Phase 3:

Data Modeling & Relationships (GreenTrack)

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1) What is Data Modeling in Salesforce?

Data Modeling = Designing **Objects**, **Fields**, and **Relationships** to represent the business logic.
 It is the **blueprint** for the 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)
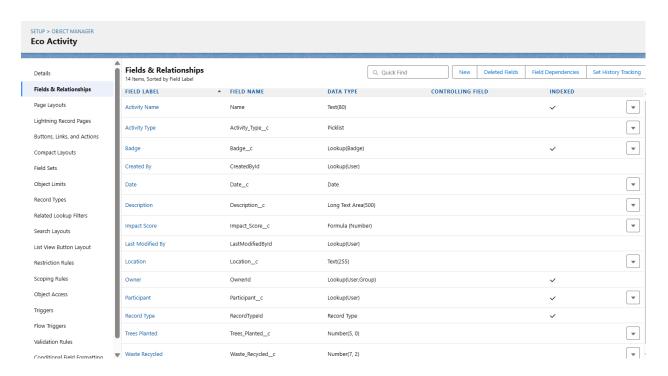
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2) Identify Custom Objects

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

Create these:

1. **Eco Activity (Eco_Activity__c)**

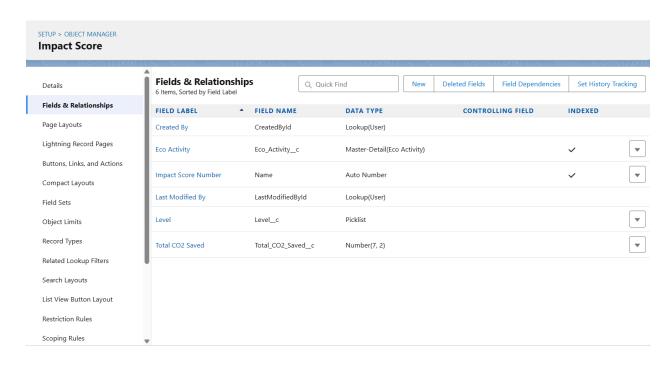   - ○ Represents sustainability events logged by users.

   - ○ 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)

Fields & Relationships
14 Items, Sorted by Field Label

Details				

Quick Find | New | Deleted Fields | Field Dependencies | Set History Tracking

FIELD LABEL ▲	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Activity Name	Name	Text(80)		✓	▼
Activity Type	Activity_Type__c	Picklist			▼
Badge	Badge__c	Lookup(Badge)		✓	▼
Created By	CreatedById	Lookup(User)			
Date	Date__c	Date			▼
Description	Description__c	Long Text Area(500)			▼
Impact Score	Impact_Score__c	Formula (Number)			▼
Last Modified By	LastModifiedById	Lookup(User)			
Location	Location__c	Text(255)			▼
Owner	OwnerId	Lookup(User,Group)		✓	
Participant	Participant__c	Lookup(User)		✓	▼
Record Type	RecordTypeId	Record Type		✓	
Trees Planted	Trees_Planted__c	Number(5, 0)			▼
Waste Recycled	Waste_Recycled__c	Number(7, 2)			▼

Left sidebar navigation:
- 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
- Object Access
- Triggers
- Flow Triggers
- Validation Rules
- Conditional Field Formatting
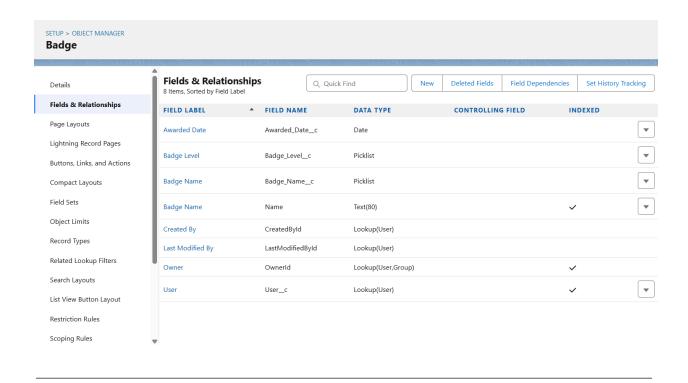
2. **Impact Score (Impact_Score__c)**

  ○ Stores CO_2 savings (auto-calculated from activities).

  ○ Key Fields:

- - Total CO_2 Saved (Formula: e.g., Trees_Planted * 21 + Waste_Recycled * 1.5)

  - Level (Picklist: Beginner, Intermediate, Champion)

Impact Score

Details				
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Buttons, Links, and Actions				
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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

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)

Details	**Fields & Relationships** 8 Items, Sorted by Field Label		Quick Find	New	Deleted Fields	Field Dependencies	Set History Tracking

FIELD LABEL ▲	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Awarded Date	Awarded_Date__c	Date			▾
Badge Level	Badge_Level__c	Picklist			▾
Badge Name	Badge_Name__c	Picklist			▾
Badge Name	Name	Text(80)		✓	▾
Created By	CreatedById	Lookup(User)			
Last Modified By	LastModifiedById	Lookup(User)			
Owner	OwnerId	Lookup(User,Group)		✓	
User	User__c	Lookup(User)		✓	▾

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3) Standard Objects Used

- **User (Standard Object):** Participants and NGO Managers.

- **Reports & Dashboards (Standard):** For analytics.

4) Define Relationships

Open **Schema Builder** (Setup → Quick Find → Schema Builder).

Relationships:

- **User ↔ Eco Activity:** Lookup (one user can log many activities).

Participant	Participant__c	Lookup(User)	✓	▾

- **Eco Activity ↔ Impact Score:** Master-Detail (each activity contributes to a score record).

