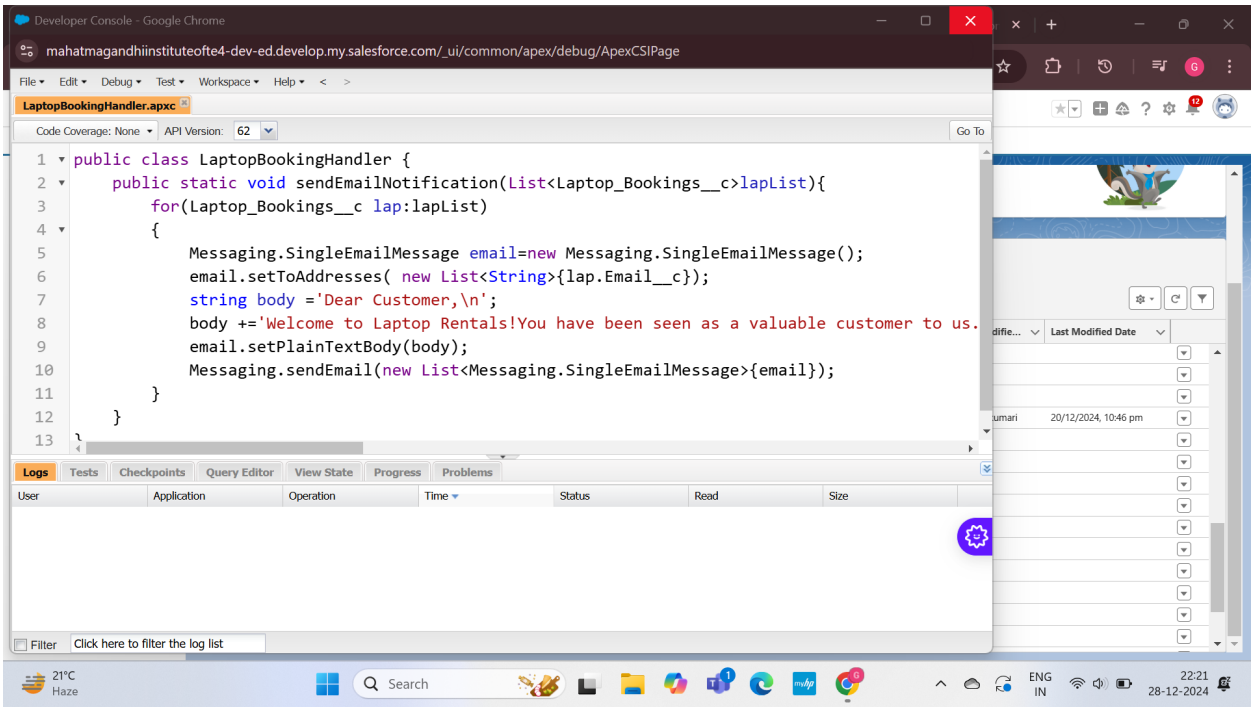
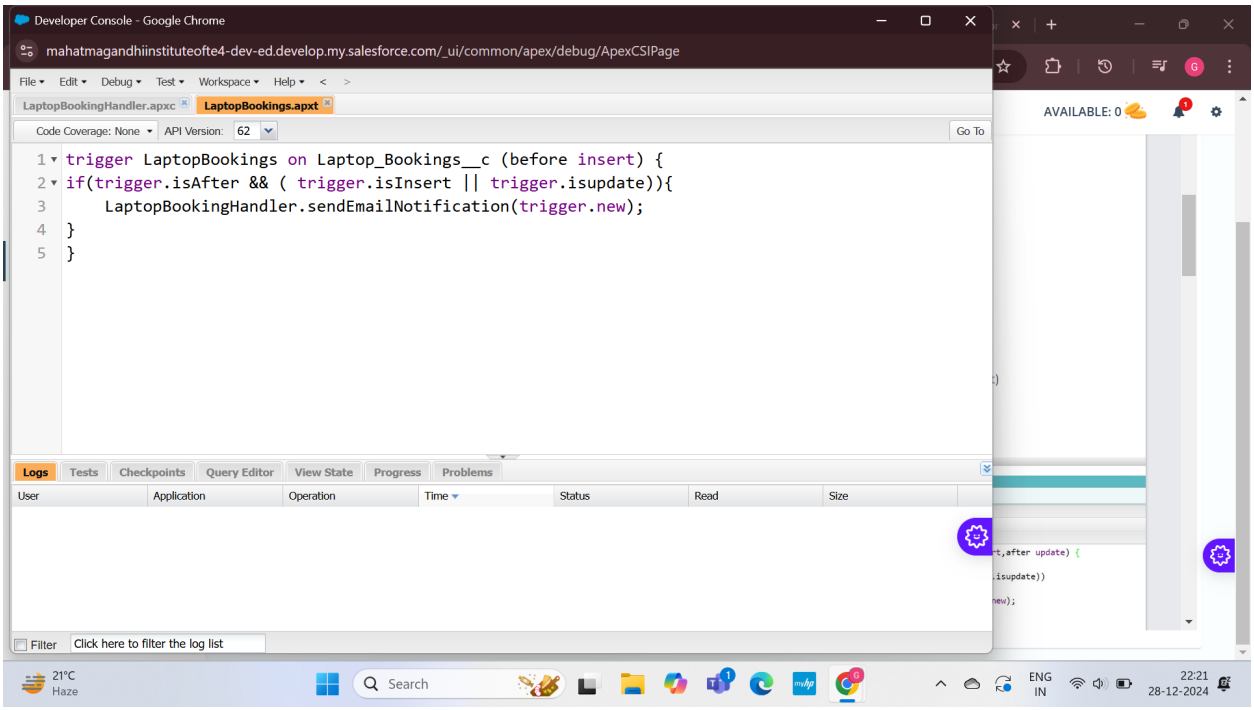


