SALESFORCE-SUPPORTED VIRTUAL INTERNSHIP PROGRAM 2025

PROJECT: REPLASTIC INNOVATIONS:TRANSFORMING PLASTIC WASTE INTO SUSTAINABLE SOLUTIONS

NAME: Y.UMESH REDDY
BRANCH:B.TECH CSE
YEAR:3RD YEAR
COLLEGE NAME:SRM UNIVERSITY,AP
PERSONAL MAIL:umeshreddy_yesireddy@srmap.edu.in
INTERN:SALESFORCE DEVELOPER WITH AGENTBLAZER
**TRAILBLAZER:**https://www.salesforce.com/trailblazer/o7oe5r57mcou1fw0f7
DATE:17/07/2025

Project Overview:

The **Re-Plastic Innovations** project is about finding new and smart ways to reuse plastic waste instead of throwing it away. Plastic pollution is a big problem for the environment, and this project aims to reduce that by turning waste plastic into useful products.

We collected used plastic, cleaned it, and used basic machines to make things like plastic tiles, simple tools, or even items.This helps reduce the amount of plastic going into landfills or oceans.

Our main goal is to show that plastic waste can be turned into something useful and help people understand the importance of recycling and reusing. This project also encourages communities to find local solutions to plastic waste.
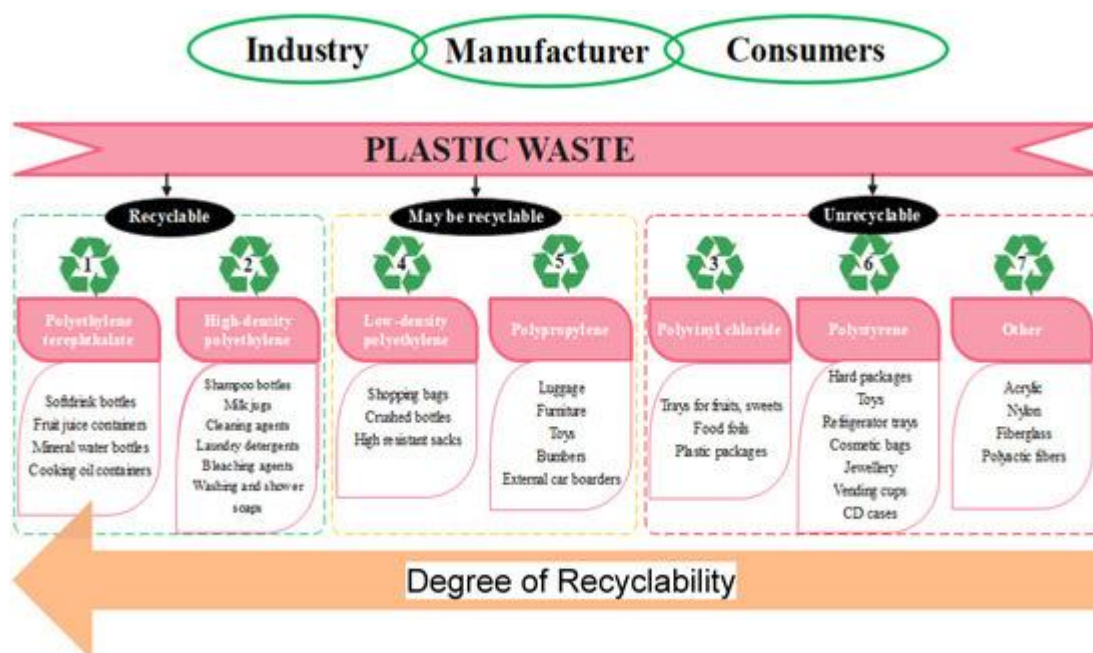
Objectives:

The main objectives for building the Replastic innovations is to improve customer management.By using this CRM, businesses can store and access customer details more easily, track communication history, and provide better support. It also helps in streamlining processes like bookings, follow-ups, and service requests, which reduces manual work and saves time. Overall, the CRM adds value to the business by improving customer satisfaction, increasing efficiency, and helping the company grow through smarter data management and personalized service.

RePlastic Innovations project is to reduce plastic pollution by finding creative and sustainable ways to reuse waste plastic. This project aims to collect, sort, and process used plastic to create useful and eco-friendly products like bricks, tiles, and tools. By using low-cost and locally available methods, the project also hopes to make recycling more accessible to communities.

