

A Course End Project (Salesforce)

on

Internet Service Provider prototype using Salesforce

Submitted in the Partial Fulfillment of the

Requirements

for the Award of the Degree of

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IN

COMPUTER SCIENCE AND ENGINEERING (AI&ML)

Submitted

By

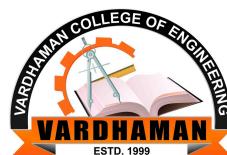
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(AUTONOMOUS)

Affiliated to **JNTUH**, Approved by **AICTE**, Accredited by **NAAC**, with **A++ Grade**, **ISO 9001:2015 Certified**

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CERTIFICATE

This is to certify that the Course End Project report work entitled "**Internet Service Provider prototype using Salesforce**" carried out by Mr. **Ashish Sharma**, Roll Number **21881A6671**, Mr. **K. Sishir**, Roll Number **21881A6693**, Mr. **M.Anirudh Dhadhi Sagar**, Roll Number **21881A66A3**, Mr. **Sheri Nitish Reddy**, Roll Number **21881A66B8** towards Course End Project and submitted to the Department of Computer Science and Engineering(AI&ML), in partial fulfillment of the requirements for the award of degree of **Bachelor of Technology** in **Computer Science and Engineering (AI&ML)** during the year 2023-24.

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ABSTRACT

The project endeavors to enhance the operational efficiency and customer engagement of Internet Service Providers (ISPs) through the implementation of a Salesforce-based automation system. The primary objective is to streamline key tasks, with particular emphasis on automating the dispatch of customized welcome emails to new subscribers based on their selected service plans. The proposed solution integrates seamlessly with the Salesforce platform, leveraging its robust capabilities to optimize customer onboarding processes. By developing intricate triggers and workflows within the Salesforce ecosystem, the system identifies new users upon subscription activation, generates personalized communications elucidating plan-specific features and benefits, and dispatches these messages in a timely manner. This automation not only enhances the overall customer experience but also significantly reduces manual intervention and mitigates the potential for human error. Through this practical application of Salesforce in the telecommunications sector, the project aims to demonstrate the transformative potential of advanced Customer Relationship Management (CRM) systems in revolutionizing ISP operations, setting a new standard for efficiency, customer satisfaction, and operational excellence in the competitive landscape of Internet Service Providers.

ABBREVIATIONS

Abbreviation	Expansion
ISP	Internet Service Provider
CRM	Customer Relationship management

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Chapter 1 Introduction

1.1 Scope

The telecommunications industry is rapidly evolving, with Internet Service Providers (ISPs) facing increasing demands for efficiency, customer satisfaction, and operational excellence. To meet these challenges, leveraging advanced Customer Relationship Management (CRM) solutions such as Salesforce can be a game-changer. This document outlines the development of a prototype for an Internet Service Provider (ISP) using Salesforce, focusing on three critical aspects: role-based access, workflow execution via email alerts, and dynamic field updates.

Salesforce, with its robust and customizable platform, provides an ideal foundation for creating a comprehensive ISP management system. This prototype aims to streamline operations, enhance customer engagement, and ensure secure access to sensitive information based on user roles. By implementing role-based access controls, we can ensure that employees have appropriate permissions aligned with their job functions, enhancing both security and efficiency.

Field updates play a crucial role in maintaining accurate and up-to-date information within the system. This prototype will implement dynamic field updates to reflect real-time changes, ensuring that data integrity is maintained and that all stakeholders have access to the most current information.

The following sections will delve deeper into the design and implementation of these components, illustrating how Salesforce's capabilities can be harnessed to create a robust ISP management prototype. By integrating role-based access, workflow automation, and field updates, this prototype aims to set a benchmark for efficiency and customer satisfaction in the ISP sector.

About Salesforce

Salesforce, Inc. is an American cloud-based software company headquartered in San Francisco, California. Salesforce is a leading cloud-based Customer Relationship Management (CRM) platform that helps businesses manage customer interactions, sales processes, and marketing campaigns. It offers a suite of applications for sales, service, marketing, and more, all accessible through a unified interface. Salesforce enables companies to track customer data, automate workflows, and analyze performance metrics to drive better decision-making and enhance customer experiences. Its cloud-based nature allows for real-time data access and collaboration across teams, facilitating efficient and effective customer relationship management. Additionally, Salesforce's extensive ecosystem of third-party integrations and its customizable architecture make it adaptable to various business needs and industries.

