Proyecto Curso SQL Coderhouse

1ra Entrega

# Descripción de la Temática

## Introducción

El proyecto que se realizará es una Base de Datos para una plataforma de aula virtual.

La misma estará orientada inicialmente a cursos simples, y con el tiempo se podrá ir escalando según las necesidades.

## Objetivos

Los objetivos del proyecto que se establecieron son:

* Definir las entidades iniciales.
* Poder realizar un CRUD con cada entidad que se defina.
* Establecer las relaciones entre las distintas entidades según la lógica del negocio.
* Permitir la escalabilidad del proyecto.

## Situación Problemática

Debe ser una plataforma flexible para permitir distintos tipos de cursos y cursadas. Además, debe poder almacenar datos de los distintos usuarios (alumnos, profesores y tutores), y permitir su manipulación. La administración de estos debe consistir en la posibilidad de registrar, leer, editar, y eliminar alumnos, profesores y tutores.

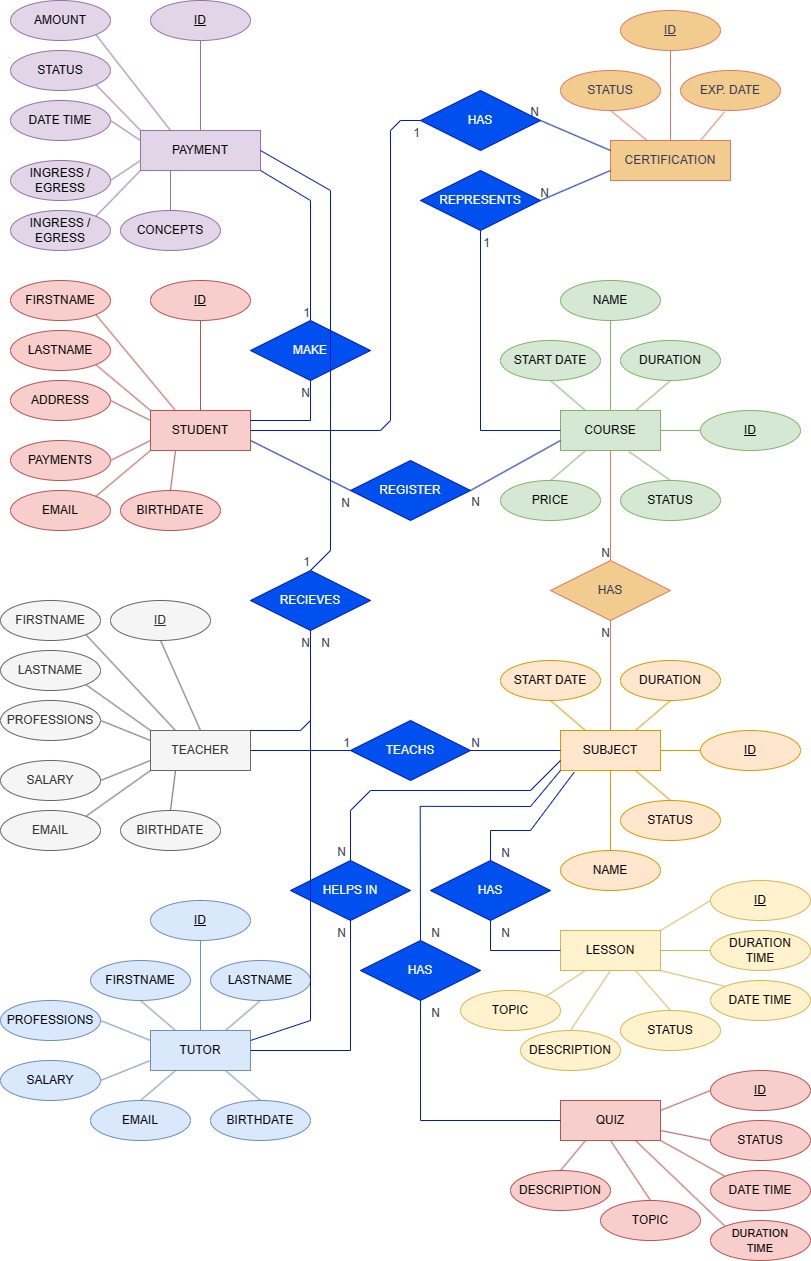
Así mismo, al tratarse de un aula virtual deberá poder gestionar cursos, materias, clases, exámenes y certificados. Y permitir la obtención y análisis de datos en cuanto a la relación de los usuarios con la lógica del negocio.

