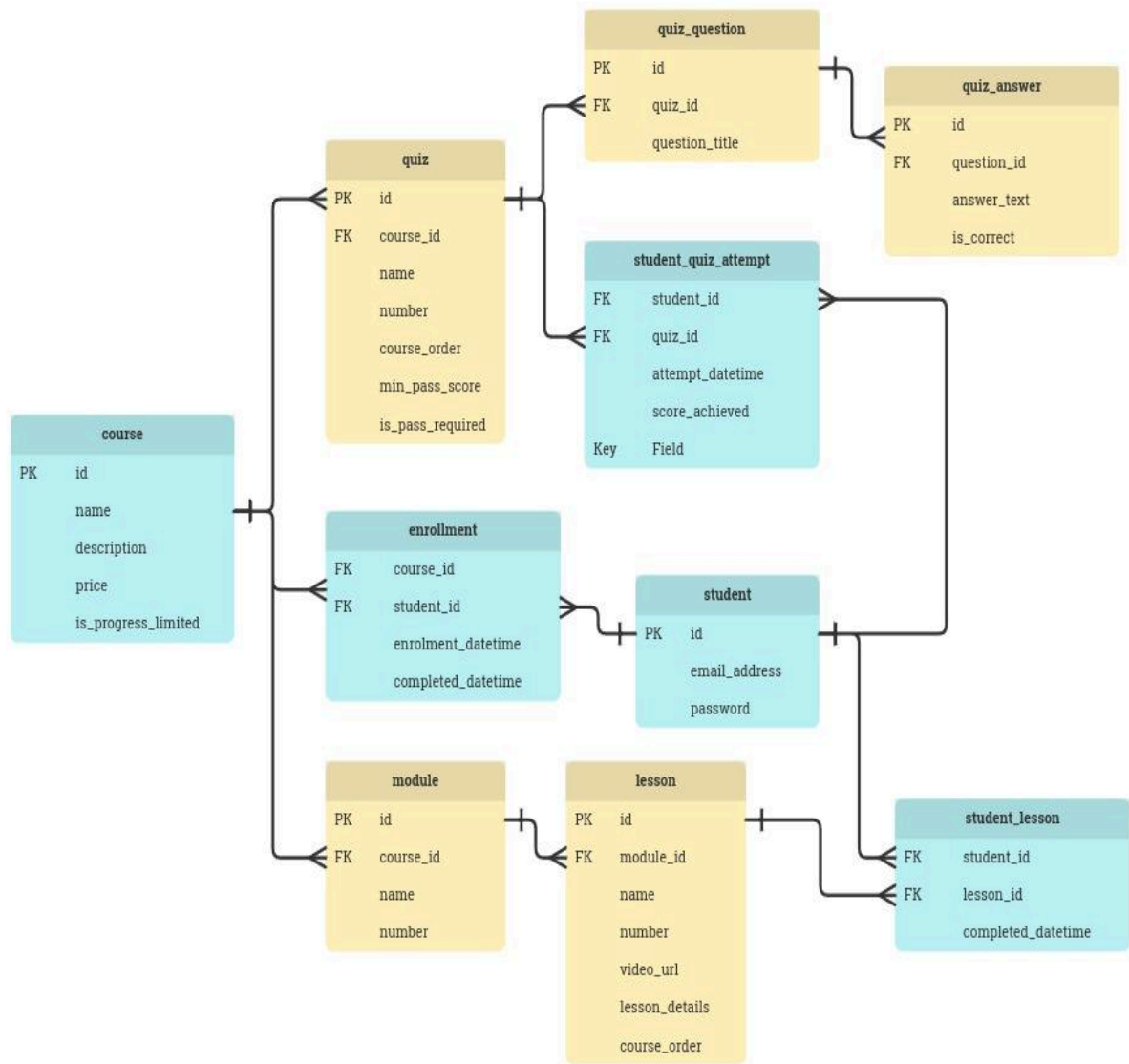


Database Design: Online Courses System(LMS)

An **Online Course System** database is a structured setup that stores, organizes, and manages all data needed for a Learning Management System (LMS) or online course platform. The database is crucial to supporting the LMS's functionality, including course delivery, student course progress and quiz scores and managing course materials.

Designed ER diagrams for database structure visualization and normalized tables to eliminate redundancy and improve efficiency.

