

## DBMS Holiday Assignment

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### TASK FROM LEETCODE:

#### 1. Game Play Analysis (Solve it in LeetCode)

##### Table: Activity

Create a Activity table and Insert the given below values and Write a Query for below question :-

- Write a solution to find the **first login date** for each player from table .
- Return the result table in **any order**

The result format is in the following example.

##### Example 1:

##### Input:

Activity table:

player_id	device_id	event_date	games_played
1	2	2016-03-01	5
1	2	2016-05-02	6
2	3	2017-06-25	1
3	1	2016-03-02	0
3	4	2018-07-03	5

Ans:

The screenshot shows the LeetCode interface for the problem '511. Game Play Analysis I'. The problem description states that the 'Activity' table has columns 'player\_id', 'device\_id', 'event\_date', and 'games\_played', with '(player\_id, event\_date)' as the primary key. The task is to find the first login date for each player. The SQL query provided is:

```
1 SELECT player_id, MIN(event_date) AS first_login
2 FROM Activity
3 GROUP BY player_id;
```

The test results show the input data and the output of the query. The input data is the same as the table provided in the assignment. The output shows the first login date for each player.

player_id	first_login
1	2016-03-01
2	2017-06-25
3	2016-03-02

## TASK-2

### Find Customer Referee((Solve it in LeetCode)

Find the names of the customer that are **not referred by** the customer with id = 2.

Return the result table in **any order**.

#### Input:

Customer table:

id	name	referee_id
1	Will	null
2	Jane	null
3	Alex	2
4	Bill	null
5	Zack	1
6	Mark	2

Ans.

The screenshot shows the LeetCode interface for problem 584. The problem description asks for the names of customers not referred by the customer with id = 2. The SQL schema for the Customer table is shown with columns id (int), name (varchar), and referee\_id (int). A solution is provided in the code editor using MySQL, which uses a subquery to filter out customers referred by id 2.

```
1 SELECT name
2 FROM Customer
3 WHERE referee_id != 2 OR referee_id IS NULL;
```

The test case input shows the Customer table data, and the output shows the names of the customers not referred by id 2: Will, Jane, Bill, and Zack.

## TASK-3

### Big Countries (Solve it in LeetCode)

A country is **big** if:

- it has an area of at least three million (i.e., 3000000 km<sup>2</sup>), or
- it has a population of at least twenty-five million (i.e., 25000000).

Write a solution to find the name, population, and area of the **big countries**.

Return the result table in **any order**.

#### Input:

World table:

name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	20343000000
Albania	Europe	28748	2831741	12960000000
Algeria	Africa	2381741	37100000	188681000000
Andorra	Europe	468	78115	3712000000
Angola	Africa	1246700	20609294	100990000000

Ans.

595. Big Countries

Solved

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SQL Schema Pandas Schema

Table: World

Column Name	Type
name	varchar
continent	varchar
area	int
population	int
gdp	bigint

name is the primary key (column with unique values) for this table. Each row of this table gives information about the name of a country, the continent to which it belongs, its area, the population, and its GDP value.

A country is **big** if:

- it has an area of at least three million (i.e., 3000000 km<sup>2</sup>), or

Code

MySQL Auto

```

1 # Write your MySQL query statement below
2 SELECT name, population, area
3 FROM World
4 WHERE area >= 3000000 OR population >= 25000000;
5

```

Testcase Test Result

Input

World =

name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	20343000000
Albania	Europe	28748	2831741	12960000000
Algeria	Africa	2381741	37100000	188681000000
Andorra	Europe	468	78115	3712000000
Angola	Africa	1246700	20609294	100990000000

Output

name	population	area
Afghanistan	25500100	652230
Algeria	37100000	2381741

Expected

## TASK-4

### Recyclable and low fat products (Solve it in LeetCode)

Write a solution to find the ids of products that are both low fat and recyclable.

Return the result table in **any order**.

**Input:**

Products table:

product_id	low_fats	recyclable
0	Y	N
1	Y	Y
2	N	Y
3	Y	Y
4	N	N

Ans.

**1757. Recyclable and Low Fat Products** Solved

Easy Topics Companies

SQL Schema Pandas Schema

Table: Products

Column Name	Type
product_id	int
low_fats	enum
recyclable	enum

product\_id is the primary key (column with unique values) for this table.  
low\_fats is an ENUM (category) of type ('Y', 'N') where 'Y' means this product is low fat and 'N' means it is not.  
recyclable is an ENUM (category) of types ('Y', 'N') where 'Y' means this product is recyclable and 'N' means it is not.

Write a solution to find the ids of products that are both low fat and recyclable.

