**Database Development and Class Registration**

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To build the core enrollment features for the Online Course Enrollment system, I designed a set of PHP pages and database logic that allow users to enroll in available courses, be waitlisted when courses are full, cancel their enrollment, and view their current courses. These capabilities are implemented through four main pages: courses.php, enroll.php, cancel\_enrollment.php, and my\_courses.php.

The courses.php page allows a logged-in user to view all available courses by semester (Spring, Summer, or Fall). Each course is stored in a MySQL table with fields for course name, code, semester, and maximum enrollment capacity. I used a dropdown menu to filter courses by semester. The SQL query in this page ensures that users only see courses they are not already enrolled or waitlisted for, using a subquery that excludes course IDs from the enrollments table linked to the current user. This helps avoid duplicate enrollment attempts (Welling & Thomson, 2017).

Once a user selects a course, they are directed to enroll.php, which handles the enrollment logic. This file checks how many students are already enrolled in the selected course. If the number of enrolled students is below the course’s maxEnrollment, the user is added to the course with a status of enrolled. If the course is full, the user is added with a waitlisted status. This conditional logic is handled through SQL queries and a simple if-else structure in PHP. I also included a check to prevent duplicate entries if a user has already enrolled or is on the waitlist for that course.

To allow users to manage their enrollments, I created cancel\_enrollment.php, which enables users to drop a course they are enrolled in. Once a user cancels, the system checks for any waitlisted students in that course and promotes the earliest waitlisted student to enrolled status. This process uses SQL queries with ORDER BY created\_at ASC LIMIT 1 to promote the longest-waiting user. This helps automate course access in a fair, first-in-first-out manner, which is a common feature in enrollment systems (Sommerville, 2016).

The my\_courses.php page gives users a personalized dashboard showing all their enrolled and waitlisted courses. This page queries the enrollments table and joins it with the courses table to retrieve course details. It displays the data in separate sections for enrolled and waitlisted courses. For enrolled courses, users are given the option to cancel directly from the table, linking to cancel\_enrollment.php.

Altogether, these pages provide a complete and functional enrollment experience. The use of PHP and MySQL enabled dynamic interaction between user actions and database updates, while session handling and SQL filtering helped maintain data accuracy and user security (Duckett, 2011). These tools allowed me to build an intuitive and responsive enrollment system.

**Newly Added Database Tables**

**21 Test Users added to studentdb**

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**Courses Table Structure**

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**Courses Example Data**

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**Enrollments Table Structure**

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**Enrollments Example Data**

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**View Available Courses**

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**User Enrolled in Course – ‘My Courses’ Page**

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**User Waitlisted for Course**

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**User Canceled Course Enrollment**

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### Waitlisted User Added to Course Enrollment Automatically

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### Courses.php source code

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### Enroll.php Source Code

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### Cancel\_enrollment.php Source CodeA computer screen shot of a program code AI-generated content may be incorrect.

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### My\_courses.php Source Code

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### References

Duckett, J. (2011). HTML and CSS: Design and build websites. Wiley.  
Sommerville, I. (2016). Software engineering (10th ed.). Pearson.  
Welling, L., & Thomson, L. (2017). PHP and MySQL web development (5th ed.). Addison-Wesley Professional.