Project Title: A CRM Application for Laptop Rentals

1.Project overview

This **CRM application** is designed to streamline and enhance the process of **renting laptops for short-term use**. The primary objective is to leverage Salesforce's **Customer Relationship Management** capabilities to foster better customerrelationships, resulting in an elevated customer experience. By managing customer data, rental transactions,and inventory througha unified platform,this project optimizesstore operations, reducingmanual effort and improving overallefficiency. Additionally, the CRM facilitates seamless communication with customers via automated **email notifications**, keeping them informed about bookings, billing, and other important updates. The result is a comprehensive solutionthat supports **efficient rentalmanagement, improved customersatisfaction**, and **operational excellence** for the business.

Goals:

- Enhance customer satisfaction through personalized service.
- Streamline and automaterental booking and inventory management.
- Improve team productivity and reduce manualtasks.
- Provide data-driven insightsfor informed decision-makin
- Ensure secure and efficient data management acrossusers and roles.

Benifits:

- Centralizes customer data for personalized service and relationshipmanagement.

- Automates repetitive tasks to boost productivity and efficiency.

- Provides real-time insightswith customizable reportsand dashboards.
- Integrates easily with other tools, enhancing data flow and reducing silos.
- Offers mobile accessibility, enabling flexibility and responsiveness on the go.

2.Objectives

- **Streamline Sales Processes:** Use Salesforce solutions to automate and enhancesales workflows, minimizing manual tasks and boosting lead management efficiency.

- **Improve Customer Engagement:** Take advantage of Salesforce tools to deliver a tailored experience for customers, enhancingcommunication and overallsatisfaction.

- **Insights from Data:** Utilize Salesforce analytics to collectactionable insights and effectively monitorperformance metrics.

3.Salesforces key features and concepts utilized

This Salesforce CRM project utilize the following concepts and incorporates a variety offeatures

- **Custom Objects:**Defined unique custom objects such as **Consumer**, **Laptop Bookings**, **Total Laptops, Billing Process** to handle specific requirements for managing customerdata, rental transactions, and inventory. These custom objectsallowed precise data handling and organization beyond standard Salesforce objects.

- **Custom Tabs:** Created custom tabs for each custom object to provide easy access to the **Consumer**, **Laptop Bookings**, **Billing Process** and **Total Laptops** information, enabling the team to navigate and manage data directly from the Salesforce app interface.

- **Creating Lightning Apps:** Built custom Lightning apps for the **Laptop Rentals CRM** to provide a tailored user interface, streamline workflows, and improve user experience by organizing all necessary tabs, reports, and dashboards under one cohesiveapplication.

- **Validation Rules:** Implemented validation rules to maintain data integrity and enforcebusiness requirements. For example, the customer should specify his/hercontact information eitherthe email or phone number.

- **Profile Cloning and Custom Permissions:** Cloned the standard User profile to create **Owner** and **Agent** profiles, customizing permissions to restrict or allow

access to specific objects and data fields based on user roles. This ensured proper accesscontrol and safeguarded sensitive information.

- **Role Hierarchy and Role Creation:** Established a role hierarchy by creating an **Owner** role under the CEO and an **Agent** role underthe Owner.

- **User Creation:** Created two user accounts: **Owner** and **Agent**. The Owner has elevated permissions for full control,while the Agent can handle customer interactions and manage bookingswithin the limitsset by their profile.

- **Flows for Laptop Models:** Created a Record Triggered for Laptop Models and for autmating the model selection,processor type selection, selecting the numberof months to rent the laptop and the chargesbased on the chosen inputs.

- **Apex Programming:** Created Apex classes and triggers to carry out complex businesslogics and triggerthe email notifications after booking a laptop for rent.

- **Reports and Report Sharing:** Created a custom report to provide insights into rental activity, and filtered the data accordingto the **types of versions** shared this report to the Owner.

