

Excel offers a whole range of statistical functions. You should have previously used the functions MAX, MIN and AVERAGE. We are now going to look at some of the other commonly used functions. For example:

- **MODE, MEDIAN** The mode and median of a set of data.
- **COUNT, COUNTBLANK, COUNTIF** Count the cells that fulfill the given criteria.
- **LARGE, SMALL** Find the 7th largest, or the 4th smallest value etc.
- **STDEV** Standard deviation in a set of data.
- **RANK** The value occupying a certain rank in the list.
- **QUARTILE** The number one quarter of the way through the set etc.
- **PERCENTILE** The number 90% of the way through the set etc.

The spreadsheet below uses a number of statistical functions to analyse a set of data (present in columns B and C).

	A	B	C	D	E	F	G	H	I	J	K
1											
2		Data			FUNCTIONS				MORE ADVANCED FUNCTIONS		
3	1	34	35		Maximum	65			StDev	14	Standard Deviation
4	2	24	34		Minimum	23			Rank	4	Position of e.g. 25
5	3	53	65		Average	41.55			Percentile (0.90)	63.20	90th Percentile
6	4	25			Mode	34			Percentile (0.65)	47.80	65th Percentile
7	5	23	53		Median	35.5			Percentile (0.1)	24.00	10th Percentile
8	6	54	32		Count	20			Quartile (0)	23.00	Minimum
9	7	45	36		CountBlank	2			Quartile (1)	33.50	25th Percentile
10	8	34	65		Countlf (>30)	16			Quartile (2)	35.50	Median
11	9	43	24		Large	63	3 rd largest		Quartile (3)	53.25	75th Percentile
12	10		63		Small	24	2 nd smallest		Quartile (4)	65.00	Maximum
13	11	54	35								
14											
15											
16											
17											

Task 1 – Data

Ignoring the blank cells, write out the data in order, starting with the smallest, in a table like the one shown below.

Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Data																				
						Mode														
	Minimum	2 nd smallest			25 th Percentile					Median			65 th Percentile	75 th Percentile			3 rd largest		Maximum	

Note – The way Excel calculates its quartiles and percentiles is fairly complicated. It will not be covered here.

Task 2 – Using the Functions

Recreate the spreadsheet shown above. Make sure that all the statistical values are created using formulas that refer to the data in the range B3:C13.

	A	B	C	D	E	F	G	H	I	J	K
1											
2		Data			FUNCTIONS				MORE ADVANCED FUNCTIONS		
3	1	34	35								
4	2	24	34		Maximum	65			StDev	14	Standard Deviation
5	3	53	65		Minimum	23					
6	4	25							Rank	4	Position of e.g. 25
7	5	23	53		Average	41.55					
8	6	54	32		Mode	34			Percentile (0.90)	63.20	90th Percentile
9	7	45	36		Median	35.5			Percentile (0.65)	47.80	65th Percentile
10	8	34	65						Percentile (0.1)	24.00	10th Percentile
11	9	43	24		Count	20					
12	10		63		CountBlank	2			Quartile (0)	23.00	Minimum
13	11	54	35		Countif (>30)	16			Quartile (1)	33.50	25th Percentile
14									Quartile (2)	35.50	Median
15					Large	63	3 rd largest		Quartile (3)	53.25	75th Percentile
16					Small	24	2 nd smallest		Quartile (4)	65.00	Maximum
17											

Task 1 – Data

Ignoring the blank cells, write out the data in order, starting with the smallest, in a table like the one shown below.

Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Data	23	24	24	25	32	34	34	34	35	35	36	43	45	53	53	54	54	63	65	65
						Mode														
Minimum		2 nd smallest			25 th Percentile					Median			65 th Percentile	75 th Percentile			3 rd largest			Maximum