ER-Diagram for database



Database Definition

This section explains each of these tables and fields.

1. course table

A course that teaches a specific topic and can be purchased by students.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row	1, 2, 3
name	The name of the course that is being offered	Introduction to web development
description	A description of the course, such as what it's about and what's included	This course will teach you the basics of web development HTML, CSS, Javascript etc.
price	The price of the course, in Rupees	5000 2000 6000
is_progress_limited	A boolean value to indicate if a student needs to complete one lesson before proceeding to the next lesson. False or 0 = not limited, student can watch lessons in any order True or 1 = limited, student must complete a lesson before watching the next lesson	False/0 True/1

2. module table

A smaller part of a course, which contains lessons.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row	1, 2, 3
course_id	A foreign key to the course table , to indicate the course that the module belongs to.	2, 6, 10
name	The name of the module so the students know what's inside	Introduction setup variables
number	The number of the module, which could be displayed on the course page	1,3,7

3. lesson table

An individual step within a course that may include a video and a description.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row	1, 2, 3
module_id	A foreign key to the module table to indicate the module that the lesson belongs to.	5, 18, 43
name	The name of the lesson	Set up your environment creating a variable

number	The number of the lesson within the course	1, 5, 12
video_url	A URL to the video that is shown for this lesson	https://www.yourserver.com/videos/video123.mp4
lesson_details	A large text value that describes the lesson	In this lesson you will..
course_order	A number to indicate where in the course that this lesson appears	1, 50, 85

4. student table

A person who can take courses and watch lessons.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row	1, 2, 3
email_address	The email address of the student, which can be used to login.	johnsmith@gmail.com
password	The student's password for logging in.	tx1E457FFwo0dxappQLwxIp0PKCjml7zJlmMWF2poMk=

5. enrolment table

A combination of students and courses to indicate the courses that students have enrolled in.

Column	Description	Sample Data
course_id	A foreign key to the course table to indicate the related course.	1, 2, 3
student_id	A foreign key to the student table to indicate the related student.	2, 6, 10
enrolment_datetime	The date and time that the student enrolled in the course	2023-08-09 16:21:05
completed_datetime	The date and time that the student completed the course. This would be NULL if the student has not completed the course yet.	2023-09-09 16:21:05

6. student_lesson table

A record of students and the lessons for the courses they have enrolled in, so we can track the completion percentage.

Column	Description	Sample Data
student_id	A foreign key to the student table, to indicate the student that has taken the lesson.	1, 2, 3
lesson_id	A foreign key to the lesson table, to	5, 18, 40
completed_datetime	The date and time that this lesson was completed. It would be NULL if the lesson is not completed	2023-08-09 16:21:05

7. quiz table

A record of a quiz within a course that a student can take to test their knowledge.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row	1, 2, 3
course_id	A foreign key to the course table, to indicate the course that a quiz is related to.	6, 13, 20
name	The name of the quiz	Variables Quiz Basic Java Quiz
number	The number of the quiz within a course	1, 3, 4
course_order	A number to indicate where in the course that this quiz appears	3, 10, 19
min_pass_score	The minimum score that a student needs to achieve on a quiz for them to pass	50, 80, 100
is_pass_required	A boolean value to indicate whether the student needs to pass the quiz to proceed.	False/0 True/1

8.student_quiz_attempt table

A record of attempts that a student has made on a course, including their score on the quiz.

Column	Description	Sample Data
student_id	A foreign key to the student table, to indicate which student attempted the quiz	1, 2, 3
quiz_id	A foreign key to the quiz table, to indicate which quiz the student has attempted.	6,19,24
attempt_datetime	The date and time the student attempted the quiz.	2023-08-09 16:21:05
score_achieved	The score that the student achieved.	0,30, 80

9. quiz_question table

An individual question on a quiz.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row.	1, 2, 3
quiz_id	A foreign key to the quiz table, to indicate which quiz the question is for.	1, 7, 18

question_title	The actual question being asked.	Which of the following is true?
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10. quiz_answer table

A record of answers that can be selected for a question.

Column	Description	Sample Data
id	Primary key, A unique identifier for the row.	1, 2, 3
question_id	A foreign key to the quiz_question table, to indicate which question this answer is for.	5, 20, 31
answer_text	The answer that is shown to the user	"A variable must be declared"
is_correct	A boolean value to indicate if this answer	False or 0 True or 1