- **Dashboard Folder and Dashboard Creation:** Created a Dashboard to represnt the created report in the form of a donut chart that enables to analyse the rental amounts for each version.

4.Detailed steps to Solution Design:

The a step-by-step outlinefor the **Solution Design**of the **Laptop RentalsCRM**

Step 1: Creating objects and required fileds

Created objects such as cosumer, Laptop Bookings, Total Laptops, Billing Process and created the required filed and relationships for each of the objects.

- **Consumer Object:** The Consumer object is designed to store and track customer information within the Laptop Rentals CRM system. It provides a centralized repository of customer details,allowing quick access to key information for eachrentaltransaction.

Fields and Relationships created:

Phone_number__c: Stores the contact number of the customer for easy communication.

Email__c: Records the customer's email address for notifications and follow-ups.

Address__c: Holds the customer's physical address for delivery or identification purpose.

consumer_Status__c: Indicates the current status of the customer (e.g., student, employee or others) for tracking engagement.

SETUP > OBJECT MANAGER
consumer

Details

Fields & Relationships
8 Items, Sorted by Field Label

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

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Address	Address__c	Text Area(255)			▼
consumer Status	consumer_Status__c	Picklist			▼
consumer_name	Name	Text(80)		✓	▼
Created By	CreatedById	Lookup(User)			
Email	Email__c	Email			▼
Last Modified By	LastModifiedById	Lookup(User)			
Owner	OwnerId	Lookup(User,Group)		✓	
Phone number	Phone_number__c	Phone			▼

- **Laptop Bookings Object:** The Laptop Bookings custom object is used to store and manage information about each rental booking made by customers. It links to the Consumer object to associate bookings with specific customers and connects with the Total Laptops object to track inventory.

   Fields and Relationships created:

   Name: A text data the stores the booking name for each booking

   Laptop_names__c: A picklist value that enables the cosumers to select the laptop model to be selected.

   core_type__c: A picklist value to specify the processor type for the laptop models that has been selected by the consumers.

   Amount__c: Amount the consumer wants to pay for the selected laptop model.

   Email__c: Stores the email of the customers.

   Name__c: A lookup value to the consumer object that specifies which consumer is going to rent the laptop.

   Total_No_Of_Laptops__c: A lookup value to the Total Laptops object that species the number of laptops the consumer wants to rent.

SETUP > OBJECT MANAGER
Laptop Bookings

Details
Fields & Relationships
11 Items, Sorted by Field Label

Quick Find   New   Deleted Fields   Field Dependencies   Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(18, 0)		
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)		

(Left sidebar: 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)

- **Total Laptops Object:** This custom object maintains an inventory of all available laptops for rental. It tracks details like the specifications of each laptop, its availability status, and usage history.

  Fields and Relationships:
  Laptops_Available__c: Keeps track of the number of laptops availablein theinventory. This is a formula field in which the value will be updated when laptopsare to be shippedfrom the inventory.

SETUP > OBJECT MANAGER
Total Laptops

Details
Fields & Relationships
6 Items, Sorted by Field Label

Quick Find   New   Deleted Fields   Field Dependencies   Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Laptops Available	Laptops_Available__c	Formula (Number)		
Laptops delivered	Laptops_delivered__c	Roll-Up Summary (COUNT Laptop Bookings)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Total Laptops	Name	Text(80)		✓

(Left sidebar: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters)

- **Billing Process Object:** This custom object manages the billing process for laptop rentals. It tracks billing details, payment status, and related transactions to ensure accurate financial records for each rental.

  Fields and Relationships

  - **Amount__c**: A formula field (Number) that calculates the total amount for the billing process based on predefined criteria.
  - **Name**: The standard text field used as the unique identifier for each billing record.

This field's label might be "Billing Process Name."
- **Laptop_Booking__c**: A lookup field that associates each billing record with a specific laptop booking in the `Laptop_Bookings__c` object.
- **Name__c**: A master-detail relationship to the `Consumer` object, linking each billing record to a specific consumer.
- **Payment_Mode__c**: A picklist field that specifies the mode of payment (e.g., "Credit Card," "Bank Transfer," "Cash").