Apex

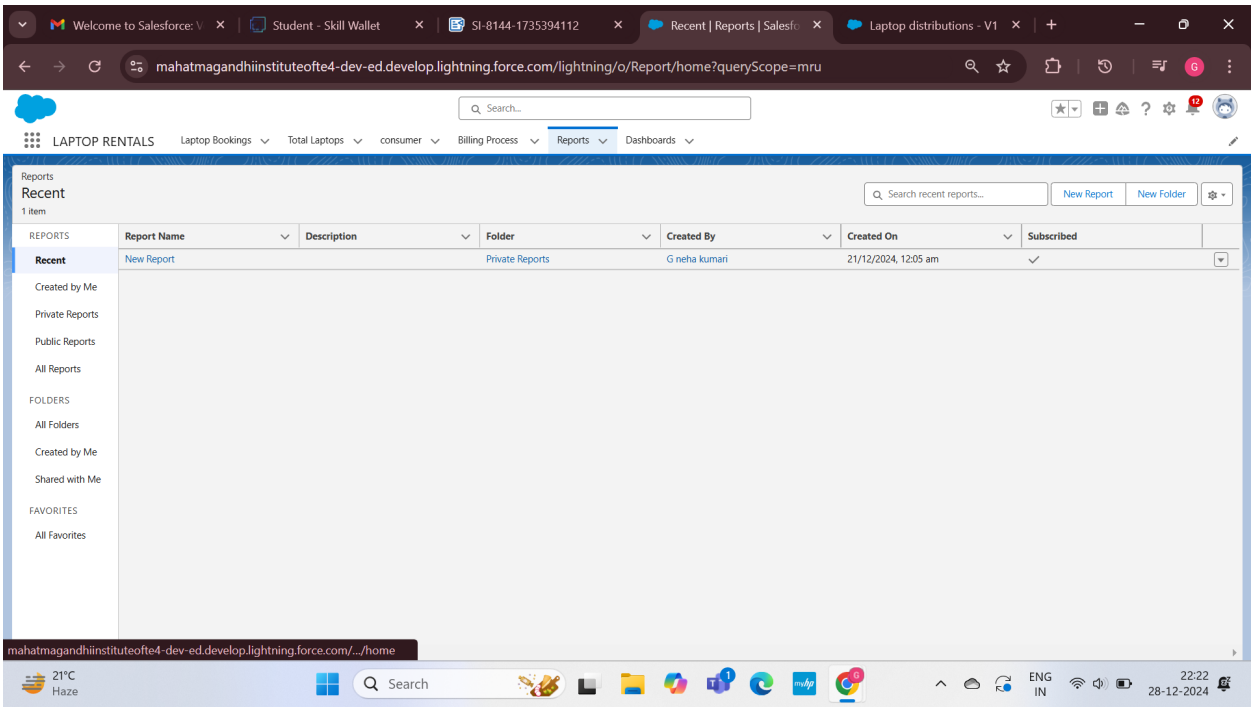
Apex is used for implementing advanced business logic and automating tasks that go beyond what can be achieved with point-and-click tools like Flows. I used Apex for more complex operations, such as handling batch updates to the laptop availability after a booking is confirmed.





