

### **Data overview**

You are an analyst hired by an NPO to work on initiatives that focus on closing the **gender achievement gap in education**.



### You need...

**Summary statistics** to help you understand the gender differences among PhD graduates.



The **PhD graduates** in public chartered universities in Kenya, 2015 dataset from openAFRICA.



### **Data overview**

The PhD graduates dataset contains 22 rows and the following columns:

#### A. Qualification

The title of the qualification being considered.

#### B. Male

The number of male graduates for each qualification in the year 2015.

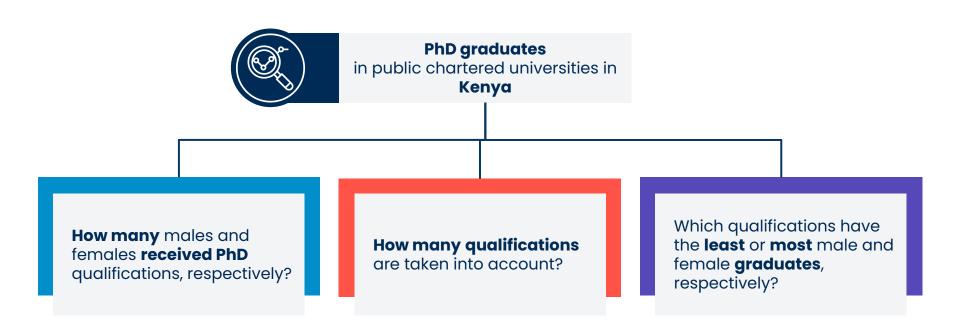
#### c. Female

The number of female graduates for each qualification in the year 2015.

$\left\{ \right\} $	The dataset		
	A	В	С
1	Qualification	Male	Female
2	Agriculture, Forestry and Fisheries	17	13
3	Architecture	1	1
4	Business and administration	69	38
5	Computing	6	3
6	Education (Arts)	39	21
7	Education (Science)	4	0
8	Engineering	2	0
9	Environment	8	8
10	Health and Welfare	26	18
11	Humanities and Arts	36	21
12	Journalism and Information	7	2
13	Law	1	1
14	Life Science and Physical Science	25	15
15	Manufacturing	0	0
16	Mathematics and Statistics	7	1
17	Security and Conflict Resolution	0	0
18	Services	2	2
19	Social and Behavioral Science	5	6
20	Teacher Training	0	2
21	Veterinary	7	3
22	Other	0	0



# Consider the questions we want to investigate





### The SUM function

How many males and females received PhD qualifications, respectively?

The answer to this question will give more information on the **gender disparities** among PhD holders at Kenya's public chartered universities in 2015.

O1. Add all the values in the Male column;
O2. Add all the values in the Female column;

	А	В	С	D
1	Qualification	Male	Female	_
2	Agriculture, Forestry and Fisheries	17	13	
3	Architecture	1	1	
4	Business and administration	69	38	
5	Computing	6	3	
6	Education (Arts)	39	21	
7	Education (Science)	4	0	
8	Engineering	2	0	
9	Environment	8	8	
0	Health and Welfare	26	18	
1	Humanities and Arts	36	21	
2	Journalism and Information	7	2	
3	Law	1	1	
4	Life Science and Physical Science	25	15	
15	Manufacturing	0	0	
6	Mathematics and Statistics	7	1	
17	Security and Conflict Resolution	0	0	
18	Services	2	2	
9	Social and Behavioral Science	5	6	
20	Teacher Training	0	2	
21	Veterinary	7	3	
22	Other	0	0	



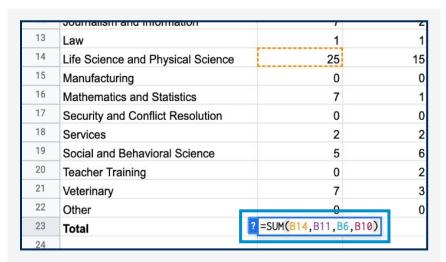
### The SUM function

=SUM(value1, [value2, ...])

Law 14 Life Science and Physical Science 25 15 Manufacturing 16 Mathematics and Statistics 17 Security and Conflict Resolution 18 Services 19 Social and Behavioral Science **Teacher Training** Veterinary Other ? =SUM(B2:B22) **Total** 24

The SUM of a range.

The **SUM** function is used to **add** the cells that are specified in the function argument.



The SUM of specific cells.

### Data aggregations and descriptive statistics

### alx

## The SUM function

**01.** Ignores **empty** cells, cells with **text**, and **True/False** values.

**02.** Returns an **error** if any of the cells contain errors.

1.4	ence and Physical Science	25	15	
	O1. cturing	0	0	
16	Mathematics and Statistics	7	1	
17	Security and Conflict Resolution	0	0	
18	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	one	2	
21	Veterinary		3	
22	Other	TRUE	0	
23	Total	255		
24				

13	Law	1	1
	02. ence and Physical Science	25	15
15	Manufacturing	0	0
16	Mathematics and Statistics	7	1
17	Security and Conflict Resolution	0	0
18	Services	2	2
19	Social and Behavioral Science	5	6
20	Teacher Training	#NAME?	2
21	Veterinary	7	3
22	Other	0	0
23	To	otal #NAME?	
24			



## The COUNT function

How many qualifications are taken into account?

This question will provide insight into the **number of qualifications** that are taken into account in this study and give us a better understanding of the **scope of the values** we are working with.

01.

