Intermediate Excel

In this lab, we are going to take a clean data set and begin to "interview" our data with more advanced functions. Using a hypothesis and questions, we are going to ask questions of our data to help us prove our disprove our hypothesis. We will be using calculations like summation and percentages and tools like filtering and sorting.

Hospital and Beds Private and Government in Khyber Pakhtunkhwa

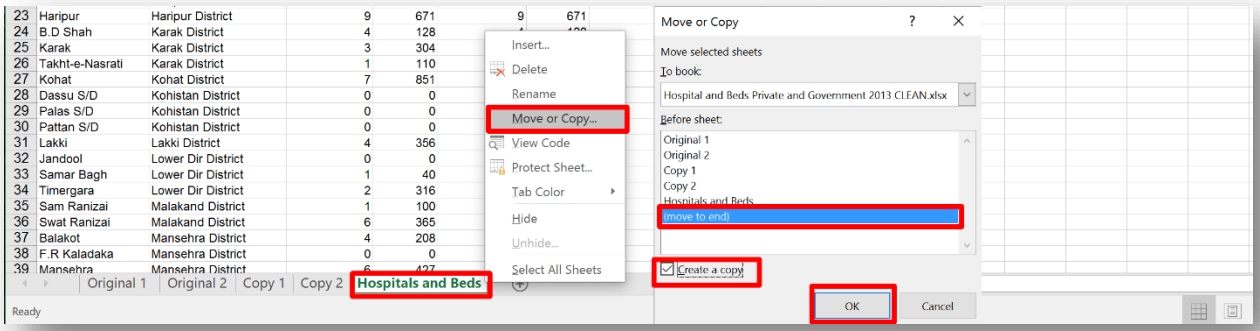
Hypothesis: Access to hospitals is uneven across Khyber Pakhtunkhwa with both public and private hospitals concentrated in the most urban districts.

- **Question 1:** What is the total number of hospitals and hospital beds in the province?
- **Question 2:** Which three districts have the highest number of hospitals?
- **Question 3:** Which three districts have the highest number of hospital beds? Which is a better measurement of access to hospital care?
- **Question 4:** Within the three districts with the highest number of hospitals, which tehsil has the most?
- **Question 5:** Within the three districts that have the highest number of hospital beds, which tehsil has the most?
- **Question 6:** Which district has the highest percentage of hospitals?
- **Question 7:** Which district has the lowest percentage of private hospital beds?
- **Question 8:** Which district has the highest percentage of private hospitals? and the lowest percentage?
- **Question 9:** What is the average number of total, private and public hospitals and hospital beds per district? And for the province?
- **Question 10:** Why would be adding population data be useful in proving or disproving our hypothesis?

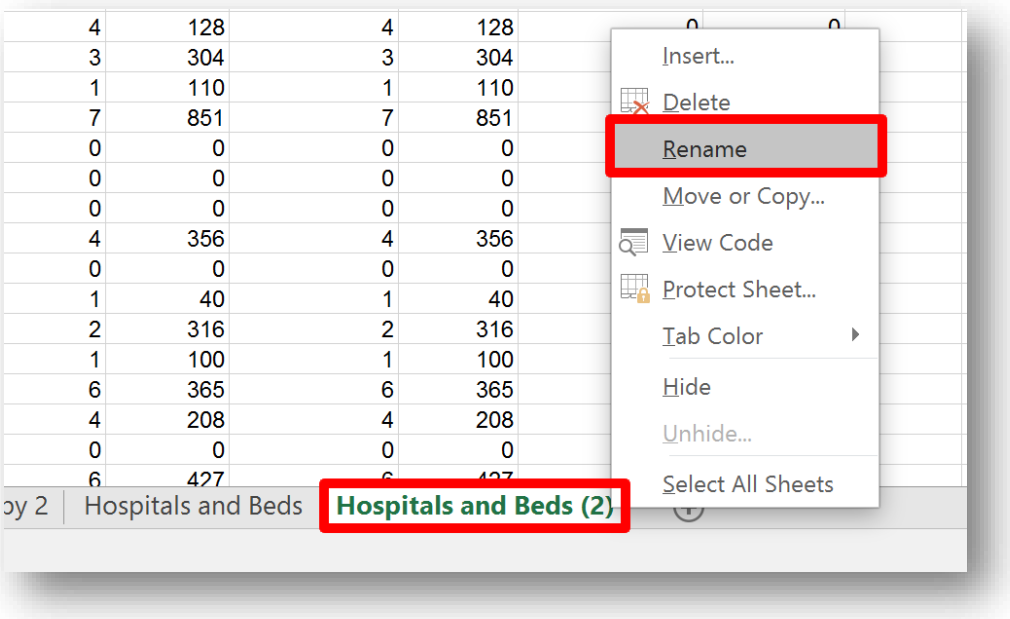
ANALYSIS

Question 1 What is the total number of hospitals and hospital beds in the province?