Step 2: Creating Tabs

The custom tab for **Total Laptops** was created to provide users easy access to the inventory management object, centralizing data on available laptops for rental.

- **Total Laptops Tab**: A custom tab for **Total Laptops** was created to provide users with easy access to the inventory management object, centralizing data on available laptops for rental.

- **Consumer Tab**: A custom tab for **Consumer** was created to manage customer details, enabling streamlined customer relationship management.

- **Laptop Booking Tab**: A custom tab for **Laptop Booking** was created to manage laptop rental transactions, linking each booking with specific customers and inventory.

- **Billing Process Tab**: A custom tab for **Billing Process** was created to handle billing and payment details, tracking all financial transactions related to laptop rentals.

Custom Object Tabs		New What Is This?		
Action	**Label**	**Tab Style**		**Description**
Edit	Del	Billing Process	Stack of Cash		
Edit	Del	consumer	People		
Edit	Del	Laptop Bookings	Computer		
Edit	Del	Total Laptops	Laptop		

Step 3: Creating a Lightning App

A new **Lightning App** called **LAPTOP RENTALS** was created to centralize and streamline the entire laptop rental management process within Salesforce. This app serves as a dedicated platform for managing customer data, processing laptop rental bookings, monitoring inventory, and handling billing activities, all in one place.

Step 4: Creating the Validation Rule for Phone Number Field in Consumer Object

Phonenumberoremailblankrule: A validation rule called **Phonenumberoremailblankrule** was created in the **Consumer** object to ensure that both phone number and email fields are not left blank. This rule enforces that either the **Phone Number** or **Email** field must be populated for each consumer record.

Validation Rule Details:

- **Rule Name**: Phonenumberoremailblankrule
- **Description**: "Phone number and email should not be blank."
- **Formula**: `OR(ISBLANK(phone_number__c), ISBLANK(email__c))`

This validation rule improves data integrity by requiring at least one contact method (phone or email) to be present on each consumer record, ensuring effective communication with customers.

SETUP > OBJECT MANAGER
consumer

Details	**consumer Validation Rule**
Fields & Relationships	Back to consumer
Page Layouts	
Lightning Record Pages	**Validation Rule Detail** [Edit] [Clone]
Buttons, Links, and Actions	Rule Name Phonenumberoremailblankrule Active ✓
Compact Layouts	Error Condition Formula OR(ISBLANK(Phone_number__c) , ISBLANK(Email__c))
Field Sets	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 Cheegiti Mahesh, 27/10/2024, 5:55 pm Modified By Cheegiti Mahesh, 27/10/2024, 5:55 pm
	[Edit] [Clone]

Help for this Page ❓

Step 4: Cloned the Profiles

Cloned the the Standard User to Owner and Agent Profiles and given Custom Object Permissions to each of the Roles. And then created two users with Owner and Agent Role after creatingthese Roles Heirarchy.

Owner:

Profile
owner

Help for this Page ❓

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges [0] | Enabled Apex Class Access [0] | Enabled Visualforce Page Access [0] | Enabled External Data Source Access [0] | Enabled Named Credential Access [0] | Enabled External Credential Principal Access [0] |
Enabled Custom Metadata Type Access [0] | Enabled Custom Setting Definitions Access [0] | Enabled Flow Access [0] | Enabled Service Presence Status Access [0] | Enabled Custom Permissions [0]

Profile Detail   [Edit] [Clone] [Delete] [View Users]

Name	owner		
User License	Salesforce	Custom Profile	✓
Description			
Created By	Cheegiti Mahesh, 27/10/2024, 6:09 pm	Modified By	Cheegiti Mahesh, 27/10/2024, 6:14 pm

