3 System Design Expanded

System design transforms the gathered requirements into a technical blueprint.  
  
Overview of Design:  
The design process began by mapping out the overall structure of the application. We used Figma to create wireframes for each major page: homepage, book listings, book detail modal, and shopping cart.  
  
HTML Structure:  
- Used semantic tags: <header>, <nav>, <section>, <article>, <footer>.  
- Separate HTML files: index.html, books.html, cart.html.  
  
CSS Styling:  
- Adopted a mobile-first responsive design strategy.  
- Used Flexbox and Grid for layout alignment.  
- Applied consistent design elements: buttons, fonts, color palette.  
  
Reusable Components:  
- Book card layout repeated using JavaScript.  
- Reusable CSS classes for buttons, headers, and containers.  
  
JavaScript Architecture:  
- Data: Array of book objects.  
- Functions: Render books, search books, add to cart, update cart display.  
- LocalStorage used for preserving cart state between sessions.  
  
Design Documentation:  
- A design specification document outlined all class names and layout rules.  
- Defined a color scheme and font family to ensure visual consistency.  
  
Page Flow:  
1. Homepage – Introduction to the bookstore.  
2. Book Listings – Grid of all available books.  
3. Book Details – A modal window for more details.  
4. Cart – Shows selected books and allows removal.  
  
Responsive Design Testing:  
- Used Chrome DevTools to simulate devices.  
- Ensured touch-friendly navigation for mobile.  
  
Design Decisions:  
- Minimalist interface to focus on books.  
- Cards for each book with hover effects.  
- Sticky navbar for quick access.  
  
Challenges Faced:  
- Designing a clean UI while preserving performance.  
- Balancing image quality and loading speed.  
  
The system design phase helped us avoid major rework during implementation. It served as a reference for coding, making development smoother and faster.  
  
By the end of the design phase, we had a clear and detailed plan for every page and feature in the application.  
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