



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

## Experiment 1

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Semester: 6

Date of Performance: 16/01/2026

Subject Name: Full Stack II

Subject Code: 23CSH-382

- **Aim:**

The aim of this experiment is to design and develop a React-based dashboard application to display and analyse carbon footprint data for different user activities using modern JavaScript array methods.

- **Objectives:**

The main objectives of this experiment are as follows:

1. To understand the basic structure of a React application created using Vite.
2. To implement reusable React components for building a dashboard interface.
3. To use JavaScript array methods such as `map()`, `filter()`, and `reduce()` for data processing.
4. To display total carbon footprint and categorized activity data dynamically.
5. To improve understanding of frontend data rendering using React JSX.

- **Implementation:**

The following general steps were followed to implement the EcoTrack dashboard application:

1. A new React project was created using Vite for faster development and optimized build setup.
2. A reusable Header component was created to display the application title "EcoTrack".
3. A data file named `logs.js` was created to store activity data in the form of a JavaScript object/JSON structure, including activity ID, activity name, and carbon usage in kilograms.
4. A `pages` folder was created to organize different page-level components.
5. A `dashboard.jsx` file was created to display overall carbon footprint details.

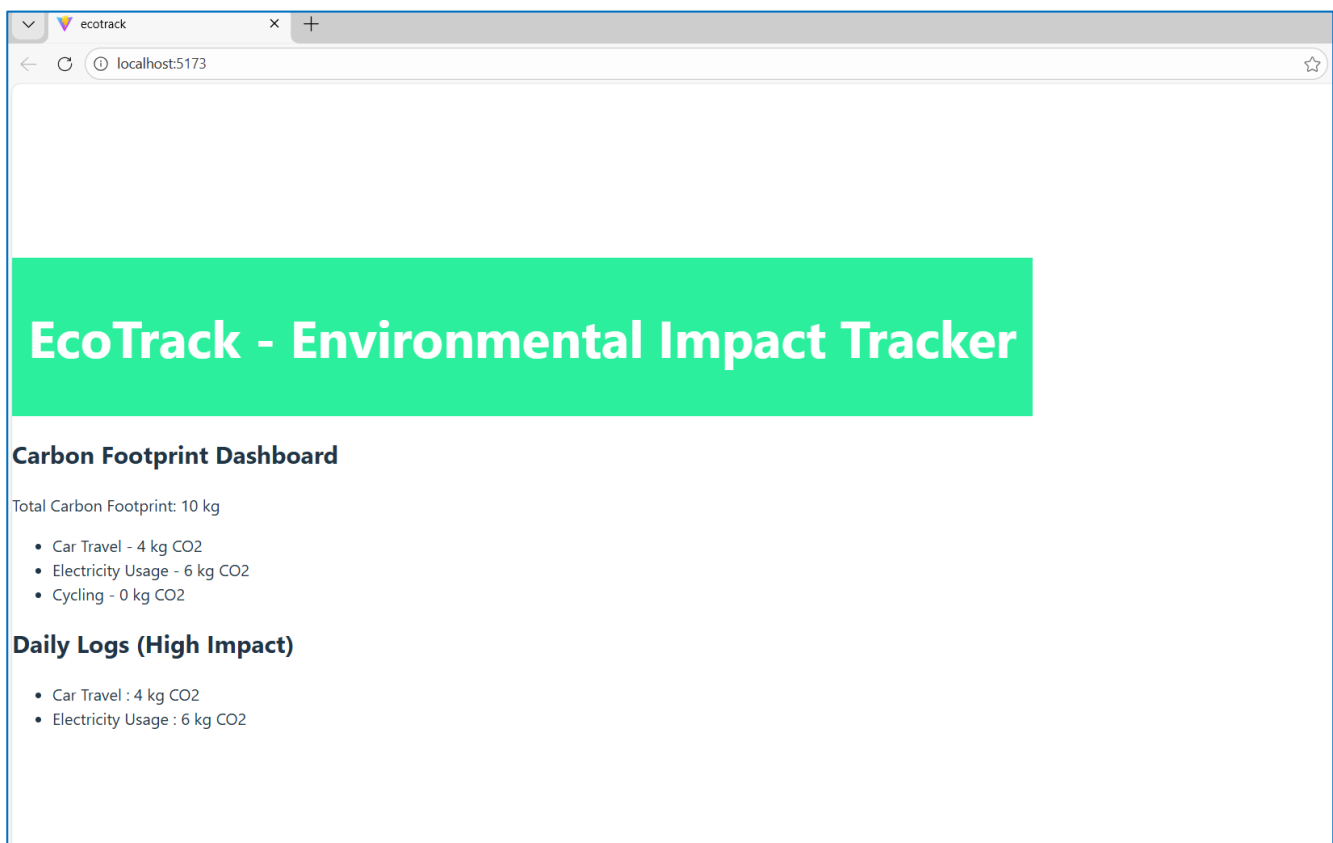


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6. The `reduce()` method was used in `dashboard.jsx` to calculate the total carbon footprint from all activity logs.
7. The `map()` method was used to dynamically display all carbon activity logs on the dashboard.
8. A `logs.jsx` file was created to display high carbon usage activities.
9. The `filter()` method was used to select activities with carbon usage greater than or equal to 4 kg.
10. The filtered results were displayed using the `map()` method under the “High Carbon Activities” section.
11. All components were connected properly to render the complete dashboard interface.

- **Output:**





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- **Results:**

The EcoTrack dashboard was successfully implemented using React and Vite. The total carbon footprint was calculated correctly using the `reduce()` method. Activity logs and high carbon activities were displayed dynamically using `map()` and `filter()`. The results verified proper data processing and rendering in the React application.

- **Learning Outcomes:**

After completing this experiment, I have learnt to:

1. Use React with Vite to create a structured frontend application.
2. Apply the `map()` function to dynamically render lists of data in React.
3. Use the `filter()` function to display conditional data based on specific criteria.
4. Implement the `reduce()` function to calculate aggregate values from an array.
5. Organize React projects using components, pages, and data files effectively.
6. Build a real-world style dashboard interface for data visualization.