RePlastix Innovations
Transforming Plastic Waste into Sustainable Solutions

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Abstract

This project showcases the deployment of a tailored Salesforce CRM solution to RePlastix Innovations, a leader in plastic waste recycling and management. The goal was to make recycling operations efficient, enhance inventory and order tracking, and have clean, secure data throughout all departments.
The solution was to create a solid data model with principal custom objects:
Plastic Waste, Recycled Product, Collection Center, Inventory, and Order. Business processes were automated via Record-Triggered Flows, Scheduled Flows, Email Alerts, and Apex to manage low stock warnings, waste-to-product conversion monitoring, and real-time task generation for operations teams.

To maintain data accuracy and integrity, validation rules were enforced and a role-based access control model for Sales, Collection, and Inventory teams. Scheduled batch Apex jobs also update inventory quantities and raise alarms when stock levels dip below threshold.
This end-to-end Salesforce implementation increases operational effectiveness, supports sustainability objectives, and sets the stage for scalable expansion through automation and data-driven decision making on the Salesforce Platform.

Objective

The primary goal of this project is to design and deploy a tailored Salesforce CRM platform for RePlastix Innovations to automate plastic waste collection, recycling operations, and environmentally friendly product distribution while ensuring data integrity and improving business efficiency. Through the creation of a central system to handle plastic waste entries, recycling facilities, stock, and order flows, the project seeks to Automate critical processes like stock tracking, waste-to-product tracking, task generation, and alert notifications.
Ensure correct and consistent data entry through validation rules and standardization processes.
Provide real-time visibility of the amount of plastic waste, recycled stock, and activities at recycling centers.
Enhance internal team coordination through a strong role-based access model guaranteeing secure and appropriate data access. Drive meaningful sustainability results by leveraging automation, reporting, and decision-making potential through the Salesforce platform.

Technology Description

Salesforce is a cloud-based Customer Relationship Management (CRM) platform that enables businesses to automate operations, manage records, and improve service delivery. It provides both declarative (point-and-click) tools and programmatic capabilities (like Apex and Flows) for building customized business solutions.

Custom Objects :-

- Custom Objects in Salesforce function like database tables and are tailored to specific business needs.

For RePlastix Innovations, the following custom objects were created:

- Re_Plastic_Innovations_Plastic_Waste__c – Stores records of collected plastic waste
- Re_Plastic_Innovations_Recycling_Center__c – Manages details of recycling centers
- Re_Plastic_Innovations_Recycled_Product__c – Tracks recycled products and their stock.
- Re_Plastic_Innovations_Order__c – Manages customer orders for recycled products
- Re_Plastic_Innovations_Restock_Request__c – Handles restocking requests for low-stock items

Tabs:-
Tabs are used to display object data in salesforce UI.

Custom App:-
A Custom App in Salesforce is a collection of tabs grouped together for a specific purpose. For RePlastix Innovations, a custom app was created to manage plastic waste collection, recycling processes, inventory, and orders in a unified interface.

Profiles:-
Profiles define what users can see, do, and edit in Salesforce. They were used to control access to objects like Plastic Waste, Orders, and Recycled Products for different teams (e.g., Inventory, Collection, Management).

Roles:-
Roles control data visibility based on the organizational hierarchy. RePlastix used roles to ensure users could only view data relevant to their department while enabling reporting and data sharing where necessary.

Validation Rules:-
Validation Rules were implemented to ensure clean and consistent data entry. For example:

- Waste weight must be greater than zero
- Stock threshold cannot be negative

Email Alerts:-
Email Alerts were configured in Flows to notify users when:

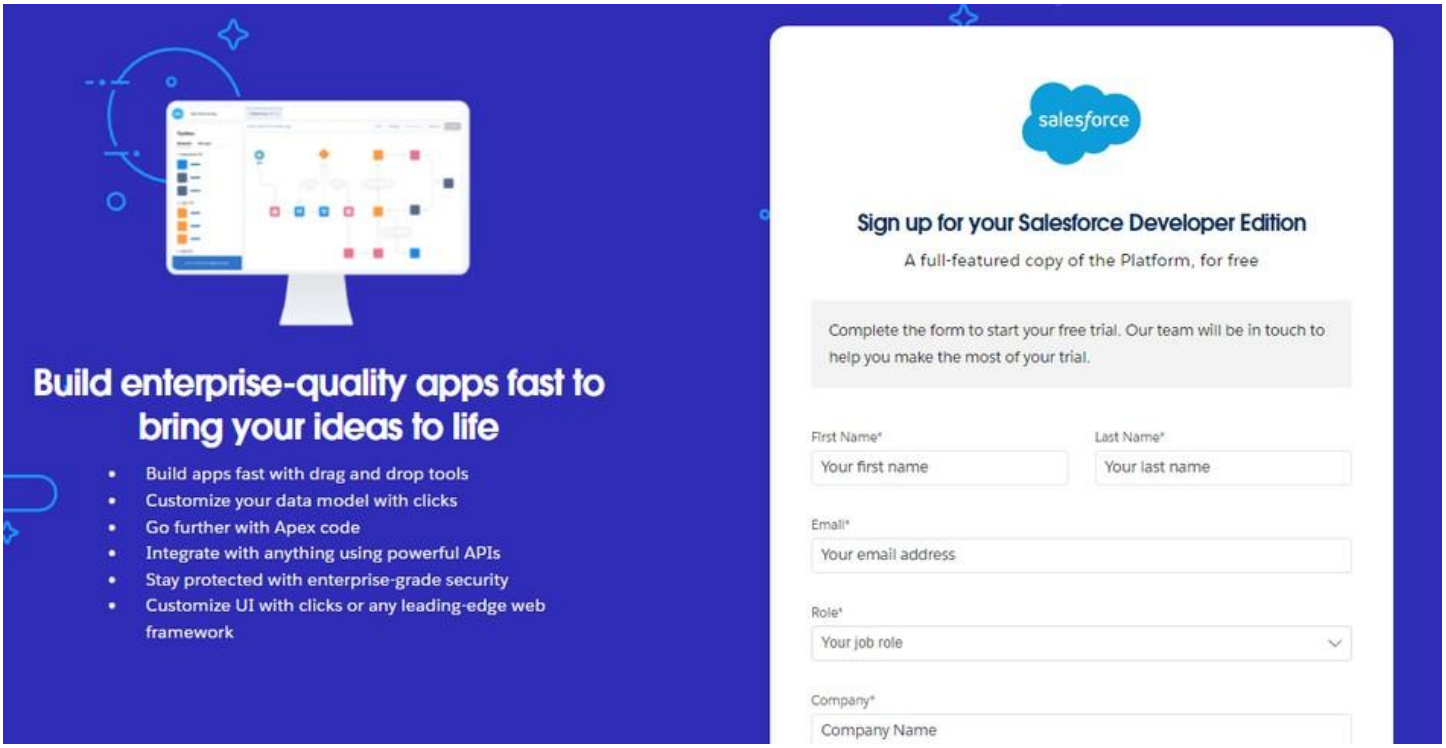
- Stock levels fall below the defined threshold
- Restock requests are approved or completed.

