



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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Subject Name: Full Stack Development-II

UID: 23BCS10342

Section/Group: KRG 3A

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1.Aim:

To design and implement the foundational frontend architecture of the EcoTrack application using modern React practices, Vite tooling, and ES6+ JavaScript features.

2.Objective:

- To set up a React project using Vite with proper project structure
- To understand component-based architecture in React
- To apply ES6 array methods (map, filter, reduce) for data-driven UI rendering
- To separate concerns using components, pages, and data modules

3.Implementation/Code:

logs.js:

```
export const logs = [
  { id: 1, activity: "Car Travel", carbon: 4 },
  { id: 2, activity: "Electricity Usage", carbon: 6 },
  { id: 3, activity: "Cycling", carbon: 0 },
  { id: 4, activity: "Bus Travel", carbon: 2 },
  { id: 5, activity: "Train Travel", carbon: 1 },
  { id: 6, activity: "Flight (Domestic)", carbon: 15 },
  { id: 7, activity: "Cooking (LPG)", carbon: 3 },
  { id: 8, activity: "Air Conditioner Usage", carbon: 5 }
];
```

Dashboard.jsx:

```
import { logs } from "../data/logs";

const Dashboard = () => {
  const calculateTotalCarbon = logs.reduce((total, log) => total + log.carbon, 0);

  const highCarbonActivities = logs.filter(
    log => log.carbon > 4
  );
  return (
    <div>
      <h2>Dashboard</h2>
      <p>Total Carbon Footprint: {calculateTotalCarbon} Kg</p>

      <ul>
        {logs.map((log) => (
          <li key={log.id}>
            {log.activity}: {log.carbon} Kg
          </li>
        )))
      </ul>
      <h3>High Carbon Activities (> 4 Kg)</h3>
      <ul>
        {highCarbonActivities.map(log => (
          <li key={log.id}>
            {log.activity}: {log.carbon} Kg
          </li>
        )))
      </ul>
    </div>
  );
};

export default Dashboard;
```

Logs.jsx

```
import {logs} from "../data/logs";

const Logs = () => {
  const highImpactLogs = logs.filter((log) => log.carbon > 4);
```

```
const lowImpactLogs = logs.filter((log) => log.carbon <= 4);
return (
<div>
  <h2>High Carbon Activities (> 4Kg)</h2>
  <ul>
    {highImpactLogs.map((log) => (
      <li style={{color:"rgb(224, 31, 31)"}} key={log.id}>
        {log.activity} = {log.carbon} kg CO2
      </li>
    )))
  </ul>
  <h2>Low Carbon Activities (≤ 4Kg)</h2>
  <ul>
    {lowImpactLogs.map((log) => (
      <li style={{color:"#3a803cff"}} key={log.id}>
        {log.activity} = {log.carbon} kg CO2
      </li>
    )))
  </ul>
</div>
);
};

export default Logs;
```

4.Output:

EcoTrack - Experiment 1

Dashboard

Total Carbon Footprint: 36 kg CO₂

- Car Travel = 4 kg CO₂
- Electricity Usage = 6 kg CO₂
- Cycling = 0 kg CO₂
- Bus Travel = 2 kg CO₂
- Train Travel = 1 kg CO₂
- Flight (Domestic) = 15 kg CO₂
- Cooking (LPG) = 3 kg CO₂
- Air Conditioner Usage = 5 kg CO₂

High Carbon Activities (> 4Kg)

- Electricity Usage = 6 kg CO₂
- Flight (Domestic) = 15 kg CO₂
- Air Conditioner Usage = 5 kg CO₂

Low Carbon Activities (\leq 4Kg)

- Car Travel = 4 kg CO₂
- Cycling = 0 kg CO₂
- Bus Travel = 2 kg CO₂
- Train Travel = 1 kg CO₂
- Cooking (LPG) = 3 kg CO₂

5.Learning Outcome:

- Set up a modern React application using Vite and understand the advantages of fast build tools and optimized project scaffolding.
- Design applications using component-based architecture, enabling better code reusability, readability, and separation of concerns.
- Apply ES6 JavaScript features such as map(), filter(), and reduce() to process data and dynamically render UI components.
- Organize project structure effectively by separating data, components, and pages for scalable frontend development.
- Analyze and visualize data in a React application, demonstrating how state independent data modules can drive UI logic and presentation.