

Phase 3:

Data Modeling & Relationships (GreenTrack)

1) What is Data Modeling in Salesforce?

Data Modeling = Designing **Objects**, **Fields**, and **Relationships** to represent your business logic.

Think of it as the **blueprint** for your database inside Salesforce.

In GreenTrack, we need to capture:

- ❖ **Who did something?** (User / Participant)
 - ❖ **What activity did they do?** (Eco Activity)
 - ❖ **What's the calculated impact?** (Impact Score)
 - ❖ **What recognition did they get?** (Badge)
-

2) Identify Custom Objects

Go to: **Setup** → **Object Manager** → **Create** → **Custom Object**

Create these:

1. **Eco Activity** (**Eco_Activity__c**)
 - Represents sustainability events logged by users.
 - Key Fields:

- Activity Name (Text)
- Activity Type (Picklist → Tree Plantation, Recycling, Awareness Drive)
- Date (Date)
- Location (Text)
- Trees Planted (Number)
- Waste Recycled (Number in kg)
- Description (Long Text Area)

SETUP > OBJECT MANAGER
Eco Activity

Details	Fields & Relationships 14 Items, Sorted by Field Label <div> <input type="text" value="Quick Find"/> New Deleted Fields Field Dependencies Set History Tracking </div>				
Fields & Relationships	FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Page Layouts	Activity Name	Name	Text(80)		✓
Lightning Record Pages	Activity Type	Activity_Type__c	Picklist		
Buttons, Links, and Actions	Badge	Badge__c	Lookup(Badge)		✓
Compact Layouts	Created By	CreatedById	Lookup(User)		
Field Sets	Date	Date__c	Date		
Object Limits	Description	Description__c	Long Text Area(500)		
Record Types	Impact Score	Impact_Score__c	Formula (Number)		
Related Lookup Filters	Last Modified By	LastModifiedById	Lookup(User)		
Search Layouts	Location	Location__c	Text(255)		
List View Button Layout	Owner	OwnerId	Lookup(User,Group)		✓
Restriction Rules	Participant	Participant__c	Lookup(User)		✓
Scoping Rules	Record Type	RecordTypeId	Record Type		✓
Object Access	Trees Planted	Trees_Planted__c	Number(5, 0)		
Triggers	Waste Recycled	Waste_Recycled__c	Number(7, 2)		
Flow Triggers					
Validation Rules					
Conditional Field Formatting					

2. Impact Score (Impact_Score__c)

- Stores CO₂ savings (auto-calculated from activities).
- Key Fields:
 - Total CO₂ Saved (Formula: e.g., Trees_Planted * 21 + Waste_Recycled * 1.5)
 - Level (Picklist: Beginner, Intermediate, Champion)

SETUP > OBJECT MANAGER

Impact Score

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

Restriction Rules

Scoping Rules

Fields & Relationships

6 Items, Sorted by Field Label

Q Quick Find

New

Deleted Fields

Field Dependencies

Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Eco Activity	Eco_Activity__c	Master-Detail(Eco Activity)		✓
Impact Score Number	Name	Auto Number		✓
Last Modified By	LastModifiedById	Lookup(User)		
Level	Level__c	Picklist		
Total CO2 Saved	Total_CO2_Saved__c	Number(7, 2)		

3. Badge (Badge__c)

- Recognition awarded to participants.
- Key Fields:
 - Badge Name (Bronze, Silver, Gold, Platinum)
 - Awarded Date (Date)

- **User ↔ Badge:** Lookup (user may earn multiple badges).

