Reviews Carousel - Technical Documentation

Project Overview

The Reviews Carousel is a responsive web component that displays reviews in an interactive, navigable format. The carousel adapts its layout and behavior based on screen size, providing optimal user experience across desktop, tablet, and mobile devices.

Project Structure

```
None
project-root/
├── index.html                 # Main HTML structure
├── css/
│   └── styles.css             # All styling and responsive design
├── js/
│   ├── script.js              # Main carousel functionality
│   └── utils.js               # Utility functions
├── data/
│   └── reviews_sample.json    # Review data source
└── assets/
    ├── star.svg               # Star rating icon
    ├── previous_arrow.svg     # Navigation arrow (left)
    └── next_arrow.svg         # Navigation arrow (right)
```

Architecture Overview

Core Components

1. **HTML Structure** (`index.html`)
2. **Styling System** (`css/styles.css`)
3. **JavaScript Controller** (`js/script.js`)
4. **Data Source** (`data/reviews_sample.json`)
5. **Utility Functions** (`js/utils.js`)

File Details & Implementation

1. HTML Structure (`index.html`)

Purpose: Provides the semantic structure and layout foundation

Key Elements:

- `<section class="reviews-section">` - Main container
- `<div class="reviews-wrapper">` - Overflow container for carousel effect
- `<div class="reviews-container">` - Dynamic content container (populated by JS)
- `<div class="carousel-navigation">` - Navigation controls and dots

External Dependencies:

- Google Fonts: Poppins (800 weight)
- Online Web Fonts: Hartwell-Regular
- Module-type JavaScript loading

2. CSS Styling System (`css/styles.css`)

Responsive Breakpoints:

- **Desktop (>1024px)**: 4 cards per view, horizontal sliding
- **Tablet (768px-1024px)**: 2 cards per view, horizontal sliding
- **Mobile (≤768px)**: 2 cards per view, vertical stacking with vertical sliding

Key CSS Features:

- CSS Custom Properties for consistent theming
- Flexible card sizing using `calc()` functions
- Smooth transitions with `transform` animations
- Responsive font scaling through root font-size adjustments

3. JavaScript Controller (`js/script.js`)

Architecture: Event-driven, modular design with separation of concerns

Core Variables

```javascript
JavaScript

let currentIndex = 0;        // Current carousel position

let reviews = [];            // Loaded review data
```

Key Functions

renderReviews()

- **Purpose**: Dynamically generates HTML for all review cards
- **Process**:
    1. Clears existing content
    2. Loops through reviews array
    3. Creates DOM elements for each review
    4. Assembles card structure (header + content)
    5. Calls `updateCarousel()` for positioning

getVisibleCount()

- **Purpose**: Determines cards per view based on screen width
- **Logic**:
    - ≤768px: 2 cards (mobile)
    - ≤1024px: 2 cards (tablet)
    - 1024px: 4 cards (desktop)

renderDots()

- **Purpose**: Creates pagination dots based on total pages needed
- **Calculation**: `Math.ceil(reviews.length / visibleCount)`

updateCarousel()

- **Purpose**: Handles carousel positioning and responsive behavior
- **Features**:
    - Index boundary checking
    - Responsive transform calculations
    - Mobile vertical vs desktop horizontal sliding
    - Automatic dot updates

Event Listeners

- **Navigation Buttons**: Click handlers for prev/next functionality
- **Window Resize**: Maintains responsiveness on viewport changes
- **DOM Content Loaded**: Initializes the entire carousel system

Data Loading

- **Method**: Fetch API with Promise chain
- **Error Handling**: Console logging for failed requests
- **Data Processing**: Direct assignment to reviews array

4. External Dependencies

Required Utility Functions (`js/utils.js`):

- `getAvatarLetter(name)`: Extracts first letter for avatar display
- `getShortenName(name)`: Formats names for display

Expected Data Structure (`reviews_sample.json`):

```json
[

  {

    "name": "John Doe",

    "rating": 5,

    "review": "Excellent service and care..."

  }

]
```

Custom Logic Implementation

Responsive Carousel Logic

Desktop/Tablet Behavior:

- Horizontal sliding using `translateX()`
- Container width-based calculations
- Fixed height with overflow hidden

Mobile Behavior:

- Vertical sliding using `translateY()`
- Container height-based calculations
- Column direction flex layout

Dynamic Card Generation

Each review card follows this structure:

```
review-card

├── review-header

│   ├── avatar (generated letter)

│   └── review-meta

│       ├── name (shortened)

│       └── rating (star + number)

└── review-text
```

Navigation System

Pagination Dots:

- Dynamically calculated based on `totalReviews / visibleCount`
- Active state management
- Visual feedback for current position

Arrow Navigation:

- Index increment/decrement with boundary checking
- Smooth transitions via CSS transforms
- Responsive positioning calculations

Design Features

- **Layout Adaptation**: Flex direction changes for mobile
- **Content Density**: Reduced cards per view on smaller screens
- **Font Scaling**: Root font-size adjustments at breakpoints
- **Typography**: Hierarchical sizing with responsive scaling
- **Accessibility**: Semantic HTML structure and alt attributes

- **Cards**: Rounded corners, subtle shadows, consistent padding
- **Color Scheme**: Professional blue and gray palette
- **Smooth Animations**: 0.3s ease-in-out transitions
- **Touch-Friendly**: Appropriately sized navigation elements

Integration Points

Data Integration

- **JSON Source**: Easy to replace with API endpoints
- **Dynamic Loading**: Supports real-time data updates
- **Error Handling**: Graceful degradation for data loading issues

Responsive Behavior Summary

Screen Size	Cards Visible	Navigation	Layout Direction
Desktop (>1024px)	4	Horizontal	Row
Tablet (768-1024px)	2	Horizontal	Row
Mobile (≤768px)	2	Vertical	Column