Flows:-
Flows were the primary automation tool used to:

- Trigger stock alerts when recycled product stock falls below threshold
- Automatically create restock request records
- Send email alerts to relevant teams
- Update status fields based on changes (e.g., "Collected" → "Recycled")

Apex:-
Apex is Salesforce's object-oriented programming language. It allows developers to write custom logic that executes on the Salesforce platform, enabling automation beyond what point-and-click tools like Flows can achieve.
In the RePlastix Innovations project, Apex was used to:

- Automatically deduct stock when an order is placed.
- Update restock request statuses when inventory is replenished.



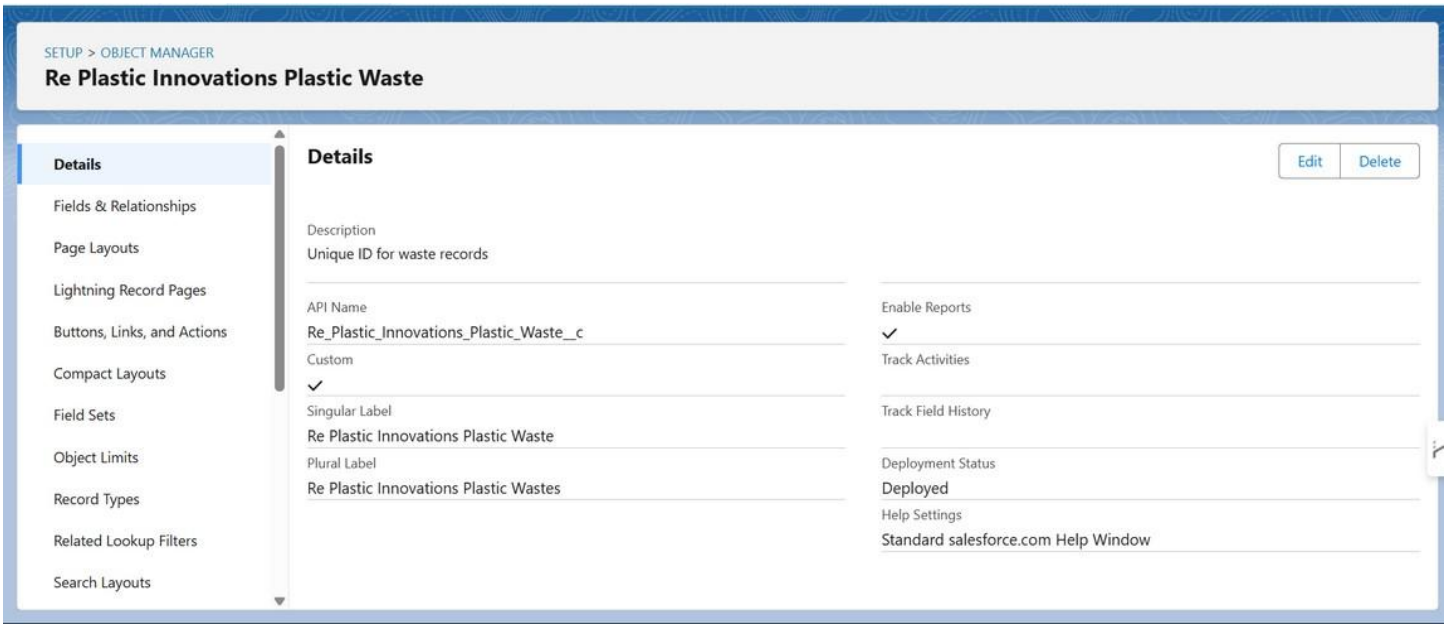
Custom Object Creation

Five custom objects were created to support RePlastix Innovations' recycling workflow:

- Re_Plastic_Innovations_Plastic_Waste c – Tracks plastic waste data
- Re_Plastic_Innovations_Recycling_Center c – Manages recycling center details
- Re_Plastic_Innovations_Recycled_Product c – Stores recycled product inventory
- Re_Plastic_Innovations_Order c – Handles customer order details
- Re_Plastic_Innovations_Restock_Request c – Logs restock requests for low inventory

Steps Followed:

- Navigated to Setup → Object Manager → Create → Custom Object
- Provided object labels, names, and enabled search/report features