Eco Activity	Eco_Activity__c	Master-Detail(Eco Activity)	✓	▾

- **User ↔ Badge:** Lookup (user may earn multiple badges).
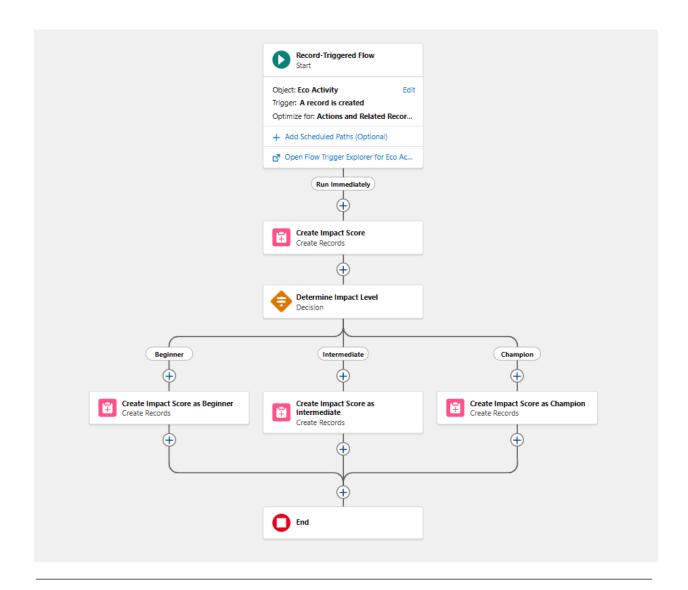
| User | User__c | Lookup(User) | ✓ | ▾ |

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).

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5) Flows

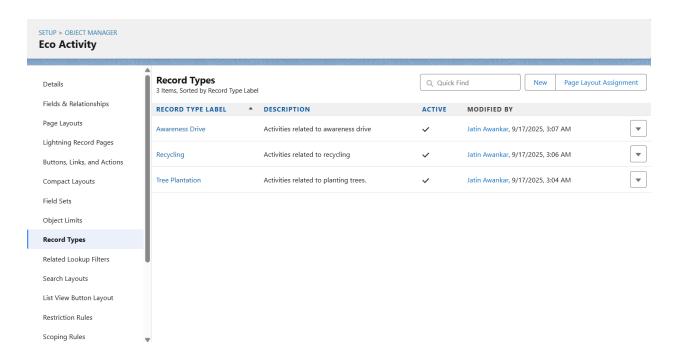**Flow to Automatically Create an Impact Score Record** when an Eco Activity is created.

- ❖ **Start: Record-Triggered Flow**

- ❖ **Create Impact Score >>> Determine Impact Level**

  - ➢ Beginner
  - ➢ Intermediate
  - ➢ Champion

- ❖ **End**

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6) Record Types (Optional but adds clarity)
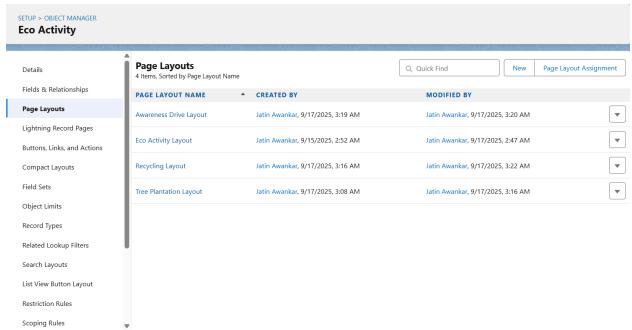
Create **Record Types** for Eco Activity:

- Tree Plantation

- Recycling

- Awareness Drive

Record Types
3 Items, Sorted by Record Type Label

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

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

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7) Page Layouts

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

Page Layouts
4 Items, Sorted by Page Layout Name

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

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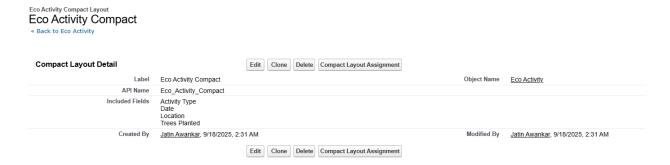- **Impact Score Layout:** Show total CO_2 saved, level.

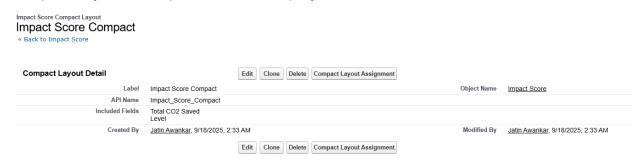- **Badge Layout:** Show badge name, awarded date, related user.

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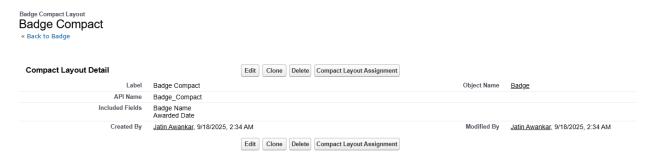
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8) Compact Layouts

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

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

Impact Score Compact Layout
Impact Score Compact
« Back to Impact Score

Compact Layout Detail		Edit Clone Delete Compact 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

Edit Clone Delete Compact Layout Assignment

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

Badge Compact Layout
Badge Compact
« Back to Badge

Compact Layout Detail		Edit Clone Delete Compact 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

Edit Clone Delete Compact Layout Assignment

Makes mobile & Lightning UI concise.

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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	✓
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

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10) Deliverables for Phase 3

1. **Custom Objects created** (Eco Activity, Impact Score, Badge).

2. **Fields added** (Activity details, CO_2 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.**