

Database Schema for Mock Examination System

This document provides a comprehensive schema design for a mock examination system with user progress tracking. The database schema includes tables for users, exams, questions, and user progress tracking with relationships and constraints designed to ensure data consistency.

Users Table

Stores user information.

Column	Data Type	Constraints	Description
user_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each user
username	TEXT	UNIQUE NOT NULL	Username chosen by the user
password	TEXT	NOT NULL	Hashed password
email	TEXT	UNIQUE NOT NULL	User's email address
created_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Account creation date
total_attempted	INTEGER	DEFAULT 0	Total questions attempted by user
total_correct	INTEGER	DEFAULT 0	Total correct answers by user

MockPapers Table

Stores information about mock exams.

Column	Data Type	Constraints	Description
mock_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each mock exam
subject	TEXT	NOT NULL	Subject or category of the mock exam

Questions Table

Stores questions for each mock exam.

Column	Data Type	Constraints	Description
question_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each question
question_text	TEXT	NOT NULL	Text of the question
option_a	TEXT	NOT NULL	Option A
option_b	TEXT	NOT NULL	Option B
option_c	TEXT	NOT NULL	Option C
option_d	TEXT	NOT NULL	Option D

correct_answer	TEXT	NOT NULL	Correct answer
question_type	TEXT	NOT NULL	Category (e.g., verbal, math)
mock_id	INTEGER	FOREIGN KEY REFERENCES MockPapers(mock_id) ON DELETE CASCADE	Links question to a specific mock exam

UserProgress Table

Tracks user performance on each mock exam.

Column	Data Type	Constraints	Description
progress_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each progress entry
user_id	INTEGER	FOREIGN KEY REFERENCES Users(user_id) ON DELETE CASCADE	User who took the exam
mock_id	INTEGER	FOREIGN KEY REFERENCES MockPapers(mock_id) ON DELETE CASCADE	Mock exam taken by user
questions_attempted	INTEGER	NOT NULL	Total questions attempted
correct_answers	INTEGER	NOT NULL	Total correct answers
score	INTEGER	NOT NULL	Calculated score
completed_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Completion time of the mock exam

UserAnswers Table

Stores the answers selected by the user for each question in a specific mock exam.

Column	Data Type	Constraints	Description
answer_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each answer
user_id	INTEGER	FOREIGN KEY REFERENCES Users(user_id) ON DELETE CASCADE	User who answered the question
question_id	INTEGER	FOREIGN KEY REFERENCES Questions(question_id) ON DELETE CASCADE	Question being answered

mock_id	INTEGER	FOREIGN KEY REFERENCES MockPapers(mock_i d)	Mock exam the question is part of
selected_answer	TEXT	NOT NULL	User's selected answer
is_correct	BOOLEAN	NOT NULL	Indicates if the answer is correct