

1. Вывести отсортированный по количеству перелетов (по убыванию) и имени (по возрастанию) список пассажиров, совершивших хотя бы 1 полет.

<https://sql-academy.org/ru/trainer/tasks/16>

```
SELECT name, COUNT(name) AS count
```

```
FROM Pass_in_trip INNER JOIN Passenger ON Pass_in_trip.passenger = Passenger.id
```

```
GROUP BY Passenger.id
```

```
HAVING COUNT(name) > 0
```

```
ORDER BY count DESC, name;
```

✓ Решение верно

Следующий

Результат запроса

ERD диаграмма

Показать таблицу

name	count
Michael Caine	4
Mullah Omar	4
Bruce Willis	3
Harrison Ford	3
Jennifer Lopez	3
Kurt Russell	3
Nikole Kidman	3
Kevin Costner	2
Ray Liotta	2
Steve Martin	2
Alan Rickman	1
George Clooney	1
Russell Crowe	1

2. Сколько времени обучающийся будет находиться в школе, учась со 2-го по 4-ый уч. предмет ?

<https://sql-academy.org/ru/trainer/tasks/42>

```
SELECT DISTINCT TIMEDIFF((SELECT end_pair FROM Timepair WHERE id = 4),  
                          (SELECT start_pair FROM Timepair WHERE id = 2)) as time  
FROM Timepair;
```

✓ Решение верно

Следующий

Результат запроса

Показать таблицу

time
02:30:00

3. Выведите список комнат, которые были зарезервированы в течение 12 недели 2020 года.

<https://sql-academy.org/ru/trainer/tasks/61>

```
SELECT DISTINCT Rooms.*  
FROM Rooms INNER JOIN Reservations ON Rooms.id = Reservations.room_id  
WHERE WEEK(start_date, 1) = 12  
AND YEAR(start_date) = 2020;
```

- WEEK(start_date, 1) - т.к. полагаем, что неделя начинается с понедельника, а WEEK(date, 0) - с воскресенья

✓ Решение верно

Следующий

Результат запроса

ERD диаграмма

Показать таблицу

id	home_type	address	has_tv	has_internet	has_kitchen	has_air_con	price
2	Entire home/apt	10018, 6th Avenue, New York	0	1	1	1	225
13	Private room	11215, 11th Street, New York	0	0	0	0	89
38	Entire home/apt	11237, Troutman Street, New York	1	0	1	0	85

4. Какой(ие) кабинет(ы) пользуются самым большим спросом?

<https://sql-academy.org/ru/trainer/tasks/45>

```
SELECT classroom
FROM Schedule
GROUP BY classroom
HAVING COUNT(classroom) = (
    SELECT COUNT(classroom)
    FROM Schedule
    GROUP BY classroom
    ORDER BY COUNT(classroom) DESC
    LIMIT 1);
```

- получается 2 кабинета, т.к. значение COUNT(classroom) для них одинаковое и равно 5

✓ Решение верно

Следующий

Результат запроса

ERD диаграмма

Показать таблицу

classroom
43
53

5. Для каждой пары последовательных дат, dt1 и dt2, поступления средств (таблица Income_o) найти сумму выдачи денег (таблица Outcome_o) в полуоткрытом интервале (dt1, dt2].

https://www.sql-ex.ru/learn_exercises.php?LN=145

Income_o

point	date	inc
1	2001-03-22 00:00:00.000	15000.0000
1	2001-03-23 00:00:00.000	15000.0000
1	2001-03-24 00:00:00.000	3400.0000
1	2001-04-13 00:00:00.000	5000.0000
1	2001-05-11 00:00:00.000	4500.0000
2	2001-03-22 00:00:00.000	10000.0000
2	2001-03-24 00:00:00.000	1500.0000
3	2001-09-13 00:00:00.000	11500.0000
3	2001-10-02 00:00:00.000	18000.0000