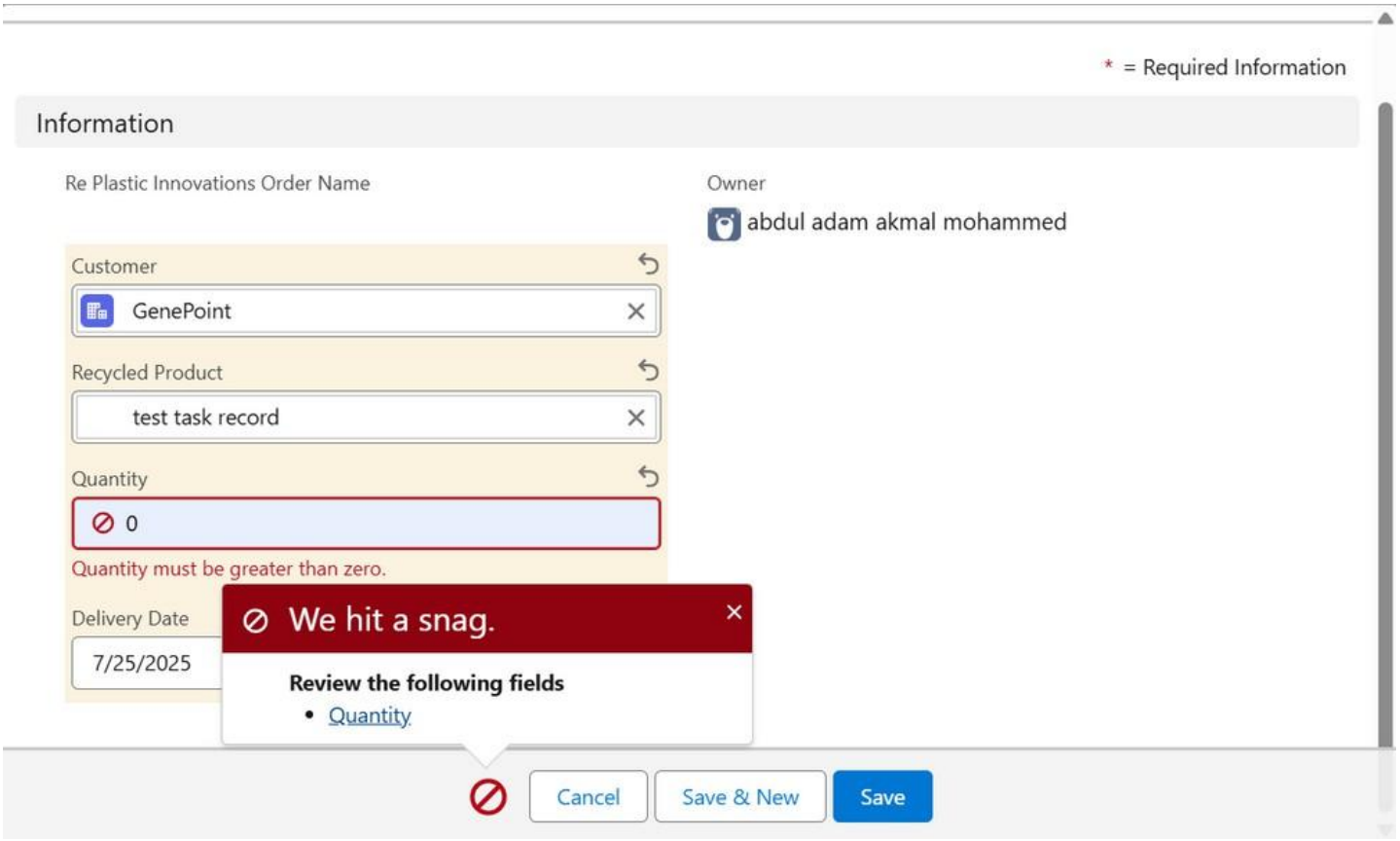
Creating the Lightning App

- A custom Lightning App named RePlastix Innovations was created
- Included tabs: Plastic Waste, Recycling Center, Recycled Product, Orders, Restock Requests, Reports
- Assigned to the System Administrator profile for access management and testing

Validation Rules

To ensure data integrity and prevent invalid inputs, the following validation rules were applied:

- Plastic_Waste__c: Waste weight must be greater than 0
- Stock_Low_On_Product: Stock Level must be greater than threshold level
- Check_Quantity_Not_Zero: Quantity ordered must be at least 1
- Future_Date_Collection: Collection date must be greater than today's date



User Role & Proflle Setup

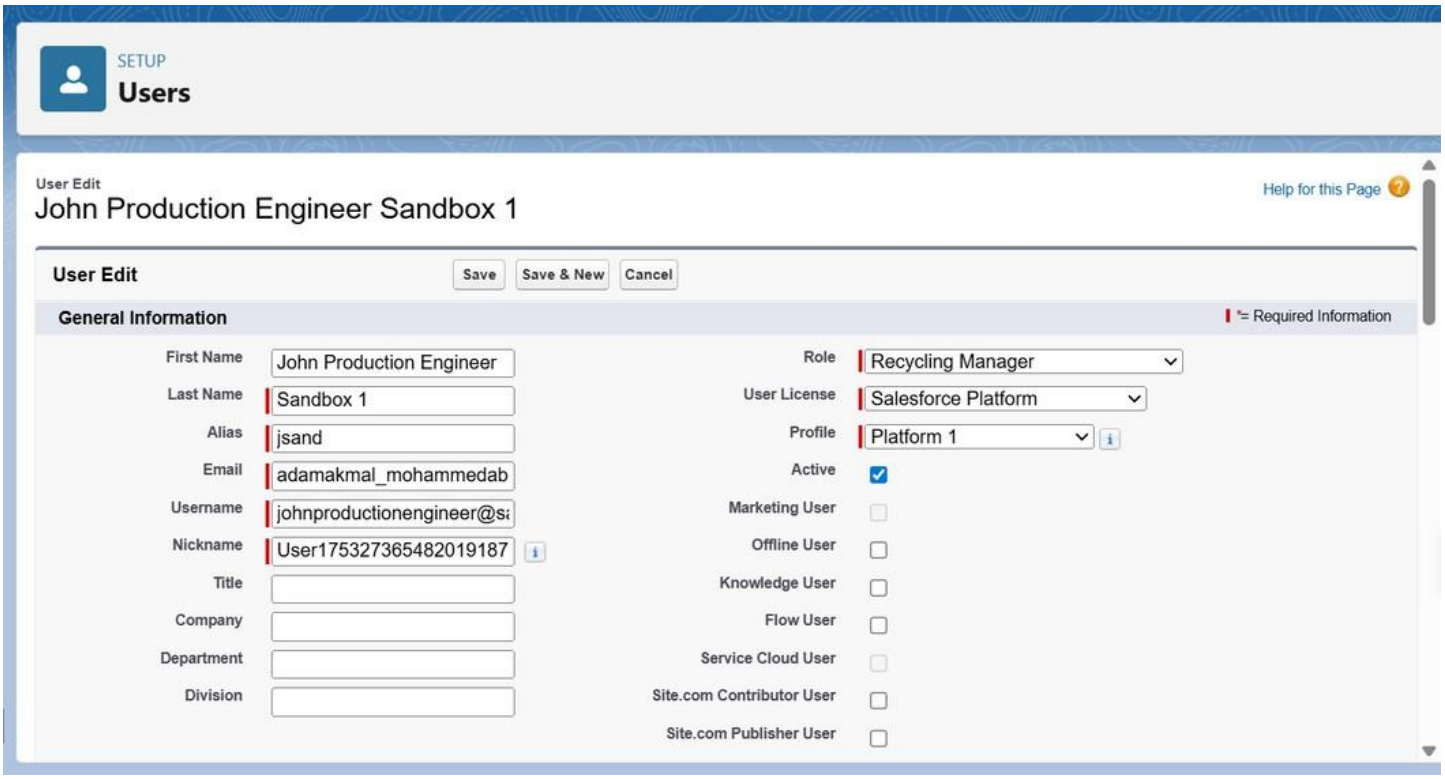
- A new profile was created by cloning the Standard User profile, granting access to all custom objects
- Roles were created based on the organizational hierarchy:
  - Recycling Manager – Access to waste and recycling modules
  - Sales Representative – Access to orders and product modules
  - Warehouse Supervisor – Access to inventory and restock operations