## Modelo de Negocio

En la plataforma deberían existir varios cursos, los cuales deben estar constituidos por una materia o más. Cada materia tendrá varias clases, varios exámenes, un solo profesor, varios tutores y varios alumnos. Un alumno, al cumplir y aprobar todas las materias que componen un curso podrá obtener un certificado.

Además, cada clase y examen tienen en cuenta el presentismo de los alumnos.

# Diagrama de entidad-relación (ERD)



# Tablas de DB

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Entity Tables** | | | | | | | | |
|  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **students** | | | | | | | |  |
| **Description** | **All platform students** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del cliente |  |
|  | firstname | VARCHAR | 50 | TRUE |  |  |  | Nombre |  |
|  | lastname | VARCHAR | 50 | TRUE |  |  |  | Apellido |  |
|  | birthdate | DATE |  |  |  |  |  | Fecha de nacimiento |  |
|  | email | VARCHAR | 50 | TRUE | TRUE |  |  | Email |  |
|  | address | VARCHAR | 50 |  |  |  |  | Dirección |  |
|  | cp | VARCHAR | 15 |  |  |  |  | Código Postal |  |
| FK | providence\_id | SMALLINT |  |  |  |  |  | Id de la Provincia |  |
| FK | country\_id | TINYINT |  |  |  |  |  | Id del País |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **teachers** | | | | | | | |  |
| **Description** | **All platform teachers** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del profesor |  |
|  | firstname | VARCHAR | 50 | TRUE |  |  |  | Nombre |  |
|  | lastname | VARCHAR | 50 | TRUE |  |  |  | Apellido |  |
|  | birthdate | DATE |  |  |  |  |  | Fecha de nacimiento |  |
|  | email | VARCHAR | 50 | TRUE | TRUE |  |  | Email |  |
|  | address | VARCHAR | 50 |  |  |  |  | Dirección |  |
|  | cp | VARCHAR | 15 |  |  |  |  | Código Postal |  |
| FK | providence\_id | SMALLINT |  |  |  |  |  | Id de la Provincia |  |
| FK | country\_id | TINYINT |  |  |  |  |  | Id del País |  |
|  | professions | VARCHAR | 50 |  |  |  |  | Profesión/es |  |
|  | salary | MEDIUMINT |  | TRUE |  |  |  | Salario |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **tutors** | | | | | | | |  |
| **Description** | **All platform tutors** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del cliente |  |
|  | firstname | VARCHAR | 50 | TRUE |  |  |  | Nombre |  |
|  | lastname | VARCHAR | 50 | TRUE |  |  |  | Apellido |  |
|  | birthdate | DATE |  |  |  |  |  | Fecha de nacimiento |  |
|  | email | VARCHAR | 50 | TRUE | TRUE |  |  | Email |  |
|  | address | VARCHAR | 50 |  |  |  |  | Dirección |  |
|  | cp | VARCHAR | 15 |  |  |  |  | Código Postal |  |
| FK | providence\_id | SMALLINT |  |  |  |  |  | Id de la Provincia |  |
| FK | country\_id | TINYINT |  |  |  |  |  | Id del País |  |
|  | professions | VARCHAR | 50 |  |  |  |  | Profesión/es |  |
|  | salary | MEDIUMINT |  | TRUE |  |  |  | Salario |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **courses** | | | | | | | |  |
| **Description** | **All platform courses** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del curso |  |
|  | name | VARCHAR | 50 | TRUE |  |  |  | Nombre del curso |  |
|  | start\_date\_time | DATETIME |  |  |  |  |  | Fecha y hora de inicio |  |
|  | duration\_days | SMALLINT |  | TRUE |  |  |  | Duración del curso |  |
|  | status | ENUM | planning, planned, in\_course, finished |  |  |  | planning | Estado del curso |  |
|  | price | MEDIUMINT |  |  |  |  |  | Precio del curso |  |
|  | description | VARCHAR | 300 |  |  |  |  | Descripción del curso |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **subjects** | | | | | | | |  |