Return the result table in **any order**.

The result format is in the following example.

27K 236 139 Online

**Code**

```
MySQL
1 # Write your MySQL query statement below
2 SELECT product_id
3 FROM Products
4 WHERE low_fats = 'Y' AND recyclable = 'Y';
```

**Testcase** **Test Result**

Case 1

Input

Products =

product_id	low_fats	recyclable
0	Y	N
1	Y	Y
2	N	Y
3	Y	Y
4	N	N

Output

product_id
1
3

## TASK-5

Write a solution to find the IDs of the invalid tweets. The tweet is invalid if the number of characters used in the content of the tweet is **strictly greater** than 15.

### Input:

Tweets table:

tweet_id	content
1	Let us Code
2	More than fifteen chars are here!

Ans.

**1683. Invalid Tweets** Solved

Easy Topics Companies

SQL Schema Pandas Schema

Table: Tweets

Column Name	Type
tweet_id	int
content	varchar

tweet\_id is the primary key (column with unique values) for this table.  
content consists of characters on an American Keyboard, and no other special characters.  
This table contains all the tweets in a social media app.

Write a solution to find the IDs of the invalid tweets. The tweet is invalid if the number of characters used in the content of the tweet is **strictly greater** than 15.

Return the result table in **any order**.

The result format is in the following example.

1.1K 194 56 Online

**Code**

```
MySQL
1 # Write your MySQL query statement below
2 SELECT tweet_id
3 FROM Tweets
4 WHERE LENGTH(content) > 15;
```

**Testcase** **Test Result**

Accepted Runtime: 139 ms

Case 1

Input

Tweets =

tweet_id	content
1	Let us Code
2	More than fifteen chars are here!

Output

tweet_id
2

Expected

## Case Study Question: School Database

### Scenario:

You are tasked with designing a database for a small school. The school has students, teachers, and classes. The database should help manage the following information:

1. Students' details: Unique ID, name, age, and grade level.
2. Teachers' details: Unique ID, name, and subject specialization.
3. Classes: Each class has a unique ID, subject name, and a teacher assigned.
4. Enrollments: Students enrolled in specific classes.

### Tasks:

1. **ER Diagram:** Design an ER diagram showing the relationships between Students, Teachers, Classes, and Enrollments. (Use SmartDraw Tool)

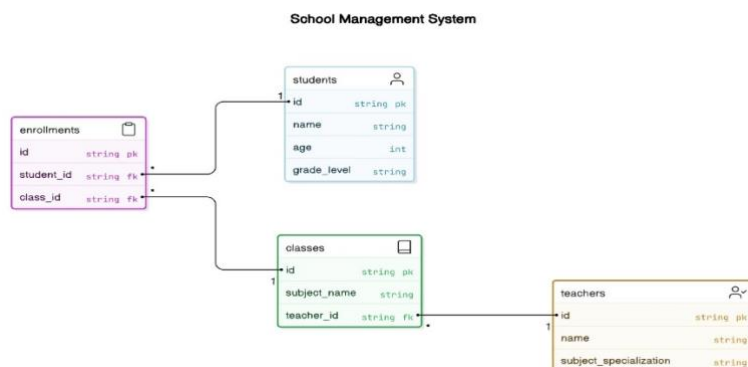
2. **Schema Design:**

Write SQL to create the following tables:

- Students (StudentId, Name, Age, GradeLevel)
- Teachers (TeacherId, Name, SubjectSpecialization)
- Classes (ClassId, SubjectName, TeacherId)
- Enrollments (EnrollmentId, StudentId, ClassId)

Ans.

1)



2)

```
mysql> desc student;
```

Field	Type	Null	Key	Default	Extra
studentId	int	YES		NULL	
name	varchar(35)	YES		NULL	
age	int	YES		NULL	
gradeLevel	int	YES		NULL	

```
4 rows in set (0.01 sec)
```

```
mysql> desc teachers;
```

Field	Type	Null	Key	Default	Extra
teacherId	int	YES		NULL	
name	varchar(35)	YES		NULL	
subjectSpecialization	varchar(26)	YES		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql> desc classes;
```

Field	Type	Null	Key	Default	Extra
classId	int	YES		NULL	
subjectName	varchar(20)	YES		NULL	
teacherId	int	YES		NULL	

```
3 rows in set (0.00 sec)
```

```
mysql> desc enrollments;
```

Field	Type	Null	Key	Default	Extra
enrollmentId	int	YES		NULL	
studentId	int	YES		NULL	
classId	int	YES		NULL	

```
3 rows in set (0.00 sec)
```