User Creation

- Three users were created to simulate real organizational structure:

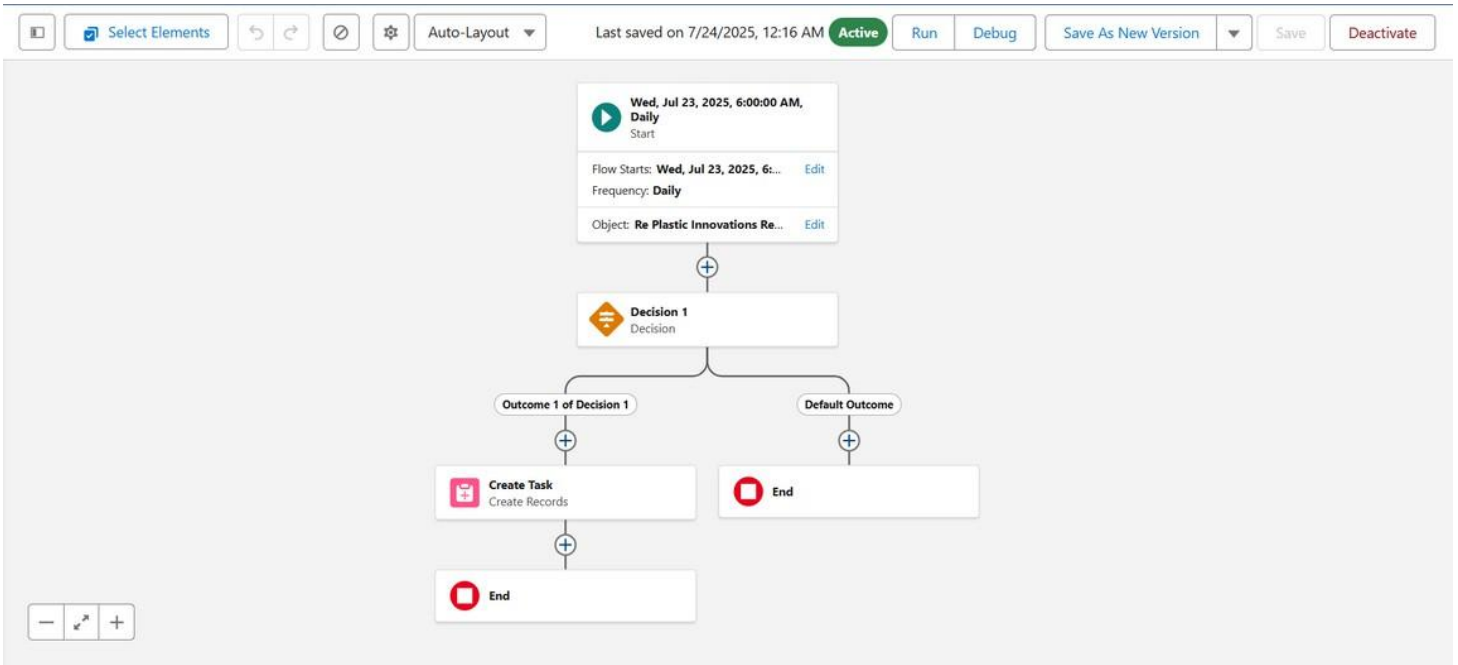
○ John Production Engineer — Recycling Manager (Platform 1 Profile) ○ Quality Inspector Mike — Sales Representative (Platform 2 Profile) ○ Plant Manager Albert — Warehouse Supervisor (Platform 3 Profile)

- Each user was assigned a Salesforce Platform License, respective Role, and Proflle.