Outcome_o

point	date	out
1	2001-03-14 00:00:00.000	15348.0000
1	2001-03-24 00:00:00.000	3663.0000
1	2001-03-26 00:00:00.000	1221.0000
1	2001-03-28 00:00:00.000	2075.0000
1	2001-03-29 00:00:00.000	2004.0000
1	2001-04-11 00:00:00.000	3195.0400
1	2001-04-13 00:00:00.000	4490.0000
1	2001-04-27 00:00:00.000	3110.0000
1	2001-05-11 00:00:00.000	2530.0000
2	2001-03-22 00:00:00.000	1440.0000
2	2001-03-29 00:00:00.000	7848.0000
2	2001-04-02 00:00:00.000	2040.0000
3	2001-09-13 00:00:00.000	1500.0000
3	2001-09-14 00:00:00.000	2300.0000
3	2002-09-16 00:00:00.000	2150.0000

Результат правильного выполнения упражнения:

qty	dt1	dt2
.0000	2001-03-22 00:00:00.000	2001-03-23 00:00:00.000
3663.0000	2001-03-23 00:00:00.000	2001-03-24 00:00:00.000
22873.0400	2001-03-24 00:00:00.000	2001-04-13 00:00:00.000
5640.0000	2001-04-13 00:00:00.000	2001-05-11 00:00:00.000
1500.0000	2001-05-11 00:00:00.000	2001-09-13 00:00:00.000
2300.0000	2001-09-13 00:00:00.000	2001-10-02 00:00:00.000

Шаг 1 - выведем интервалы дат dt1, dt2 с помощью оконной + LEAD функции. Работаем с Income_o таблицей.

```
SELECT dt1, dt2
FROM (
    SELECT date AS dt1,
           LEAD (date, 1) over (ORDER BY date) AS dt2
    FROM (SELECT DISTINCT(date) FROM Income_o) AS temp
) AS temp2
WHERE dt2 IS NOT NULL
```

dt1	dt2
2001-03-22 00:00:00.000	2001-03-23 00:00:00.000
2001-03-23 00:00:00.000	2001-03-24 00:00:00.000
2001-03-24 00:00:00.000	2001-04-13 00:00:00.000
2001-04-13 00:00:00.000	2001-05-11 00:00:00.000
2001-05-11 00:00:00.000	2001-09-13 00:00:00.000
2001-09-13 00:00:00.000	2001-10-02 00:00:00.000

Шаг 2 – Верное решение, но скорее всего есть более оптимальное и короткое решение.

```
SELECT SUM(qty) AS qty, dt1, dt2
FROM
(SELECT ISNULL(qty, 0) AS qty, dt1, dt2
FROM
(SELECT dt1, dt2, qty
FROM (SELECT date AS dt1,
           LEAD(date, 1) OVER(ORDER BY date) AS dt2
    FROM (SELECT DISTINCT(date) FROM Income_o AS I_o) AS tmp1) AS tmp2
OUTER APPLY (SELECT SUM(out) AS qty
    FROM Outcome_o AS O_o
    GROUP BY date
    HAVING O_o.date > tmp2.dt1 AND O_o.date <= tmp2.dt2) AS tmp3
WHERE dt2 IS NOT NULL) AS tmp4) AS tmp5
GROUP BY dt1, dt2
```

Запрос:

cls

max

```
SELECT SUM(qty) AS qty, dt1, dt2
FROM
(SELECT ISNULL(qty, 0) AS qty, dt1, dt2
FROM
(SELECT dt1, dt2, qty
FROM (SELECT date AS dt1,
      LEAD(date, 1) OVER(ORDER BY date) AS dt2
      FROM (SELECT DISTINCT(date) FROM Income_o AS I_o) AS tmp1) AS tmp2
OUTER APPLY (SELECT SUM(out) AS qty
             FROM Outcome_o AS O_o
             GROUP BY date
             HAVING O_o.date > tmp2.dt1 AND O_o.date <= tmp2.dt2) AS tmp3
WHERE dt2 IS NOT NULL) AS tmp4) AS tmp5
GROUP BY dt1, dt2
```

итить (Ctrl+Enter) Tab≡Ctrl+Shift+пробел ☐ Без проверки

Показать правильный результат

Правильно.

