Title: Tripadvisor E-management

Team Members:

Sri Parthasarathi.P (9C0D2A0FCFFF413AB9947B1889F6C9B1)
Sri Ganesh.T (CCE55C28D9B8934963D4551A1C595C6C)
Abisheak.M (6129876ACD131899908423AF3862BD6E)
Veeramani.P (FE7D057E76A893D8ED0498B98C0C978E)

College :

Tamilnadu College Of Engineering

Project Overview

This project is focused on integrating the TripAdvisor E-Management app with Salesforce, designed to address the challenge of providing a seamless, all-in-one travel management solution. The goal is to deliver a comprehensive platform by leveraging Salesforce's CRM capabilities, automation tools, and integration with TripAdvisor's API. Through this project, we aim to enhance user experience by offering centralized trip planning and booking, improve operational efficiency through automated workflows like flight reminders and discounts, and ensure data accuracy with real-time insights. This initiative supports the long-term goals of empowering travelers with informed decision-making, increasing customer satisfaction, and driving business efficiency.

Objectives

Business Goals

1. Enhance customer experience by providing timely and relevant travel reminders and updates.

2. Increase customer retention and satisfaction through automated loyalty discounts and personalized recommendations.

3. Improve operational efficiency by streamlining booking, planning, and review sharing processes.

4. Boost revenue through targeted upselling of travel packages, hotels, and food options based on customer preferences.

5. Strengthen brand value by integrating real-time feedback loops for continuous improvement.

Specific Outcomes

1. Scheduled Apex for Flight Reminders:
Automate email notifications for flights departing within the next 24 hours.
Ensure 100% reliability in sending reminders to relevant customers.

2. Customer Discount Automation:

Automatically apply loyalty discounts for returning customers who meet defined criteria.

Track and report the success rate of discounts in driving repeat business.

3. Integrated Flow for Data Management:

Create Salesforce flows to handle and manage hotel, flight, and food option data seamlessly.

Ensure all flows are optimized to reduce manual intervention and maintain data accuracy.

4. Enhanced Reporting for Insights:

Provide actionable dashboards showing trends in bookings, cancellations, and customer feedback.

Enable business users to analyze and act on data in real time.

5. Apex Trigger and Handler for Reviews:

Implement triggers to process and categorize customer reviews into actionable insights.

Ensure all reviews are categorized within 5 minutes of submission.

6. Improved API Integration:

Enable seamless communication between Salesforce and the TripAdvisor E-Management app.

Ensure 99.9% uptime for API calls to support uninterrupted operations.

Salesforce Key Features and Concepts Utilized

Custom Objects:

Hotel

SETUP > OBJECT MANAGER
Hotel

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	

Details   Edit   Delete

Description

API Name   Enable Reports
Hotel__c   ✓

Custom   Track Activities
✓

Singular Label   Track Field History
Hotel

Plural Label   Deployment Status
Hotels   Deployed

                                                   Help Settings
                                                   Standard salesforce.com Help Window

Food Options

Food Option

Details	
Fields & Relationships	
Page Layouts	
Lightning Record Pages	
Buttons, Links, and Actions	
Compact Layouts	
Field Sets	
Object Limits	
Record Types	
Related Lookup Filters	
Restriction Rules	
Scoping Rules	

Details   Edit   Delete

Description

API Name
Food_Option__c

Custom
✓

Singular Label
Food Option

Plural Label
Food Options

Enable Reports

Track Activities

Track Field History

Deployment Status
Deployed

Help Settings
Standard salesforce.com Help Window

Customers

Customer

Details	
Fields & Relationships	
Page Layouts	
Lightning Record Pages	
Buttons, Links, and Actions	
Compact Layouts	
Field Sets	
Object Limits	
Record Types	
Related Lookup Filters	
Restriction Rules	
Scoping Rules	

Details   Edit   Delete

Description

API Name
Customer__c

Custom
✓

Singular Label
Customer

Plural Label
Customers

Enable Reports

Track Activities

Track Field History

Deployment Status
Deployed

Help Settings
Standard salesforce.com Help Window

Flights

Flight

Details		
Details		Edit Delete

Description

API Name	Enable Reports
Flight__c	
Custom	Track Activities
✓	
Singular Label	Track Field History
Flight	
Plural Label	Deployment Status
Flights	Deployed
	Help Settings
	Standard salesforce.com Help Window

Navigation (left panel):
- Details
- Fields & Relationships
- Page Layouts
- Lightning Record Pages
- Buttons, Links, and Actions
- Compact Layouts
- Field Sets
- Object Limits
- Record Types
- Related Lookup Filters
- Restriction Rules
- Scoping Rules

Automation Tools:

Flows for managing data updates and customer discounts.