Page Layouts

Standard Object Layouts

Global	Global Layout [View Assignment]	Invoice	Invoice Layout [View Assignment]

Agent:

Profile
Agent

Help for this Page ❓

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges [0] | Enabled Apex Class Access [0] | Enabled Visualforce Page Access [0] | Enabled External Data Source Access [0] | Enabled Named Credential Access [0] | Enabled External Credential Principal Access [0] |
Enabled Custom Metadata Type Access [0] | Enabled Custom Setting Definitions Access [0] | Enabled Flow Access [0] | Enabled Service Presence Status Access [0] | Enabled Custom Permissions [0]

Profile Detail   [Edit] [Clone] [Delete] [View Users]

Name	Agent		
User License	Salesforce Platform	Custom Profile	✓
Description			
Created By	Cheegiti Mahesh, 27/10/2024, 6:17 pm	Modified By	Cheegiti Mahesh, 27/10/2024, 6:19 pm

Page Layouts

Standard Object Layouts

Global	Global Layout [View Assignment]	Fulfillment Order Item Tax	Fulfillment Order Item Tax Layout [View Assignment]
Email Application	Not Assigned [View Assignment]	Fulfillment Order Product	Fulfillment Order Product Layout [View Assignment]
Home Page Layout	Home Page Default [View Assignment]	Idea	Varies by Record Type [View Assignment]
Account	Account Layout [View Assignment]	Individual	Individual Layout [View Assignment]
Alternative Payment Method	Alternative Payment Method Layout [View Assignment]	Invoice	Invoice Layout [View Assignment]

Step 5: Creating the Roles in Roles Heirarchy

The created Owner Role and the Agent Role are included in the Role heirarchy.
Ownerrole is placedunder the CEO Role and Agent Role under the Owner Role.

Step - 6: Flows

Created a Record-triggered flow to automatethe laptop bookingprocess that is initiated by the cosumer.This flow automateswhat to do after bookingthe laptop like triggering email notifications.

Step - 6: Apex Programming

Apex Classes:

LaptopBookingHandler.apxc:

The LaptopBookingHandler class'ssendEmailNotification method sends a welcome email to customers in the Laptop_Bookings_c list. It customizes the email body with details like the customer's name, laptop amount, core type, and model, then sends it using Messaging.SingleEmailMessage

Apex Class Detail   Edit Delete Download Security Show Dependencies

Name	LaptopBookingHandler	Status	Active
Namespace Prefix		Code Coverage	0% (0/9)
Created By	Cheegiti Mahesh , 27/10/2024, 10:37 pm	Last Modified By	Cheegiti Mahesh , 28

Class Body | Class Summary | Version Settings | Trace Flags

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

LaptopHandlerTest.apxc:

This test class, LaptopBookingHandlerTest, verifies the sendEmailNotification method in LaptopBookingHandler. It starts by creating a test consumer and a laptop inventory record. Then, it adds a sample booking in the Laptop_Bookings_c list, linking it to the consumer's emailand specifying detailslike laptop model and rentalperiod.

Using Test.startTest() and Test.stopTest(), it executes the sendEmailNotification method and checks if emails were sent by asserting the Limits.getEmailInvocations() count, ensuringthe method behavesas expected.

Apex Class Detail   Edit Delete Download Run Test Show Dependencies

Name	LaptopBookingHandlerTest	Status	Active
Namespace Prefix		Created By	Cheegiti Mahesh , 27/10/2024, 11:11 pm
Last Modified By	Cheegiti Mahesh , 28/10/2024, 12:54 am		

