# 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\_id) | 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 |