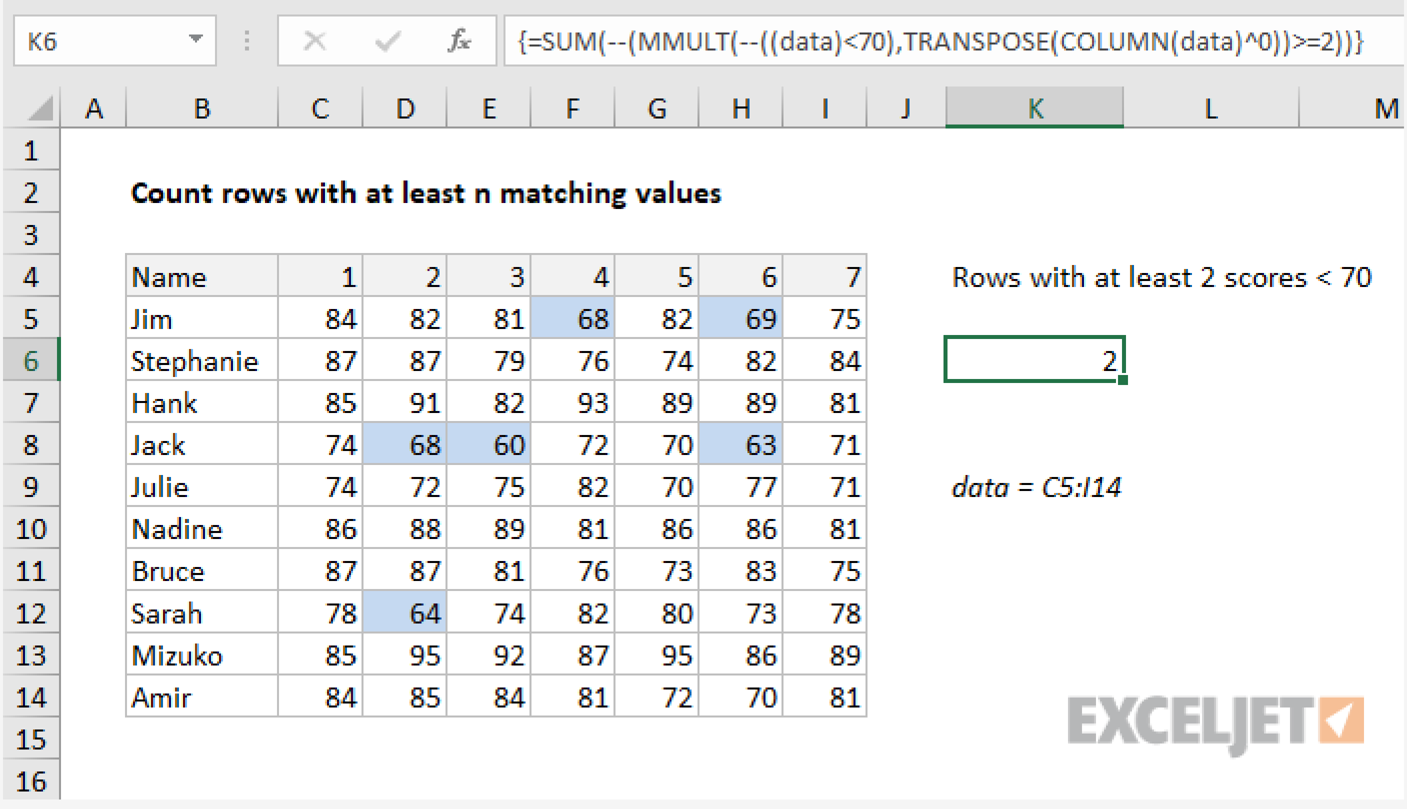
Count rows with at least n matching values



K6

```
{=SUM(--(MMULT(--((data)<70),TRANSPOSE(COLUMN(data)^0))>=2))}
```

Count rows with at least n matching values

Name	1	2	3	4	5	6	7
Jim	84	82	81	68	82	69	75
Stephanie	87	87	79	76	74	82	84
Hank	85	91	82	93	89	89	81
Jack	74	68	60	72	70	63	71
Julie	74	72	75	82	70	77	71
Nadine	86	88	89	81	86	86	81
Bruce	87	87	81	76	73	83	75
Sarah	78	64	74	82	80	73	78
Mizuko	85	95	92	87	95	86	89
Amir	84	85	84	81	72	70	81

Rows with at least 2 scores < 70

2

data = C5:I14

Generic formula

```
{ = SUM( -- (MMULT( -- (criteria),TRANSPOSE(COLUMN(data) ^ 0)) >= N))}
```

Summary

To count rows that contain specific values, you can use an array formula based on the MMULT, TRANSPOSE, COLUMN, and SUM functions. In the example shown, the formula in K6 is:

```
{ = SUM( -- (MMULT( -- ((data) < 70),TRANSPOSE(COLUMN(data) ^ 0)) >= 2))}
```

where **data** is the named range C5:I14.

Note this is an array formula and must be entered with control shift enter.

Explanation

Working from the inside out, the logical criteria used in this formula is:

```
(data) < 70
```

where data is the named range C5:I14. This generates a TRUE / FALSE result for every value in data, and the double negative coerces the TRUE FALSE values to 1 and 0 to yield an array like this:

```
{0,0,0,1,0,1,0;0,0,0,0,0,0,0;0,0,0,0,0,0,0;0,1,1,0,0,1,0;0,0,0,0,0,0
,0;0,0,0,0,0,0,0;0,0,0,0,0,0,0;0,1,0,0,0,0,0;0,0,0,0,0,0,0;0,0,0,0,0
,0,0}
```

Like the original data, this array is 10 rows by 7 columns (10 x 7) and goes into the MMULT function as **array1**. The next argument, **array2** is created with:

```
TRANSPOSE(COLUMN(data) ^ 0))
```

Here, the COLUMN function is used as a way to generate a numeric array of the right size, since matrix multiplication requires the column count in array1 (7) to equal the row count in **array2**.

The COLUMN function returns the 7-column array {3,4,5,6,7,8,9}. By raising this array to a power of zero, we end up with a 7 x 1 array like {1,1,1,1,1,1,1}, which TRANSPOSE changes to a 1 x 7 array like {1;1;1;1;1;1;1}.

MMULT then runs and returns a 10 x 1 array result {2;0;0;3;0;0;0;1;0;0}, which is processed with the logical expression >=2, resulting in an array of TRUE FALSE values:

{TRUE;FALSE;FALSE;TRUE;FALSE;FALSE;FALSE;FALSE;FALSE;FALSE}.

We again coerce TRUE FALSE to 1 and 0 with a double negative to get a final array inside SUM:

```
 = SUM({1;0;0;1;0;0;0;0;0;0})
```

Which correctly returns 2, the number of names with at least 2 scores below 70.