Class Body | Class Summary | Version Settings | Trace Flags

```
1   @isTest
2   public class LaptopBookingHandlerTest {
3
4       @isTest
5       static void testLaptopBookingTrigger() {
6           Laptop_Bookings__c testBooking = new Laptop_Bookings__c(
7               Name = 'SnapDeal',
8               Email__c = 'test@example.com',
9               Laptop_type__c = 'Dell',
10              Total_No_Of_Laptops__c = '10',
11              Name__c = 'Test User',
12              how_many_months__c = '3'
13          );
14
15          Test.startTest();
16
17          insert testBooking;
18
19          testBooking.how_many_months__c = '4';
20          update testBooking;
21
22          Test.stopTest();
23
24          System.assertEquals(2, Limits.getEmailInvocations(), 'Two emails should be sent (one on insert and one on update)');
25      }
26  }
```

Edit Delete Download Run Test Show Dependencies

Apex Trigger:

LaptopBooking.apxt:

This trigger, LaptopBooking, runs on the Laptop_Bookings_c object after records are inserted or updated. When triggered, it checks if the operation is an after insert or after update and then calls the sendEmailNotification method from LaptopBookingHandler, passing in the newly inserted or updated records.This ensures that customers receivea notification email whenever a new bookingis created or an existingone is updated.


Step - 7:Creating Report

A report was created based on **Laptop Bookings**, organizing rental data into **buckets** according to the Amountc field. The bookings are categorized into **Basic,Intermediate**, **High**, and **Very High** tiers, providing an easy-to-read summary of booking distributions across different price ranges. This setup enablesquick insights into customer preferences for various pricing levels, helping to analyze rental demand and optimizeinventory management accordingly.

Reports of Booking and total Laptops

Enable F

Total Records	Total Amount
8	₹30,500

type of versions ↑	Laptop Bookings: Laptop Bookings	consumer: consumer_name	Total No Of Laptops: Total Laptops	Address	Phone number	Laptop names	core type	Amount
basic (1)	Care Laps	Somu	50	Bhimavaram	📞 6302761758	Acer	core i3	₹900
Subtotal								₹900
intermediate (1)	Lap Life	Ramu	50	Bhimavaram	📞 7710917207	Dell	core i3	₹1,000
Subtotal								₹1,000
high (5)	Lap Partners	Akhil	50	Bhimavaram	📞 7569345477	Mac	Bionic chip	₹6,800
	SnapDeal	Dinesh	50	Bhimavaram	📞 8309891599	Dell	core i3	₹3,000
	Flipkart	Mahesh	50	Pinnintipeta, Srikakulam	📞 8639838411	Acer	core i3	₹1,800
	Jim LapCare	Pavan	50	Bhimavaram	📞 9394077889	Acer	core i3	₹3,600
	Care Center	Dinesh	50	Bhimavaram	📞 8309891599	Hp	core i5	₹3,400
Subtotal								₹18,600
very high (1)	Amazon	Bhargav	50	Bhimavaram	📞 8179327201	Dell	core i7	₹10,000
Subtotal								₹10,000
Total (8)								₹30,500

