

## Day 20 – Median Ages

### **Problem Statement:**

For each country, we are given multiple ages. We have to find the median ages.

### **Logic:**

Median = Middlemost value in the ordered dataset

For **Even** No. of values, Median =  $N/2^{\text{th}}$  and  $N/2+1^{\text{th}}$  terms are median values

For **Odd** No. of values, Median =  $N/2^{\text{th}}$  term is median

### **For Example:**

If we take USA, Number of observations = 5 = ODD

$N/2 = 5/2 = 2.5 \sim 3 = 3^{\text{rd}}$  value will be our median

If we take Poland, Number of observations = 6 = EVEN

$N/2 = 6/2 = 3^{\text{rd}}$  value will be considered for median calculation

$N/2+1 = 3+1 = 4^{\text{th}}$  value as well

Usually, For EVEN values our median would have been  $(N/2^{\text{th}} + N/2+1^{\text{th}} \text{ term})/2$ .

But here, we are only interested in the terms that would be considered for median calculation.

Table1

INPUT		
ID	COUNTRY	AGE
1	Poland	10
2	Poland	5
3	Poland	34
4	Poland	56
5	Poland	45
6	Poland	60
7	India	18
8	India	15
9	India	33
10	India	38
11	India	40
12	India	50
13	USA	20
14	USA	23
15	USA	32
16	USA	54
17	USA	55
18	Japan	65
19	Japan	6
20	Japan	58
21	Germany	54
22	Germany	6
23	Malaysia	44

ExpectedOutput:

OUTPUT	
COUNTRY	AGE
Germany	6
Germany	54
India	33
India	38
Japan	58
Malaysia	44
Poland	34
Poland	45
USA	32

## SOLUTION

```
With median_cte as
(
select country, age, ROW_NUMBER() over(partition by country order by
age) as rn,
cast(count(id) over(partition by country order by age range between
unbounded preceding and unbounded following) as float)as cnt
from people
)
select country, age
from median_cte
where rn >= cnt/2 and rn<=cnt/2+1
```

	country	age	lower_limit	upper_limit
8	India	50	3	4
9	Japan	65	1.5	2.5
10	Japan	6	1.5	2.5
11	Japan	58	1.5	2.5
12	Malaysia	44	0.5	1.5
13	Poland	10	3	4
14	Poland	5	3	4
15	Poland	34	3	4
16	Poland	56	3	4
17	Poland	45	3	4
18	Poland	60	3	4
19	USA	20	2.5	3.5
20	USA	23	2.5	3.5
21	USA	32	2.5	3.5
22	USA	54	2.5	3.5
23	USA	55	2.5	3.5

Lower\_limit = cnt/2

Upper\_limit = cnt/2+1

FINAL SOLUTION!!!

	country	age
1	Germany	6
2	Germany	54
3	India	33
4	India	38
5	Japan	58
6	Malaysia	44
7	Poland	34
8	Poland	45
9	USA	32