Результат выполнения Вашего запроса:

qty	dt1	dt2
.0000	2001-03-22 00:00:00.000	2001-03-23 00:00:00.000
3663.0000	2001-03-23 00:00:00.000	2001-03-24 00:00:00.000
22873.0400	2001-03-24 00:00:00.000	2001-04-13 00:00:00.000
5640.0000	2001-04-13 00:00:00.000	2001-05-11 00:00:00.000
1500.0000	2001-05-11 00:00:00.000	2001-09-13 00:00:00.000
2300.0000	2001-09-13 00:00:00.000	2001-10-02 00:00:00.000

6. Составить отчет о битвах кораблей в два суперстолбца.

https://www.sql-ex.ru/learn_exercises.php?LN=130

Classes						Ships		
class	type	country	numGuns	bore	displacement	name	class	launched
Bismarck	bb	Germany	8	15.0	42000	California	Tennessee	1921
Iowa	bb	USA	9	16.0	46000	Haruna	Kongo	1916
Kongo	bc	Japan	8	14.0	32000	Hiei	Kongo	1914
North Carolina	bb	USA	12	16.0	37000	Iowa	Iowa	1943
Renown	bc	Gt.Britain	6	15.0	32000	Kirishima	Kongo	1915
Revenge	bb	Gt.Britain	8	15.0	29000	Kongo	Kongo	1913
Tennessee	bb	USA	12	14.0	32000	Missouri	Iowa	1944
Yamato	bb	Japan	9	18.0	65000	Musashi	Yamato	1942
						New Jersey	Iowa	1943
						North Carolina	North Carolina	1941
						Ramillies	Revenge	1917
Battles						Outcomes		
name	date					ship	battle	result
#Cuba62a	1962-10-20 00:00:00.000					Bismarck	North Atlantic	sunk
#Cuba62b	1962-10-25 00:00:00.000					California	Guadalcanal	damaged
Guadalcanal	1942-11-15 00:00:00.000					CALifornia	Surigao Strait	ok
North Atlantic	1941-05-25 00:00:00.000					Duke of York	North Cape	ok
North Cape	1943-12-26 00:00:00.000					Fuso	Surigao Strait	sunk
Surigao Strait	1944-10-25 00:00:00.000					Hood	North Atlantic	sunk
						King George V	North Atlantic	ok
						Kirishima	Guadalcanal	sunk
						Prince of Wales	North Atlantic	damaged
						Rodney	North Atlantic	OK

Работаем только с таблицей Battles

Шаг 1 – По сути это уже и есть решение, но нужно другое отображение данных.

```
SELECT ROW_NUMBER() OVER(ORDER BY date, name) AS rn, name, date  
FROM Battles  
ORDER BY date
```

rn	name	date
1	North Atlantic	1941-05-25 00:00:00.000
2	Guadalcanal	1942-11-15 00:00:00.000
3	North Cape	1943-12-26 00:00:00.000
4	Surigao Strait	1944-10-25 00:00:00.000
5	#Cuba62a	1962-10-20 00:00:00.000
6	#Cuba62b	1962-10-25 00:00:00.000

Результаты выполнения

правильного запроса:

rn_1	name_1	date_1	rn_2	name_2	date_2
1	North Atlantic	1941-05-25 00:00:00.000	4	Surigao Strait	1944-10-25 00:00:00.000
2	Guadalcanal	1942-11-15 00:00:00.000	5	#Cuba62a	1962-10-20 00:00:00.000
3	North Cape	1943-12-26 00:00:00.000	6	#Cuba62b	1962-10-25 00:00:00.000