Scheduled Flow: Stock Monitoring

- A Scheduled Flow was created to run daily
- It checks if any Recycled_Product c stock falls below the Threshold c ● If true, it:
  - Automatically creates a new Restock_Request c record ○ Sends an email alert to the inventory team



Apex Triggers

Custom Apex triggers were written to automate backend logic:

- Order Trigger: Deducts product quantity from inventory upon order creation
- Stock Trigger: Monitors and updates stock status when recycling is completed

- Restock Trigger: Updates request status once restock is fulfilled

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Project Explanation With Real Life Examples

Let’s walk through a realistic scenario to understand how the RePlastix Innovations system operates using Salesforce:

Waste Collection Entry

- A field agent collects 30 kg of HDPE plastic waste from a municipal location.
- In Salesforce:
  - A record is created in the Re_Plastic_Innovations_Plastic_Waste c object.
  - Fields include: Weight c = 30, Type c = HDPE, Status c = Collected, and Location c (auto-mapped).
- Validation Rule: Ensures Weight c is greater than 0.

Recycling Center Assignment

- The collected waste is routed to the Vijayawada Recycling Center.
- In Salesforce:
  - The Recycling_Center c lookup is assigned in the Plastic Waste record.
  - Status c is updated to "Processing".

Recycling and Product Creation

- After processing, the waste is converted into HDPE Pellets.
- In Salesforce:
  - A new record is created in Re_Plastic_Innovations_Recycled_Product c:
    - Name = HDPE Pellets
    - Stock_Level c = 30
    - Threshold c = 15
    - Price c = ₹40 per kg

Order Placement

- A client (e.g., ABC Pvt. Ltd.) places an order for 20 kg of HDPE Pellets.
- In Salesforce:
  - A new Re_Plastic_Innovations_Order c record is created:
    - Customer c = ABC Pvt. Ltd.
    - Recycled_Product c = HDPE Pellets

■ Quantity c = 20
■ Delivery_Date c = [+3 days from today]
● Apex Trigger:
○ Deducts 20 kg from the stock → Stock_Level c becomes 10
● Validation Rule:
○ Prevents stock from going below 0
Inventory Monitoring
● The system detects that Stock_Level c = 10, which is below the defined threshold (Threshold c = 15).
● A Scheduled Flow runs:
○ Creates a new record in Re_Plastic_Innovations_Restock_Request c ○ Sends an Email Alert to the Warehouse Supervisor
Email Notiflcations
● When an order is placed or a restock is triggered:
○ Flows + Email Alerts are executed ○ Example email to warehouse:
○ "Stock Alert: HDPE Pellets have dropped below the restock threshold. A restock request has been generated."
● Example loyalty email to customer:
● "Thank you for your continued support! Your loyalty status is now Gold."
Users and Roles in Action
The following users actively participate in this workflow:

Screenshots

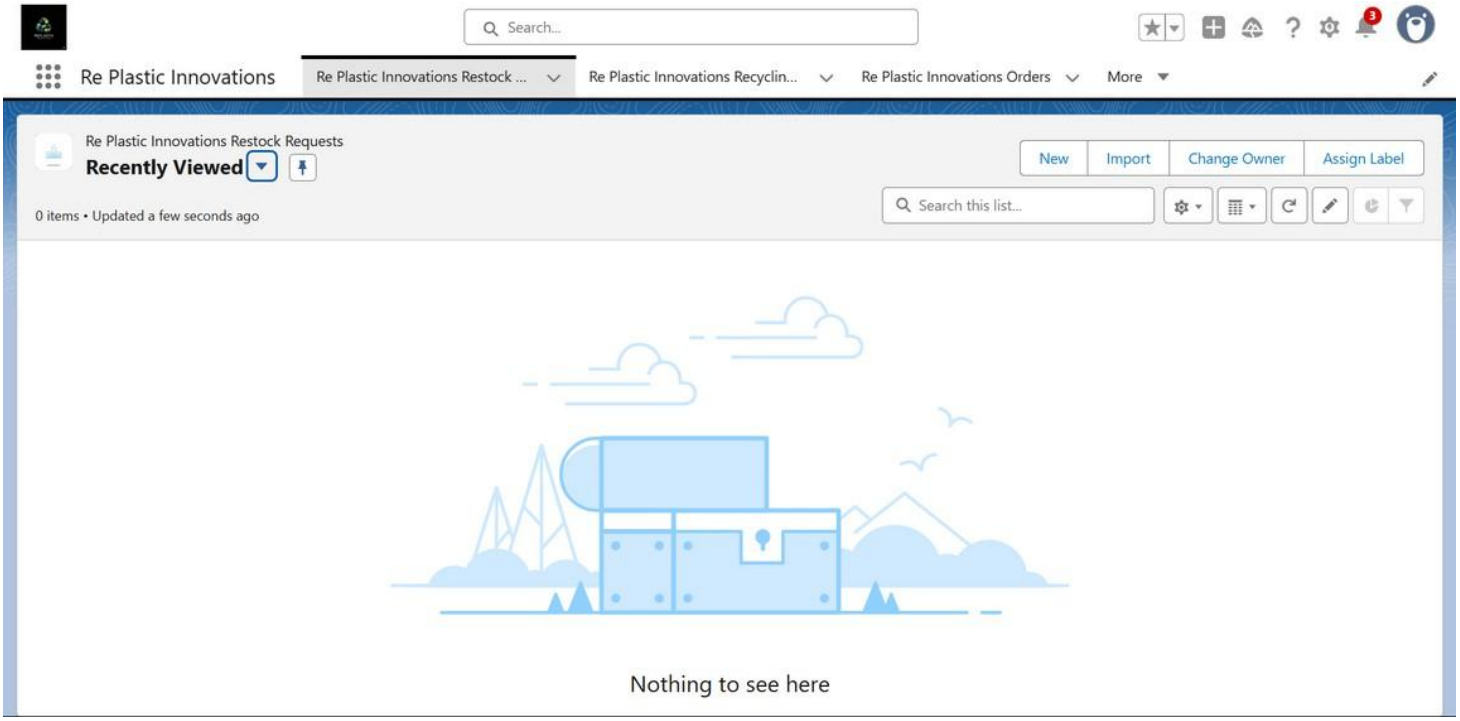

Fig: Custom App For Re Plastic Innovation

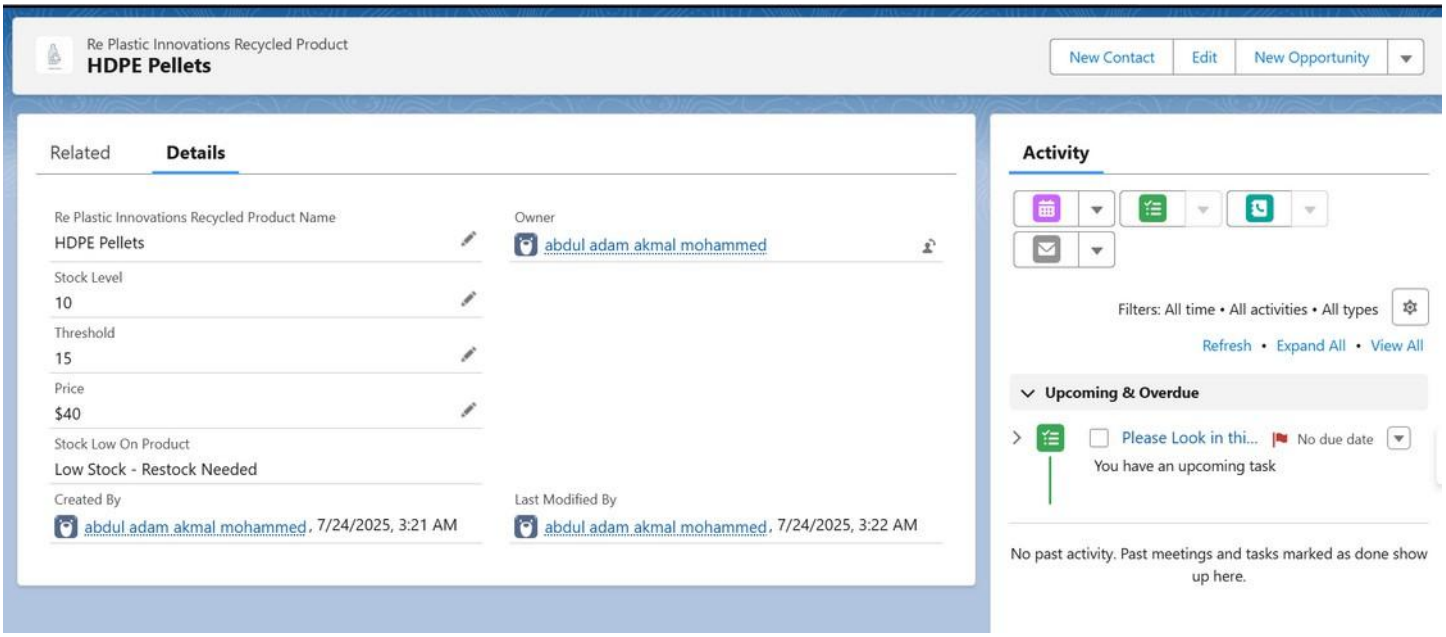

Fig: Recycled Product Creation in Re Plastic Innovation(See that stock level is less than threshold so a task is created)