Reports

To gain insights into the CRM data, I created reports to track the key metrics, such as the number of laptops rented, revenue generated, and consumer activity.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Laptop Bookings
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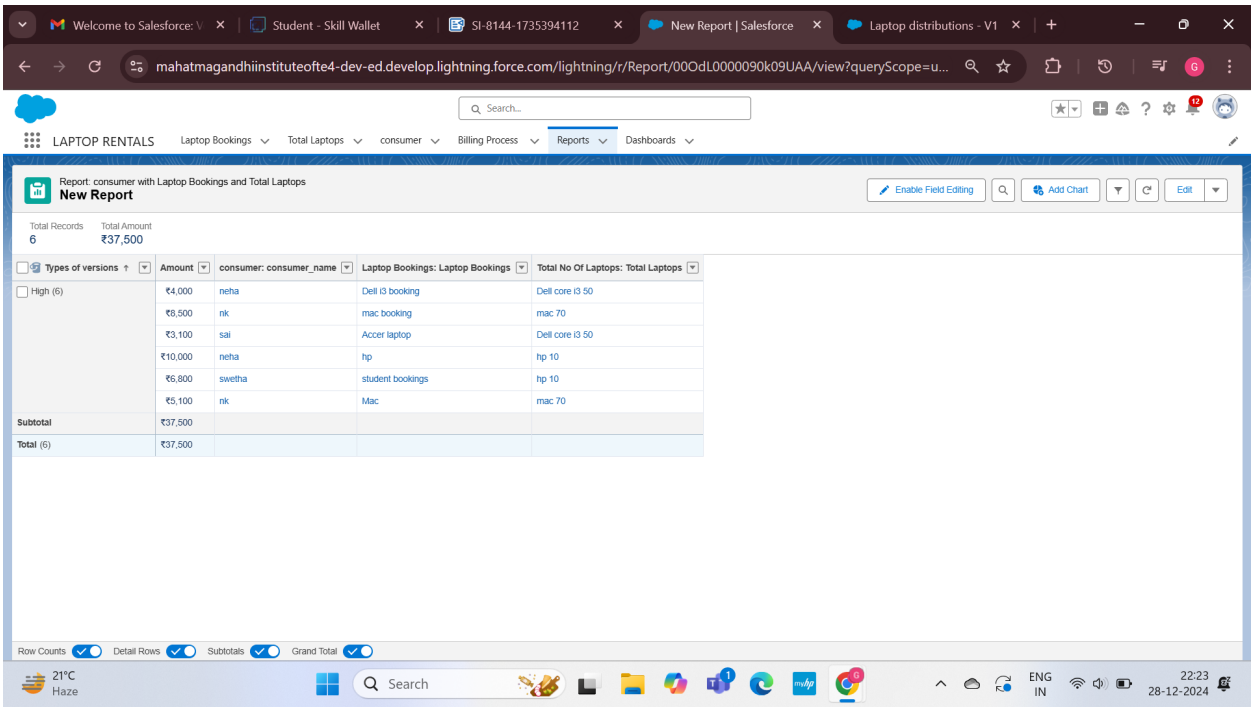
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LAPTOP RENTALS
Laptop Bookings
Total Laptops
consumer
Billing Process
Reports
Dashboards
Report: consumer with Laptop Bookings and Total Laptops
New Report
Enable Field Editing
Add Chart
Edit
Total Records
6
Total Amount
₹37,500
Types of versions
Amount
consumer: consumer_name
Laptop Bookings: Laptop Bookings
Total No Of Laptops: Total Laptops
High (6)
₹4,000 neha Dell i3 booking Dell core i3 50
₹8,500 nk mac booking mac 70
₹3,100 sai Accer laptop Dell core i3 50
₹10,000 neha hp hp 10
₹6,800 swetha student bookings hp 10
₹5,100 nk Mac mac 70
Subtotal ₹37,500
Total (6) ₹37,500
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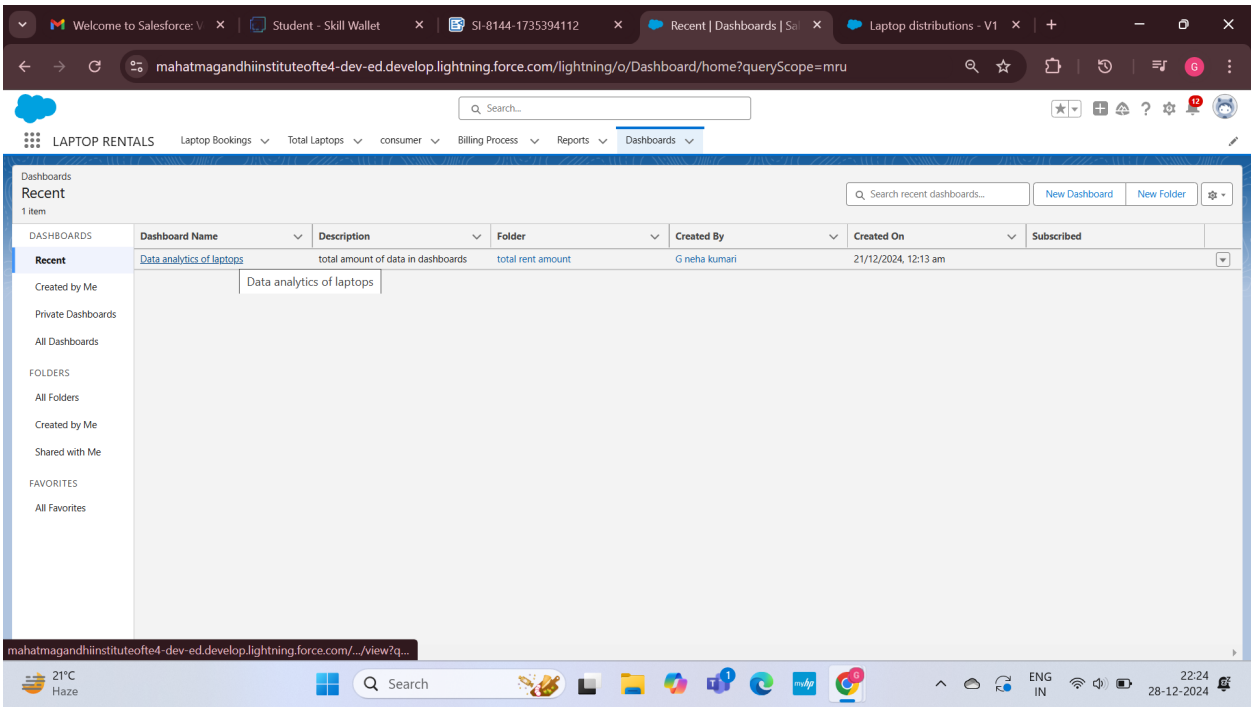
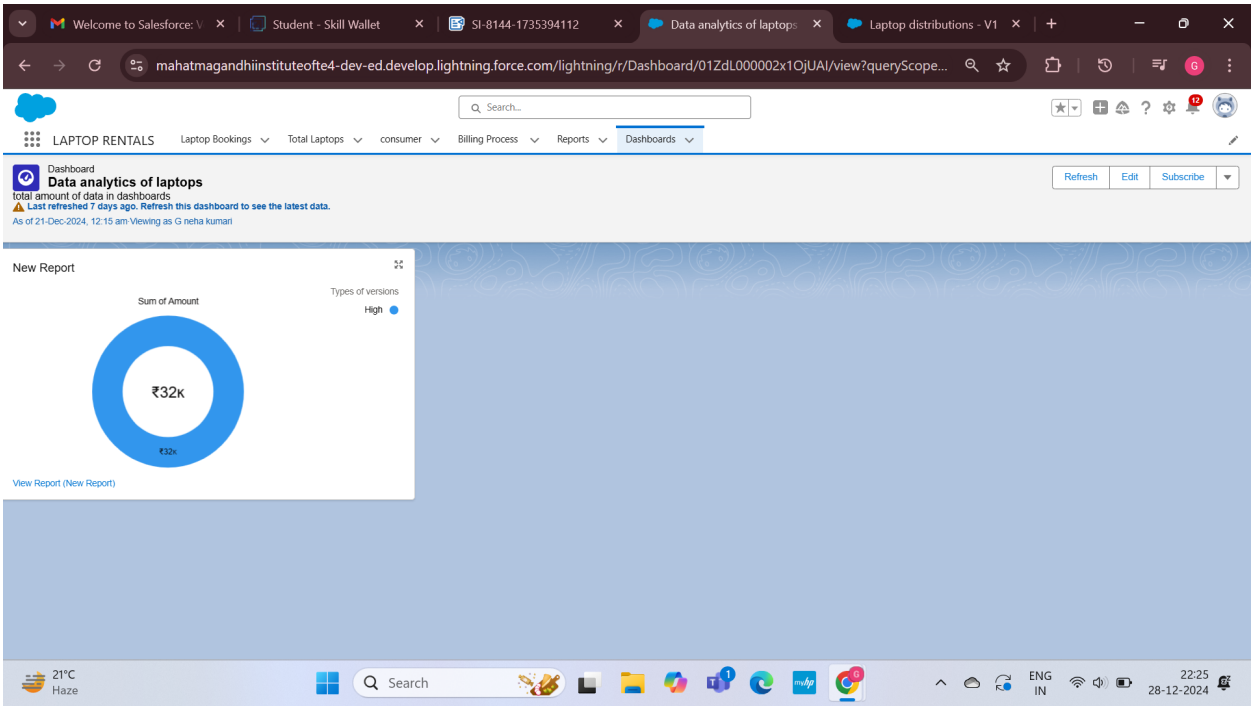
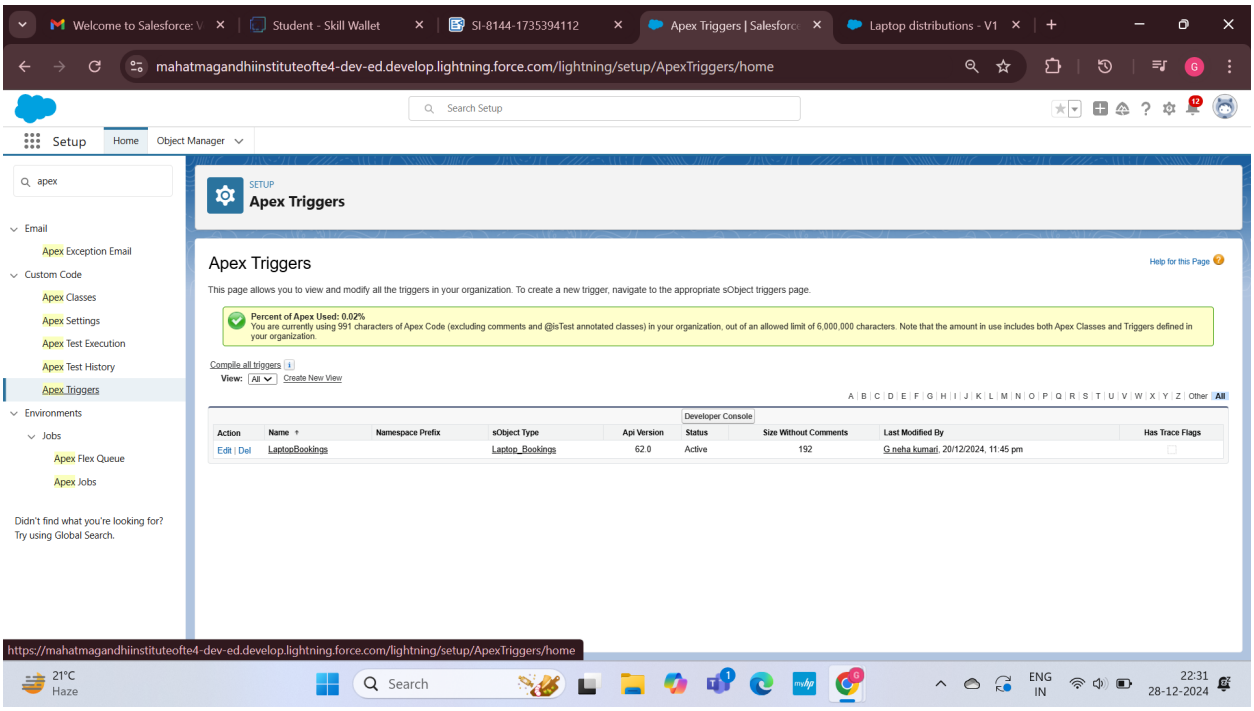
Dashboards