Salesforce's suite of applications is designed to cater to a wide range of business functions. For instance, Sales Cloud focuses on sales automation and management, helping sales teams to manage leads, opportunities, and customer accounts more efficiently. Service Cloud provides tools for customer service management, including case tracking, knowledge management, and customer support automation, ensuring that customer issues are resolved promptly and effectively. Marketing Cloud offers robust tools for digital marketing, enabling businesses to create personalized marketing campaigns, manage customer journeys, and analyze marketing performance across various channels such as email, social media, and mobile.

One of the standout features of Salesforce is its ability to automate complex business workflows. This automation reduces manual tasks, allowing employees to focus on higher-value activities and improving overall productivity. The platform's analytics and reporting tools are powerful, providing deep insights into business performance and customer behavior. With customizable dashboards and real-time reporting, businesses can monitor key metrics and trends, making data-driven decisions that enhance strategic planning and operational efficiency.

The cloud-based nature of Salesforce means that data is stored securely in the cloud and can be accessed from anywhere, at any time. This flexibility is particularly beneficial for businesses with remote or distributed teams, as it enables seamless collaboration and information sharing across different locations. Moreover, Salesforce ensures high levels of data security and

compliance with industry standards, providing peace of mind to businesses regarding the safety and privacy of their data.

Salesforce's extensive ecosystem of third-party integrations is facilitated through the Salesforce AppExchange, a marketplace offering thousands of apps and components that extend the platform's functionality. Whether a business needs project management tools, accounting software, or industry-specific solutions, the AppExchange provides a wide array of options to meet those needs. This integration capability ensures that Salesforce can be seamlessly incorporated into an existing tech stack, enhancing its value and utility.

Additionally, Salesforce's customizable architecture allows businesses to tailor the platform to their specific needs. Through its point-and-click customization tools, users can create custom fields, objects, and workflows without requiring deep technical expertise. For more advanced customization, Salesforce's development tools, such as Apex and Visualforce, enable developers to build complex applications and integrations, further extending the platform's capabilities.

Customer Relationship Management (CRM) is a strategic approach integrating processes, people, and technology to enhance interactions with current and potential customers, aiming to improve satisfaction, loyalty, and retention. It encompasses operational, analytical, and collaborative components. Operational CRM automates sales, marketing, and service processes, enhancing efficiency. Analytical CRM involves data mining and analysis, customer segmentation, and predictive analytics to inform strategic decisions. Collaborative CRM manages communication across various channels and integrates customer feedback, improving overall service. Benefits include improved customer service through personalized interactions, increased sales through better understanding of customer needs, and streamlined operations, leading to higher efficiency and customer satisfaction.

1.2 Objectives

- Implement role-based access control.
- Execute workflows with email alerts and field updates.
- Notify users about transaction fees via email alerts.
- Support ticket generation and management.
- Integrate automations to enhance ISP operations.

Chapter 2 Literature Review

The following are some disadvantages of not using salesforce as CRM :-

Inefficient Data Management

Without a centralized CRM like Salesforce, businesses often struggle with fragmented data across multiple systems, spreadsheets, and databases. This can lead to:

Data Silos: Different departments might have isolated data, making it difficult to get a unified view of customer information.

Inconsistent Data: Without a single source of truth, data can become inconsistent and outdated.

Poor Customer Insights

Salesforce provides detailed analytics and insights into customer behavior and preferences.

Without it:

Limited Customer Understanding: Businesses may lack deep insights into customer needs and trends, impacting personalization and customer satisfaction.

Missed Opportunities: Inability to analyze data effectively can lead to missed sales and marketing opportunities.

Reduced Sales Efficiency

Salesforce streamlines the sales process with tools for tracking leads, managing pipelines, and automating tasks. Not using it can result in:

Manual Processes: Sales teams might spend more time on administrative tasks instead of focusing on selling.

Disorganized Sales Pipeline: Without proper tracking, managing sales prospects and pipeline stages becomes challenging.

Chapter 3 Problem Definition and Proposed System Methodology

3.1 Problem Statement

Internet Service Providers (ISPs) require a robust and automated system to manage user roles, execute workflows, send timely notifications regarding transaction fees, and handle support tickets efficiently. The absence of such a system leads to operational inefficiencies, delayed notifications, and increased manual workload, ultimately affecting user satisfaction and service quality. This project aims to develop an ISP application to address these challenges by incorporating role-based access, automated workflows, email alerts, and ticket generation to streamline and enhance ISP operations.