Triggers for ensuring business logic consistency.

Scheduled Apex:

Apex Schedulable class for sending timely flight reminders via email alerts.

Detailed Steps to Solution Design

Data Model Design:

Hotel Fields

Total Food Option:

Date:

Food Option Fields:

Name:

Food Option Custom Field
Name
Back to Food Option

Help for this Page

Validation Rules [0]

Custom Field Definition Detail   [Edit] [Set Field-Level Security] [View Field Accessibility] [Where is this used?]

Field Information

Field Label	Name	Object Name	Food Option
Field Name	Name	Data Type	Text
API Name	Name__c		
Description			
Help Text			
Data Owner			
Field Usage			
Data Sensitivity Level			
Compliance Categorization			
Created By	Sri Parthasarathi P, 12/11/2024, 10:06 pm	Modified By	Sri Parthasarathi P, 12/11/2024, 10:06 pm

General Options

Hotel:

Food Option Custom Field
Hotel
Back to Food Option

Help for this Page

Validation Rules [0]

Custom Field Definition Detail   [Edit] [Set Field-Level Security] [View Field Accessibility] [Where is this used?]

Field Information

Field Label	Hotel	Object Name	Food Option
Field Name	Hotel	Data Type	Lookup
API Name	Hotel__c		
Description			
Help Text			
Data Owner			
Field Usage			
Data Sensitivity Level			
Compliance Categorization			
Created By	Sri Parthasarathi P, 12/11/2024, 10:11 pm	Modified By	Sri Parthasarathi P, 12/11/2024, 10:11 pm

Lookup Options

Food amount:

Food Option Custom Field
Food Amount
Back to Food Option

Validation Rules [0]

Custom Field Definition Detail   [Edit] [Set Field-Level Security] [View Field Accessibility] [Where is this used?]

Field Information

Field Label	Food Amount	Object Name	Food Option
Field Name	Food_Amount	Data Type	Number
API Name	Food_Amount__c		
Description			
Help Text			
Data Owner			
Field Usage			
Data Sensitivity Level			
Compliance Categorization			
Created By	Sri Parthasarathi P, 12/11/2024, 10:12 pm	Modified By	Sri Parthasarathi P, 12/11/2024, 10:12 pm

General Options

Flight Object Field:

Name:

Flight Custom Field
Name
Back to Flight

Validation Rules [0]

Custom Field Definition Detail   [Edit] [Set Field-Level Security] [View Field Accessibility] [Where is this used?]

Field Information

Field Label	Name	Object Name	Flight
Field Name	Name	Data Type	Date/Time
API Name	Name__c		
Description			
Help Text			
Data Owner			
Field Usage			
Data Sensitivity Level			
Compliance Categorization			
Created By	Sri Parthasarathi P, 12/11/2024, 10:18 pm	Modified By	Sri Parthasarathi P, 12/11/2024, 10:18 pm

General Options

DepartureDate Time:

Customer Field:

Customer Name:

Discount Amount:

Discount Percentage:

Custom objects and relationships between Hotels, Food Options, Flights, and Customers.

Fields to track purchase amounts, discounts, food options count, and flight schedules.

Flow:
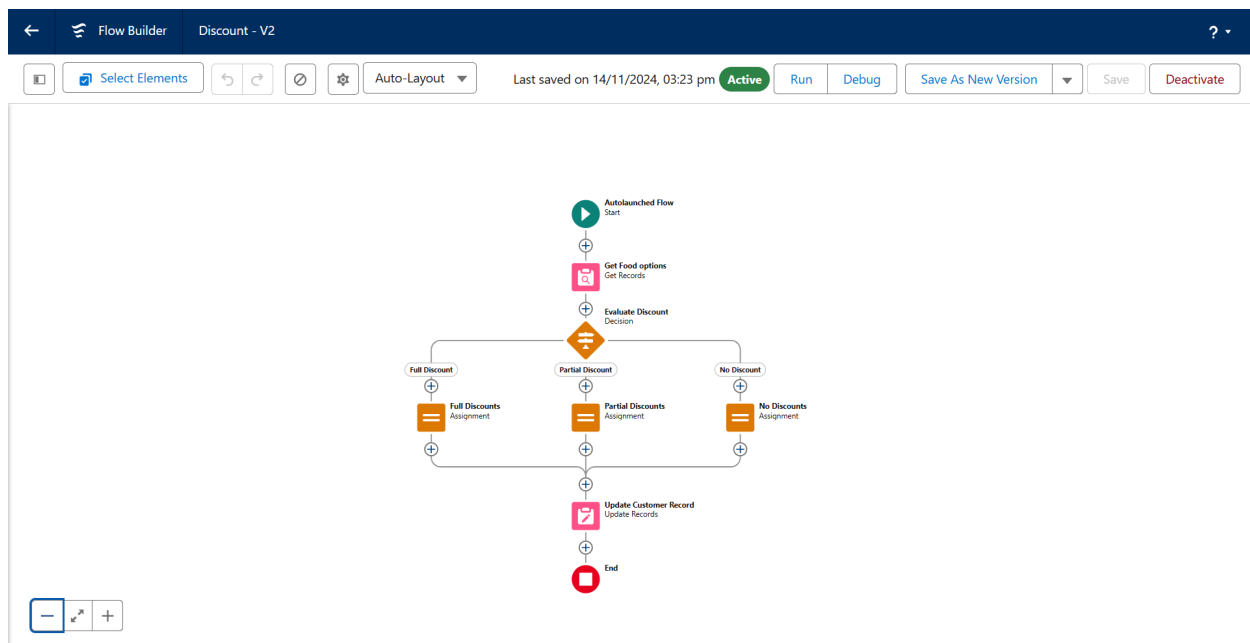
Variables:

Fold:

Edit Variable

* API Name ⓘ

fold

Description

* Data Type ⓘ

Text

☐ Allow multiple values (collection) ⓘ

Default Value

Enter value or search resources...

Availability Outside the Flow

☑ Available for input

☐ Available for output

Cancel   Done

CsId:

Edit Variable

* API Name ⓘ

```
csId
```

Description

Data Type ⓘ

```
Text                                    ▾
```

☐ Allow multiple values (collection) ⓘ

Default Value

```
🔍  Enter value or search resources...
```

Availability Outside the Flow

☑ Available for input

☐ Available for output

Cancel   **Done**

Discount:

Edit Variable

* API Name ⓘ

discount

Description

Data Type ⓘ

Number ▾   ☐ Allow multiple values (collection) ⓘ

Decimal Places

2

Default Value

🔍 Enter value or search resources...

Availability Outside the Flow

☐ Available for input
☐ Available for output

Cancel   Done

Get Records:

🔲 Get Records   ✕

*Label

Get Food options

*API Name ⓘ

Get_Food_options

Description

Get Records of This Object

*Object

Food Option

Filter Food Option Records

Condition Requirements

All Conditions Are Met (AND) ▼

Field	Operator	Value	
Id	Equals	Aa csId ✕	🗑

➕ Add Condition

Decision Element:

Default Outcome:

Full Discount:

Assignment ✕

* Label
Full Discounts

* API Name ⓘ
Full_Discounts

Description

Set Variable Values

Each variable is modified by the operator and value combination.

Variable
\# discount ✕

Operator
Equals ▾

Value
30 🔍 🗑

➕ Add Assignment

Partial Discount:

Assignment ✕

* Label
Partial Discounts

* API Name ⓘ
Partial_Discounts

Description

Set Variable Values

Each variable is modified by the operator and value combination.

Variable
\# discount ✕

Operator
Equals ▾

Value
15 🔍 🗑

➕ Add Assignment

No Discount:

	Assignment	✕

*Label

No Discounts

*API Name ⓘ

No_Discounts

Description

Set Variable Values

Each variable is modified by the operator and value combination.

Variable	Operator	Value
# discount ✕	Equals ▼	0 🔍	🗑

+ Add Assignment

Update Records:

Update Records   ×

*Label   *API Name ⓘ

Update Customer Record   Update_Customer_Record

Description

*How to Find Records to Update and Set Their Values
○ Use the IDs and all field values from a record or record collection
● Specify conditions to identify records, and set fields individually

Update Records of This Object Type

*Object

Customer

Filter Customer Records

Condition Requirements to Update Records

All Conditions Are Met (AND)   ▼

Handle automated updates for the food options count when changes occur.

Apply discount logic for customer purchases.

Apex Triggers:

Maintain business rules for related object updates.

Apex class:

```
public class FoodOptionTriggerHandler {

    // Method to update hotel information based on food options

    public static void updateHotelInformation(List<Food_Option__c>
newFoodOptions, List<Food_Option__c> oldFoodOptions,
TriggerOperation operation) {

        Set<Id> hotelIdsToUpdate = new Set<Id>();


        // Collect unique Hotel Ids affected by food options changes

        for (Food_Option__c foodOption : newFoodOptions) {

            hotelIdsToUpdate.add(foodOption.Hotel__c);

        }


        // Update hotel information based on food options

        List<Hotel__c> hotelsToUpdate = [SELECT Id, Name,
TotalFoodOptions__c FROM Hotel__c WHERE Id IN
:hotelIdsToUpdate];


        for (Hotel__c hotel : hotelsToUpdate) {

            // Recalculate total food options count

            Integer totalFoodOptions = [SELECT COUNT() FROM
Food_Option__c WHERE Hotel__c = :hotel.Id];
```

```
            hotel.TotalFoodOptions__c = totalFoodOptions;

        }


        // Update hotels with new total food options count

        update hotelsToUpdate;

    }



}
```

