

180. Consecutive Numbers

July 11, 2017 | 69.2K views

[Previous](#)
[Next](#)

Average Rating: 3.98 (24 votes)

Write a SQL query to find all numbers that appear at least three times consecutively.

Id	Num
1	1
2	1
3	1
4	2
5	1
6	2
7	2

For example, given the above **Logs** table, **1** is the only number that appears consecutively for at least three times.

```
+-----+
| ConsecutiveNums |
+-----+
| 1                |
+-----+
```

Solution

Approach: Using **DISTINCT** and **WHERE** clause [Accepted]

Algorithm

Consecutive appearing means the Id of the Num are next to each others. Since this problem asks for numbers appearing at least three times consecutively, we can use 3 aliases for this table **Logs**, and then check whether 3 consecutive numbers are all the same.

```
SELECT *
FROM
    Logs l1,
    Logs l2,
    Logs l3
WHERE
    l1.Id = l2.Id - 1
    AND l2.Id = l3.Id - 1
    AND l1.Num = l2.Num
    AND l2.Num = l3.Num
;
```

Id	Num	Id	Num	Id	Num
1	1	2	1	3	1
> Note: The first two columns are from I1, then the next two are from I2, and the last two are from I3.					

Then we can select any *Num* column from the above table to get the target data. However, we need to add a keyword **DISTINCT** because it will display a duplicated number if one number appears more than 3 times consecutively.

MySQL

```
SELECT DISTINCT
    11.Num AS ConsecutiveNums
FROM
    Logs 11,
    Logs 12,
    Logs 13
WHERE
    11.Id = 12.Id - 1
    AND 12.Id = 13.Id - 1
    AND 11.Num = 12.Num
    AND 12.Num = 13.Num
;
```


Rate this article: ★ ★ ★ ★ ★

[← Previous](#)

Next


Comments: 81

Sort By ▼



 Preview

Post

 **hrv** ★ 74 · 🕒 October 30, 2018 4:29 AM

It can be done using analytical functions:


```
SELECT DISTINCT num
FROM
(
  SELECT num, LEAD(num) OVER (ORDER BY id) AS lead, LAG(num) OVER (ORDER BY id) AS lag

```

[Read More](#)

72 📄 🗑️ 📄 📄 📄 Share 🔄 Reply

[SHOW 5 REPLIES](#)



jsmedmar

★ 28 🕒 October 15, 2018 2:06 AM

This is true assuming objects where not deleted. What if you have this?

Id	Num
1	1
3	1


28

👍👎





🔗 Share

🗨️ Reply

[SHOW 4 REPLIES](#)

 **eleveln** ★30 ⌚ May 2, 2018 1:47 AM

select distinct a.num as ConsecutiveNums
from Logs a
inner join Logs b on b.id=a.id+1 and b.num=a.num
inner join Logs c on c.id=a.id+2 and c.num=a.num;

30    Share  Reply

 pensnarik ★ 24 ⌚ February 21, 2019 8:37 PM

This will not work if there are gaps in id values.

22 ⬆ ⬇ | 📄 Share | ↩ Reply


[ayushmpb95](#) ★12 · December 27, 2018 3:30 PM [Report](#)

easiest solution is

```
select distinct Num as ConsecutiveNums from Logs,(select Id as id2,Num as num2 from Logs,(select Id as id1,Num as num1 from Logs) as table1 where Id = id1 + 1 and Num = num1) as table2 where Id=id2 + 1 and Num = num2
```




[Read More](#)

12 [^](#) [v](#) [Share](#) [Reply](#)


 **avi964** ★ 16 · May 12, 2019 5:41 PM

with cte as
(
select num, row_number() over (partition by Num order by Num) as ConsecutiveNums
from Logs
)





[Read More](#)

16   |  Share |  Reply


[SHOW 2 REPLIES](#)

 **mcfin** ★ 11 May 19, 2018 9:24 AM Report





What happens if the Id's are not consecutive?

9    Share  Reply


[SHOW 1 REPLY](#)

 **kkqnguyen** ★ 6 · July 22, 2018 10:44 AM

This method would fail if there are ever any holes in the ID. It would probably be safer to use the lead and lag function.

6   |  Share |  Reply


[SHOW 3 REPLIES](#)

 [jl4343](#) ★ 29 · August 31, 2018 9:18 AM [Report](#)

```
select distinct a.num as ConsecutiveNums
from logs a
inner join logs b
on a.id + 1 = b.id and a.num = b.num
inner join logs c
```

[Read More](#)

5 Share Reply

 **user4463** ★ 4 🕒 April 10, 2019 10:27 PM

WITH src as (SELECT CASE WHEN t.num = LEAD(t.num) OVER(ORDER BY id)
AND t.num = LEAD(t.num,2) OVER(ORDER BY id)
THEN t.num
ELSE NULL end as ConsecutiveNums FROM Logs t)
SELECT DISTINCT src.ConsecutiveNums FROM src WHERE src.ConsecutiveNums IS NOT NULL

 Share Reply [Read More](#)