

Final Project: Course Management

The objective of this project is to design and develop a website dedicated to the comprehensive management of educational courses. In this project, you will encounter various challenges such as managing students, organizing different educational courses, and the related administrative aspects. The development of this website encompasses three primary components: the front-end, the back-end, and the database.

For the front-end, there are no specific limitations on the choice of technologies, meaning you can utilize any tools or frameworks you deem appropriate. For the back-end, it is recommended to use either Django or Flask frameworks. Regarding the database, choose between MySQL and MongoDB. The main focus of this project is on database management and addressing its associated challenges, so special attention should be paid to this aspect.

The project includes various sections like student registration and login, a student user panel, and an administrative section for entering grades and adding or removing different courses.

Further details are reviewed as follows:

Courses: The website offers a variety of educational courses. Each course is identified by a specific name, such as "Python Course." These courses comprise several subsections. For instance, the "Python Programming" course might include sections like "Python Basics," "Advanced Python," "Database," and "Final Project." The number and type of subsections can vary per course. Each subsection contains several exams, each with its specific name. For example, the "Python Basics" section may include exams titled "Conditions," "Loops," "Strings," "Lists," "Dictionaries," and "Functions." Additionally, each course has a start and end date, and students can only register until the course begins.

Registration and User Login: Visitors to the website can view different courses but need to create a user account to register for them. During registration, users must provide information such as first and last names, age, username, and password. This information can be modified as needed. For access to the user panel, users must enter their username and password. If the information is correct, they will be granted access to the user panel; otherwise, an appropriate error message will be displayed.

User Panel: As previously mentioned, each student must use their user panel to register for courses. This panel displays a list of courses the student has registered for. Clicking on a course triggers two possible scenarios: if the course has not yet ended, an error message stating "Course not yet completed" is displayed. However, if the course has concluded, the student can download the course transcript.

Transcript: Students can download the transcript of completed courses. Upon clicking a course, students are directed to a page with a form where they can select a specific subsection of the course or the option "entire course" for a complete transcript. After selection and clicking the download option, the transcript is available in PDF format. The downloaded transcript includes the course name, the student's first and last names, their total grades, and their percentage relative to the total. It also features a table with several columns: the first column contains a number that could be the exercise number, the second column the exercise name, the third column the total grade for that exercise, and the final column the student's grade for that exercise.

Admin Panel: The admin panel of the website offers extensive capabilities for managing courses and students. The website administrator can add new courses or remove existing ones through this panel. When adding a new course, considerations such as ensuring the end date is after the start date and both dates are after the current date are important to prevent potential errors. Furthermore, the administrator is responsible for entering students' grades for different courses. When a student registers for a course, their information is automatically added to the list of students for that specific course in the admin panel.

- **Important Notice:**

- **Project Importance:** A significant portion of your grade depends on this project.
- **Attention and Testing:** It's crucial to pay careful attention to the execution and thoroughly test all parts of the project.
- **GitHub Upload:** The project must be uploaded on GitHub.
- **README File:** Include a README file with your GitHub project.
- **Presentation Date:** Ensure to present the project on the pre-agreed date.
- **Project Report Submission:** Submit a detailed project report covering:
 - The objectives of the project.
 - Technologies used in the project.
 - Challenges encountered, especially those related to database management.
 - The structure of the database used in the project.