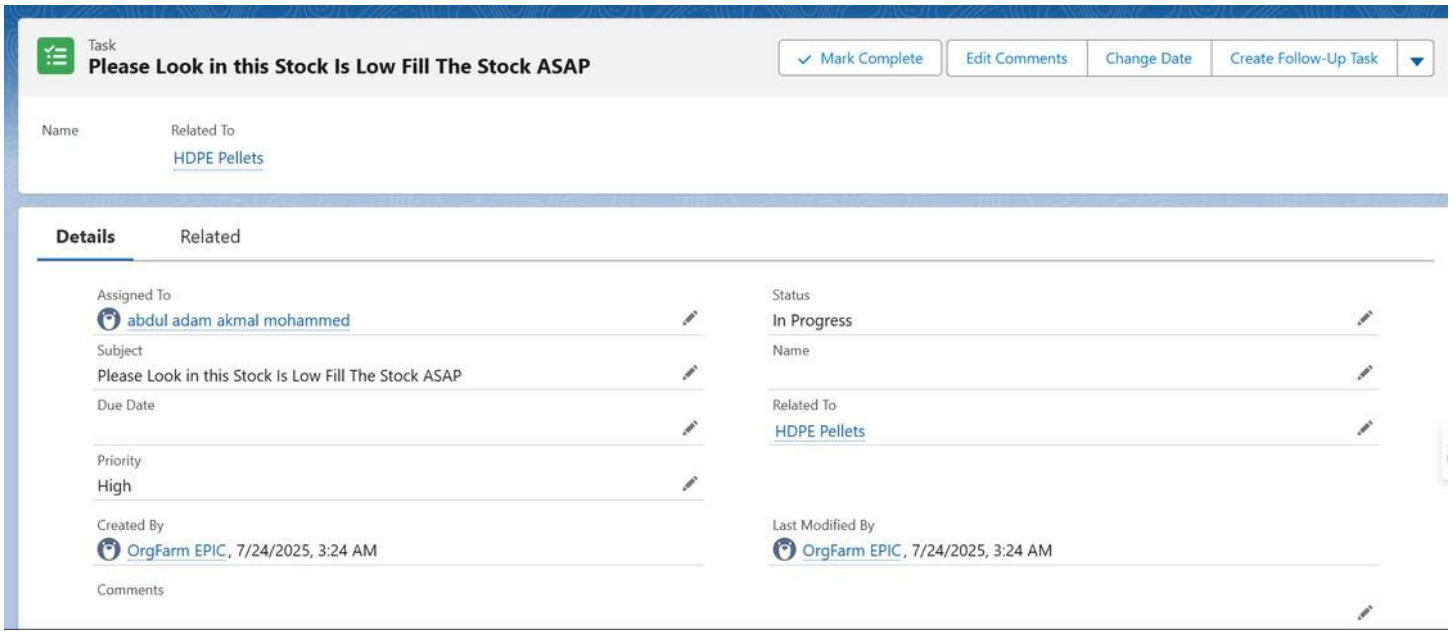

Fig: Task the pop us when the stock level is less

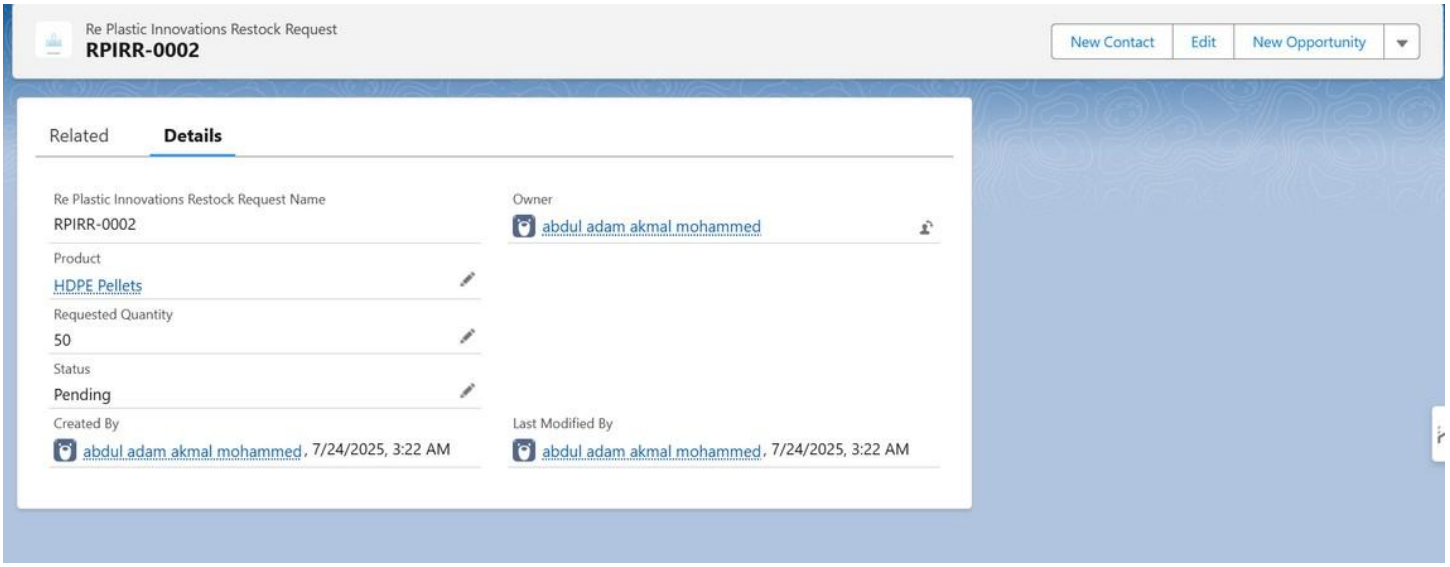

Fig: Restock Request created for the Recycled Product(status: Pending)