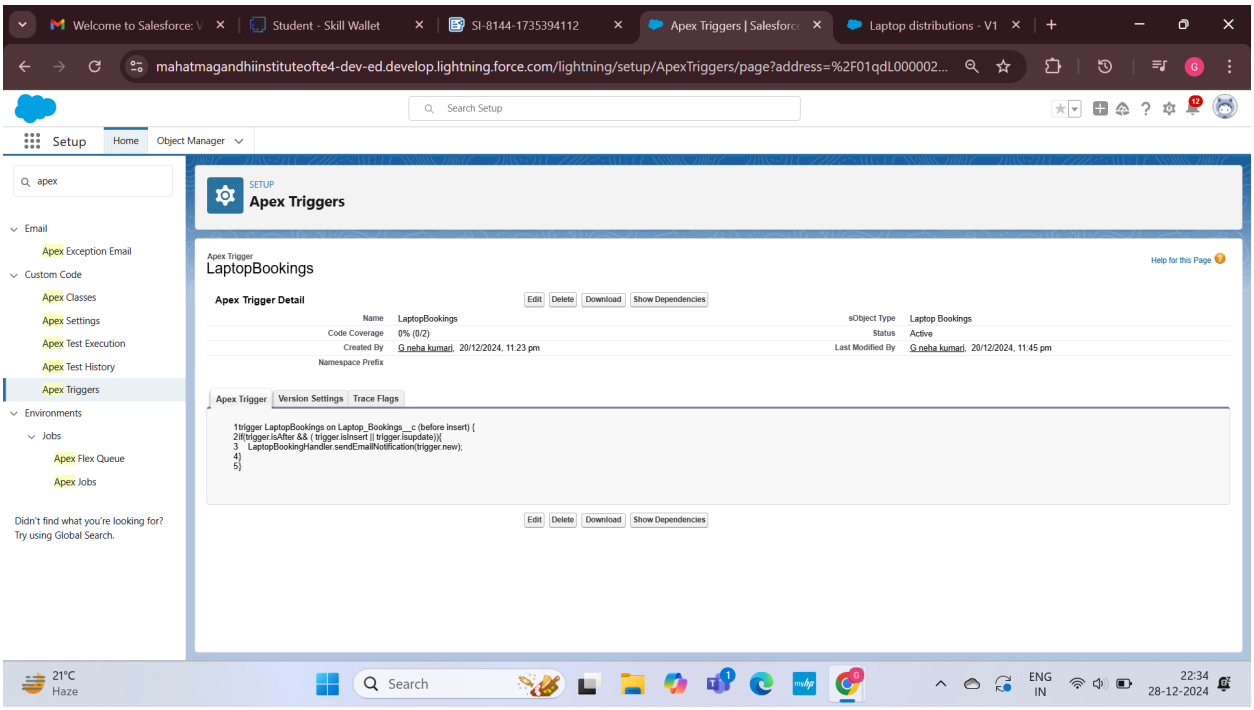
Dashboards provide visual representations of key business data. I designed dashboards that allow managers to quickly assess the performance of the laptop rental business.

- The dashboards include graphs and charts showing key metrics such as total revenue, laptop booking trends, and customer demographics.









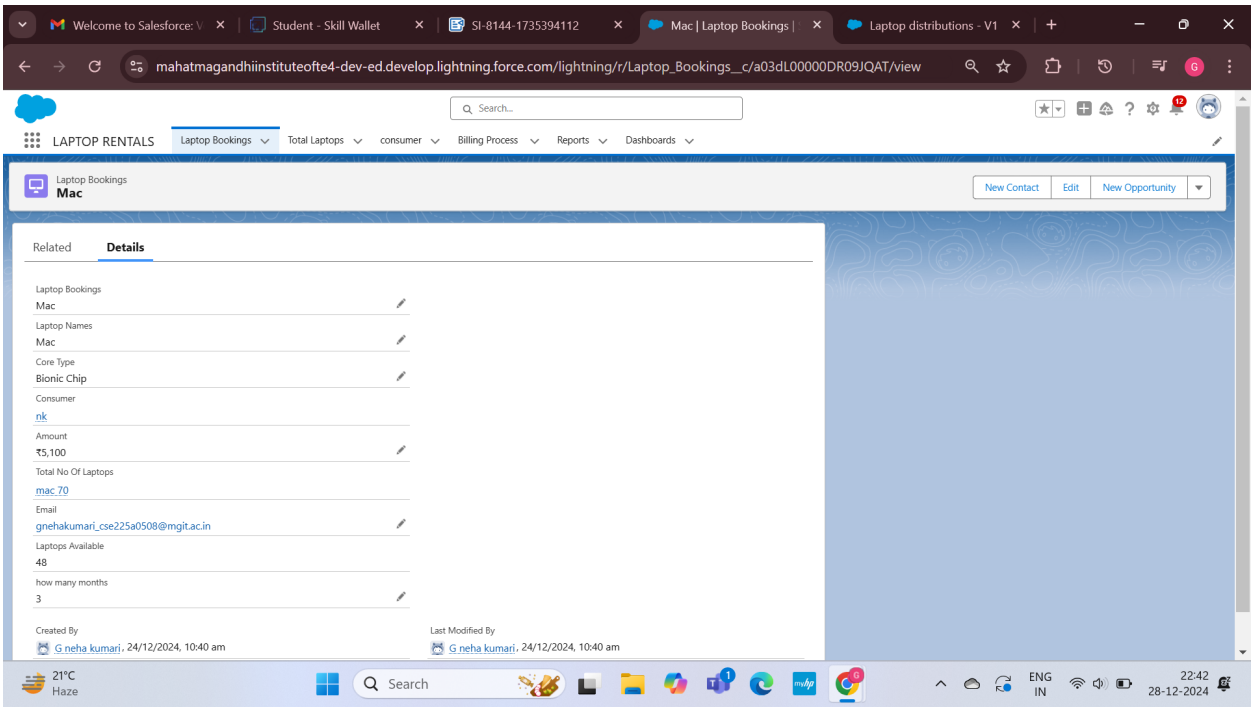
5. TESTING AND VALIDATION

1. Unit Testing

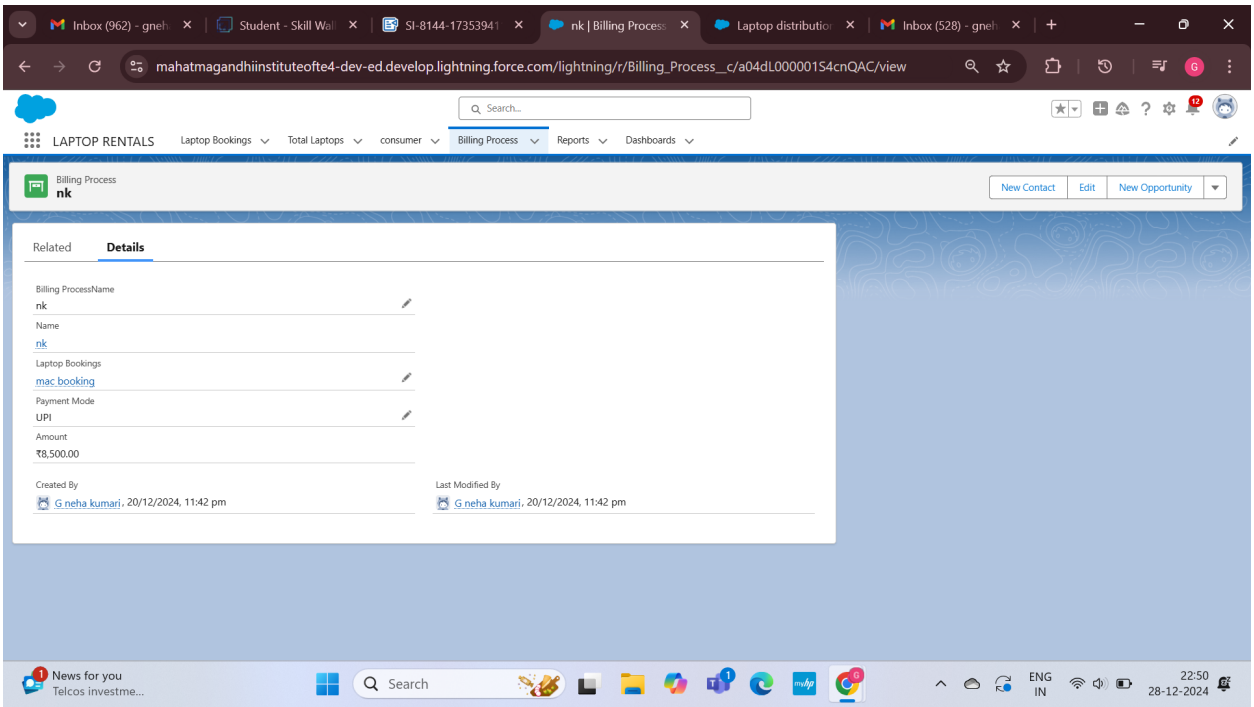
Objectiveof unit testins is to ensure individual components of the application function correctly and independently.