3.2 Proposed System Methodology

To achieve high-end automation for Internet Service Providers (ISPs), this project leverages specific concepts and features of Salesforce. The proposed methodology utilizes the following key components:

1. Workflows: The system employs Salesforce's workflow capabilities to automate processes and actions. This includes:
 - Workflow rules: To define conditions that trigger automated actions.
 - Workflow actions: Specific actions to be executed when rules are met.
 - Email alerts: Automated email notifications based on certain criteria.
 - Field updates: Automatic updates to record fields based on predefined conditions.
 - Classic email templates: Customizable templates for standardized communication.
2. Roles: The project implements a role-based access control system using Salesforce's role hierarchy feature. This allows for:
 - Structured organization of user roles (e.g., manager, sales officer).
 - Granular control over data access and permissions based on user roles.
 - Visualization of the organizational structure through a tree view.

3. Salesforce Basics: The methodology incorporates fundamental Salesforce elements to build a comprehensive ISP management system:

- Hands-on orgs: Utilizing Salesforce's organizational structure for data management.
- Custom and standard elements:
 - Apps: Creating a custom app tailored for ISP operations.
 - Objects: Utilizing both standard Salesforce objects and creating custom objects to meet specific ISP needs.
 - Fields and relationships: Defining custom fields and establishing relationships between objects to capture and organize ISP-specific data.
 - Tabs: Organizing the user interface for efficient navigation and data access.

This methodology emphasizes the integration of these Salesforce features to create a comprehensive ISP management system. By combining workflows, role-based access, and custom objects, the system aims to automate key processes, enhance operational efficiency, and improve customer engagement.

The approach focuses on leveraging Salesforce's built-in capabilities to address the unique challenges faced by ISPs, such as managing subscriptions, handling customer communications, and streamlining internal processes. This methodology provides a foundation for creating a scalable, flexible, and user-friendly system that can adapt to the evolving needs of Internet Service Providers.

For new users or team members unfamiliar with these Salesforce concepts, it is recommended to acquire basic knowledge through the Salesforce Trailhead platform. The following resource is particularly useful for understanding the fundamentals and best practices:
<https://trailhead.salesforce.com/users/trailblazerconnect/trailmixes/job-ready-educators-fdp-salesforce-developer>

3.3 Implementation

To achieve such high end automation, certain concepts/ features of Salesforce are used as shown below:

>>Workflows→ Workflow rules, workflow actions, email alerts, field updates, classic email templates

>>Roles→ Role hierarchy in tree view(or any other pleasing ones)

>>Salesforce basics→ hands-on orgs, custom and standard[apps, objects, fields and relationships, Objects, tabs]

Having basic know-hows of these activities/ features in salesforce is a must, new users can learn it by using this link:

<https://trailhead.salesforce.com/users/trailblazerconnect/trailmixes/job-ready-educators-fdp-salesforce-developer>

Follow the below instructions to implement this proposed model(all of them are available by navigating to setup option and most of the tasks are done in the pane which is shown below):