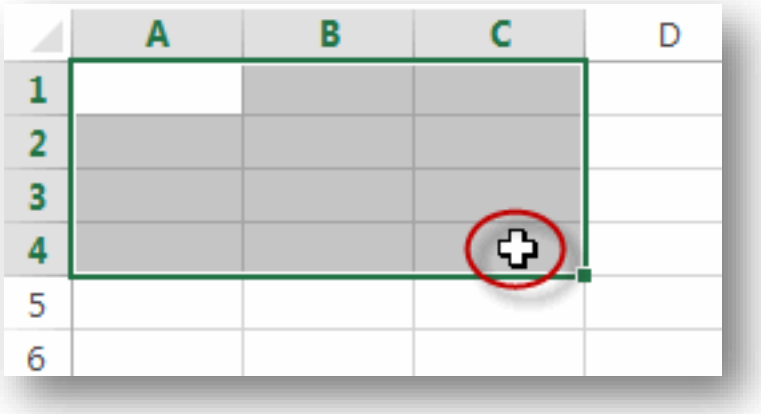
1. Open **Hospital and Beds Private and Government 2013.xlsx.** This data set should be clean as you worked on it in the Cleaning Data lab.
2. It is important for the data journalism fact checking process to document all the steps of your analysis. For this reason we ask you to create a separated sheet for every question. We are going to use the Move or Copy tool to avoid simple copy and paste mistakes. Go to Hospitals and Bed sheet, right click on the sheet and click on Move or Copy, select move to the end and create a copy, then click on OK.



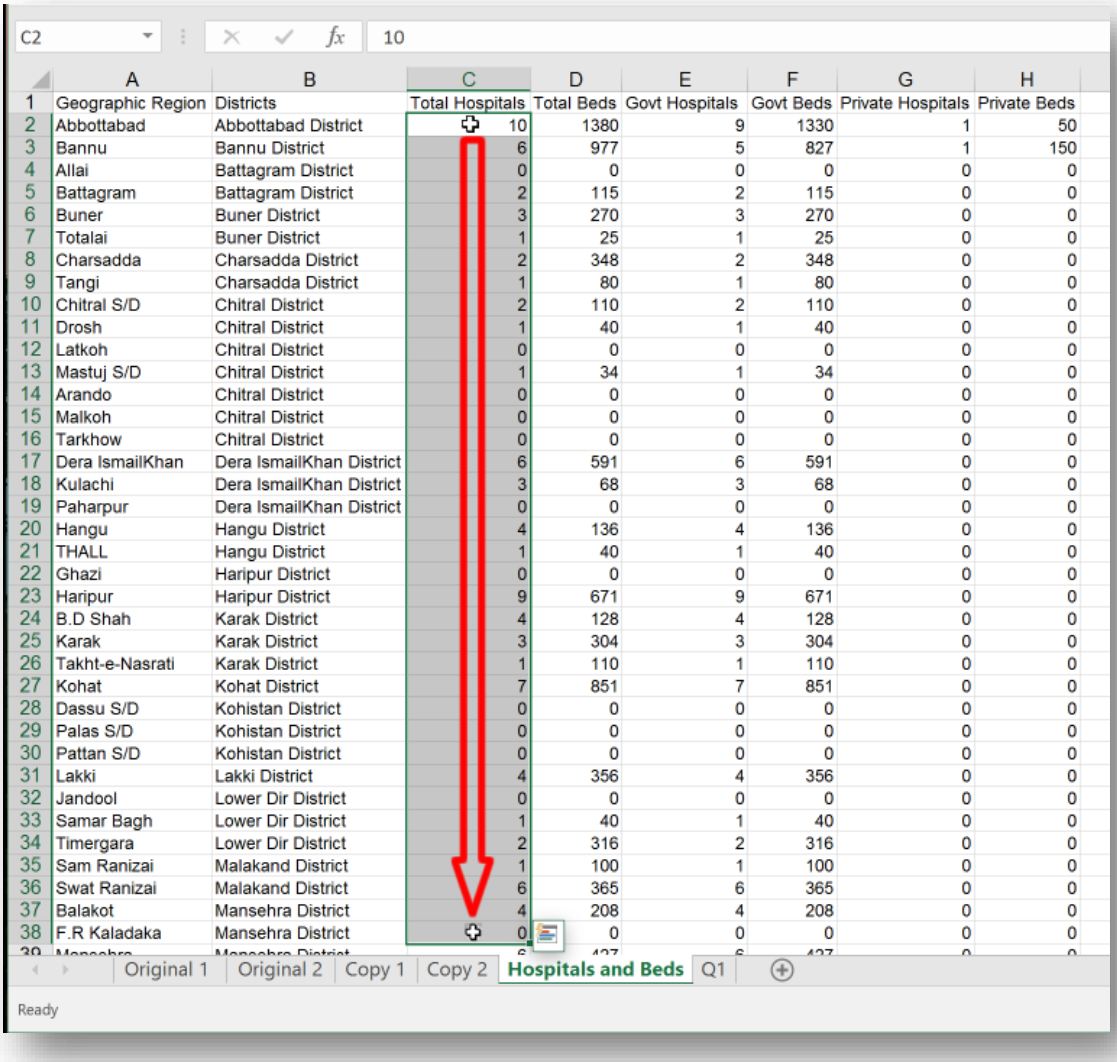
3. Rename the new sheet "Hospitals and Beds (2)" as Q1. Right click on these sheet, click on Rename and change the name by Q1.