| **Description** | **All platform subjects** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id de la materia |  |
|  | name | VARCHAR | 50 | TRUE |  |  |  | Nombre de la materia |  |
|  | start\_date\_time | DATETIME |  |  |  |  |  | Fecha y hora de inicio |  |
|  | lessons\_quantity | TINYINT |  | TRUE |  |  |  | Duración de la materia |  |
|  | week\_day\_1 | ENUM | monday, tuesday, wednesday, thursday, friday, saturday |  |  |  |  |  |  |
|  | day\_time\_1 | TIME |  |  |  |  |  |  |  |
|  | week\_day\_2 | ENUM | monday, tuesday, wednesday, thursday, friday, saturday |  |  |  |  |  |  |
|  | day\_time\_2 | TIME |  |  |  |  |  |  |  |
|  | week\_day\_3 | ENUM | monday, tuesday, wednesday, thursday, friday, saturday |  |  |  |  |  |  |
|  | day\_time\_3 | TIME |  |  |  |  |  |  |  |
|  | week\_day\_4 | ENUM | monday, tuesday, wednesday, thursday, friday, saturday |  |  |  |  |  |  |
|  | day\_time\_4 | TIME |  |  |  |  |  |  |  |
|  | week\_day\_5 | ENUM | monday, tuesday, wednesday, thursday, friday, saturday |  |  |  |  |  |  |
|  | day\_time\_5 | TIME |  |  |  |  |  |  |  |
| FK | next\_lesson\_id | INT |  |  |  |  |  | Id de la siguiente clase |  |
|  | status | ENUM | planning, planned, in\_course, finished |  |  |  | planning | Estado de la materia |  |
|  | description | VARCHAR | 300 |  |  |  |  | Descripción de la materia |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **lessons** | | | | | | | |  |
| **Description** | **All platform lessons** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id de la clase |  |
|  | topic | VARCHAR | 50 | TRUE |  |  |  | Nombre/Tema de la clase |  |
|  | start\_date\_time | DATETIME |  |  |  |  |  | Fecha y hora de inicio |  |
|  | duration\_time | TIME |  | TRUE |  |  |  | Duración de la clase |  |
| FK | subject\_id | INT |  | TRUE |  |  |  | Id de la materia |  |
|  | status | ENUM | planning, planned, in\_course, finished |  |  |  | planning | Estado de la clase |  |
|  | description | VARCHAR | 300 |  |  |  |  | Descripción de la clase |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **quizzes** | | | | | | | |  |
| **Description** | **All platform quizzes** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del examen |  |
|  | topic | VARCHAR | 50 | TRUE |  |  |  | Nombre/Tema del examen |  |
|  | start\_date\_time | DATETIME |  |  |  |  |  | Fecha y hora de inicio |  |
|  | duration\_time | TIME |  | TRUE |  |  |  | Duración del examen |  |
| FK | subject\_id | INT |  | TRUE |  |  |  | Id de la materia |  |
|  | status | ENUM | planning, planned, in\_course, finished |  |  |  | planning | Estado del examen |  |
|  | description | VARCHAR | 300 |  |  |  |  | Descripción del examen |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **certifications** | | | | | | | |  |
| **Description** | **All platform certifications** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del certificado |  |
| FK | student\_id | INT |  | TRUE |  |  |  | Id del estudiante |  |
| FK | course\_id | INT |  | TRUE |  |  |  | Id del curso |  |
|  | img\_href | VARCHAR | 300 |  |  |  |  | URL de Imagen o PDF |  |
|  | exp\_timedate | DATETIME |  |  |  |  |  | Fecha y hora de expedición |  |
|  | status | ENUM | created, waiting\_sign, sent |  |  |  | created | Estado del cretificado |  |
|  | observations | VARCHAR | 200 |  |  |  |  | Observaciones del cretificado |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **payment\_types** | | | | | | | |  |
| **Description** | **All platform payment\_types** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del tipo de pago |  |
