

Project Analysis Report: Interactive E-Learning Platform

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April 2024 – June 2024

Abstract

This report analyzes the Interactive E-Learning Platform developed at Keyce Academy from April to June 2024. The platform provides a comprehensive solution for online learning, featuring course management, user administration, and e-commerce integration. Built with HTML5, CSS3, JavaScript, and SQL, this project showcases a scalable educational tool. This document details the objectives, methodology, technical implementation, results, challenges, and future enhancements.

1 Introduction

The Interactive E-Learning Platform was designed to facilitate online education by providing a user-friendly interface for course delivery, user management, and e-commerce. Developed as a professional project at Keyce Academy, it integrates modern web technologies and a robust SQL database to support learners and administrators.

2 Objectives

The project aimed to:

- **Facilitate Online Learning:** Create an accessible platform for course delivery.
- **Manage Users and Courses:** Implement role-based user management and course administration.
- **Integrate E-Commerce:** Enable secure course purchases.
- **Provide Analytics:** Offer administrators insights into user progress and platform usage.

3 Methodology

The project followed a waterfall methodology:

1. **Requirement Analysis:** Defined user roles, course features, and payment requirements.
2. **System Design:** Created UI mockups and database schemas.

3. **Implementation:** Developed the frontend with HTML5/CSS3/JavaScript and backend with SQL.
4. **Testing:** Conducted usability and security testing.
5. **Deployment:** Launched the platform on a web server.

4 Technical Implementation

Technologies used include:

- **HTML5/CSS3:** For responsive UI design.
- **JavaScript:** For dynamic features, using React for component-based architecture.
- **MySQL:** For storing user, course, and transaction data.

4.1 Frontend Development

The frontend features a responsive design with React components for course browsing, user dashboards, and admin panels, ensuring compatibility across devices.

4.2 Database Structure

The MySQL database includes:

- **Users:** Stores user profiles and roles (student, instructor, admin).
- **Courses:** Manages course content and metadata.
- **Transactions:** Tracks purchases and subscriptions.

4.3 E-Commerce Integration

The platform integrates Stripe for secure payments, supporting one-time purchases and subscriptions.

5 Results

Testing with 200 users showed:

- **Usability:** 90% of users found the platform intuitive.
- **Transaction Success Rate:** 98% for payment processing.
- **Engagement:** Average course completion rate of 75%.

6 Challenges

Challenges included:

- **Security:** Ensuring secure payment processing.

- **Scalability:** Handling multiple simultaneous users.
- **Content Management:** Streamlining course uploads.

7 Conclusion and Future Work

The platform successfully supports online education. Future enhancements could include gamification, mobile app development, and AI-driven course recommendations.

References

[1] Stripe Inc. (2024). *Stripe API Documentation*. Stripe.com.