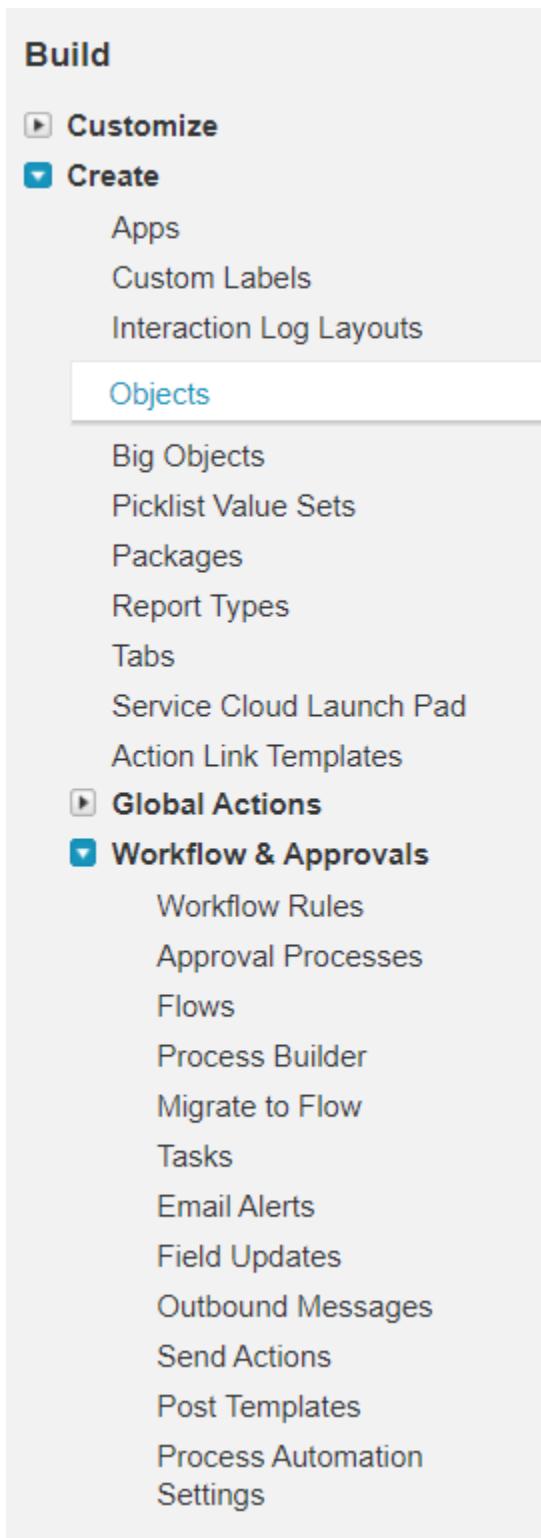


Figure 1: Setup panel in Salesforce

- 1) Make a custom app, give the name as RACT fiber in the label section. Click on the save button.

- 2) Add some standard and custom objects. In this case, two standard apps- subscriptions, dashboards and a custom app- recharge is made.
- 3) Add certain fields to the custom app. Make sure to include email-id, and a certain numeric data type field for the email alert and field updation workflow to be maintained. Here, Fees(currency(18,0)), Mail-id(email), Name(text(150)), Phone Number(phone), and Subscription Type(Picklist) are being created as illustrated below.

Custom Fields & Relationships							Custom Fields & Relationships Help ?
Action	Field Label	API Name	Data Type	Indexed	Controlling Field	Modified By	
Edit Del	Fees	Fees__c	Currency(18, 0)			Ashish Sharma	14/06/2024, 8:16 pm
Edit Del	Mail-id	Mail_Id__c	Email			Ashish Sharma	14/06/2024, 7:22 pm
Edit Del	Name	Name__c	Text(150)			Ashish Sharma	14/06/2024, 7:24 pm
Edit Del	Phone Number	Phone_Number__c	Phone			Ashish Sharma	14/06/2024, 7:25 pm
Edit Del Replace	Subscription-Type	Subscription_Type__c	Picklist			Ashish Sharma	14/06/2024, 7:23 pm

Figure 2: Adding Custom Fields & Relationships in Salesforce

- 4) Go to roles, add some roles like manager, sales officer, etc. The roles made for this model are shown below:

The screenshot shows the 'Role View Page' in the Salesforce setup interface. The left sidebar includes links for Lightning Experience, Transition Assistant, Mobile Quick Start, Home, Administrator, and various system settings. The main content area displays a hierarchical list of roles under 'Your Organization's Role Hierarchy'. The hierarchy starts with 'Vardhaman College of Engineering' at the top, which branches into 'CEO', 'CFO', 'Finance Officer', 'Sales Strategy Manager', 'COO', 'Marketing', 'Recruitment', 'SVP Customer Service & Support', 'Customer Support International', 'Customer Support North America', 'Installation & Repair Service', 'System Resources', 'SVP Sales & Marketing', 'VP International Sales', 'VP Marketing', 'Marketing Team', 'VP North American Sales', 'Director Channel Sales', 'Channel Sales Team', 'Director Direct Sales', 'Eastern Sales Team', and 'Western Sales Team'. Each role entry includes edit and delete options.

Figure 3: Creating Roles in Salesforce platform

- 5) In the quick find search bar, search for email classic templates, click to email classic templates present under the communication templates pane. Create a new custom email, of html type. Make sure to check the “available to use” option before saving it.

- 6) Now, in the search bar, search for email alerts, click to create new. Select your custom object, and the new custom mail that is just created. Select “Email field: mail id” in the available recipients box and move it to selected recipients. Click on save.
- 7) Create a new workflow rule, make the action happen whenever any of the plan fields option is selected. Do the same for the field update section. Add workflow action in the immediate action box. Click on save, activate.
- 8) Add new data and check the results.