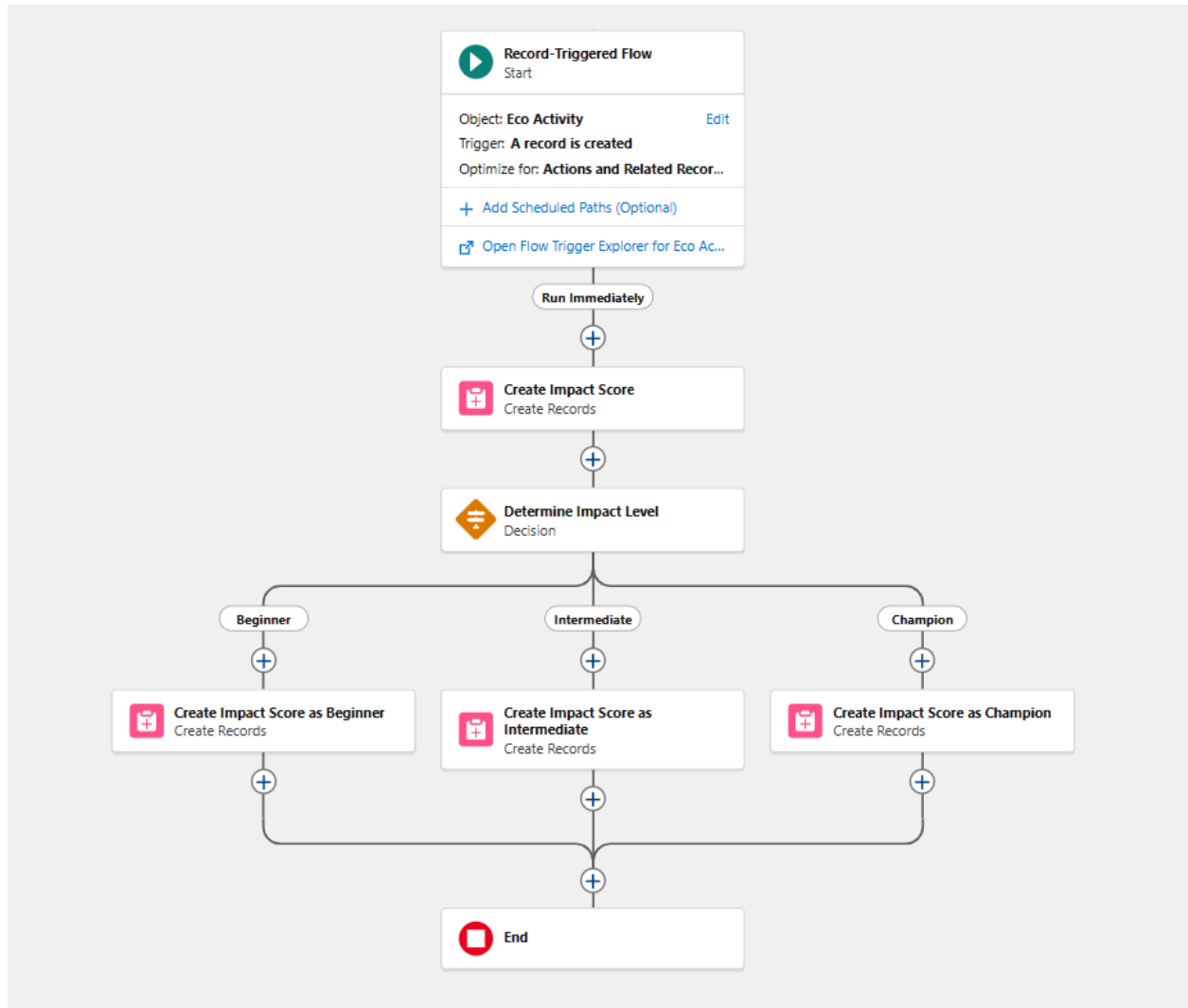
User	User__c	Lookup(User)	✓	
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Use **Master-Detail** when the child should depend on the parent (Impact Score tied to Activity). Use **Lookup** when records can live independently (Badge can exist without User temporarily).

5) Flows

Flow to Automatically Create an Impact Score Record when an Eco Activity is created.

- ❖ **Start: Record-Triggered Flow**
- ❖ **Create Impact Score >>> Determine Impact Level**
 - Beginner
 - Intermediate
 - Champion
- ❖ **End**



6) Record Types (Optional but adds clarity)

Create **Record Types** for Eco Activity:

- Tree Plantation
- Recycling
- Awareness Drive

SETUP > OBJECT MANAGER

Eco Activity

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

Restriction Rules

Scoping Rules

Record Types

3 Items, Sorted by Record Type Label

Q Quick Find

New

Page Layout Assignment

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY	
Awareness Drive	Activities related to awareness drive	✓	Jatin Awankar, 9/17/2025, 3:07 AM	▼
Recycling	Activities related to recycling	✓	Jatin Awankar, 9/17/2025, 3:06 AM	▼
Tree Plantation	Activities related to planting trees.	✓	Jatin Awankar, 9/17/2025, 3:04 AM	▼

This allows different Page Layouts (e.g., “Trees Planted” field only shows for Tree Plantation).

7) Page Layouts

- **Eco Activity Layout:** Show Activity details, Trees Planted/Waste Recycled.

SETUP > OBJECT MANAGER

Eco Activity

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

Restriction Rules

Scoping Rules

Page Layouts

4 Items, Sorted by Page Layout Name

Q Quick Find

New

Page Layout Assignment

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY	
Awareness Drive Layout	Jatin Awankar, 9/17/2025, 3:19 AM	Jatin Awankar, 9/17/2025, 3:20 AM	▼
Eco Activity Layout	Jatin Awankar, 9/15/2025, 2:52 AM	Jatin Awankar, 9/17/2025, 2:47 AM	▼
Recycling Layout	Jatin Awankar, 9/17/2025, 3:16 AM	Jatin Awankar, 9/17/2025, 3:22 AM	▼
Tree Plantation Layout	Jatin Awankar, 9/17/2025, 3:08 AM	Jatin Awankar, 9/17/2025, 3:16 AM	▼

- **Impact Score Layout:** Show total CO₂ saved, level.