Another key goal is to raise awareness among people about the harmful effects of plastic waste and the importance of recycling. Through workshops and campaigns, the project encourages public participation and promotes a culture of environmental responsibility. Overall, the objective is to turn plastic waste into valuable resources, protect the environment, and inspire others to take action toward a cleaner and greener future.
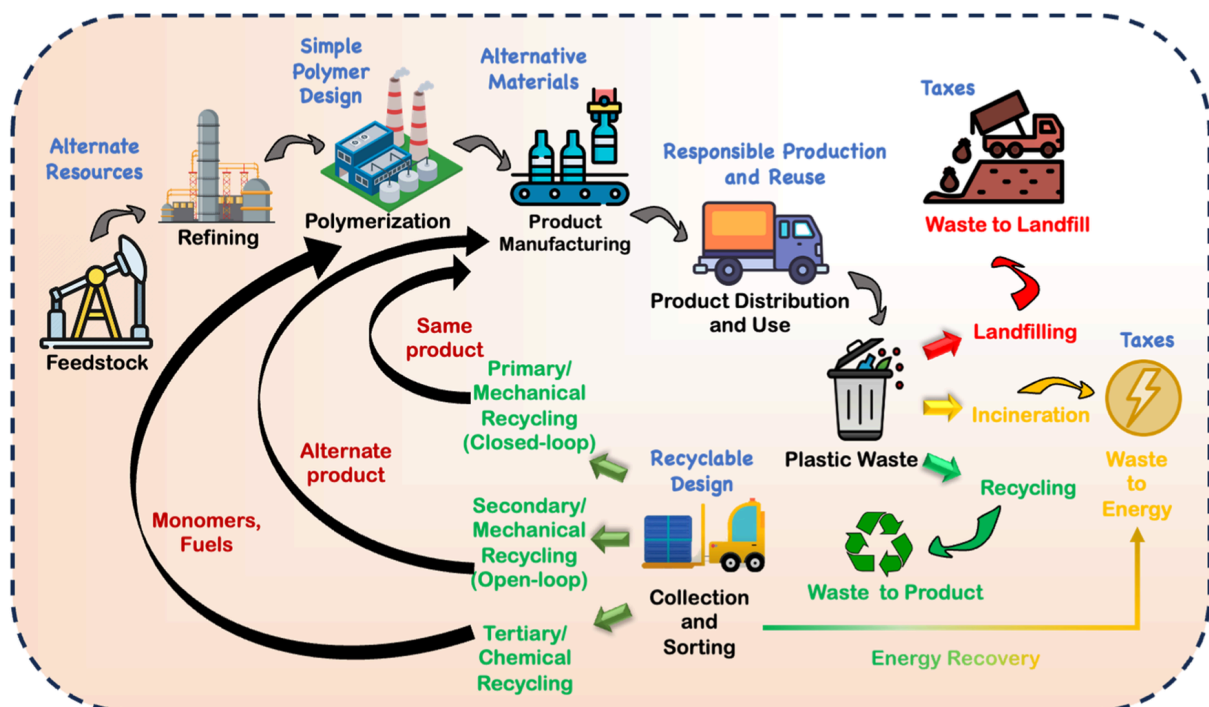
Phase 1:Requirement Analysis & Planning

Defining Business:

In the RePlastic Innovations project, the core need is to **reduce plastic waste** and **reuse it in a sustainable way**. Communities, especially in urban and semi-urban areas, face problems such as:

- Overflowing landfills with plastic waste
- Lack of proper plastic recycling facilities
- Limited public awareness about plastic reuse
- Need for low-cost, eco-friendly building materials
- Unemployment and lack of local skill-building projects

Defining Project Scope / Deliverable Objectives:

- **Plastic Waste Collection**: Partnering with local waste collectors and community members to gather plastic.
- **Sorting & Cleaning**: Separating plastic types (HDPE, LDPE, PET, etc.) and preparing them for reuse.
- **Processing Setup**: Using shredding and melting machines to convert plastic into reusable material.
- **Product Manufacturing**: Making eco-products like plastic bricks, tiles, garden pots, or 3D-printed items.
- **Educational Programs**: Conducting workshops and awareness campaigns on plastic reuse.
- **Community Engagement**: Involving local youth and workers for skill development and employment.
- **Low-cost Implementation**: Ensuring that tools and technologies used are affordable and accessible.

Designing Data Model and Security Model:

- **Data Model -** Includes custom objects such as -

- **Security Model -**

  The security model implements role-based access with profiles for administrators or users,role hierarchy for the objects and sharing rules to select what each roles can see.

Phase 2:Salesforce Development - Backend & Configurations

Setup Environment:

Using the URL: [https://developer.salesforce.com/signup,](https://developer.salesforce.com/signup) I created a developer organisation in Salesforce with my first and last names,email address,role as developer,company name and a customer username for example: yesireddyumesh148@agentforce.com .Verifying email,creating a password,and going to the Salesforce setup page activates the account.