Шаг 2 – магия (такие прихоти отображения данных не стоят трудностей этой обработки ‘суперкод для суперстолбцов’)

```
SELECT rn_1, name_1, date_1, rn_2, name_2, date_2
FROM (SELECT (CASE when quartile = 1 then tmp.rn end) AS rn_1,
(CASE when quartile = 1 then tmp.name end) AS name_1,
(CASE when quartile = 1 then tmp.date end) AS date_1,
LEAD((CASE when quartile = 2 then tmp.rn end), (SELECT COUNT(quartile)
FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp1
WHERE quartile = 1)) over (ORDER BY (CASE when quartile = 2 then tmp.rn end)) AS rn_2,
LEAD((CASE when quartile = 2 then tmp.name end), (SELECT COUNT(quartile)
FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp1
WHERE quartile = 1)) over (ORDER BY (CASE when quartile = 2 then tmp.rn end)) AS name_2,
LEAD((CASE when quartile = 2 then tmp.date end), (SELECT COUNT(quartile)
FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp1
WHERE quartile = 1)) over (ORDER BY (CASE when quartile = 2 then tmp.rn end)) AS date_2
FROM
(SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp) AS temp2
WHERE rn_1 IS NOT NULL
```

Правильно.

Результат выполнения Вашего запроса:

rn_1	name_1	date_1	rn_2	name_2	date_2
1	North Atlantic	1941-05-25 00:00:00.000	4	Surigao Strait	1944-10-25 00:00:00.000
2	Guadalcanal	1942-11-15 00:00:00.000	5	#Cuba62a	1962-10-20 00:00:00.000
3	North Cape	1943-12-26 00:00:00.000	6	#Cuba62b	1962-10-25 00:00:00.000

Пояснение к решению:

Левая часть и правая части:

<pre>SELECT tmp.rn AS rn_1, tmp.name AS name_1, tmp.date AS date_1 FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2) OVER(ORDER BY date) AS quartile FROM Battles) AS tmp WHERE quartile = 1</pre>	<pre>SELECT tmp.rn AS rn_2, tmp.name AS name_2, tmp.date AS date_2 FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2) OVER(ORDER BY date) AS quartile FROM Battles) AS tmp WHERE quartile = 2</pre>																								
<table><tr><th>rn_1</th><th>name_1</th><th>date_1</th></tr><tr><td>1</td><td>North Atlantic</td><td>1941-05-25 00:00:00.000</td></tr><tr><td>2</td><td>Guadalcanal</td><td>1942-11-15 00:00:00.000</td></tr><tr><td>3</td><td>North Cape</td><td>1943-12-26 00:00:00.000</td></tr></table>	rn_1	name_1	date_1	1	North Atlantic	1941-05-25 00:00:00.000	2	Guadalcanal	1942-11-15 00:00:00.000	3	North Cape	1943-12-26 00:00:00.000	<table><tr><th>rn_2</th><th>name_2</th><th>date_2</th></tr><tr><td>4</td><td>Surigao Strait</td><td>1944-10-25 00:00:00.000</td></tr><tr><td>5</td><td>#Cuba62a</td><td>1962-10-20 00:00:00.000</td></tr><tr><td>6</td><td>#Cuba62b</td><td>1962-10-25 00:00:00.000</td></tr></table>	rn_2	name_2	date_2	4	Surigao Strait	1944-10-25 00:00:00.000	5	#Cuba62a	1962-10-20 00:00:00.000	6	#Cuba62b	1962-10-25 00:00:00.000
rn_1	name_1	date_1																							
1	North Atlantic	1941-05-25 00:00:00.000																							
2	Guadalcanal	1942-11-15 00:00:00.000																							
3	North Cape	1943-12-26 00:00:00.000																							
rn_2	name_2	date_2																							
4	Surigao Strait	1944-10-25 00:00:00.000																							
5	#Cuba62a	1962-10-20 00:00:00.000																							
6	#Cuba62b	1962-10-25 00:00:00.000																							

