

Lab 2 (Assignment 1)

CPS 510

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Topic: E-Learning System

E-Learning in 2021

Our application for CPS 510 will be implementing an E-Learning System also known as a Learning Management System. We chose this idea because we are interested in e-learning and have become very accustomed to this throughout COVID. E-learning is the future of education, and we are excited to learn more about DBMS and use our learning to implement our own model that incorporates many learning models used today.

“The *Research Institute of America* found that eLearning **increases retention rates 25% to 60%** while retention rates of face-to-face training are very low in comparison: 8% to 10%. This is because with eLearning students have more control over the learning process as well as the opportunity to revisit the training as needed”.

(<https://www.shiftelearning.com/blog/bid/301248/15-facts-and-stats-that-reveal-the-power-of-elearning>)

Functions of our System

Function	Implementation
Users	Will contain first name, last name and User Type. User Types are Student, TA, Teacher
Student	Will contain students username, their enrollments, lectures, Assignment Submission, Course Details, Assignments, Material, Grading
TA	Courses TA is enrolled in, SectionIDs, UserID, Permission Type, Grading
Teacher	SectionID, UserID, Permission Type, Course offering, Course outline, Discussion Board for Assignments, Discussion board for Lectures,

	Course Term, Grading
Enroll	UserID, CourseID, Course Description, SectionType, Payment
Assignments	CourseID, Description, Deadline, Completion Status, Score/Grade, Evaluation Status
Course Offerings	Computer Science Category, Data science, business, Design, healthcare, economics
Goals and Objects / Pathways?	Benefits of Course, Specializations, Similar Courses, Future Pathways?? (Can possibly link all courses that are computers in one table if that's what specialization they want)
Tests and Quizzes?	Test Weight, CourseID, Deadline, Competition Status, Average (?), Score/Grade, Evaluation Status
Course	ProfessorID, SubjectID, CourseName, CourseDescription, CourseDetails
Grades	TestResult, TestTaken, AssignmentResult, AssignmentTaken
Prerequisite	Contains two course records. One in the role of a course and the other in the prerequisite of the course
Course Creator	UserID, SectionID

Our e-learning system has many functions that are interrelated but also serve different purposes in the DBMS. Our users will be Students, TA, and Teachers. Students will have usernames, access to specific assignments, submissions, course details, course material and grading. TA's will only have access to the courses they're enrolled in and only students who are a part of their sections. They will also only have access to assignments and grading pertaining to their section, not the course as a whole. Teachers will have access to a majority of things, such as SectionID, UserID, Permissions, Course offerings, Discussion board for assignments, Discussion board for lectures, Course term and grading. There will also be an enroll function for UserID, CourseID, SectionType and Payment. Assignments will have CourseID, description and deadlines.

We want to make this e-learning site similar to EDX or udemy. Our inspiration for choosing this application was specifically because we want to make a similar complex database which incorporates so many different functions but it is an important database for students. We want

our database system to contain many different courses by subject such as computer science, data science, economics and finance are just a few. As well as pathways such as Undergraduate level, graduate level, certificates and also just a series of courses for a deep understanding of a topic. Each of these courses will have students, TAs and professors and will function like a real course in a virtual environment. There will be assignments, quizzes, course material, discussions, lecture videos, grades, and these will be managed by either the prof or the TA depending on which section the professors and TA's are responsible for.