Customization of Objects,Fields,Validation Rules,Automation(Workflow Rules,Process Builder,Flows,Approval Process):

Objects & Relationships:

- **Re Plastic Innovations Order:** Stores Order details,related to product_c and order_c.

- **Re Plastic Innovations Plastic Waste:** Stores Plastic waste details,related to order_c.

- **Re Plastic Innovations Recycled Product:** Stores Recycled product details,related to Recycled_Product_c and product_c.

- **Re Plastic Innovations Recycling Center:** Stores Recycling centres,related to location_c and product_c.

- **Re Plastic Innovations Restock Request:** Storing Stock Requests,related to order_c and product_c.

Key Fields For Each Object -

SETUP > OBJECT MANAGER
Re Plastic Innovations Order

Details	**Fields & Relationships**		Quick Find	New	Deleted Fields	Field Dependencies	Set History Tracking
Fields & Relationships	11 Items, Sorted by Field Label			
Page Layouts	Account	Account__c	Lookup(Account)	✓	⌄
Lightning Record Pages	Created By	CreatedById	Lookup(User)		
Buttons, Links, and Actions	Delivery Date	Delivery_Date__c	Date		⌄
Compact Layouts	Last Modified By	LastModifiedById	Lookup(User)		
Field Sets	Name	Name__c	Auto Number		⌄
Object Limits	Owner	OwnerId	Lookup(User,Group)	✓	
Record Types	Product	Product__c	Text(18)		⌄
Related Lookup Filters	Quantity	Quantity__c	Number(16, 2)		⌄
Search Layouts	Re Plastic Innovations Order Name	Name	Text(80)	✓	⌄
List View Button Layout	Re Plastic Innovations Recycled Product	Re_Plastic_Innovations_Recycled_Product__c	Lookup(Re Plastic Innovations Recycled Product)	✓	⌄
Restriction Rules				

SETUP > OBJECT MANAGER
Re Plastic Innovations Plastic Waste

Details	**Fields & Relationships**				Quick Find	New	Deleted Fields	Field Dependencies	Set History Tracking
Fields & Relationships	11 Items, Sorted by Field Label				

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Collection Date	Collection_Date__c	Date			⌄
Created By	CreatedById	Lookup(User)			
Last Modified By	LastModifiedById	Lookup(User)			
Location	Location__c	Geolocation			⌄
Name	Name__c	Text(18)			⌄
Owner	OwnerId	Lookup(User,Group)		✓	
Plastic Waste Name	Name	Auto Number		✓	⌄
Re Plastic Innovations Recycling Center	Re_Plastic_Innovations_Recycling_Center__c	Lookup(Re Plastic Innovations Recycling Center)		✓	⌄
Status	Status__c	Picklist			⌄
	Type__c	Picklist			⌄

SETUP > OBJECT MANAGER
Re Plastic Innovations Recycled Product

Details	**Fields & Relationships**				Quick Find	New	Deleted Fields	Field Dependencies	Set History Tracking
Fields & Relationships	10 Items, Sorted by Field Label				

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Created By	CreatedById	Lookup(User)			
Last Modified By	LastModifiedById	Lookup(User)			
Name	Name__c	Text(18)			⌄
Owner	OwnerId	Lookup(User,Group)		✓	
Price	Price__c	Currency(16, 2)			⌄
Re Plastic Innovations Recycled Product Name	Name	Text(80)		✓	⌄
Recycled_Product	Recycled_Product__c	Text(18)			⌄
Stock Level	Stock_Level__c	Number(16, 2)			⌄
Stock Low On Product	Stock_Low_On_Product__c	Formula (Text)			⌄
	Threshold__c	Number(16, 2)			⌄

SETUP > OBJECT MANAGER
Re Plastic Innovations Recycling Center

Details
Fields & Relationships

Fields & Relationships
7 Items, Sorted by Field Label

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

Scoping Rules

Quick Find   New   Deleted Fields   Field Dependencies   Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Capacity	Capacity__c	Number(16, 2)			▾
Created By	CreatedById	Lookup(User)			
Last Modified By	LastModifiedById	Lookup(User)			
Location	Location__c	Geolocation			▾
Name	Name__c	Text(18)			▾
Owner	OwnerId	Lookup(User,Group)		✓	
Re Plastic Innovations Recycling Center	Name	Text(80)		✓	▾

