# RePlastic Innovations: Transforming Waste into Sustainable Solutions

## ABSTRACT

Plastic innovation is crucial for transforming plastic waste into sustainable solutions, moving beyond traditional methods like landfilling and incineration.

Advanced recycling technologies, such as chemical recycling (depolymerization into monomers) and biological processes (using enzymes), offer pathways to convert plastic waste into valuable raw materials for new products.

The global issue of plastic pollution necessitates innovative solutions beyond traditional waste management strategies. Traditional methods like landfilling and incineration are increasingly recognized as inadequate due to their environmental impact and limited capacity. This has spurred research and development into advanced recycling technologies that can transform plastic waste into valuable resources, aligning with the principles of the circular economy.

## OBJECTIVE

The main objective of this project is to develop and implement a customized Salesforce CRM solution for Re-plastic Innovations: Transforming Waste into Sustainable Solution.

1. **Automate Plastic Waste Management**
   Build a system to track and manage the lifecycle of recycled plastic from collection to product creation—using custom Salesforce objects and automation tools.

2. **Streamline Order and Inventory Handling**
   Enable seamless creation and processing of recycled product orders while monitoring stock levels and generating restock requests automatically based on thresholds.

3. **Ensure Role-Based Data Access and Sharing**
   Implement robust security through profiles, roles, and sharing rules so that Sales Representatives, CEOs, and Warehouse Supervisors access only relevant data.

4. **Promote Transparency and Sustainability**
   Provide stakeholders with visibility into recycled product usage and inventory, promoting accountability in eco-friendly practices.

## TECHNOLOGY DESCRIPTION

### Salesforce:-

Salesforce is a cloud-based Customer Relationship Management (CRM) platform that helps business manage customer data, automate process, and improve service, marketing, and sales operations. It provides point-and-click tools as well as programmatic capabilities to build custom solutions.

### Custom Objects:-

Objects in Salesforce are like tables in a database. Custom Objects are created to store specific data.

Example:

1. Re_Plastic_Innovations_Recycled_Product__c - Stores information about the recycled products manufactured from plastic waste.
2. Re_Plastic_Innovations_Order__c - Captures incoming orders from customers or partners for recycled plastic products.

3. Re_Plastic_Innovations_Restock_Request__c - Automatically generated when the stock of a recycled product falls below its threshold.

**Profiles:-**

Profiles define what a user can see, do, and edit in Salesforce. It controls object permissions, field access, and more.

**Roles:-**

Roles control the data visibility in Salesforce's role hierarchy. It's used for sharing settings and reporting.

**Validation Rules:-**

Validation Rules ensure data entered meets business criteria.

Example:

1. Email must contain @gmail.com
2. Stock cannot be negative

**Flows:-**

Flows automate business logic without code. They can create, update, or send notifications.

**Apex:-**

Apex is Salesforce's object-oriented programming language. It allows devolopers to write custom logic.