|  | payment\_type | VARCHAR | 100 | TRUE |  |  |  | Tipo de pago |  |
|  | details | VARCHAR | 200 | TRUE |  |  |  | Detalles |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Relationship Tables** | | | | | | | | |
|  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **course\_subjects** | | | | | | | |  |
| **Description** | **All platform course\_subjects** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | course\_id | INT |  | TRUE |  |  |  | Id del curso |  |
| FK | subject\_id | INT |  | TRUE |  |  |  | Id de la materia |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **course\_students** | | | | | | | |  |
| **Description** | **All platform course\_students** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | course\_id | INT |  | TRUE |  |  |  | Id del curso |  |
| FK | student\_id | INT |  | TRUE |  |  |  | Id del alumno |  |
|  | student\_status | ENUM | registered, regular, paused, suspended | TRUE |  |  | registered | Estado del alumno en el curso |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **subjects\_students** | | | | | | | |  |
| **Description** | **All platform subjects\_students** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | subject\_id | INT |  | TRUE |  |  |  | Id de la materia |  |
|  | student\_id | INT |  | TRUE |  |  |  | Id del estudiante |  |
|  | student\_status | ENUM | registered, regular, paused, suspended, transferred | TRUE |  |  | registered | Estado del estudiante en la materia |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **subjects\_teachers** | | | | | | | |  |
| **Description** | **All platform subjects\_teachers** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | subject\_id | INT |  | TRUE | TRUE |  |  | Id de la materia |  |
| FK | teacher\_id | INT |  | TRUE |  |  |  | Id del profesor |  |
|  | teacher\_status | ENUM | designated, active, suspended, replaced | TRUE |  |  | designated | Estado del profesor en la materia |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **subjects\_tutors** | | | | | | | |  |
| **Description** | **All platform subjects\_tutors** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | subject\_id | INT |  | TRUE |  |  |  | Id de la materia |  |
| FK | tutor\_id | INT |  | TRUE |  |  |  | Id del tutor |  |
|  | tutor\_status | ENUM | designated, active, suspended, replaced | TRUE |  |  |  | Estado del tutor en la materia |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **lessons\_present\_students** | | | | | | | |  |
| **Description** | **All platform lessons\_present\_students** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id |  |
| FK | lesson\_id | INT |  | TRUE |  |  |  | Id de la clase |  |
| FK | student\_id | INT |  | TRUE |  |  |  | Id del estudiante |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **students\_payments** | | | | | | | |  |
| **Description** | **All students\_payments** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del pago |  |
| FK | student\_id | INT |  | TRUE |  |  |  | Id del estudiante |  |
|  | amount | MEDIUMINT |  | TRUE |  |  |  | Id del curso |  |
| FK | payment\_type\_id | INT |  | TRUE |  |  |  | Monto de la transacción |  |
|  | code | CHAR | 12 | TRUE | TRUE |  |  | Código de la operación |  |
|  | date\_time | DATETIME |  |  |  |  |  | URL de Imagen o PDF |  |
|  | status | ENUM | rejected, paid |  |  |  | rejected | Fecha y hora de expedición |  |
|  | concepts | VARCHAR | 300 | TRUE |  |  |  | Estado del cretificado |  |