SETUP > OBJECT MANAGER

Impact Score

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Page Layouts

1 Items, Sorted by Page Layout Name

Quick Find

New

Page Layout Assignment

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Impact Score Layout	Jatin Awankar, 9/17/2025, 2:43 AM	Jatin Awankar, 9/18/2025, 2:27 AM

- **Badge Layout:** Show badge name, awarded date, related user.

SETUP > OBJECT MANAGER

Badge

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Page Layouts

1 Items, Sorted by Page Layout Name

Quick Find

New

Page Layout Assignment

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Badge Layout	Jatin Awankar, 9/15/2025, 2:53 AM	Jatin Awankar, 9/18/2025, 2:29 AM

Add related lists so managers can see **Activities logged** under User and **Badges earned**.

8) Compact Layouts

- Compact Layout for Eco Activity → Display: Activity Type, Date, Location, Trees Planted.

Eco Activity Compact Layout

Eco Activity Compact

« Back to Eco Activity

Compact Layout Detail

Edit

Clone

Delete

Compact Layout Assignment

Label	Eco Activity Compact	Object Name	Eco Activity
API Name	Eco_Activity_Compact		
Included Fields	Activity Type Date Location Trees Planted		
Created By	Jatin Awankar, 9/18/2025, 2:31 AM	Modified By	Jatin Awankar, 9/18/2025, 2:31 AM

Edit

Clone

Delete

Compact Layout Assignment

- Compact Layout for Impact Score→ Display: Total CO2 Saved, Level.

Impact Score Compact Layout

Impact Score Compact

[« Back to Impact Score](#)

Compact Layout Detail

EditCloneDeleteCompact Layout Assignment

Label	Impact Score Compact	Object Name	Impact Score
API Name	Impact_Score_Compact		
Included Fields	Total CO2 Saved Level		
Created By	Jatin Awankar, 9/18/2025, 2:33 AM	Modified By	Jatin Awankar, 9/18/2025, 2:33 AM

EditCloneDeleteCompact Layout Assignment

- Compact Layout for Badge→ Display: Badge Date, Awarded Date.

Badge Compact Layout

Badge Compact

[« Back to Badge](#)

Compact Layout Detail

EditCloneDeleteCompact Layout Assignment

Label	Badge Compact	Object Name	Badge
API Name	Badge_Compact		
Included Fields	Badge Name Awarded Date		
Created By	Jatin Awankar, 9/18/2025, 2:34 AM	Modified By	Jatin Awankar, 9/18/2025, 2:34 AM

EditCloneDeleteCompact Layout Assignment

Makes mobile & Lightning UI concise.

9) Validation Rules

Create validation rules to maintain clean data:

- Example:

Trees must be > 0 for Tree Plantation:

AND(

```
ISPICKVAL(Activity_Type__c, "Tree Plantation"),  
OR(ISBLANK(Trees_Planted__c), Trees_Planted__c <= 0)  
)
```

- Error Message: *"Please enter a valid number of trees planted."*

Eco Activity Validation Rule

[Back to Eco Activity](#)

Validation Rule Detail			
		Edit Clone	
Rule Name	Validate_Trees_Planted	Active	<input checked="" type="checkbox"/>
Error Condition Formula	AND(ISPICKVAL(Activity_Type__c, "Tree Plantation"), OR(ISBLANK(Trees_Planted__c), Trees_Planted__c <= 0))		
Error Message	Please enter a valid number of trees planted.	Error Location	Trees Planted
Description			
Created By	Jatin Awankar , 9/18/2025, 2:44 AM	Modified By	Jatin Awankar , 9/18/2025, 2:44 AM
		Edit Clone	

10) Deliverables for Phase 3

1. **Custom Objects created** (Eco Activity, Impact Score, Badge).
 2. **Fields added** (Activity details, CO₂ saved formula).
 3. **Relationships defined** (User ↔ Activity ↔ Impact Score; User ↔ Badge).
 4. **Schema Diagram** (screenshot from Schema Builder).
 5. **Validation Rules implemented.**
 6. **Page Layouts configured.**
 7. **GitHub commit:** `phase3: data model objects, fields, relationships, validation rules.`
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11) Testing Checklist

- Log in as a Participant → Create Eco Activity (Tree Plantation).
- Verify Impact Score auto-calculates CO₂ saved.
- Verify Badge is not directly editable by the Participant.
- Switch to **NGO Manager** → See all participant activities.
- Check compact layout on mobile preview.