Table: **employee**

Each row of this table contains emp id, company and salary of employee.

Median: The middle number; found by ordering all numbers and picking out the one in the middle
(if there are two middle numbers, taking the mean of those two numbers).

- Median for 4, 1, 7 => First ordered it sequence (1, 4, 7)
  => Pick middle number => Median will be 4
- Median for 4, 1, 7, 2 => First ordered it sequence (1, 2, 4, 7)
  => Pick 2 middle number (if total no. are even) => Median will be Average of 2, 4 that is (2+4)/2 = 3

Write an SQL query to find employees median salary for each company.

Input Data

emp_id	company	salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15
8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

Required Output

company	median_salary
A	482
B	694
C	2645

Input

emp_id	company	salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15
8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

```
Select e.*,
      Rank() Over(Partition By company Order by Salary asc) seq_no_in_order_company_wise
  From employee e
;
```

Output

emp_id	company	salary	seq_no_in_order_company_wise
3	A	15	1
2	A	341	2
5	A	451	3
6	A	513	4
1	A	2341	5
4	A	15314	6
8	B	13	1
7	B	15	2
12	B	234	3
9	B	1154	4
11	B	1221	5
10	B	1345	6
17	C	65	1
13	C	2345	2
14	C	2645	3
15	C	2645	3
16	C	2652	5

seq_no starts at 1 for each company due to partition by company

Input

emp_id	company	salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15
8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

```
Select e.*,
      Rank() Over(Partition By company Order by Salary asc) seq_no_in_order_company_wise,
      Count(1) Over(Partition By company) emp_count_in_company
  From employee e
;
```

Output

emp_id	company	salary	seq_no_in_order_company_wise	emp_count_in_company
3	A	15	1	6
2	A	341	2	6
5	A	451	3	6
6	A	513	4	6
1	A	2341	5	6
4	A	15314	6	6
8	B	13	1	6
7	B	15	2	6
12	B	234	3	6
9	B	1154	4	6
11	B	1221	5	6
10	B	1345	6	6
17	C	65	1	5
13	C	2345	2	5
14	C	2645	3	5
15	C	2645	3	5
16	C	2652	5	5

Input

emp_id	company	salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15
8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

```
With data_with_Seq_No_Count As
(
   Select e.*,
        Rank() Over(Partition By company Order by Salary asc) seq_no_in_order_company_wise,
        Count(1) Over(Partition By company) emp_count_in_company
     From employee e
)
Select d.*,
      emp_count_in_company / 2 lower_seq_of_middle_no,
      emp_count_in_company / 2 + 1 higher_seq_of_middle_no
  From data_with_Seq_No_Count d
;
```

Output

emp_id	company	salary	seq_no_in_order_company_wise	emp_count_in_company	lower_seq_of_middle_no	higher_seq_of_middle_no
3	A	15	1	6	3	4
2	A	341	2	6	3	4
5	A	451	3	6	3	4
6	A	513	4	6	3	4
1	A	2341	5	6	3	4
4	A	15314	6	6	3	4
8	B	13	1	6	3	4
7	B	15	2	6	3	4
12	B	234	3	6	3	4
9	B	1154	4	6	3	4
11	B	1221	5	6	3	4
10	B	1345	6	6	3	4
17	C	65	1	5	2.5	3.5
13	C	2345	2	5	2.5	3.5
14	C	2645	3	5	2.5	3.5
15	C	2645	3	5	2.5	3.5
16	C	2652	5	5	2.5	3.5

Input

emp_id	company	salary
1	A	2341
2	A	341
3	A	15
4	A	15314
5	A	451
6	A	513
7	B	15
8	B	13
9	B	1154
10	B	1345
11	B	1221
12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

```
With data_with_Seq_No_Count As
(
   Select e.*,
        Rank() Over(Partition By company Order by Salary asc) seq_no_in_order_company_wise,
        Count(1) Over(Partition By company) emp_count_in_company
     From employee e
)
Select d.*,
      emp_count_in_company / 2 lower_seq_of_middle_no,
      emp_count_in_company / 2 + 1 higher_seq_of_middle_no
  From data_with_Seq_No_Count d
Where seq_no_in_order_company_wise
  between emp_count_in_company / 2 And emp_count_in_company / 2 + 1
;
```

Output

emp_id	company	salary	seq_no_in_order_company_wise	emp_count_in_company	lower_seq_of_middle_no	higher_seq_of_middle_no
5	A	451	3	6	3	4
6	A	513	4	6	3	4
12	B	234	3	6	3	4
9	B	1154	4	6	3	4
14	C	2645	3	5	2.5	3.5
15	C	2645	3	5	2.5	3.5

Input

emp_id	company	salary
1	A	2341
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12	B	234
13	C	2345
14	C	2645
15	C	2645
16	C	2652
17	C	65

```
With data_with_Seq_No_Count As
(
   Select e.*,
        Rank() Over(Partition By company Order by Salary asc) seq_no_in_order_company_wise,
        Count(1) Over(Partition By company) emp_count_in_company
     From employee e
)
Select d.company,
      avg(salary) median_salary
  From data_with_Seq_No_Count d
Where seq_no_in_order_company_wise
  between emp_count_in_company / 2 And emp_count_in_company / 2 + 1
Group by d.company
;
```

Output

company	median_salary
A	482
B	694
C	2645