Apex Trigger:
```
  trigger FoodOptionTrigger on Food_Option__c (after insert, after
update, after delete) {

    if (Trigger.isAfter) {
        if (Trigger.isInsert) {

FoodOptionTriggerHandler.updateHotelInformation(Trigger.new, null,
'INSERT');
        } else if (Trigger.isUpdate) {

FoodOptionTriggerHandler.updateHotelInformation(Trigger.new,
Trigger.old, 'UPDATE');
        } else if (Trigger.isDelete) {
            FoodOptionTriggerHandler.updateHotelInformation(null,
Trigger.old, 'DELETE');
        }
    }
}
```

Flight Reminder System:

Class solution:

```
public class FlightReminderScheduledJob implements Schedulable {

    public void execute(SchedulableContext sc) {
        sendFlightReminders();
    }

    private void sendFlightReminders() {
    // Query for flights departing within the next 24 hours
        List<Flight__c> upcomingFlights = [SELECT Id, Name,
DepartureDateTime__c, ContactEmail__c FROM Flight__c
                        WHERE DepartureDateTime__c >=
:DateTime.now()
                            AND DepartureDateTime__c <=
:DateTime.now().addDays(1)];

        for (Flight__c flight : upcomingFlights) {
    // Send email reminder
            if (flight.ContactEmail__c != null) {
                Messaging.SingleEmailMessage email = new
Messaging.SingleEmailMessage();
                email.setToAddresses(new List<String>{
flight.ContactEmail__c });
                email.setSubject('Flight Reminder: ' + flight.Name);
                email.setPlainTextBody('This is a reminder for your
upcoming flight ' + flight.Name +
                        ' departing on ' + flight.DepartureDateTime__c);
            Messaging.sendEmail(new
List<Messaging.SingleEmailMessage>{ email });
            }
        }
```

```
    }
}
```

Apex Code:

```
//Define the cron expression for 6 AM daily
    String cronExp = '0 0 6 * * ?';

//Schedule the job
  System.schedule('FlightReminderJob', cronExp, new
FlightReminderScheduledJob());
```

Create a Schedulable Apex class to identify flights departing within 24 hours.

Send email alerts to customers and log success notifications. User Interface Design:

Ensure clear and intuitive layouts for managing Hotels, Flights, and Food Options.

OutCome:

View: All Scheduled Jobs ∨   Create New View

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Other | **All**

Schedule Apex

Action	Job Name ↑	Submitted By	Submitted	Started	Next Scheduled Run	Type	Cron Trigger ID
Manage | Del | Pause Job	FlightReminderJob	P, Sri Parthasarathi	21/11/2024, 3:03 pm		22/11/2024, 6:00 am	Scheduled Apex	08edL000008bCqP
Del	Metalytics Data Loader Job for Org : 00DdL00000ApNin	User, Integration	21/08/2024, 11:19 am	21/11/2024, 8:11 am	22/11/2024, 8:11 am	Autonomous Data Loader Job	08edL0000045uc1
	Program Milestone Computation Cron Job	Process, Automated	21/08/2024, 11:19 am	21/11/2024, 11:59 am	21/11/2024, 4:59 pm	Program Milestone Computation Cron Job	08edL0000045ubz
	Program Status Update Cron Job	Process, Automated	21/08/2024, 11:19 am	21/11/2024, 5:00 am	21/11/2024, 8:00 pm	Program Status Update Cron Job	08edL0000045uc0

Testing and Validation

Testing Approach:

Unit Testing:

Apex classes and triggers tested to ensure 100% code coverage.

User Interface Testing:

Verify the accuracy and usability of flows and custom object layouts.

Validation Steps:

Check automated updates for the food options count.

Validate discount calculations based on customer purchases.

Confirm timely email reminders and success notifications for flight schedules.

Key Scenarios Addressed by Salesforce in the Implementation Project

Hotel Data Management: Automatically update hotel records when food options are modified.

Customer Benefits Automation:

Ensure customers receive appropriate discounts based on their purchase amounts.

Flight Reminder Notifications:

Provide timely email alerts for upcoming flights with confirmation notifications.

Conclusion

Summary of Achievements:

Automated processes for food options and hotel data management.

Implemented customer discount logic based on purchase thresholds.

Scheduled Apex for reliable flight reminders with success notifications.

Leveraged Salesforce capabilities to enhance operational efficiency and customer satisfaction.