Web Enabled Database Tutorial

Integrated Information Technology
Molinaroli College of Engineering and Computing
UNIVERSITY OF SOUTH CAROLINA

ITEC 564 Capstone Project Fall 2025

Project Focus: Website Development, Database Integration, Human-Computer Interaction

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Project Liaison: Dr. John Gerdes

UNIVERSITY OF South Carolina

PROBLEM AND MOTIVATION

Jufura Media Unlimited(1): The team was initially assigned to the *Jufura Unlimited Media (JMU)* project with Dr. Owens, tasked with developing an LMS intended to educate the youth via music. After being unable to reach an agreement, both parties mutually decided to terminate the project.

MySQL PHP Tutorial Website(2): Dr. Gerdes develop a PHP tutorial website handling both front-end and back-end development. The goal of this project is to provide an interactive learning platform that demonstrates how to use PHP to create and update web forms, as well as generate graphs from user-inputted data. The final product will serve as an educational resource for students learning PHP-based web development.

MISSION AND PURPOSE

Mission
- Create an interactive web-based learning platform for PHP/MySQL
- Help students understand how front-end and back-end systems communicate
- Provide clear guidance supported by working code examples

Purpose
- Support students who struggle with backend programming by making concepts simple
- Strengthen practical coding skills that apply to real web development jobs
- Build a project that can be expanded or reused for future learning

PROJECT BENEFITS AND CRITICAL SUCCESS FACTORS

Project Benefits
- Hands-on PHP & MySQL practice
- Understand backend/frontend integration
- Supports self-paced learning

Critical Success Factors
- Clear, working code examples
- Functional database operations
- Data visualization
- Easy-to-use interface

RISKS

- Code errors or bugs breaking tutorials
- Database connection issues or misconfigurations
- Students may find some concepts too advanced
- Time constraints affecting full implementation

VALUES, ETHICS AND SOCIAL RESPONSIBILITY

Values: This project promotes accessibility, collaboration, and continuous learning by providing students with an open and practical platform to build PHP skills.
Ethics: All instructional materials are original and transparent, upholding academic integrity and responsible coding practices. User data in demonstrations is handled securely and anonymized to protect privacy.
Social Responsibility: The tutorial site supports digital literacy and equal access to education, empowering students to develop real-world technical skills that contribute positively to the tech community

CLIENT NEEDS AND REQUIREMENTS

- Interactive, user-friendly web interface for tutorials
- Functional database operations with MYSQL (CRUD)
- Sequential lessons with navigation links
- Input forms to add/update database data
- Display database queries in tables
- Data visualization: dynamic Pie, Column, and Spider(Radar) charts
- Apply CSS styling to forms(one plain, one styled)
- Document usage of PHP graph API's

SPRINT DELIVERABLES

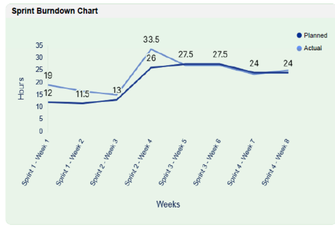
Sprint 1: ***Project Charter and Scope of Work***
- Frequent and lengthy meetings with Client
- JMU Project Phase I – Review
- Development of Project Charter
- Development of Scope of Work/Statement of Work

Sprint 2: ***Wireframes (Low-Fidelity Prototype)***
- Development of NEW Project Charter
- Development of NEW SoW
- Individual PHP MySQL (W3Schools)
- Design Wireframes: Sitemap;Landing/Index Page;Tutorial Pages (7).

Sprint 3: ***Alpha-Design Website and ERDs***
- Writing content for webpages
- Designing entity-relationship diagrams (ERDs)
- Development of Database
- Development of PHP Code: Landing Page;PHP MySQL Tutorial Page; W3Schools Tutorial Pages;PHP Form - Data insertion Page.

Sprint 4: ***Functional Website***
- Development of CRUD Queries
- Development of PHP Code…PHP Form - Data updating Page; Displaying Returned Queries Page; Data Visualization Page. CSS Development

PROJECT (SPRINT) HOURS



Planned Sprint Hours = 165 | Actual Sprint Hours = 186
Hours Reflected include only Phases III and IV: Execution and Monitor/Control Overview Sprints 1-4

SUPPORTED CURRICULUM COURSES

- ITEC 265 Introduction to Databases
- ITEC 362 Introduction to Web Systems
- ITEC 370 Database Systems in Info Tech
- ITEC 444 Intro to Human-Computer Interaction
- ITEC 447 Management of Information Technology
- ITEC 560 Project Management Methods
- ITEC 562 Advanced Web Support Systems

TECHNOLOGIES USED

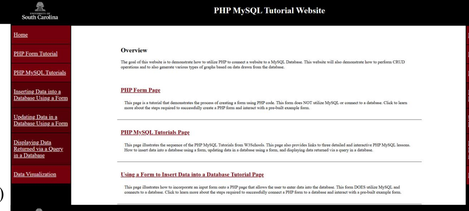
- Github, XAMPP, Apache, MySQL, PHP, HTML, CSS, JavaScript Visual Studio, Figma, Smartsheets

PROJECT RESULTS

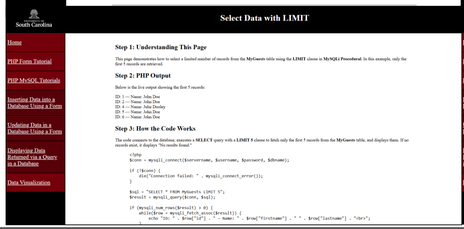
Fully functional tutorial website intended to teach students how to successfully utilize MySQL with PHP.

Figure 1.0: Index/Landing page
Figure 1.1: W3Schools Tutorial page
Figure 1.2: PHP Form Tutorial page
Figure 1.3: Displayed Returned Data Tutorial page

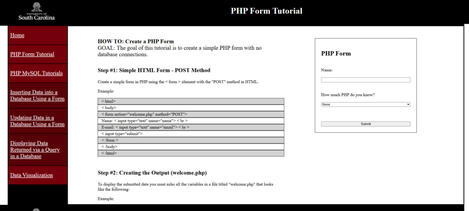
(Figure 1.0)



(Figure 1.1)



(Figure 1.2)



(Figure 1.3)