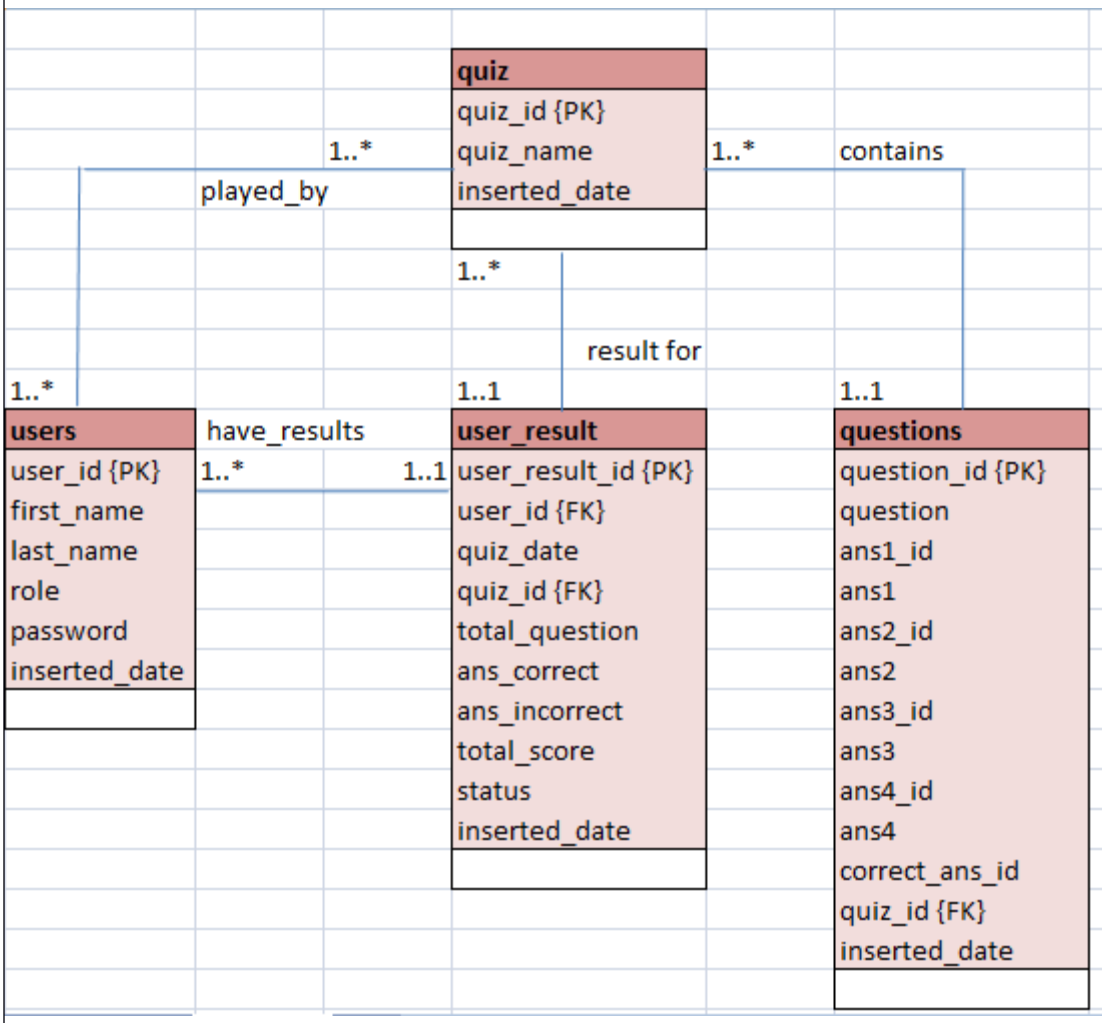
Osaka
Database Design Specification

Database is an important part of any system which is designed to provide a mechanism for storing, managing and retrieving information. The database management system used for Edify quiz was PostgreSQL. The server used to create database was dbteach2. A new database, called osakagp, was created to store the data needed for Edify quiz.

Entity-Relationship Diagram:



This is the entity-relationship (ER) diagram for the tables used in Edify quiz. The relationship shared among these tables is explained below.

One-to-One

- The table **questions** shares a one-to-one relationship with **quiz** table. Each question in the questions table can appear only in one quiz category.

- The table **user_result** shares a one-to-one relationship with **users** and **quiz** tables.The user_result table stores the result of all the quizes played by the

students. Each row in the user_result table is linked to one quiz in the quiz table and one user in the users table.

- The **user_result** table shares one-to-one relationship with **users** table. Each row in the user_result table is linked to one user in the users table.

One-to-Many

- The **quiz** table shares one-to-many relationship with **questions** table. Each quiz topic has 10 questions in the questions table.

- The **quiz** table shares one-to-many relationship with **users_result** table. Each quiz topic in the quiz table is linked to multiple rows in the users_result table as quiz result is stored for multiple players and can be played on multiple days.