SETUP > OBJECT MANAGER
Re Plastic Innovations Restock Request

Details
Fields & Relationships

Fields & Relationships
9 Items, Sorted by Field Label

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

Scoping Rules

Quick Find   New   Deleted Fields   Field Dependencies   Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Created By	CreatedById	Lookup(User)			
Last Modified By	LastModifiedById	Lookup(User)			
Name	Name__c	Auto Number			▾
Owner	OwnerId	Lookup(User,Group)		✓	
Product	Product__c	Text(18)			▾
Re Plastic Innovations Recycled Product	Re_Plastic_Innovations_Recycled_Product__c	Lookup(Re Plastic Innovations Recycled Product)		✓	▾
Re Plastic Innovations Restock Request Name	Name	Text(80)		✓	▾
Requested Quantity	Requested_Quantity__c	Number(16, 2)			▾
Status	Status__c	Picklist			▾

Validation Rules -

Re Plastic Innovations Order
OrderId-0006

New Contact   Edit   New Opportunity ▾

Related   **Details**

Re Plastic Innovations Order Name
OrderId-0006

Owner
👤 Umesh Reddy

Name
RPIPW-0002

Account

Re Plastic Innovations Recycled Product
Plastic Order Record

Quantity
150.00

Delivery Date
7/12/2025

Product

Recycled Product

Created By
👤 Umesh Reddy, 7/12/2025, 8:55 PM

Last Modified By
👤 Umesh Reddy, 7/12/2025, 8:55 PM

avascript:void(0)

Re Plastic Innovations Order
RequestId-0005

New Contact   Edit   New Opportunity ▾

Related   **Details**

Re Plastic Innovations Order Name
RequestId-0005

Owner
👤 Umesh Reddy

Name
RPIPW-0001

Account

Re Plastic Innovations Recycled Product
Test Task Record

Quantity
1.00

Delivery Date
7/17/2025

Product

Recycled Product

Created By
👤 Umesh Reddy, 7/12/2025, 7:10 AM

Last Modified By
👤 Umesh Reddy, 7/12/2025, 8:58 PM

To Do List

Automation -

1. Flow Builder :-
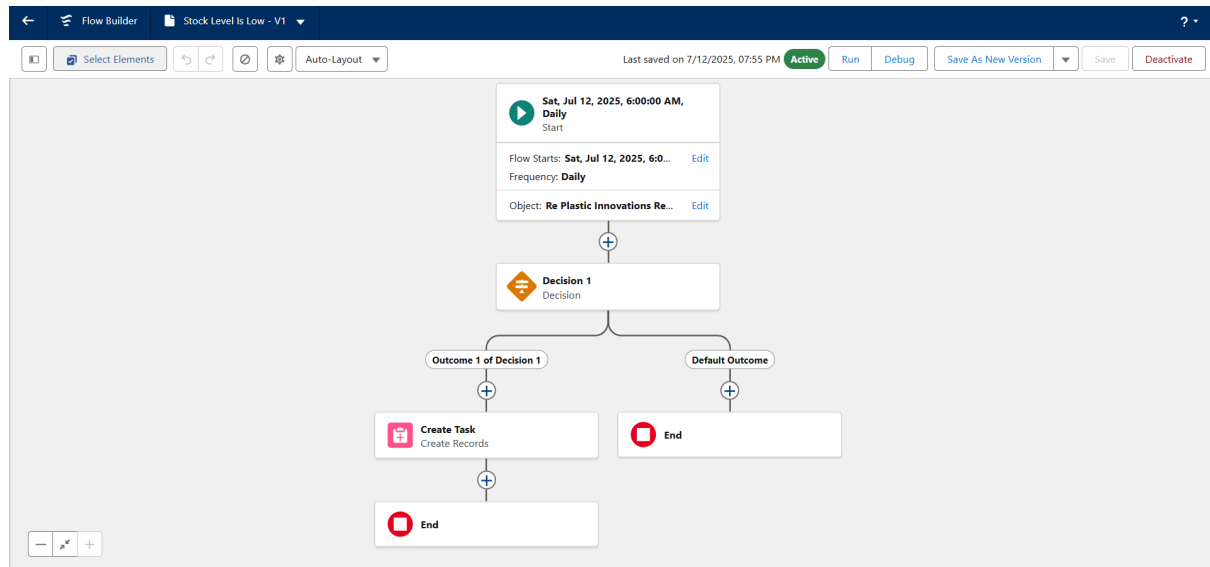
Apex Classes & Triggers:-

- **Apex Class - Inventory Manager:**

public class InventoryManager {

    // Method to process stock reduction after an order

    public static void processOrderStock(List<Re_Plastic_Innovations_Order__c> orderList) {

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

        for (Re_Plastic_Innovations_Order__c order : orderList) {

            productIds.add(order.Recycled_Product__c);