4. Results

The implementation of the Salesforce-based Internet Service Provider (ISP) management system has yielded significant improvements in operational efficiency and customer engagement. The key results of this project are as follows:

1. Automated Email Notifications:

- The system successfully sends customized email alerts based on the subscription type selected by users.
- Three distinct email templates were created and tested, each tailored to a specific subscription plan.
- This automation ensures timely and accurate communication with customers, enhancing their onboarding experience.

2. Dynamic Field Updates:

- The workflow rules effectively trigger field updates based on predefined criteria.
- This feature maintains data accuracy and consistency across the system, reducing manual data entry errors.

3. Role-Based Access Control:

- Implementation of role hierarchy has improved data security and access management.
- Different user roles (e.g., manager, sales officer) now have appropriate access levels to sensitive information.

4. Streamlined Customer Management:

- The custom 'Recharge' object, integrated with standard Salesforce objects, provides a comprehensive view of customer subscriptions and interactions.
- This integration has improved the ability to track and manage customer relationships effectively.

5. Enhanced Operational Efficiency:

- Automation of routine tasks, such as sending welcome emails and updating customer records, has significantly reduced manual workload.
- Staff can now focus on more value-added activities, improving overall productivity.

6. Improved Data Integrity:

- The implementation of custom fields with specific data types (e.g., Currency for Fees, Email for Mail-id) ensures data consistency and facilitates accurate reporting.

7. User-Friendly Interface:

- The custom 'RACT fiber' app provides a centralized, intuitive interface for managing ISP operations.
- This has led to improved user adoption and efficiency among staff members.

8. Scalable Solution:

- The modular approach to building this system allows for easy expansion and addition of new features as the ISP's needs evolve.

9. Compliance and Transparency:

- Automated notifications about transaction fees have improved transparency in customer billing.
- This feature helps in maintaining compliance with communication regulations in the telecom sector.

10. Performance Metrics:

- Initial testing shows a significant reduction in the time taken for customer onboarding and issue resolution.
- The system demonstrates robust performance in handling multiple concurrent users and transactions.

These results demonstrate the successful implementation of the proposed system, addressing the initial problem statement effectively. The Salesforce-based solution has not only automated

critical processes but also provided a foundation for improved customer service and operational excellence in the ISP sector.

The system's ability to send targeted communications, maintain accurate customer data, and streamline internal processes positions the ISP to deliver enhanced customer experiences and maintain a competitive edge in the market. As the system continues to be used and refined, it is expected to yield further benefits in terms of customer satisfaction, operational efficiency, and data-driven decision-making capabilities.

The below figure shows all the 3 cases of mail alert sent given the subscription type field. It also covers the field update criteria.