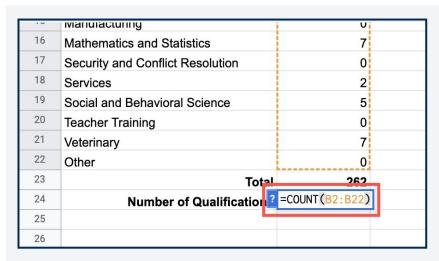
Count the number of entries in the **Qualification** column;

			0	
_	A	В	С	D
1	Qualification	Male	Female	
2	Agriculture, Forestry and Fisheries	17	13	
3	Architecture	1	1	
4	Business and administration	69	38	
5	Computing	6	3	
6	Education (Arts)	39	21	
7	Education (Science)	4	0	
8	Engineering	2	0	
9	Environment	8	8	
10	Health and Welfare	26	18	
11	Humanities and Arts	36	21	
12	Journalism and Information	7	2	
13	Law	1	1	
14	Life Science and Physical Science	25	15	
15	Manufacturing	0	0	
16	Mathematics and Statistics	7	1	
17	Security and Conflict Resolution	0	0	
18	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	0	2	
21	Veterinary	7	3	
22	Other	0	0	



## The COUNT function

### =COUNT(value1, [value2, ...])



The COUNT of a range.

The **COUNT** function counts the number of cells that have numerical values within the specified range.

#### Data aggregations and descriptive statistics

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## The COUNT function

- **01.** Ignores **empty** cells, cells with **text**, and **True/False** values.
- **02.** Use **COUNTA** to include text and True/False values.
- 03. Ignores cells that contain errors.

15	Manufacturing	0	0	
	02. atics and Statistics	7	1	
17	Security and Conflict Resolution	0	0	
18	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	one	2	
21	Veterinary	7	3	
22	Other	TRUE	0	
23	Tota	1 202	7	
24	Number of Qualif ? =CO	UNTA(B2:B22)		
25			_	
26				

16	Mathematics and Statistics	7	1	
	Mathematics and Statistics			
	01. ty and Conflict Resolution	0	0	
	SELVICES	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	one	2	
21	Veterinary		3	
22	Other	TRUE	0	
23	Total	255		
24	Number of Qualifications	18		
25				
26				
27				

10	wanulacturing	U	U	_
16	Mathematics and Statistics	7	1	
	03. ty and Conflict Resolution	0	0	
18	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	#NAME?	2	
21	Veterinary	7	3	
22	Other	0	0	
23	Total	#NAME?	_	
24	Number of Qualifications	21		
25				
26				



### The MIN and MAX functions

Which qualifications have the least or most male and female graduates, respectively?

This inquiry will shed light on the **degrees that have** graduated the most or least number of males and females.

This can also help us determine the qualifications that men and women are more likely to pursue.

Find the minimum and maximum values in the **Male** column.

Find the minimum and maximum values in the Female column.

	A	В	С	D
1	Qualification	Male	Female	
2	Agriculture, Forestry and Fisheries	17	13	
3	Architecture	1	1	
4	Business and administration	69	38	
5	Computing	6	3	
6	Education (Arts)	39	21	
7	Education (Science)	4	0	
8	Engineering	2	0	
9	Environment	8	8	
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2	Journalism and Information	7	2	
3	Law	1	1	
4	Life Science and Physical Science	25	15	
15	Manufacturing	0	0	
16	Mathematics and Statistics	7	1	
17	Security and Conflict Resolution	0	0	
18	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	0	2	
21	Veterinary	7	3	
22	Other	0	0	

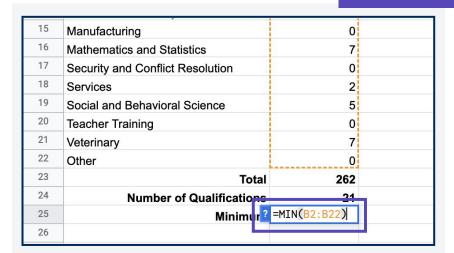


### The MIN and MAX functions

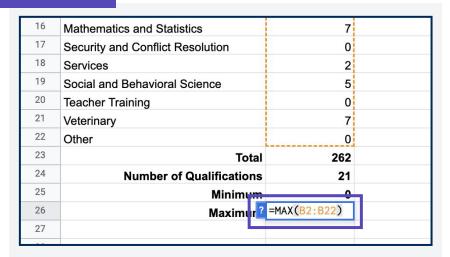
=MIN(value1, [value2, ...])

The **MIN** and **MAX** functions find the minimum and maximum number within the specified range.

=MAX(value1, [value2, ...])



The MIN of a range.



The MAX of a range.



## The MIN and MAX functions

**01.** Ignores **empty** cells, cells with **text**, and **True/False** values.

**02.** Returns an **error** if any of the cells contain errors.

16	Mathematics and Statistics	7	1	
	01. y and Conflict Resolution	0	0	
	Services	2	2	
19	Social and Behavioral Science	5	6	
20	Teacher Training	one	2	
21	Veterinary		3	
22	Other	TRUE	0	
23	Total	255		
24	Number of Qualifications	20		
25	Minimum	0		
26	Maximum	69		
27				

17	Security and Conflict Resolution	0	0
	<b>02.</b> s	2	2
19	Social and Behavioral Science	5	6
20	Teacher Training	#NAME?	2
21	Veterinary		3
22	Other	TRUE	0
23	Total	#NAME?	
24	Number of Qualifications	20	
25	Minimum	#NAME?	
26	Maximum	#NAME?	
27			
20			