        }

        // Query product stock levels

        Map<Id, Re_Plastic_Innovations_Recycled_Product__c> productMap = new Map<Id, Re_Plastic_Innovations_Recycled_Product__c>(

```apex
        [SELECT Id, Stock_Level__c, Threshold__c FROM
Re_Plastic_Innovations_Recycled_Product__c WHERE Id IN :productIds]

    );


    List<Re_Plastic_Innovations_Recycled_Product__c> productsToUpdate
= new List<Re_Plastic_Innovations_Recycled_Product__c>();

    List<Re_Plastic_Innovations_Restock_Request__c> restockRequests =
new List<Re_Plastic_Innovations_Restock_Request__c>();


    for (Re_Plastic_Innovations_Order__c order : orderList) {

        Re_Plastic_Innovations_Recycled_Product__c product =
productMap.get(order.Recycled_Product__c);


        if (product != null) {

            if (product.Stock_Level__c >= order.Quantity__c) {

                product.Stock_Level__c -= order.Quantity__c;

                productsToUpdate.add(product);

            } else {

                // Create a Restock Request if stock is insufficient (without setting
Name)

                restockRequests.add(new
Re_Plastic_Innovations_Restock_Request__c(

                    Product__c = product.Id,

                    Requested_Quantity__c = order.Quantity__c -
product.Stock_Level__c,

                    Status__c = 'Pending'
```

```
            ));

         }

      }

   }


   if (!productsToUpdate.isEmpty()) {

      update productsToUpdate;

   }


   if (!restockRequests.isEmpty()) {

      insert restockRequests;

   }

}


// Method to process stock increase after restock approval

public static void
processRestockApproval(List<Re_Plastic_Innovations_Restock_Request__c
> restockList) {

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

   for (Re_Plastic_Innovations_Restock_Request__c restock : restockList) {

      if (restock.Status__c == 'Approved') {

         productIds.add(restock.Product__c);

      }
```

```apex
        }


        Map<Id, Re_Plastic_Innovations_Recycled_Product__c> productMap =
new Map<Id, Re_Plastic_Innovations_Recycled_Product__c>(

            [SELECT Id, Stock_Level__c FROM
Re_Plastic_Innovations_Recycled_Product__c WHERE Id IN :productIds]

        );



        List<Re_Plastic_Innovations_Recycled_Product__c> productsToUpdate
= new List<Re_Plastic_Innovations_Recycled_Product__c>();



        for (Re_Plastic_Innovations_Restock_Request__c restock : restockList) {

            if (productMap.containsKey(restock.Product__c)) {

                Re_Plastic_Innovations_Recycled_Product__c product =
productMap.get(restock.Product__c);

                product.Stock_Level__c += restock.Requested_Quantity__c;

                productsToUpdate.add(product);

            }
        }



        if (!productsToUpdate.isEmpty()) {

            update productsToUpdate;

        }

    }
```

```
}
```

- **Apex Trigger - UpdateStockAfterOrder:**

```
trigger UpdateStockAfterOrder on Re_Plastic_Innovations_Order__c (after
insert) {

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

        InventoryManager.processOrderStock(Trigger.new);

    }

}
```

- **Apex Trigger - UpdateStockAfterRestockApproval:**

```
trigger UpdateStockAfterRestockApproval on
Re_Plastic_Innovations_Restock_Request__c (after update) {
List<Re_Plastic_Innovations_Restock_Request__c> approvedRestocks =
new List<Re_Plastic_Innovations_Restock_Request__c>();
for (Re_Plastic_Innovations_Restock_Request__c restock : Trigger.new) {
if (restock.Status__c == 'Approved' &&
Trigger.oldMap.get(restock.Id).Status__c != 'Approved') {
    approvedRestocks.add(restock);
 }
}
if (!approvedRestocks.isEmpty()) {
 InventoryManager.processRestockApproval(approvedRestocks);
}
}
```

- **Apex Class - EmailNotificationHelper:**

```
public class EmailNotificationHelper {
public static void
sendRestockNotification(List<Re_Plastic_Innovations_Restock_Request__c>
restockRequests) {
 List<Messaging.SingleEmailMessage> emails = new
List<Messaging.SingleEmailMessage>();
```

```
 for (Re_Plastic_Innovations_Restock_Request__c restock :
restockRequests) {
    Messaging.SingleEmailMessage email = new
Messaging.SingleEmailMessage();
    email.setSubject('Restock Request Approved');
    email.setToAddresses(new
List<String>{'mabdulrahaman066@gmail.com'});
    email.setPlainTextBody('The restock request for product ' +
restock.Product__c + ' has been approved. Please proceed with stock
update.');
    emails.add(email);
 }
 if (!emails.isEmpty()) {
    Messaging.sendEmail(emails);
 }
 }
 }
```