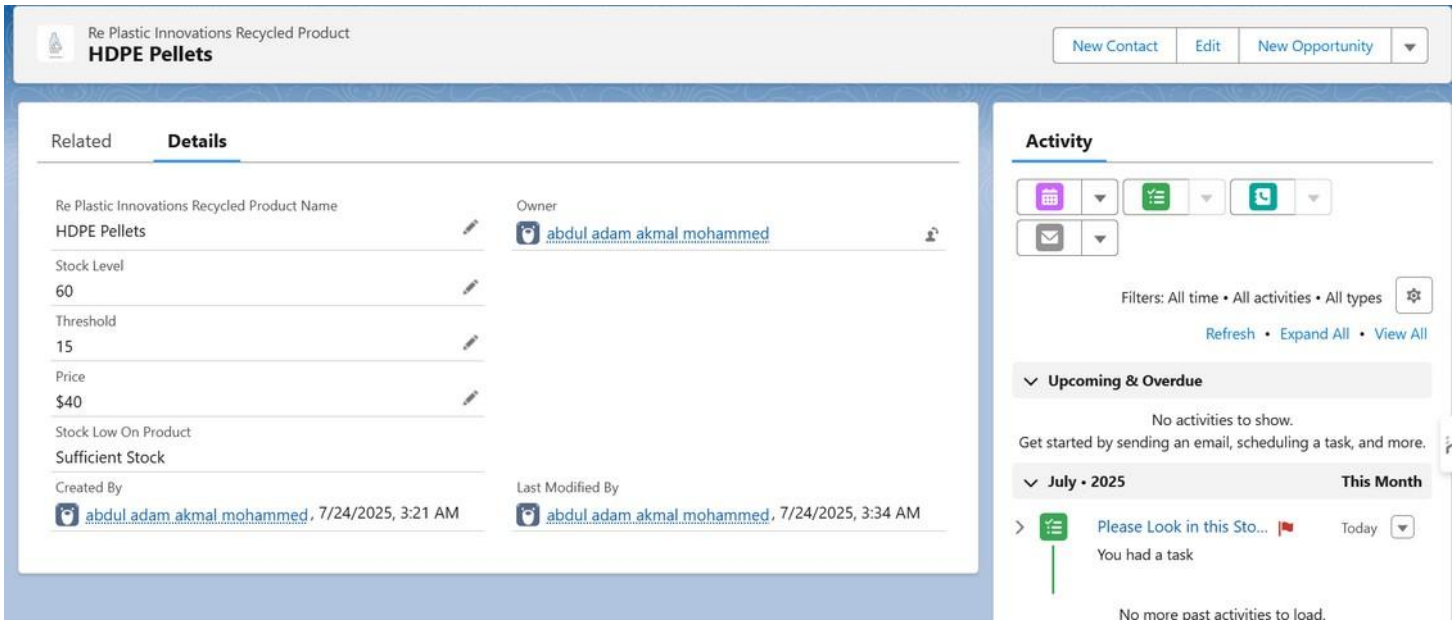

Fig: Stock Level is added as soon as we change orders status to approved

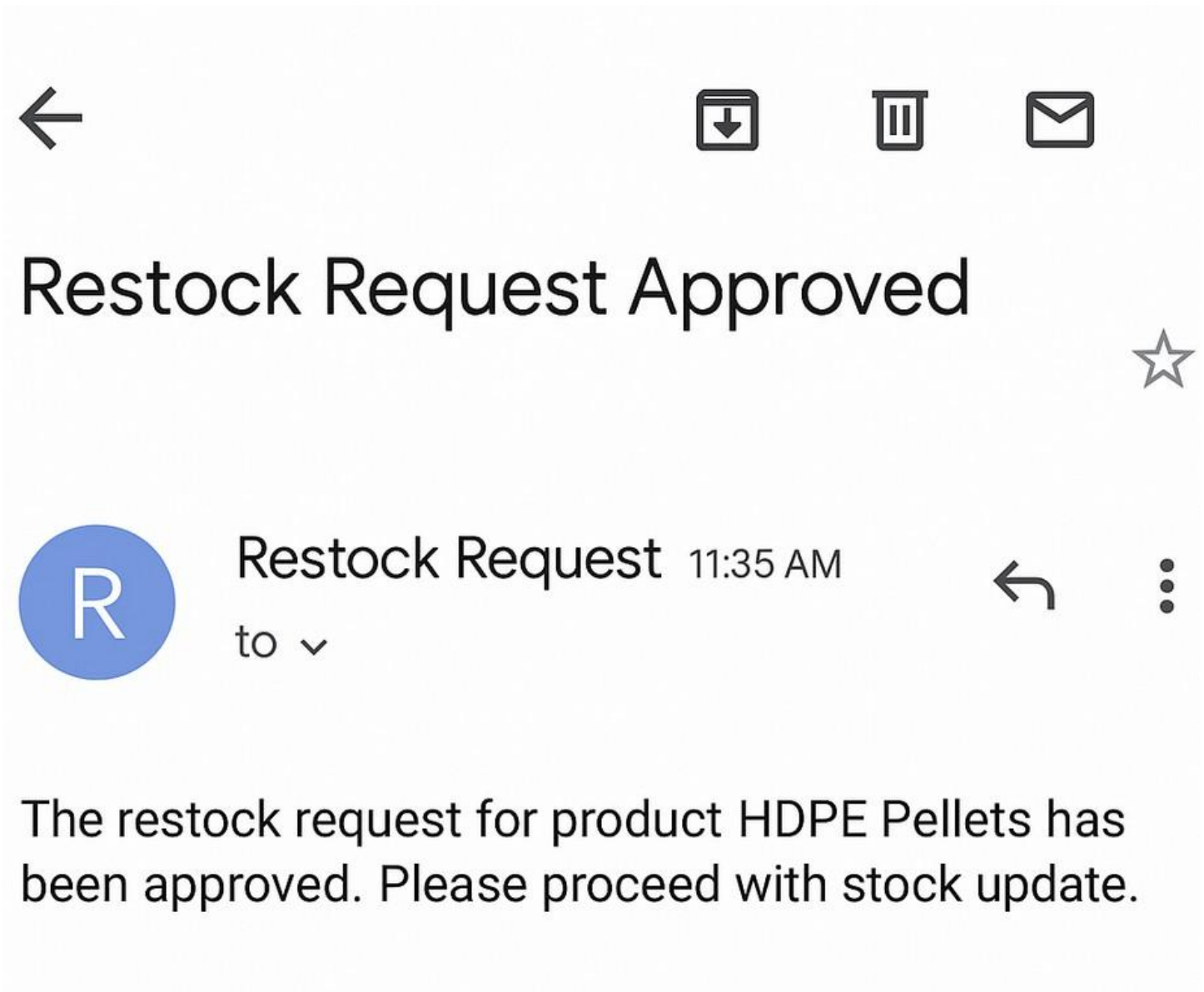

Fig: Restock Request Approval Email

Conclusion
The RePlastix Innovations CRM system, built on Salesforce, successfully streamlines critical business operations such as plastic waste tracking, recycling center management, recycled product inventory, order handling, and stock monitoring. By leveraging Salesforce tools like
Custom Objects, Flows, Validation Rules, Email Alerts, and Apex, the platform ensures clean
data, timely updates, and a seamless operational experience.

Through automation and a clearly defined role hierarchy, the system reduces manual errors, increases operational efficiency, and provides deep visibility into real-time stock, recycling status, and customer orders. This implementation lays a strong foundation for RePlastix Innovations to scale its sustainable waste management operations with confidence and
control.
FUTURE SCOPE
Customer Portal Integration
○ Build a Customer Community Portal where clients can log in, place orders, view delivery timelines, and track recycling impact reports.
Mobile App using Salesforce Mobile SDK
○ Enable field agents and warehouse staff to access inventory and order modules through a dedicated mobile interface for real-time updates and actions.
Reports & Dashboards
○ Create detailed recycling and sales dashboards to monitor: ■ Stock depletion trends
■ Center-wise waste processing performance
■ Monthly order volume and customer metrics
AI-Powered Recommendations (Einstein)
○ Integrate Salesforce Einstein to suggest restock volumes, detect recycling
bottlenecks, and provide order suggestions to customers based on their purchase patterns.
WhatsApp/SMS Integration
○ Notify users and customers through WhatsApp or SMS for: ■ Order confirmations
■ Stock alerts
■ Loyalty status changes
■ Environmental impact summaries (optional)

Links for Reference:

Trailhead: https://www.salesforce.com/trailblazer/xgsdqr3pl8sxmtac0p

Github: https://github.com/bharath1380/RePlastix-Innovations-Transforming-Plastic-Waste-into-Sustainable-Solutions/tree/main

Demo video: https://drive.google.com/file/d/1ho_KBHZyE2sRhylWJ6cVQOPJvr3PfvZv/view?usp=sharing