EV Battery Explorer Website

**1. Project Objective**

To design and implement a responsive static website using **HTML, CSS, and JavaScript** that educates users about various **types of batteries used in electric vehicles**, with interactive content, clean visuals, and a user-friendly experience.

**2. Technology Stack**

| **Feature** | **Technology** |
| --- | --- |
| **Structure** | **HTML5** |
| **Styling** | **CSS3 (Flexbox, Grid)** |
| **Interactivity** | **JavaScript (ES6+)** |
| **Icons & Fonts** | **Font Awesome, Google Fonts** |
| **Layout** | **Mobile-first, responsive design** |
| **Data Handling** | **JavaScript objects (battery list)** |

**3.Website Structure & Components**

**A. index.html**

* **Header**
  + **Website title, intro paragraph**
* **Navigation (optional)**
  + **Links for Home, About, Contact**
* **Battery Types Section**
  + **Cards or panels for each battery type (loaded via JS)**
  + **Toggle description visibility on click**
* **Footer**
  + **Copyright**

**B. style.css**

* **Layout using Flexbox or CSS Grid**
* **Responsive styling for mobile/tablet/desktop**
* **Color themes for different battery types**
* **Card hover and active toggle styles**
* **Smooth animations (transition/transform)**

**C. script.js**

* **Battery data stored in a JSON-like JavaScript object**
* **Dynamically render battery info cards**
* **Toggle effect to show/hide full descriptions**
* **(Optional) Add filtering/sorting logic**

**4. Battery Types to Include**

| **Battery Type** | **Features** |
| --- | --- |
| **Lithium-Ion** | **High energy density, long cycle life** |
| **Solid-State** | **Emerging tech, safer, higher density** |
| **Nickel-Metal Hydride** | **Used in hybrids, durable** |
| **Lead-Acid** | **Low cost, bulky, older tech** |
| **Ultracapacitors** | **Very high power density, low energy** |
| **Lithium Iron Phosphate** | **Thermal stability, safe chemistry** |

**5. CSS Design Details**

* **Layout: Grid for desktop, stacked for mobile**
* **Colors: Clean palette with accent colors per battery**
* **Typography: Google Fonts for clarity and elegance**
* **Card Design: Elevation with shadows, border-radius, padding**
* **Responsive: Media queries for mobile/tablet**

**6.Javascript Features**

| **Feature** | **Description** |
| --- | --- |
| **Data Rendering** | **Render battery cards from JS object** |
| **Description Toggle** | **Show/hide full battery details on click** |
| **DOM Manipulation** | **Append elements dynamically to the page** |
| **Event Handling** | **Handle click events for toggle and interaction** |
| **(Optional) Search** | **Filter batteries by name** |
| **(Optional) Sort** | **Sort by alphabetical or popularity tag** |

**7. Deliverables**

* **Fully static, interactive website**
* **Responsively styled and user-friendly layout**
* **EV battery data rendered dynamically**
* **Interactivity via JavaScript (toggle descriptions)**
* **Well-commented and modular code**
* **README.md with usage, features, and customization guide**

**8. Future Enhancements (Optional)**

* **Replace local JS with data fetched from a real API or JSON file**
* **Add educational videos or diagrams**
* **Theme toggle (dark/light)**
* **Integrate infographic for battery comparison**
* **Host on GitHub Pages**