● **Apex Class - InventoryManagerTest:**

```
@isTest

public class InventoryManagerTest {

   @testSetup

   static void setupTestData() {

      // Create a product with initial stock of 50

      Re_Plastic_Innovations_Recycled_Product__c product = new
Re_Plastic_Innovations_Recycled_Product__c(

         Stock_Level__c = 50,

         Threshold__c = 10

      );

      insert product;

      // Create orders
```

```apex
        List<Re_Plastic_Innovations_Order__c> orders = new
List<Re_Plastic_Innovations_Order__c>{

            new Re_Plastic_Innovations_Order__c(Recycled_Product__c =
product.Id, Quantity__c = 20), // Enough stock

            new Re_Plastic_Innovations_Order__c(Recycled_Product__c =
product.Id, Quantity__c = 40)  // Not enough stock

        };

        insert orders;

    }

    @isTest

    static void testProcessOrderStock() {

        List<Re_Plastic_Innovations_Order__c> orders = [SELECT Id,
Recycled_Product__c, Quantity__c FROM
Re_Plastic_Innovations_Order__c];


        Test.startTest();

        InventoryManager.processOrderStock(orders);

        Test.stopTest();

        // Check updated stock

        Re_Plastic_Innovations_Recycled_Product__c product = [SELECT
Stock_Level__c FROM Re_Plastic_Innovations_Recycled_Product__c];

        System.assertEquals(10, product.Stock_Level__c, 'Stock should reduce
correctly');

        // Check restock request (Only 1 should be created)

        List<Re_Plastic_Innovations_Restock_Request__c> restockRequests =
[SELECT Id FROM Re_Plastic_Innovations_Restock_Request__c WHERE
Status__c = 'Pending'];
```

```
        System.assertEquals(2, restockRequests.size(), 'Only one restock
request should be created');

    }

  @isTest

static void testProcessRestockApproval() {

    // Fetch restock requests and approve them

    List<Re_Plastic_Innovations_Restock_Request__c> restocks = [SELECT
Id, Product__c, Requested_Quantity__c FROM
Re_Plastic_Innovations_Restock_Request__c];

    for (Re_Plastic_Innovations_Restock_Request__c req : restocks) {

        req.Status__c = 'Approved';

    }

    update restocks;

    // Calculate expected stock level before processing restock

    Re_Plastic_Innovations_Recycled_Product__c productBefore = [SELECT
Stock_Level__c FROM Re_Plastic_Innovations_Recycled_Product__c];

    Decimal initialStock = productBefore.Stock_Level__c;

    // Calculate total requested quantity for approved restocks

    Decimal totalRestockQuantity = 0;

    for (Re_Plastic_Innovations_Restock_Request__c req : restocks) {

        totalRestockQuantity += req.Requested_Quantity__c;

    }

    // Process restock approvals

    Test.startTest();
```

```
        InventoryManager.processRestockApproval(restocks);

        Test.stopTest();

        // Fetch updated stock

        Re_Plastic_Innovations_Recycled_Product__c productAfter = [SELECT
Stock_Level__c FROM Re_Plastic_Innovations_Recycled_Product__c];


        // Expected stock = Initial stock + Total approved restock quantity

        Decimal expectedStock = initialStock + totalRestockQuantity;


        System.assertEquals(expectedStock, productAfter.Stock_Level__c, 'Stock
should increase correctly after restock approval');

    }

}
```

Phase 3: UI/UX Development & Customization

Lightening App Setup through App Manager:

Created a Lightening App named "Re Plastic Innovations" via the App Manager in Setup,with a meaningful description.I have given a best image in the upload section. I have assigned System Administrator Profile for access.
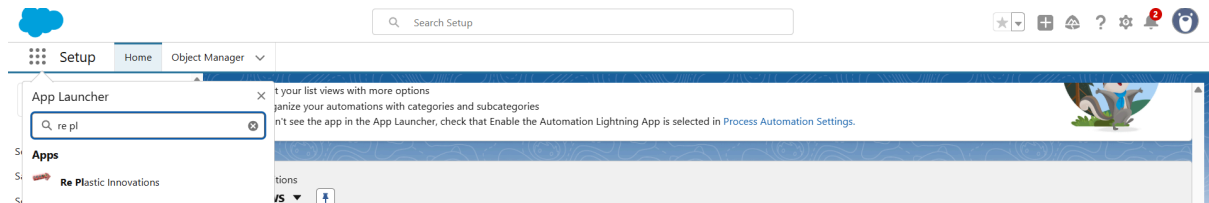
Page layouts and Dynamic Forms:

Designed page layouts for the three objects called Re plastic Innovations Orders,Re plastic Innovations Recycled Products and Re plastic Innovations Restock Requests.Forms to enhance field visibility and user interaction based on record type and user role.
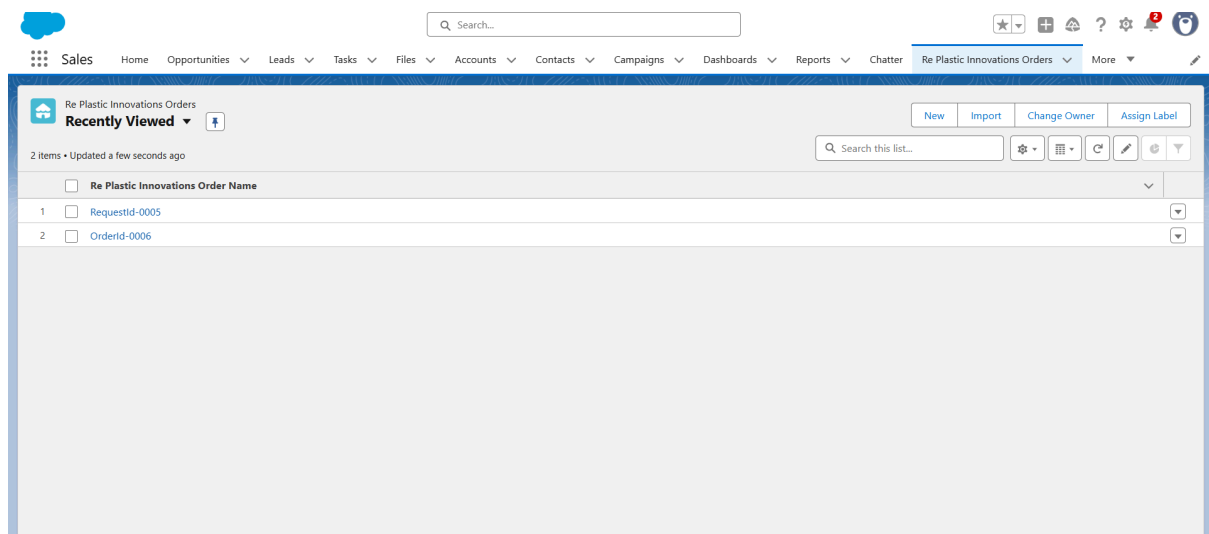
Home | Opportunities | Leads | Tasks | Files | Accounts | Contacts | Campaigns | Dashboards | Reports | Chatter | Re Plastic Innovations Recycled... | More

Re Plastic Innovations Recycled Products
Recently Viewed

New | Import | Change Owner | Assign Label

2 items • Updated a few seconds ago

Search this list...

		Re Plastic Innovations Recycled Product Name
1		Test Task Record
2		Plastic Order Record

Re Plastic Innovations Restock Requests
Recently Viewed

New | Import | Change Owner | Assign Label

1 item • Updated 2 minutes ago

Search this list...

		Re Plastic Innovations Restock Request Name
1		Request Id-0005

Phase 4:Data Migration,Testing,Security

Sample Records Created:

Test Task Record with Stock Level and Threshold value:

Plastic Order Record with Stock Level and Threshold value:

Testing:-

test

Didn't find what you're looking for?
Try using Global Search.

SETUP
Apex Test Execution

Apex Test Results

Before deploying Apex classes and triggers, you must write unit tests that cover 75% of the total Apex code in your organization. All test results for your organization display in the default view for 30 days unless cleared.
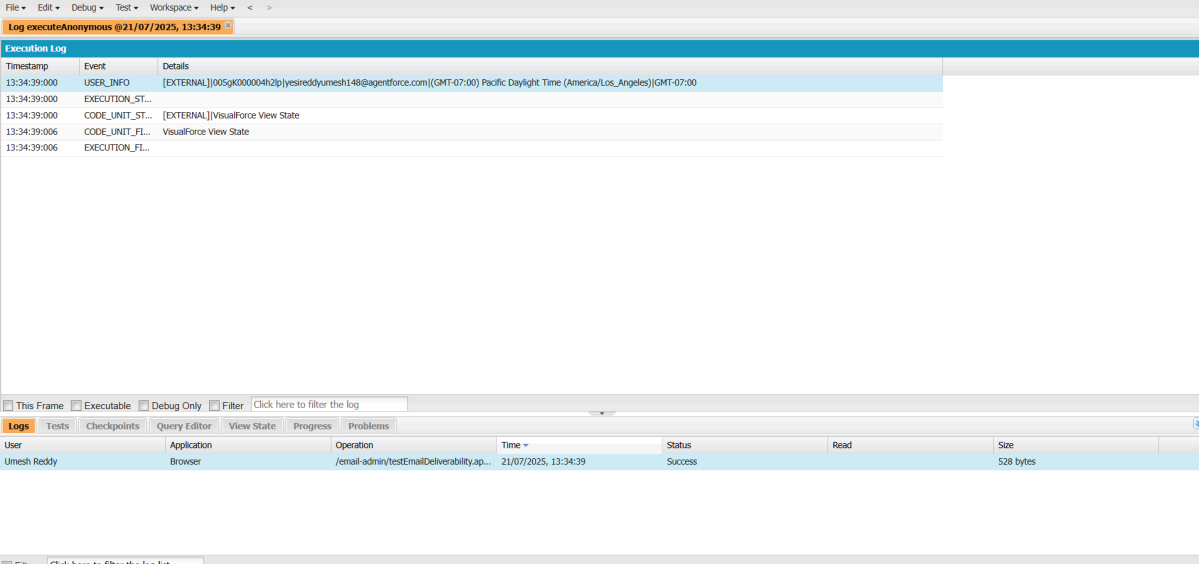
All   Create New View