Первая попытка соединения:

```
SELECT (CASE when quartile = 1 then tmp.rn end) AS rn_1,
(CASE when quartile = 1 then tmp.name end) AS name_1,
(CASE when quartile = 1 then tmp.date end) AS date_1,
(CASE when quartile = 2 then tmp.rn end) AS rn_2,
(CASE when quartile = 2 then tmp.name end) AS name_2,
(CASE when quartile = 2 then tmp.date end) AS date_2
FROM
(SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp
```

rn_1	name_1	date_1	rn_2	name_2	date_2
NULL	NULL	NULL	4	Surigao Strait	1944-10-25 00:00:00.000
NULL	NULL	NULL	5	#Cuba62a	1962-10-20 00:00:00.000
NULL	NULL	NULL	6	#Cuba62b	1962-10-25 00:00:00.000
1	North Atlantic	1941-05-25 00:00:00.000	NULL	NULL	NULL
2	Guadalcanal	1942-11-15 00:00:00.000	NULL	NULL	NULL
3	North Cape	1943-12-26 00:00:00.000	NULL	NULL	NULL

NULL просто так не убрать, добавим еще магии:

```
SELECT rn_1, name_1, date_1, rn_2, name_2, date_2
FROM (SELECT (CASE when quartile = 1 then tmp.rn end) AS rn_1,
(CASE when quartile = 1 then tmp.name end) AS name_1,
(CASE when quartile = 1 then tmp.date end) AS date_1,
LEAD((CASE when quartile = 2 then tmp.rn end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.rn end)) AS rn_2,
LEAD((CASE when quartile = 2 then tmp.name end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.date end)) AS name_2,
LEAD((CASE when quartile = 2 then tmp.date end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.date end)) AS date_2
FROM
(SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp) AS temp2
WHERE rn_1 IS NOT NULL
```

тоит из трёх столбцов
й. Порядковый номер
в первый суперстолбец
ить NULL-значениями.

Запрос:

```
SELECT rn_1, name_1, date_1, rn_2, name_2, date_2
FROM (SELECT (CASE when quartile = 1 then tmp.rn end) AS rn_1,
(CASE when quartile = 1 then tmp.name end) AS name_1,
(CASE when quartile = 1 then tmp.date end) AS date_1,
LEAD((CASE when quartile = 2 then tmp.rn end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.rn end)) AS rn_2,
LEAD((CASE when quartile = 2 then tmp.name end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.date end)) AS name_2,
LEAD((CASE when quartile = 2 then tmp.date end), 3) over (ORDER BY (CASE when quartile = 2 then tmp.date end)) AS date_2
FROM
(SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp) AS temp2
WHERE rn_1 IS NOT NULL
```

cls

max

Выполнить (Ctrl+Enter) Tab≡Ctrl+Shift+пробел ☐ Без проверки

Показать правильный результат

Неверно.

Ваш запрос вернул правильные данные на основной базе, но не прошел тест на проверочной базе.
* Несовпадение данных (12)

Результат выполнения Вашего запроса:

rn_1	name_1	date_1	rn_2	name_2	date_2
1	North Atlantic	1941-05-25 00:00:00.000	4	Surigao Strait	1944-10-25 00:00:00.000
2	Guadalcanal	1942-11-15 00:00:00.000	5	#Cuba62a	1962-10-20 00:00:00.000
3	North Cape	1943-12-26 00:00:00.000	6	#Cuba62b	1962-10-25 00:00:00.000

Запрос ломается на проверочной базе из-за «3», отмеченной на картинке выше. Т.к. 3 = половине количества элементов для конкретной таблицы Battles. Поэтому ее стоит заменить на общее выражение:

```
SELECT COUNT(quartile)
FROM (SELECT ROW_NUMBER() OVER(ORDER BY date) AS rn, name, date, NTILE(2)
OVER(ORDER BY date) AS quartile
FROM Battles) AS tmp1
WHERE quartile = 1
```

И тогда получим итоговый запрос, написанный в шаге 2.