|  | observations | VARCHAR | 200 |  |  |  |  | Observaciones del cretificado |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **teachers\_salary\_payments** | | | | | | | |  |
| **Description** | **All teachers\_salary\_payments** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del pago |  |
| FK | teacher\_id | INT |  | TRUE |  |  |  | Id del profesor |  |
|  | amount | MEDIUMINT |  | TRUE |  |  |  | Monto de la transacción |  |
|  | code | CHAR | 12 | TRUE | TRUE |  |  | Código de la operación |  |
|  | date\_time | DATETIME |  |  |  |  |  | Fecha y hora de expedición |  |
|  | status | ENUM | sent |  |  |  | sent | Estado del pago |  |
|  | concepts | VARCHAR | 300 | TRUE |  |  |  | Concepto de pago |  |
|  | observations | VARCHAR | 200 |  |  |  |  | Observaciones del pago |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **tutors\_salary\_payments** | | | | | | | |  |
| **Description** | **All tutors\_salary\_payments** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del pago |  |
| FK | tutor\_id | INT |  | TRUE |  |  |  | Id del tutor |  |
|  | amount | MEDIUMINT |  | TRUE |  |  |  | Monto de la transacción |  |
|  | code | CHAR | 12 | TRUE | TRUE |  |  | Código de la operación |  |
|  | date\_time | DATETIME |  |  |  |  |  | URL de Imagen o PDF |  |
|  | status | ENUM | sent |  |  |  | sent | Fecha y hora de expedición |  |
|  | concepts | VARCHAR | 300 | TRUE |  |  |  | Estado del cretificado |  |
|  | observations | VARCHAR | 200 |  |  |  |  | Observaciones del cretificado |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **quizzes\_questions** | | | | | | | |  |
| **Description** | **All platform quizzes\_questions** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id de la pregunta |  |
| FK | quiz\_id | INT |  | TRUE |  |  |  | Id del examen |  |
|  | question | VARCHAR | 300 | TRUE |  |  |  | Pregunta |  |
|  | question\_type | ENUM | true\_false, multiple\_choice, text | TRUE |  |  | text | Tipo de pregunta |  |
|  | correct\_answer | VARCHAR | 300 | TRUE |  |  |  | Respuesta Correcta |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **quizzes\_answers\_options** | | | | | | | |  |
| **Description** | **All platform quizzes\_answers\_choices** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id de la pregunta |  |
| FK | question\_id | INT |  | TRUE |  |  |  | Id del examen |  |
|  | option\_answer | VARCHAR | 300 | TRUE |  |  |  | Opción de la pregunta |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **student\_ quiz** | | | | | | | |  |
| **Description** | **All platform student\_ quiz** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id del examen del alumno |  |
| FK | student\_id | INT |  | TRUE |  |  |  | Id del alumno |  |
| FK | quiz\_id | INT |  | TRUE |  |  |  | Id del exámen |  |
|  | score | TINYINT |  | TRUE |  |  |  | Nota |  |
|  |  |  |  |  |  |  |  |  |  |
| **Table** | **student\_ quiz\_responses** | | | | | | | |  |
| **Description** | **All platform student\_ quiz\_responses** | | | | | | | |  |
| **KEY** | **COLUMN** | **TYPE** | **TYPE ARGUMENTS** | **NOT NULL** | **UNIQUE** | **AUTO INC.** | **DEFAULT** | **NOTES** |  |
| PK | id | INT |  | TRUE | TRUE | TRUE |  | Id de la respuesta |  |
| FK | student\_quiz\_id | INT |  | TRUE |  |  |  | Id del examen del alumno |  |
| FK | quiz\_question\_id | INT |  | TRUE |  |  |  | Id de la pregunta del examen |  |
|  | response | VARCHAR | 300 | TRUE |  |  |  | Respuesta |  |

# Script SQL

[Enlace al repositorio con script.sql:](https://github.com/josiasgenem/Coderhouse-SQL)

https://github.com/josiasgenem/Coderhouse-SQL