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GREEN TRAILBLAZER

USE-CASE SCENARIO

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Actors:

- Guest
- Registered User
- Admin

Use case included:

- Sign Up
- Login
- Calculate Carbon Footprint
- Get Advice
- Get Information
- Update Account
- Goal Settings
- Track Progress
- Manage Users
- Review Reports
- Sign Out

1.USE CASE: SIGN UP

Actor:Guest

Goal: Create a new user account in the system.

Preconditions:

- The user is not logged in.
- The user does not already have an existing account.

Main Success Scenario (Basic Flow):

1. Guest selects the “Sign Up” option from the main page.
2. System displays the registration form.
3. Guest enters required information:
 - Full name
 - Email
 - Password
 - Occupation

4. Guest submits the form.
5. System performs data validation (format, missing fields).
6. System checks if the email already exists in the database.
7. If unique, system creates a new User record.
8. System confirms successful registration.
9. System redirects the user to the Login page.

Alternate Flows:

- Missing Data:
System displays error → Guest corrects and resubmits.
- Email Already Used:
System shows “Email already exists” → Guest may try again or go to Login.

Postconditions:

- A new Registered User account is created.

2. USE CASE: LOGIN

Actor: Registered User / Admin

Goal: Authenticate and access system features.

Preconditions:

- The actor already has a registered account.

Main Success Scenario:

1. Actor selects “Login.”
2. System displays fields for email/ID and password.
3. Actor enters credentials.
4. System validates input formats.
5. System checks authentication in the database.
6. System successfully authenticates the user.
7. Actor is redirected to their respective dashboard (User or Admin).

Alternate Flows:

- Invalid Password:
System shows error → Actor retries.
- Account Does Not Exist:
System displays “User not found” → Actor may choose to Sign Up.

Postconditions:

- User/Admin is logged in with an active session.
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3.USE CASE: CALCULATE CARBON FOOTPRINT

Actor: Registered User / Guest

Goal: Calculate individual carbon emissions.

Preconditions:

- Actor has access to the Calculation page.
- Required input fields are visible.

Main Success Scenario:

1. Actor opens the Calculate page.
2. System displays the carbon footprint input form.
3. Actor enters usage data such as:
 - Transport usage
 - Electricity consumption
 - Water usage
 - Food consumption
4. Actor submits the form.
5. System validates all numeric and required fields.
6. System retrieves emission factors.
7. System calculates total CO₂ emissions:
 - Applies factor-based formulas
 - Generates category breakdown
8. System displays the Footprint Result.
9. If actor is a Registered User, result is stored in history.

Alternate Flows:

- Missing Data:
System highlights missing fields → Actor corrects and submits again.
- Invalid Numeric Input:
System shows validation errors → Actor corrects.

Postconditions:

- The carbon footprint score is calculated and displayed.

4. USE CASE: GET ADVICE

Actor: Registered User / Guest

Goal: Provide personalized emissions-reduction recommendations.

Preconditions:

- Actor must have a valid carbon footprint result calculated.

Main Success Scenario:

1. Actor clicks “Get Advice.”
2. System analyzes the total emission and category breakdown.
3. System generates tailored advice (e.g., energy-saving, travel alternatives).
4. System displays personalized recommendations.

Postconditions:

- Actor receives actionable suggestions on lowering emissions.

5. USE CASE: GET INFORMATION

Actor: Guest / Registered User

Goal: Access general educational content about carbon emissions.

Preconditions: Actor is on the information or awareness page.

Main Success Scenario:

1. Actor selects “Get Information.”
2. System loads educational content:
 - What is carbon footprint?
 - Why does it matter?
 - Global impact
3. Actor reviews the provided information.

Postconditions:

- Actor successfully reads general informational content.

6.USE CASE: UPDATE ACCOUNT

Actor: Registered User

Goal: Modify profile details.

Preconditions:

- User is authenticated.
- User profile exists.

Main Success Scenario:

1. User opens “Update Account” page.
2. System loads current user profile data.
3. User edits fields (email, name, password, occupation).
4. System validates the updated data.
5. System saves changes to the database.
6. System confirms update success.

Alternate Flow:

- Invalid Data Format:
System shows error → User corrects data.

Postconditions:

- Updated profile information is stored.

7. USE CASE: GOAL SETTINGS

Actor: Registered User

Goal: Set a carbon reduction goal.

Preconditions: User is logged in.

Main Success Scenario:

1. User selects “Goal Settings.”
2. System displays goal input field (e.g., target CO₂ value).
3. User enters a measurable goal.
4. System validates and saves the goal.
5. System confirms successful goal update.

Postconditions:

- User goal is stored for progress tracking.

8. USE CASE: TRACK PROGRESS

Actor: Registered User

Goal: Monitor progress toward emission-reduction goals.

Preconditions:

- User has at least one previously calculated footprint result.
- User has defined a goal.

Main Success Scenario:

1. User selects “Track Progress.”
2. System retrieves:
 - User’s emission history
 - Current goal
3. System compares historical data with the goal.
4. System displays progress (charts, numbers, indicators).
5. User reviews performance and trends.

Postconditions:

- User observes their carbon reduction progress.

9. USE CASE: MANAGE USERS

Actor: Admin

Goal: Administer user accounts.

Preconditions:

- Admin is authenticated.

Main Success Scenario:

1. Admin selects “Manage Users.”
2. System displays user list.
3. Admin chooses a user.
4. Admin performs an action:
 - Deactivate account
 - Delete account
 - View details
5. System executes the operation and updates the database.

Postconditions:

- User accounts are successfully managed.

10. USE CASE: REVIEW REPORTS

Actor: Admin

Goal: View and analyze user calculation reports.

Preconditions:

- Admin is logged in.
- System has stored footprint results

Main Success Scenario:

1. Admin selects “Review Reports.”
2. System fetches all user reports.
3. System displays them in list or dashboard format.
4. Admin reviews individual reports or trends.
5. Admin may export or filter data (if supported).

Postconditions:

- Admin successfully reviews reports.

11. USE CASE: SIGN OUT

Actor: Registered User / Guest

Goal: End current session.

Main Success Scenario:

1. Actor selects “Sign Out.”
2. System terminates the active session.
3. System redirects the actor to the home page.

Postconditions:

- Session closed.
- Actor returns to guest mode.