- **Custom Objects Testing:**

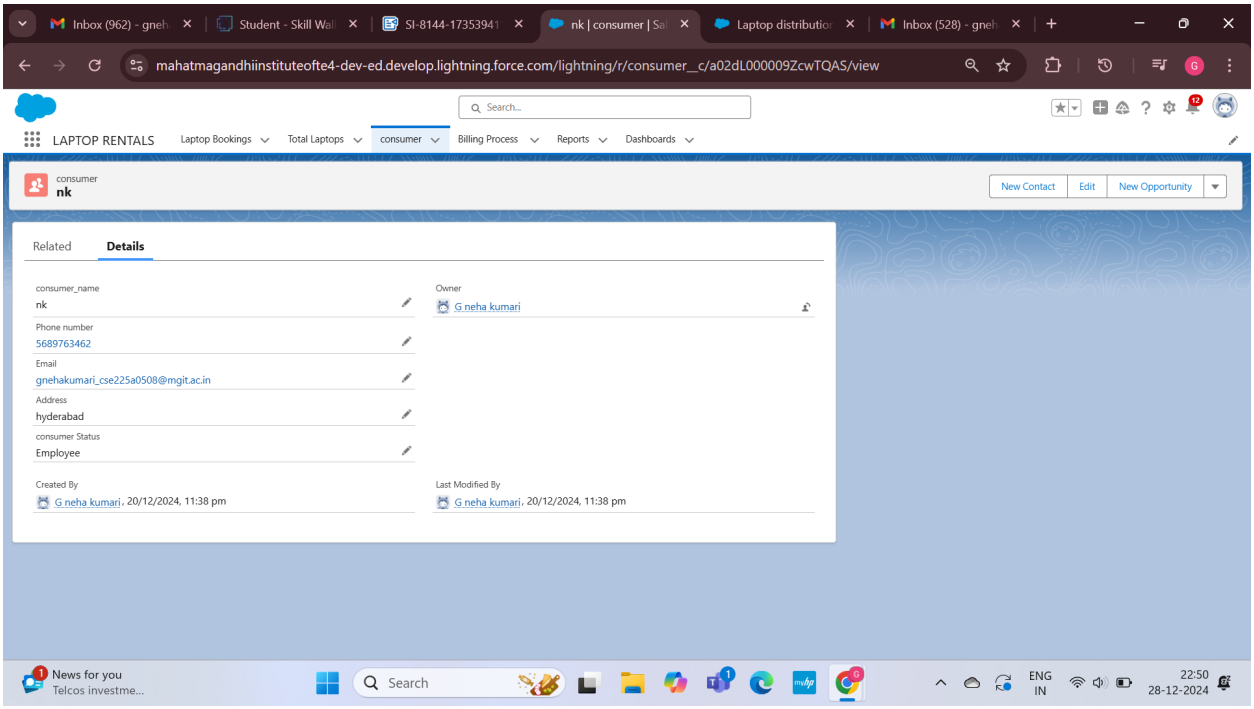
The custom objects like **Total Laptops**, **Consumer**, **Laptop Bookings**, and **Billing Process** were created to handle specific data. Unit testing was performed to ensure these objects are set up correctly, their relationships are functional, and they capture the necessary data. For example, testing if a new **Laptop Booking** entry correctly links to the corresponding **Total Laptop** and **Consumer** records.

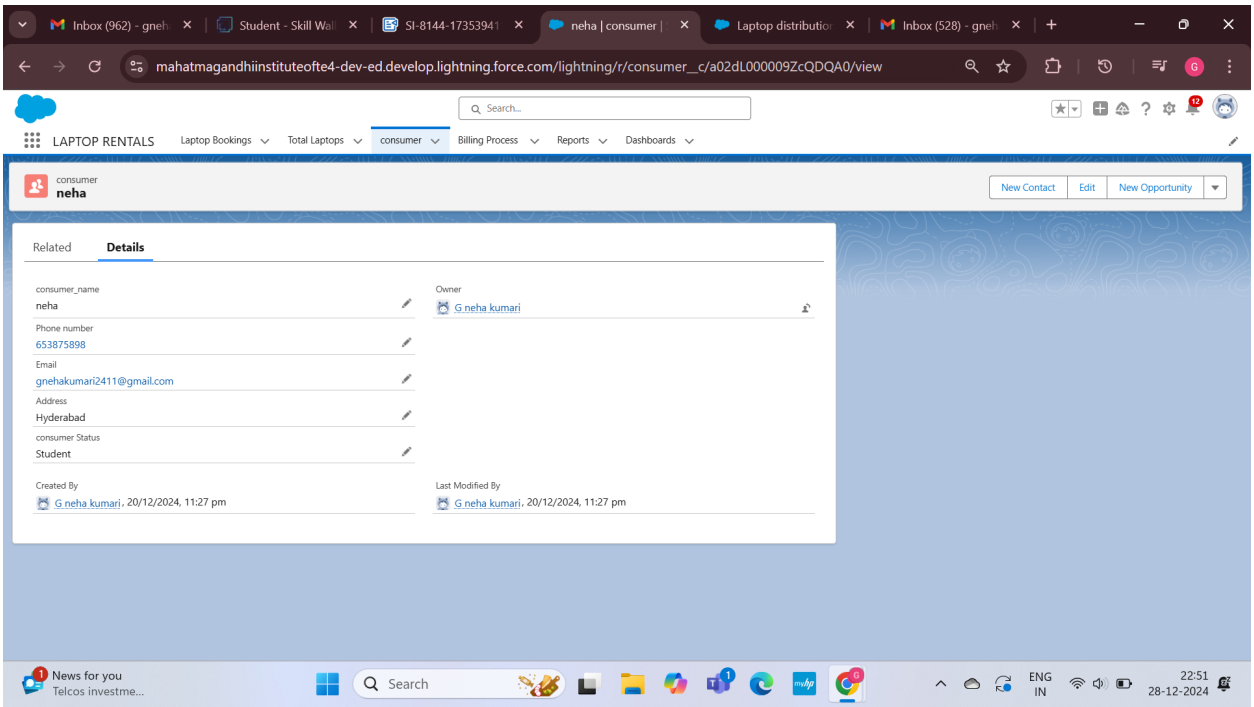


- **Field Validation:**
  Testing of all custom fields in the objects was conducted to ensure they accept the correct data types (e.g., numeric, text, date). Each field was validated to ensure no incorrect data can be entered. For instance, checking if the **Amount** field in the **Laptop Bookings** object correctly accepts only numeric input and is calculated based on predefined logic.