Clear Test Data

Ac...	Name ↑	Method Name	Time Started	Pass/Fail	Error Message	Run Time
View	InventoryManagerTest	setupTestData	7/17/2025, 7:26 PM	Pass		267
View	InventoryManagerTest	testProcessOrderStock	7/17/2025, 7:26 PM	Pass		74
View	InventoryManagerTest	testProcessRestockApproval	7/17/2025, 7:26 PM	Pass		97
View	InventoryManagerTest	setupTestData	7/17/2025, 7:31 PM	Pass		184
View	InventoryManagerTest	testProcessOrderStock	7/17/2025, 7:31 PM	Pass		62
View	InventoryManagerTest	testProcessRestockApproval	7/17/2025, 7:31 PM	Pass		73

Help for this Page

Phase 5 - Deployment Maintenance & Future Scope

Use Apex logs for monitoring - Updates to flows or triggers via Setup

Future Scope:-

- **Scaling Up**: Expanding the project to more cities and rural areas to collect and reuse plastic on a larger scale.

- **Advanced Recycling Machines**: Introducing better machines for shredding, melting, and 3D printing using recycled plastic.

- **Mobile App Integration**: Creating a mobile app for tracking collections, scheduling workshops, and involving more volunteers.

- **Partnerships with Local Governments and NGOs**: Working with municipal bodies to support waste management and recycling efforts.

- **Educational Programs**: Adding regular training sessions in schools and colleges to spread awareness and skills related to recycling.

- **AI-Based Sorting**: Using AI and smart sensors to automatically sort different types of plastic for better efficiency.

Conclusion:

The **RePlastic Innovations** project successfully shows how plastic waste can be reused in a smart and sustainable way. By building a system to collect, process, and convert plastic into useful products, we help reduce pollution and promote eco-friendly practices. Using Salesforce, we were able to track collections, manage volunteers, and automate many tasks to make the process smoother. This project not only supports the environment but also encourages community involvement and awareness. With regular updates and proper maintenance, the system can continue to grow and create a positive impact.

Using Waste Plastic for Road Construction Mandatory Now

Move to overcome growing problem of plastic waste disposal

Rajat.Arora@timesgroup.com

New Delhi: The government has made it mandatory for road developers to use waste plastic along with bituminous mixes for road construction to overcome the growing problem of disposal of plastic waste in India's urban centres.

Road developers will now have to use waste plastic along with hot mixes for constructing bitumen roads within 50 km of periphery of any city that has a population of over five lakh. In recently released guidelines for developers, the government said that in case of non-availability of waste plastic, the developer has to seek the road transport & highways ministry's approval for constructing only bitumen roads.

"Urban local bodies, which are usually short of financial resources, can make money by selling the plastic waste generated by cities to road developers. They can signs memorandums of understanding with the road construction companies," a senior government official told **ET**.

India generates 56 lakh tonne of plastic waste annually. As per a study by the Central Pollution Control Board, 60 large cities in India generate over 15,000 tonne of plastic waste every day. Delhi generates close to

7,000 tonne of waste every day, of which over 10% is pure plastic but cannot be disposed even by waste-to-energy plants because of environmental reasons.

In an observation earlier this year, the Supreme Court had said that the country was sitting on a plastic time bomb.

Plastic will add to the longevity of roads by making them water resistant and also increasing the resistance of roads to change in weather.

Developer has to seek ministry nod for bitumen-only roads in case waste plastic is not available

The government expects this measure to bring down the cost as well for road developers, from about ₹10 crore for one km of road length at present.

"The cost factor is yet to be analysed, but it will be slightly less than 100% bitumen," the official said.

The ministry will also encourage state governments and rural development ministry to make use of plastic waste mandatory in construction of roads.

"The same technology can also be used for construction of rural roads as it will enhance their quality as well as longevity. These roads can have a plastic coating mixed with bitumen," the official said.

Economic Times 26.11.2015

THANK YOU