Step-by-Step Guide for Building a Cart Management System

1. Define Your Goal

Understand the core functionalities of the application:

- Add a product to the cart.
- Remove a product from the cart.
- Calculate the total price dynamically.
- Render the cart on the webpage.

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2. Plan the Structure

Break the application into smaller components:

1. **Data Storage**: Maintain a cart data structure (e.g., an array to store products).
2. **Methods**: Define functions for adding, removing, calculating, and rendering cart items.
3. **Event Handling**: Handle user interactions like form submissions and button clicks.

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3. Start Writing Code

Begin with the basics and build incrementally:

A. Set Up a Cart Object

Create a JavaScript object (`cart`) to manage the cart's state and behavior:

- Properties: `items` to store products.
- Methods:
  - `addProduct()`
  - `removeProduct()`
  - `calculateTotal()`
  - `renderCart()`

B. Implement Core Methods

Write the methods in a modular way:

- `addProduct`: Check if the product exists, then add it.
- `removeProduct`: Filter out the product by its ID.
- `calculateTotal`: Use `.reduce()` to sum up prices.

- `renderCart`: Dynamically update the DOM to display cart items and the total price.

C. Attach Event Listeners

Handle the interactions:

- **Form Submission**: Use `addEventListener` on the form to call `addProduct` and re-render the cart.
- **Remove Buttons**: Dynamically generate buttons for removing products and attach `onclick` handlers.

D. Test and Debug

- Test each method individually in the browser console.
- Validate inputs for edge cases (e.g., negative prices, empty names).

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4. Order of Implementation

Follow this sequence:

Initialize the Cart Object:

```
const cart = { items: [] };
```

1.
2. **Add Core Methods to the Cart**:
   - `addProduct()`
   - `removeProduct()`
   - `calculateTotal()`
   - `renderCart()`
3. **Create Event Handlers**:
   - Write `addProduct` and attach it to the form's `submit` event.
   - Write `removeProduct` and dynamically assign it to buttons.
4. **DOM Manipulation**:
   - Use `document.createElement` and `appendChild` to render products.
   - Update the total price dynamically.
5. **Test the Flow**:
   - Add products.
   - Remove products.

    - Ensure total updates correctly.

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5. Add Features Incrementally

Once the basics work, enhance the application:

- **Unique IDs**: Generate unique IDs for each product (e.g., using `Date.now()`).
- **Validation**: Ensure the product name is not empty and price is positive.
- **Styling**: Apply CSS to improve UI.

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6. Checklist for Completion

- Products are added to the cart correctly.
- Products can be removed individually.
- The total price updates accurately.
- The cart renders correctly on every update.
- User input is validated.

By following this roadmap, you will systematically build the Cart Management System from scratch with clarity and focus.