- **Validation Rules Testing:**
  Validation rules were tested to ensure data integrity and business logic. For example, the validation rule in the **Consumer** object (to ensure either a phone number or an email address is provided) was tested by attempting to save a record with neither field filled. This ensures the rule triggers and prevents incorrect data.

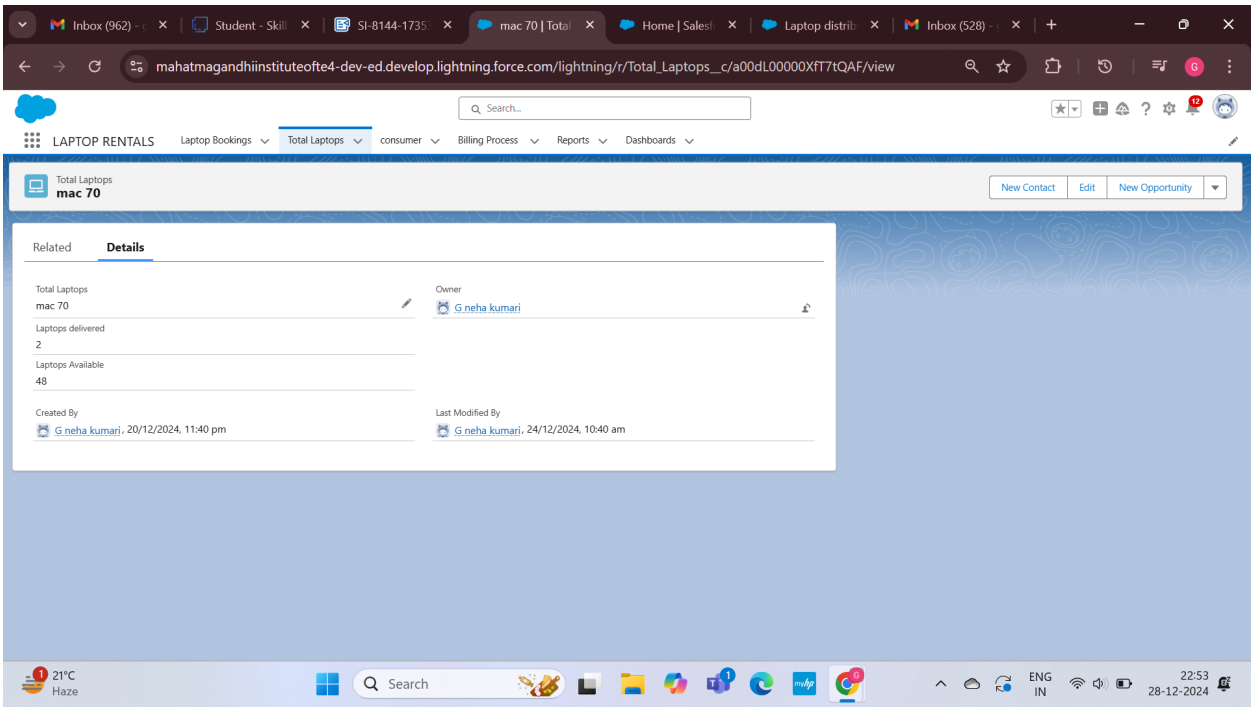


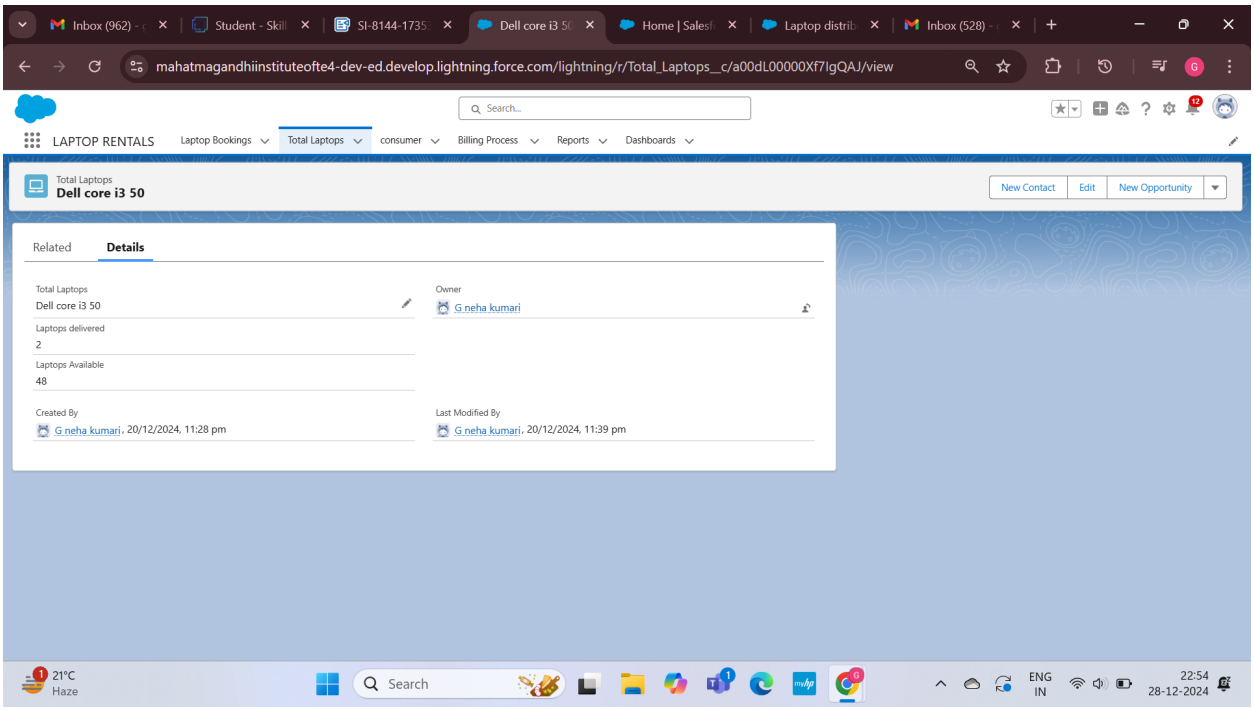


2. Integration Testing

Objective: Verify that different components of the system interact seamlessly with each other.

- **Data Flow Between Objects:**
  Integration testing ensured that data flows correctly across the related objects. For instance, when a **Laptop Booking** is made, the related **Consumer** and **Total Laptops** records are updated automatically. Any changes to a **Laptop Booking** (e.g., updating rental duration) reflect in **Total Laptops** and **Billing Process**.
- **Automated Workflows Testing:**
  Workflows such as automatic email notifications and inventory updates were tested to ensure they trigger correctly. For example, when a laptop is booked, the system automatically updates the available laptops in the **Total Laptops** object and sends a confirmation email to the customer.
- **Apex Testing:**
  Apex classes and triggers were used to implement advanced business logic. A specific test case involved ensuring that the availability of laptops in the **Total Laptops** object is updated correctly after a **Laptop Booking** is confirmed. The system should handle batch updates to availability and prevent double booking.