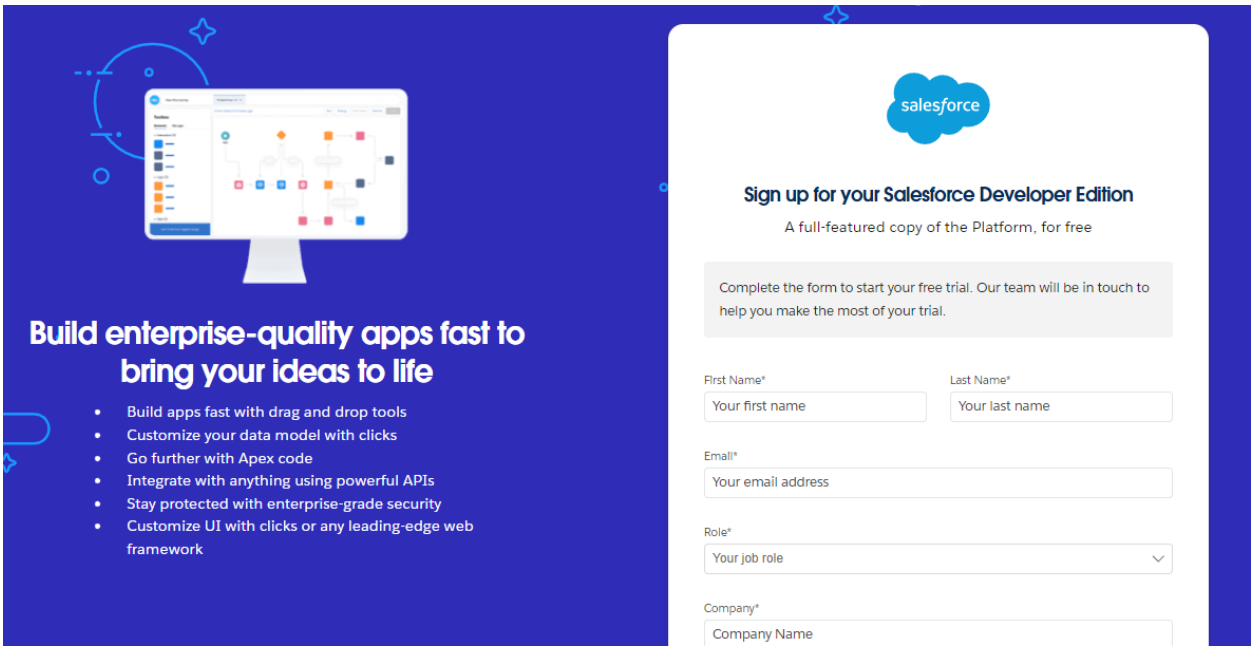
## DETAILED EXECUTION OF PROJECT PHASES

### 1.Devoloper Org Setup

1. A Salesforce Devoloper Org was created using

https://developer.salesforce.com/signup

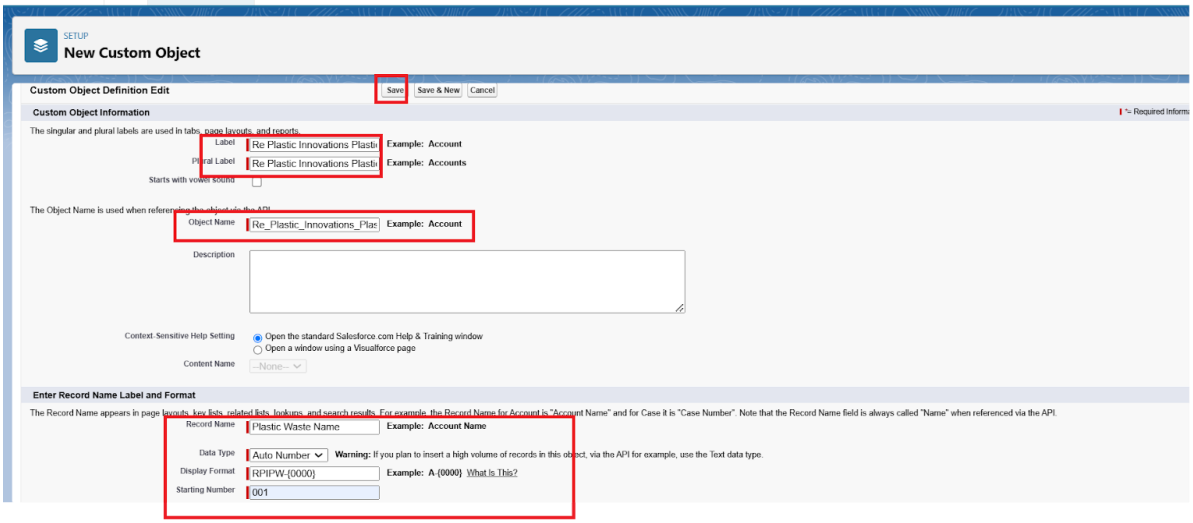
2. The account was verified, password set, and access was granted to the Salesforce Setup Page.