- The **quiz** table shares one-to-many relationship with **users** table. One quiz can be played by mutilple users in the users table.

- The **users** table shares one-to-many relationship with **quiz** table. Each user in the users table can play one or more quiz in the quiz table.

- The **users** table shares one-to-many relationship with **user_result** table. Each user in the users table can have one or more quiz results in the user_result table

Tables: The four tables created in osakagp DB are quiz, questions, users and users_result.

Users: The user login details are stored in the users table. The user details are inserted into this table when a new user or administrator registers. The login credentials entered by the users are validated and the users are allowed to login only if the entered credentials exist in the users table.

Table name	users			
Attribute	**Description**	**Type**	**Nullability**	**Example of values**
user_id	Unique ID of admin/student	BIG INT	NOT NULL	Between 1 and 9223372036854775807
first_name	First name of admin/student	VARCHAR (20)	NULL	Mary
last_name	Last name of admin/student	VARCHAR (20)	NULL	Ande
role	Role of user	VARCHAR	NULL	admin or

		(20)		student
password	Password entered by admin/student to access the tool	VARCHAR (10)	NULL	
inserted_date	Timestamp of the transaction	TIMESTAMP	NOT NULL	DEFAULT is the current timestamp.
Primary Key	user_id			
Foreign Key				
Index	user_id			

Quiz: The quiz topics are stored in this table. The quiz could be on the following topics - Politics, Sports, History, Geography, Music, and Science & Technology. The admin chooses the quiz topic from quiz table and fetches the topic-related questions from the questions table.

Table name	quiz			
Attribute	**Description**	**Type**	**Nullability**	**Example of values**
quiz_id	Unique ID of quiz	BIG INT	NOT NULL	Between 1 and 9223372036854775807
quiz_name	Topic of quiz	VARCHAR (40)	NULL	Politics, Sports
inserted_date	Timestamp of the transaction	TIMESTAMP	NOT NULL	DEFAULT is the current timestamp.
Primary Key	quiz_id			
Foreign Key				
Index	quiz_id			

Questions: The questions table contains the questions which are answered in quiz. Question and possible answers are stored as rows in the questions table. The table also contains a separate column for quiz ID. The admin uses the quiz ID to get the questions for the chosen quiz topic.

Table name	questions			
Attribute	**Description**	**Type**	**Nullability**	**Example of values**
question_id	Unique ID of question	BIG INT	NOT NULL	Between 1 and 9223372036854775807
question	The question	VARCHAR	NULL	In which

	to be answered by students	(200)		country is the Albert canal?
ans1_id	ID of first possible answer	INT	NOT NULL	DEFAULT is 1
ans1	First possible answer	VARCHAR (40)	NULL	Spain
ans2_id	ID of second possible answer	INT	NOT NULL	DEFAULT is 2
ans2	Second possible answer	VARCHAR (40)	NULL	Belgium
ans3_id	ID of third possible answer	INT	NOT NULL	DEFAULT is 3
ans3	Third possible answer	VARCHAR (40)	NULL	Canada
ans4_id	ID of fourth possible answer	INT	NOT NULL	DEFAULT is 4
ans4	Fourth possible answer	VARCHAR (40)	NULL	Portugal
correct_ans_id	The ID of correct answer	INT	NOT NULL	2
quiz_id	The ID of quiz	BIG INT	NOT NULL	4
inserted_date	Timestamp of the transaction	TIMESTAMP	NOT NULL	DEFAULT is the current timestamp.
Primary Key	question_id			
Foreign Key	quiz_id			
Index	question_id, quiz_id			

User_result: This table contains the quiz results for all the students. It is loaded with quiz result once the quiz is completed. The user can see the result by quiz date, quiz topic, score and quiz status.

Table name	user_result			
Attribute	**Description**	**Type**	**Nullability**	**Example of values**
user_result_id	Unique ID for row	BIG INT	NOT NULL	Between 1 and 9223372036854775807
user_id	ID of user	BIG INT	NOT NULL	Between 1

				and 92233720368 54775807
quiz_date	Date on which quiz is played	TIMESTAMP	NOT NULL	DEFAULT is Current Timestamp
quiz_id	ID of quiz played by the student	BIG INT	NOT NULL	Between 1 and 92233720368 54775807
total_question	Number of questions displayed in a quiz	INT	NULL	10
ans_correct	Number of questions answered correctly before any other student	INT	NULL	Between 0 and 10
ans_incorrect	Number of questions answered incorrectly	INT	NULL	Between 0 and 10
total_score	Number of questions answered correctly before any other student	INT	NULL	Between 0 and 10
status	If a student won or lost the quiz	VARCHAR(10)	NULL	WON or LOST
inserted_date	Timestamp of the transaction	TIMESTAMP	NOT NULL	DEFAULT is the current timestamp.
Primary Key	user_result_id			
Foreign Key	user_id, quiz_id			
Index	user_result_id, user_id, quiz_id			