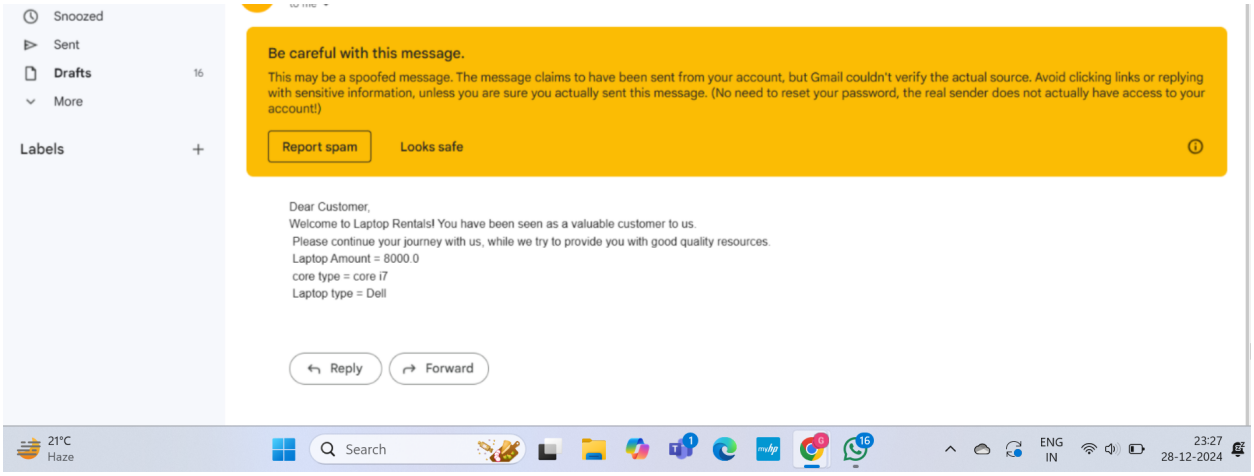
Conditional Updates: The flow updates the rental amount based on laptop type (Dell, Acer) and core type (Core i3, i5, i7).

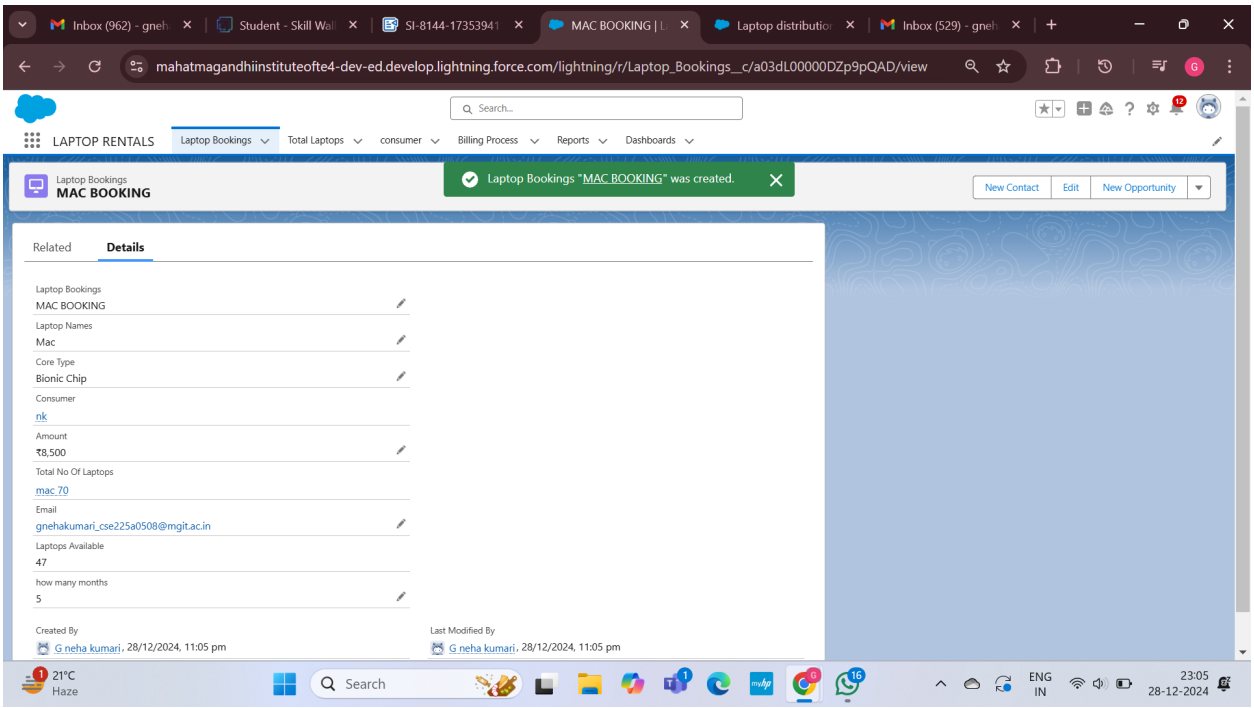
Reports: The system generates reports showing laptop booking trends, consumer data, and availability.

6. KEY SCENARIOS ADDRESSED BY SALESFORCE IN THE

IMPLEMENTATION PROJECT

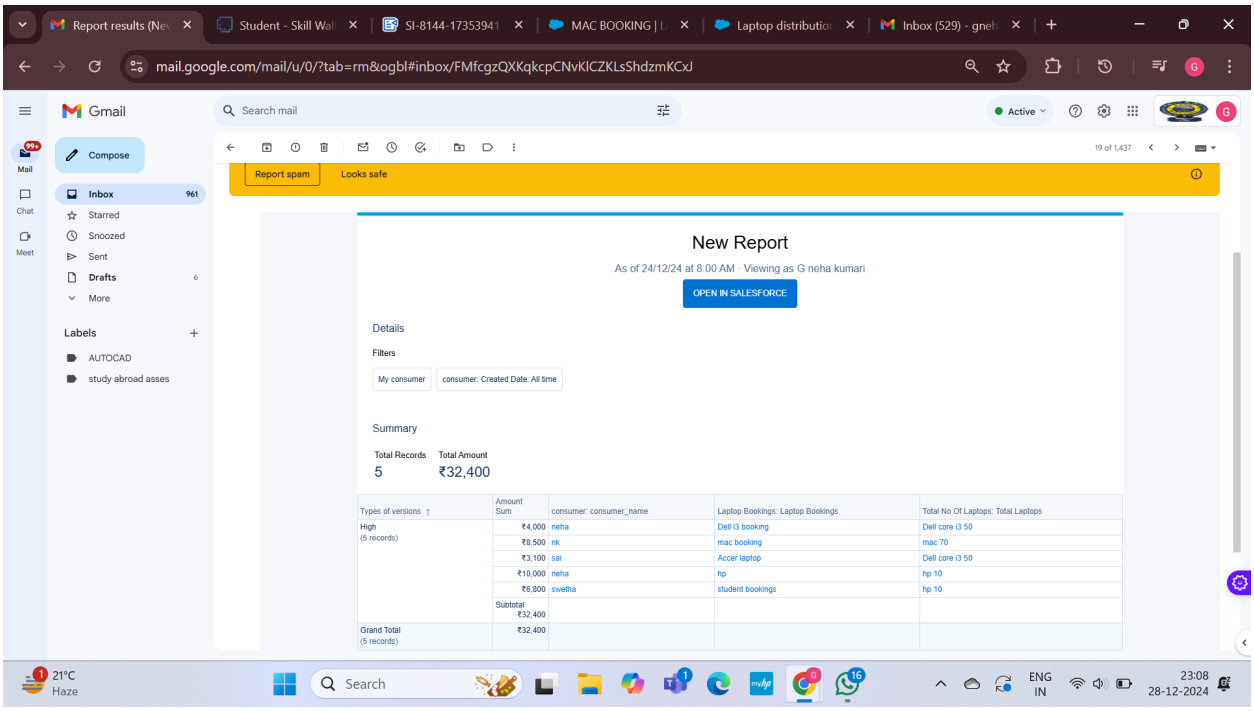
Salesforce played a pivotal role in addressing various business scenarios through its powerful features and automation tools. Below are the **key scenarios** that Salesforce helped to address and how its implementation facilitated the management of the laptop rental process:

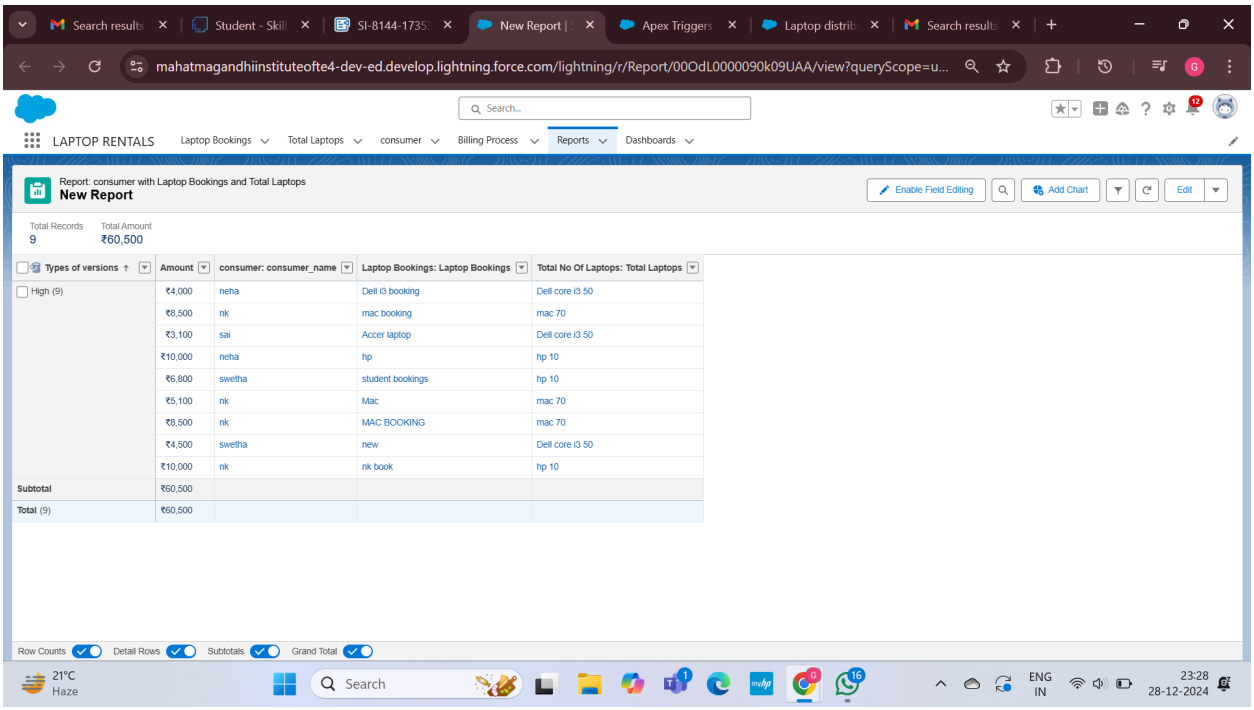




Laptop Availability Calculation: When a laptop is booked, the "Laptops Available" field is updated automatically using the formula 50 Laptops_delivered_c.

Email Notifications: After booking, an email is sent to the consumer with booking.





1. Efficient Customer Data Management

Scenario: Managing customer data manually can lead to errors and inefficiencies, especially when dealing with a large customer base.

Salesforce Solution:

- **Custom Objects**: The **Consumer** object was created to store all necessary customer information, such as name, contact details, and address. This centralizes customer data and ensures consistency across the system.
- **Validation Rules**: To ensure that customers provide either a valid email or phone number, a validation rule was created in the **Consumer** object to ensure accuracy and completeness of customer contact information.

2. Seamless Laptop Booking Process

Scenario: Ensuring a smooth and efficient laptop booking process, while keeping track of laptop availability and rental duration.

Salesforce Solution:

- **Laptop Bookings Object**: A custom object was created to manage all aspects of laptop bookings, including laptop type, rental duration, and booking dates. This object is linked to both the **Consumer** and **Total Laptops** objects to track which laptops are rented by which customers.
- **Automated Workflows**: Automated workflows were set up to update the **Total Laptops** object whenever a new booking is made, reducing the need for manual updates and preventing errors in laptop availability.
- **Flows**: A flow was created to guide users through the booking process, ensuring that the correct laptop type is selected and the rental amount is automatically calculated based on predefined pricing rules.

3. Accurate Inventory Management

Scenario: Tracking laptop availability and managing inventory accurately is critical in preventing double bookings and ensuring efficient resource management.

Salesforce Solution:

- **Total Laptops Object**: The **Total Laptops** object was created to store detailed information about all available laptops, including their status (available, rented, etc.). This object is dynamically updated based on new bookings.
- **Automated Updates**: As part of the **Laptop Booking** process, whenever a new booking is made, the system automatically updates the inventory in the **Total Laptops** object, ensuring real-time accuracy of laptop availability.
- **Apex Triggers**: Apex triggers were implemented to handle complex scenarios, such as batch updates to the laptop

4. Streamlined Billing and Payments

Scenario: Managing the financial aspect of laptop rentals, including billing details and payment tracking, can be complex without an automated system.

Salesforce Solution:

- **Billing Process Object**: A custom object was developed to handle all aspects of the billing process, including payment details, amount, and payment status. This object is linked to the **Laptop Bookings** object to track payments associated with each rental.
- **Automated Workflows**: The system automatically generates billing details whenever a laptop booking is confirmed, calculating the rental amount and assigning it to the appropriate billing process.
- **Reports**: Reports were created to provide insights into the overall revenue generated from laptop rentals, payments received, and outstanding balances, aiding decision-making and financial planning.

5. Personalized Customer Communication

Scenario: Ensuring timely and personalized communication with customers, especially for booking confirmations, reminders, and promotions.

Salesforce Solution:

- **Automated Email Notifications**: Using **Salesforce Flows** and **Apex**, automated email notifications were set up to send booking confirmations, rental reminders, and invoices to customers. This minimizes manual intervention and ensures that customers receive timely updates.
- **Personalization**: The system personalizes email messages by pulling customer-specific information from the **Consumer** object, such as their name, laptop rental details, and rental duration, improving customer engagement.

6. Data-Driven Insights for Decision Making

Scenario: Business owners need real-time insights into rental trends, revenue generation, and customer behavior to make informed decisions.

Salesforce Solution:

- **Reports and Dashboards**: Custom reports and dashboards were created to provide key performance indicators (KPIs) such as revenue, laptop booking trends, and customer demographics. These real-time insights enable the management team to monitor business performance, make data-driven decisions, and identify opportunities for

growth.

- **Summary and Tabular Reports**: These reports were used to analyze booking trends, customer engagement, and inventory performance, helping managers to make strategic decisions based on accurate data.