## 2.Custom Objects Created:-

The following **5 custom objects** were created to build the end-to-end system for managing recycled plastic products, orders, and inventory processes:

1. Re_Plastic_Innovations_Recycled_Product__c
2. Re_Plastic_Innovations_Order__c
3. Re_Plastic_Innovations_Restock_Request__c
4. Re_Plastic_Innovations_Collection_Center__c
5. Re_Plastic_Innovations_Waste_Pickup__c



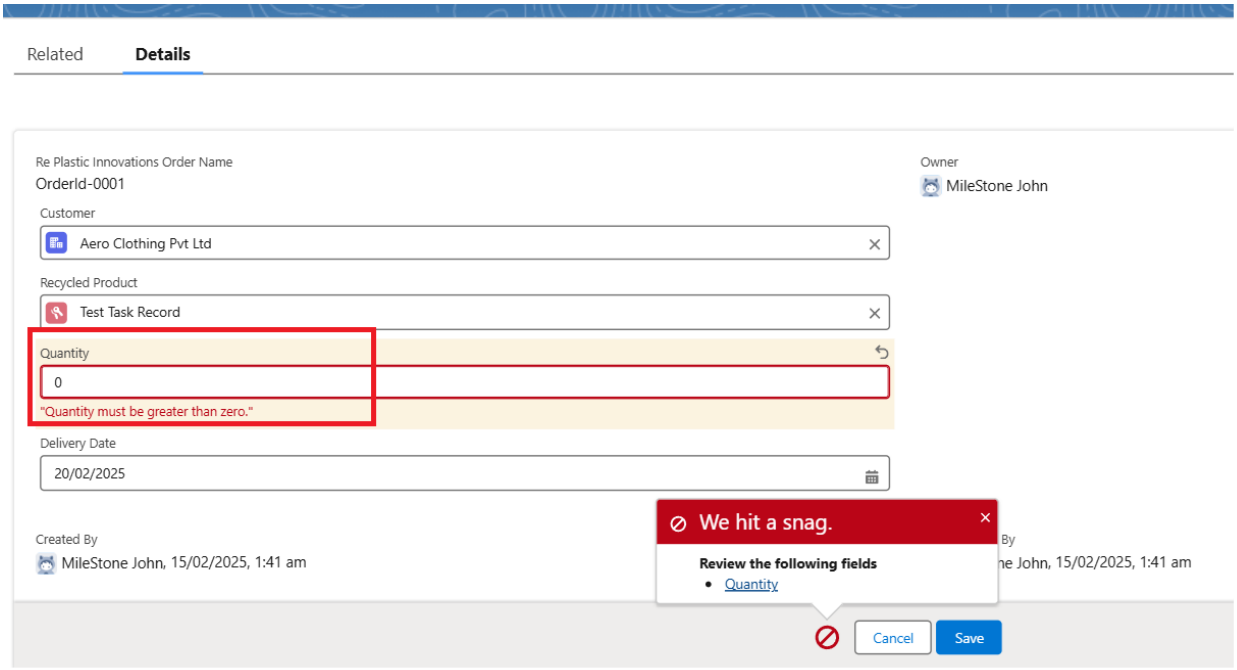

## 3.Validation Rules:-

1. Order Quantity Must Be Greater Than Zero: Quantity__c <= 0

   **Error Message**: *"Quantity must be greater than zero."*

*2.* Threshold Level Cannot Exceed Stock Level: Threshold__c > Stock_Level__c

   **Error Message**: *"Threshold cannot exceed current stock level."*

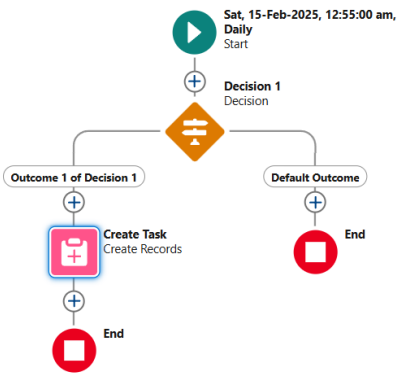


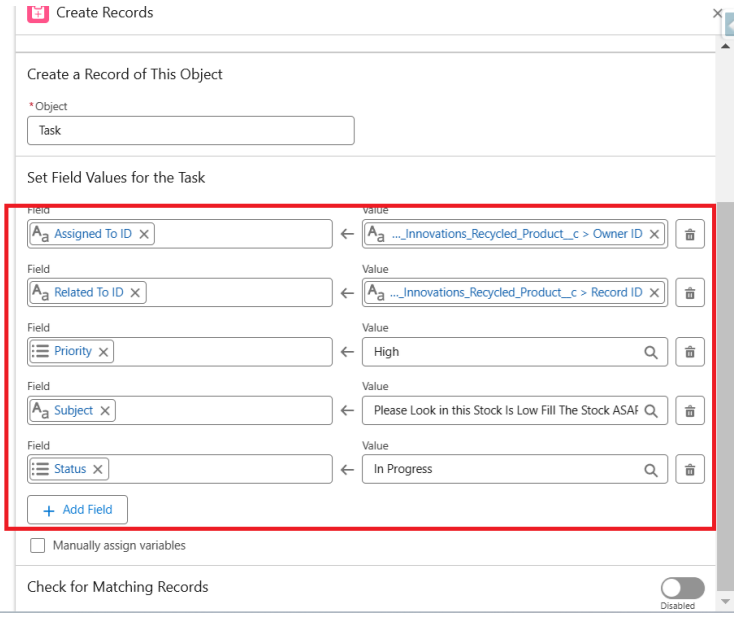

## 4.Flows:-

1. Stock Level Is Low: Schedule Triggered Flow

   Trigger Object: Re_Plastic_Innovations_Recycled_Product__c

   Add descision element to it.



**5.Apex:**

1. InventoryManager Apex Class:

   Handles the logic for processing plastic orders and restock approvals.

2. InventoryManagerTest Apex Test Class:

   Provides test coverage for the InventoryManager class and trigger logic

3. PlasticOrderTrigger:

   Automatically adjusts the product stock when a new plastic order is inserted.

4. RestockApprovalTrigger:

   Automatically increases product stock when a restock request is approved.

## PROJECT EXPLANATION WITH REAL-WORLD EXAMPLE

**Scenario:**

A company named RePlastix Innovations collects plastic waste from local communities and transforms it into sustainable products like eco-bricks, recycled furniture, and reusable containers. These products are then sold to individuals, construction companies, or NGOs promoting green infrastructure.