Step - 8: Creating a dashboard

A **donut chart and some more charts** were added to the dashboard to visually represent the **Laptop Bookings** report, segmented by the pricing buckets—**Basic**, **Intermediate**, **High**, and **Very High**. This chart provides an at-a-glance view of the distribution of bookings across differentprice tiers, making it easier to understand customer demand patterns and quickly assess which laptop rentaloptions are most popular.
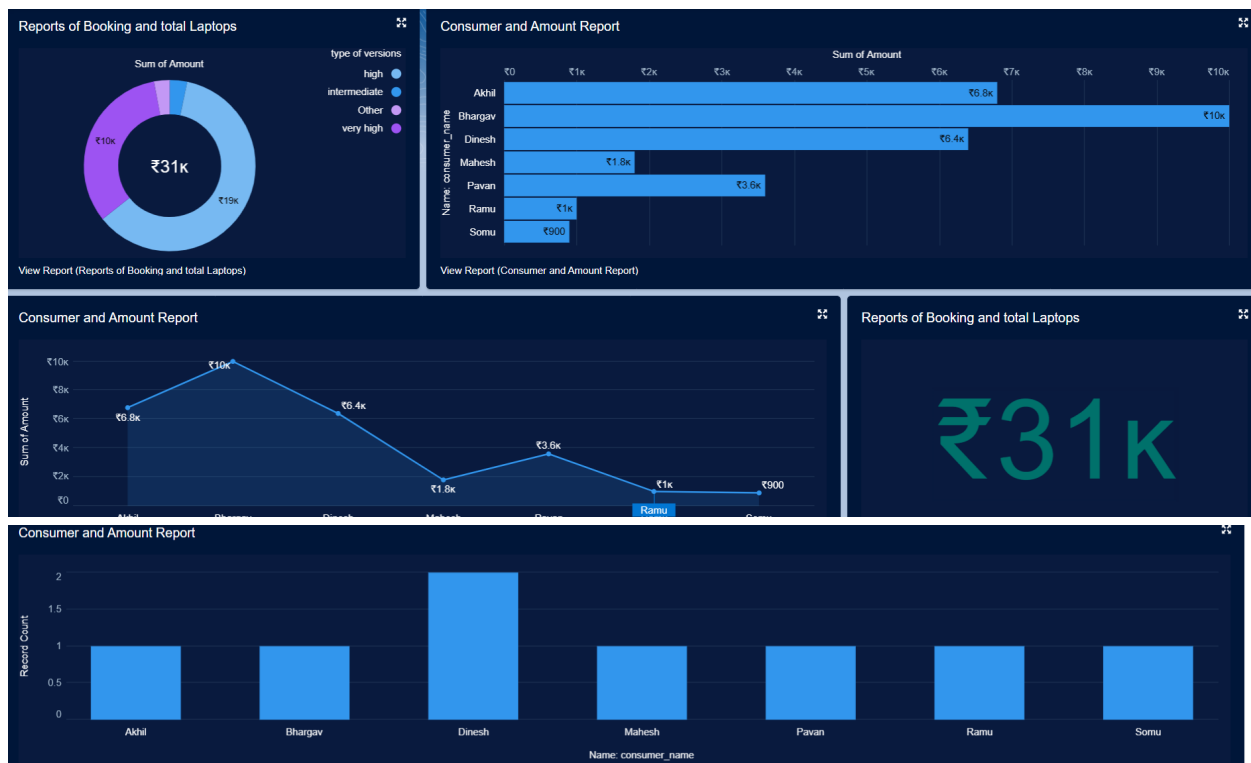
5.Testing and Validation

To ensure the application performsas expected, varioustesting approaches were applied:

- **Unit Testing:** All Apex classes and triggers were tested with unit tests, achieving at 100% code coverage.

- **User Interface Testing:**UI elements such as the flow of booking laptops,navigation between tabs, and form validations were tested manually and via testscripts.

6.Key Scenarios Addressed by Salesforce in the Implementation Project

- **Efficient Customer Management**: Salesforce captures and organizes customer data, allowingfor streamlined management and quick access to customerdetails, contact information, and booking history.

- **Automated Rental Booking Process**: By using customobjects and workflows,the system automates the booking process, including tracking available laptops and ensuring up-to-date inventory status.

- **Seamless Billing and Invoicing**: Automated billing functionality through Apex triggersand workflows ensuresaccurate billing for each rental, with invoice details readily accessible for both customersand staff.

- **Enhanced Customer Communication**: Salesforce enables personalized, automated email notifications, keeping customers informed at each stage of their rentalexperience—from booking confirmation to reminders.

7. Conclusion

In conclusion, the **Laptop Rentals CRM** implementation exemplifies a transformative approach to customer relationship management, seamlessly integrating automation, personalized communication, and insightful analytics. This solution not only enhancesoperational efficiency but also elevates the customer experience, positioning the business for sustained growth and success in the competitive rentalmarket.

CHEEGITI MAHESH
VISHNU INSTITUTE OF TECHNOLOGY