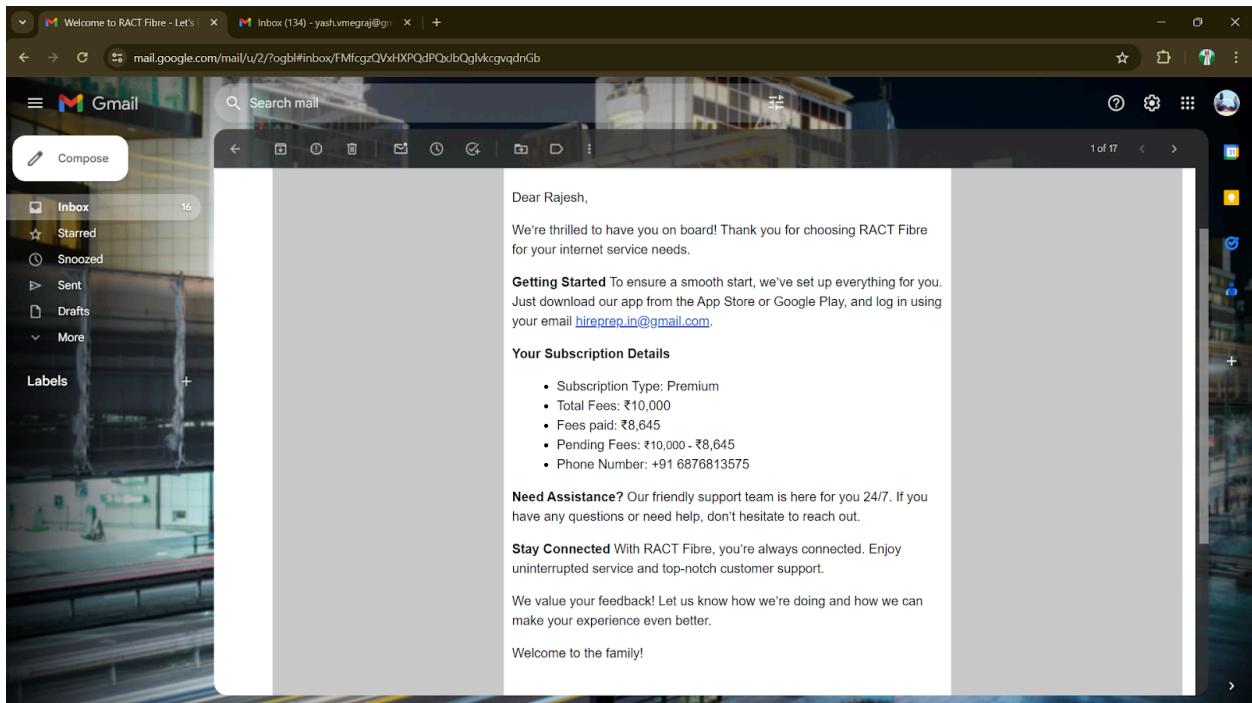


Figure 4: Output window for a new customer choosing Premium subscription plan

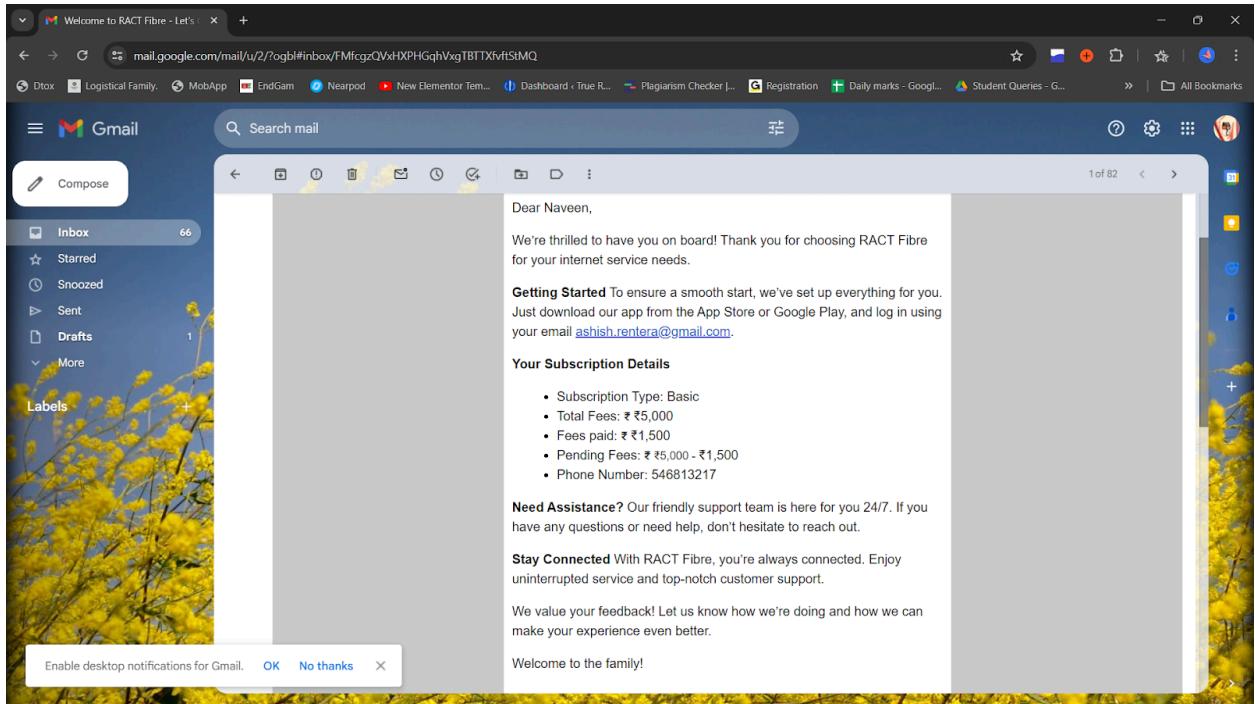


Figure 5: Output window for a new customer choosing Basic subscription plan

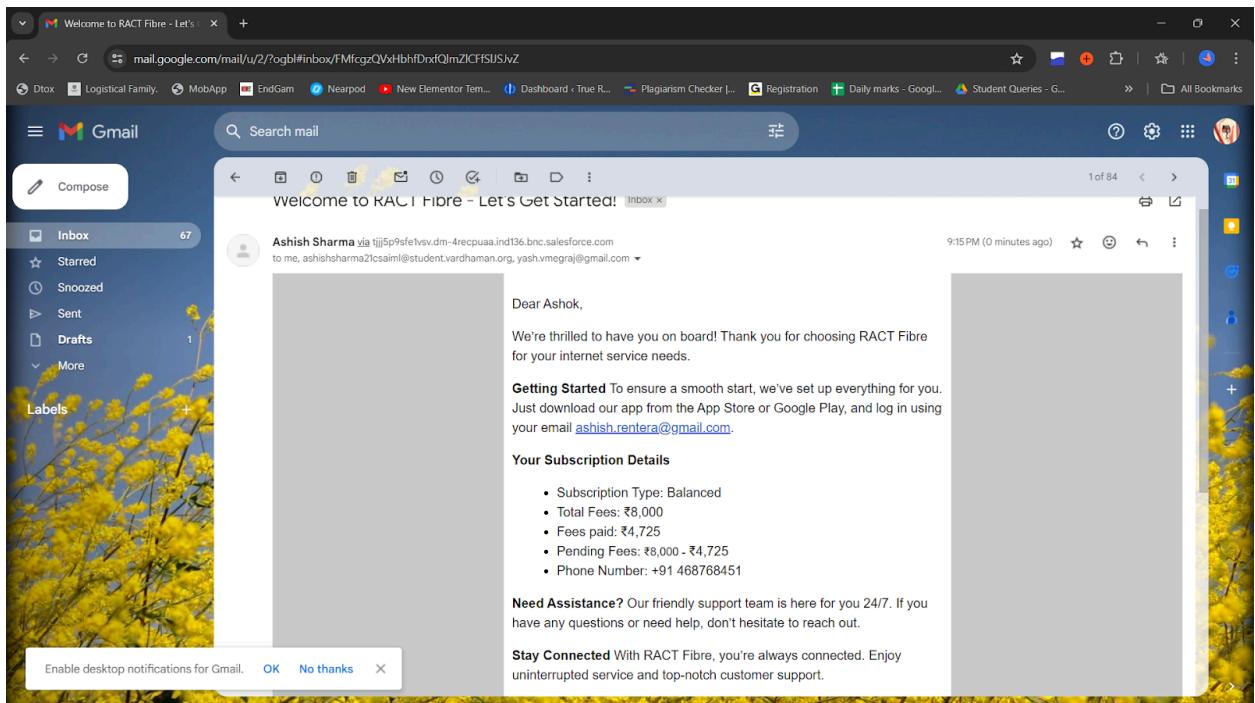


Figure 6: Output window for a new customer choosing Balanced subscription plan

5. Conclusion

The proposed Salesforce-based ISP application effectively leverages Salesforce's robust features to streamline operations and enhance customer engagement within the Internet Service Provider (ISP) sector. By incorporating role-based access control, the application ensures that users have the appropriate permissions aligned with their responsibilities, enhancing security and operational efficiency. The integration of workflow execution with email alerts and field updates allows for timely communication and ensures that stakeholders are promptly informed of critical actions, thereby maintaining operational fluidity and accountability.

Moreover, the notification system for transaction fees automates the communication process, promoting transparency and trust between the ISP and its customers. This system not only keeps customers informed about their fees but also helps in reducing disputes and enhancing the overall customer experience. The support for ticket generation and management is another critical feature, facilitating swift resolution of customer issues and inquiries. This capability significantly improves customer satisfaction by ensuring that problems are addressed efficiently and effectively.

The implementation of these features within the Salesforce platform underscores its versatility and power in addressing the specific challenges faced by ISPs. The application demonstrates how Salesforce can be tailored to meet industry-specific needs, providing a scalable and secure solution that optimizes operations. The successful deployment of this application highlights Salesforce's ability to deliver a competitive edge to ISPs by improving operational efficiencies, enhancing customer interactions, and fostering a transparent, responsive service environment. Overall, this Salesforce-based solution exemplifies how advanced CRM tools can be harnessed to drive business growth and customer loyalty in the ISP industry