**1. Plastic Products Inventory:**

RePlastix maintains an inventory of items like Recycled Eco-Bricks, each with stock levels and threshold limits. For example, Eco-Bricks start with a stock of 100 units, and a threshold is set to 20 units to trigger restocking alerts.

**2. Customer Orders**

A construction company places an order for 85 Eco-Bricks via the Salesforce app. Once this order is submitted:

- The system reduces the stock to 15 units.
- Since this is below the threshold, it automatically creates a restock request.

**3. Restock Request & Approval**

A team member reviews the restock request and approves 100 more Eco-Bricks. The system:

- Updates the stock to 115 units (15 existing + 100 new).
- Sends an email notification confirming the restock approval.

**4. Automation Using Apex & Flow:**

- **Apex Triggers** reduce the stock and raise restock requests automatically.
- **Flows** handle user email notifications and approval logic.
- **Validation Rules** ensure that invalid data (like orders exceeding stock) can't be saved.

## CONCLUSION

**1. Automation of Plastic Recycling Workflow**

The project successfully automates the end-to-end process of managing recycled plastic products — from inventory to order processing and restocking.

**2. Efficient Inventory & Order Management**

Custom logic using Apex and Flows ensures real-time updates to stock levels and helps avoid manual errors in tracking and fulfillment.

**3. Sustainable Business Enablement**

By digitizing operations on Salesforce, the system supports RePlastix Innovations in scaling its impact on environmental sustainability.

**4. Improved User Experience & Monitoring**

The Lightning App offers a centralized interface for managing recycled products,

orders, restock requests, and user access — enhancing operational visibility and user efficiency.