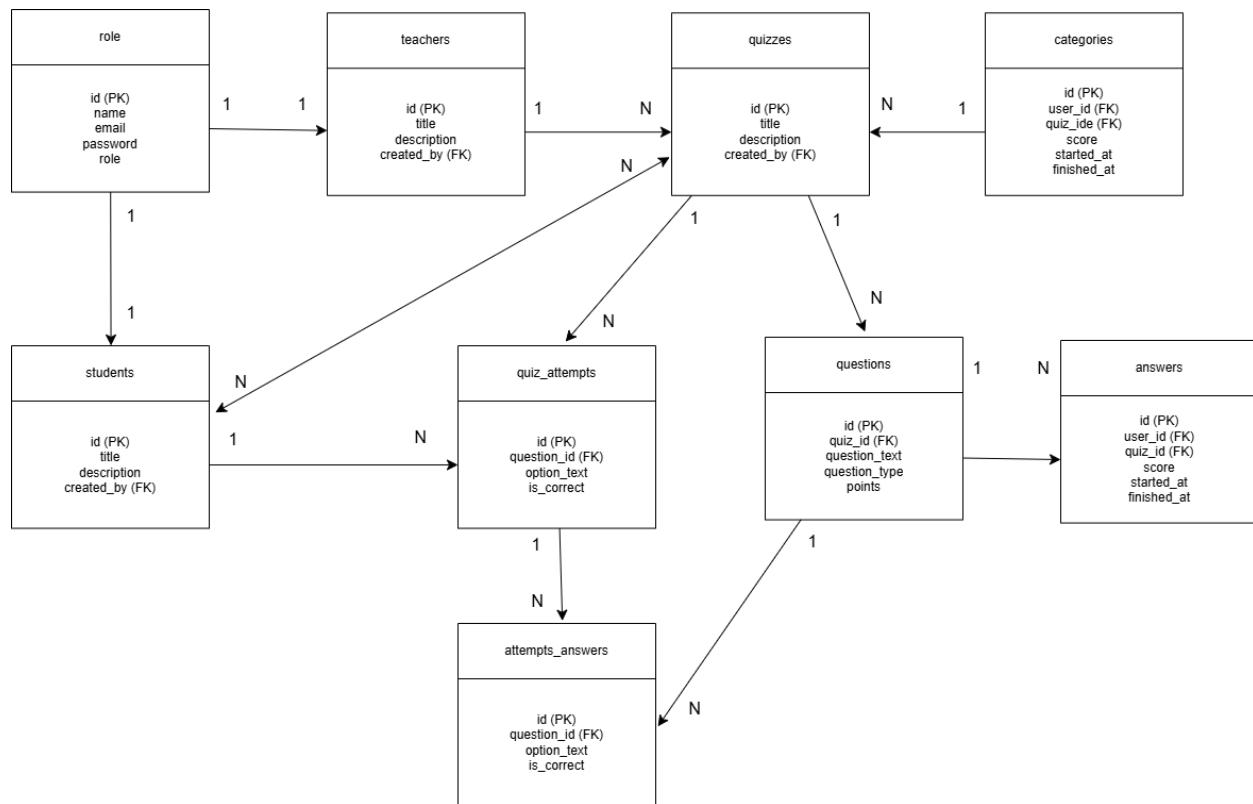


Entity Relationship Diagram for TechQuiz Application



Data Dictionary

Table Name	Column Name	Data Type	Constraints / Notes	Description
roles	id	BIGINT, PK, AI	Primary key	Unique identifier for role
	name	VARCHAR(255)	UNIQUE, NOT NULL	Role name (e.g., Admin, Student)
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp
teachers	id	BIGINT, PK, AI	Primary key	Teacher identifier
	name	VARCHAR(255)	NOT NULL	Teacher's full name
	email	VARCHAR(255)	UNIQUE, NOT NULL	Login email
	password	VARCHAR(255)	NOT NULL	Hashed password
	role_id	BIGINT, FK → roles.id	Optional if role assigned	Teacher's role
	created_at	TIMESTAMP		Auto timestamp

Table Name	Column Name	Data Type	Constraints / Notes	Description
	updated_at	TIMESTAMP		Auto timestamp
students	id	BIGINT, PK, AI	Primary key	Student identifier
	student_id	VARCHAR(50)	UNIQUE, NOT NULL	School-issued ID
	name	VARCHAR(255)	NOT NULL	Student full name
	role_id	BIGINT, FK → roles.id	Optional if role assigned	Student role
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp
categories	id	BIGINT, PK, AI	Primary key	Quiz category identifier
	name	VARCHAR(255)	UNIQUE, NOT NULL	Category name (e.g., Networking Basics)
	created_at	TIMESTAMP		Auto timestamp

Table Name	Column Name	Data Type	Constraints / Notes	Description
	updated_at	TIMESTAMP		Auto timestamp
quizzes	id	BIGINT, PK, AI	Primary key	Quiz identifier
	title	VARCHAR(255)	NOT NULL	Quiz title
	category_id	BIGINT, FK → categories.id	NOT NULL	Category of quiz
	teacher_id	BIGINT, FK → teachers.id	NOT NULL	Quiz creator
	difficulty	ENUM('Easy','Medium','Hard')	Default 'Easy'	Difficulty level
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp
questions	id	BIGINT, PK, AI	Primary key	Question identifier
	quiz_id	BIGINT, FK → quizzes.id	NOT NULL	Which quiz this question belongs to
	question_text	TEXT	NOT NULL	The question content

Table Name	Column Name	Data Type	Constraints / Notes	Description
	question_type	ENUM('MCQ','FillBlank','TrueFalse','Picture')	NOT NULL	Type of question
	points	INT	Default 5	Points awarded for correct answer
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp
answers	id	BIGINT, PK, AI	Primary key	Answer identifier
	question_id	BIGINT, FK → questions.id	NOT NULL	Which question this answer belongs to
	answer_text	TEXT	NOT NULL	Answer text
	is_correct	BOOLEAN	Default false	True if correct answer
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp

Table Name	Column Name	Data Type	Constraints / Notes	Description
quiz_attempts	id	BIGINT, PK, AI	Primary key	Each student quiz attempt
	student_id	BIGINT, FK → students.id	NOT NULL	Student who attempted
	quiz_id	BIGINT, FK → quizzes.id	NOT NULL	Quiz attempted
	score	INT	Default 0	Total score achieved
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp
attempt_answers	id	BIGINT, PK, AI	Primary key	Each answer given by a student in an attempt
	quiz_attempt_id	BIGINT, FK → quiz_attempts.id	NOT NULL	Links to attempt
	question_id	BIGINT, FK → questions.id	NOT NULL	Question answered
	answer_id	BIGINT, FK → answers.id	Nullable	MCQ/TrueFalse selected answer
	text_answer	TEXT	Nullable	Free-text answer for Fill in the

Table Name	Column Name	Data Type	Constraints / Notes	Description
				Blank or Picture
	created_at	TIMESTAMP		Auto timestamp
	updated_at	TIMESTAMP		Auto timestamp