Portfolio Developer Documentation

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Course: Interactive Media Design

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1. Project Overview

Goals

My portfolio site aims to:

Showcase my design and development skills through a visually compelling, interactive experience

Demonstrate proficiency in modern web technologies including HTML5, CSS3, JavaScript, PHP, MySQL, and GSAP

Attract potential employers and clients by highlighting my best work and technical capabilities

Serve as a living document of my growth as a developer throughout the program

Objectives

Feature 4-6 completed projects with detailed case studies

Implement smooth, engaging animations using GSAP to enhance user experience

Build a fully functional contact system with database integration

Create a responsive, mobile-first design that works seamlessly across all devices

Demonstrate clean, maintainable code with proper documentation

Achieve excellent performance metrics (90+ Lighthouse scores)

2. Technical Documentation

2.1 Tech Stack

Frontend:

HTML5 (semantic markup)

CSS3 with SASS/SCSS (modular styling)

JavaScript (ES6+)

GSAP (GreenSock Animation Platform) for advanced animations

Backend:

PHP 8.x for server-side logic

MySQL for database management

Development Tools:

Git/GitHub for version control

VS Code as primary IDE

Browser DevTools for debugging

Responsive design testing tools

Hosting:

[To be determined - likely shared hosting with PHP/MySQL support]

2.2 System Architecture

Static Components:

Home/Hero Section: Eye-catching landing area with animated introduction

About Page: Personal bio, skills breakdown, downloadable resume

Navigation: Fixed/sticky nav with smooth scroll functionality

Dynamic Components (PHP/MySQL):

Projects Gallery: Database-driven project showcase

Admin can add/edit/delete projects via backend

Each project includes: title, description, technologies used, images, live link, GitHub link

Contact Form: User submissions stored in database

Fields: Name, Email, Subject, Message, Timestamp

PHP validation and sanitization

Optional email notification to admin

Optional Blog Section: CMS-style content management for posts/updates

3. Sitemap

Home (/)
├── Hero Section (animated introduction)
├── Featured Projects (preview)
└── Call-to-Action

About (/about)
├── Personal Introduction
├── Skills & Technologies
├── Education & Experience
└── Resume Download

Projects (/projects)
├── Project Grid
└── Individual Project Details

Contact (/contact)
├── Contact Form (PHP/MySQL)
├── Social Media Links
└── Location/Availability Info

Blog (/blog)

├── Blog Posts List

└── Individual Post View

4. ERD Diagram

Check the images folder, where i have my ERD diagram for my portfolio website.

5. Page Structure Decision

Approach: Hybrid Multi-Page Site with Smooth Scroll Features

I've chosen a multi-page structure for better SEO, load times, and user navigation clarity:

Why Multi-Page:

Each page can be individually optimized for specific keywords

Faster initial page load (not loading all content at once)

Clearer navigation structure for users

Easier to maintain and scale

Smooth Scroll Integration:

Within pages (e.g., Home page sections)

Navigation transitions between pages with fade effects

Anchor links on longer pages (About, Projects)

Page Breakdown:

Home: Hero section + Featured projects preview + About snippet

About: Full biography with animated skill bars and timeline

Projects: Grid layout with filtering, each card links to detail view

Project Detail: Individual page for each project (PHP template)

Contact: Form and information page

6. GreenSock (GSAP) Enhancements

Planned Animations

Homepage:

Hero Text Animation: Staggered fade-in and slide-up for heading and subheading

Logo/Icon Animation: Morphing SVG animation on load

Scroll Indicator: Animated bouncing arrow/icon

Navigation:

Smooth Scroll: Custom scrollTo plugin for anchor links

Nav Background: Fade in background on scroll past hero

About Page:

Skill Bars: Animated progress bars triggered on scroll into view

Timeline Animations: Fade and slide items as user scrolls

Projects Page:

Grid Items: Staggered fade-in animation on load

Hover Effects: Scale and shadow transitions (enhanced with GSAP)

Image Parallax: Background images move at different speeds during scroll

General:

Page Transitions: Fade out/in when navigating between pages

Scroll Reveal: Elements fade and slide into view as user scrolls (ScrollTrigger plugin)

GSAP Plugins Used

ScrollTrigger: For scroll-based animations

ScrollToPlugin: For smooth scroll navigation

Core GSAP: For timeline-based animations

7. Additional Interactivity

Planned Interactive Features

Project Cards:

Hover state: Lift effect (translateY) with shadow increase

Overlay appears showing "View Project" button

Quick-view lightbox for image galleries (using a lightweight library like GLightbox)

Contact Form:

Real-time validation feedback (JavaScript)

Success/error messages with fade animations

AJAX submission (optional: submit without page reload)

Image Galleries:

Lightbox/modal for project screenshots

Thumbnail navigation within lightbox

Keyboard controls (arrows, escape)

Filter System (Projects Page):

Filter projects by technology (HTML/CSS/JavaScript/PHP)

Animated transitions when filtering (GSAP stagger)

Active filter button states

Responsive Navigation:

Mobile hamburger menu with smooth open/close animation

Full-screen overlay menu on mobile with staggered link animations

Implementation Resources

Lightbox:

GLightbox: https://github.com/biati-digital/glightbox

Lightweight, responsive, customizable

Implementation via CDN or npm

Form Validation:

Custom JavaScript validation following W3C standards

Reference: MDN Web Docs - Client-side form validation

Filter System:

Pure JavaScript filter logic

Tutorial reference: JavaScript Array filter() method

GSAP for smooth transitions between filter states

Responsive Menu:

Custom JavaScript toggle functionality

GSAP timeline for staggered animation

Tutorial: Modern responsive navigation patterns

Development Timeline

Week 7: Planning, Developer Doc, initial GitHub setup

Week 8-9: HTML structure, SASS setup, responsive layout

Week 10: Database design and PHP backend implementation

Week 11: GSAP animations and interactivity

Week 12: Testing, refinement, and deployment

Week 13: Final presentation preparation