4. **Question 1** What is the total number of hospitals and hospital beds in the province? As you see column C and D have the total of hospital and hospital bed for each Tehsil, so what we need make a summation of all values in column C and D. Which cell address has the first value? Which cell address has the last? Select all cells between those two cell addresses. That is, select from C2 to C56.



5. Click and drag to from cell C2 to cell C56



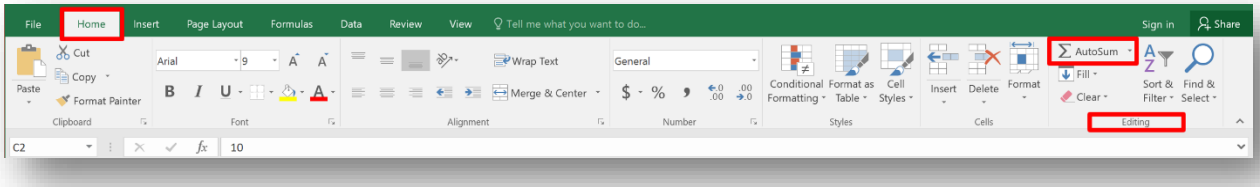
C2 | 10

	A	B	C	D	E	F	G	H
1	Geographic Region	Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
2	Abbottabad	Abbottabad District	10	1380	9	1330	1	50
3	Bannu	Bannu District	6	977	5	827	1	150
4	Allai	Battagram District	0	0	0	0	0	0
5	Battagram	Battagram District	2	115	2	115	0	0
6	Buner	Buner District	3	270	3	270	0	0
7	Totalai	Buner District	1	25	1	25	0	0
8	Charsadda	Charsadda District	2	348	2	348	0	0
9	Tangi	Charsadda District	1	80	1	80	0	0
10	Chitral S/D	Chitral District	2	110	2	110	0	0
11	Drosh	Chitral District	1	40	1	40	0	0
12	Latkoh	Chitral District	0	0	0	0	0	0
13	Mastuj S/D	Chitral District	1	34	1	34	0	0
14	Arando	Chitral District	0	0	0	0	0	0
15	Malkoh	Chitral District	0	0	0	0	0	0
16	Tarkhow	Chitral District	0	0	0	0	0	0
17	Dera IsmailKhan	Dera IsmailKhan District	6	591	6	591	0	0
18	Kulachi	Dera IsmailKhan District	3	68	3	68	0	0
19	Paharpur	Dera IsmailKhan District	0	0	0	0	0	0
20	Hangu	Hangu District	4	136	4	136	0	0
21	THALL	Hangu District	1	40	1	40	0	0
22	Ghazi	Haripur District	0	0	0	0	0	0
23	Haripur	Haripur District	9	671	9	671	0	0
24	B.D Shah	Karak District	4	128	4	128	0	0
25	Karak	Karak District	3	304	3	304	0	0
26	Takht-e-Nasrati	Karak District	1	110	1	110	0	0
27	Kohat	Kohat District	7	851	7	851	0	0
28	Dassu S/D	Kohistan District	0	0	0	0	0	0
29	Palas S/D	Kohistan District	0	0	0	0	0	0
30	Pattan S/D	Kohistan District	0	0	0	0	0	0
31	Lakki	Lakki District	4	356	4	356	0	0
32	Jandool	Lower Dir District	0	0	0	0	0	0
33	Samar Bagh	Lower Dir District	1	40	1	40	0	0
34	Timergara	Lower Dir District	2	316	2	316	0	0
35	Sam Ranizai	Malakand District	1	100	1	100	0	0
36	Swat Ranizai	Malakand District	6	365	6	365	0	0
37	Balakot	Mansehra District	4	208	4	208	0	0
38	F.R Kaladaka	Mansehra District	0	0	0	0	0	0

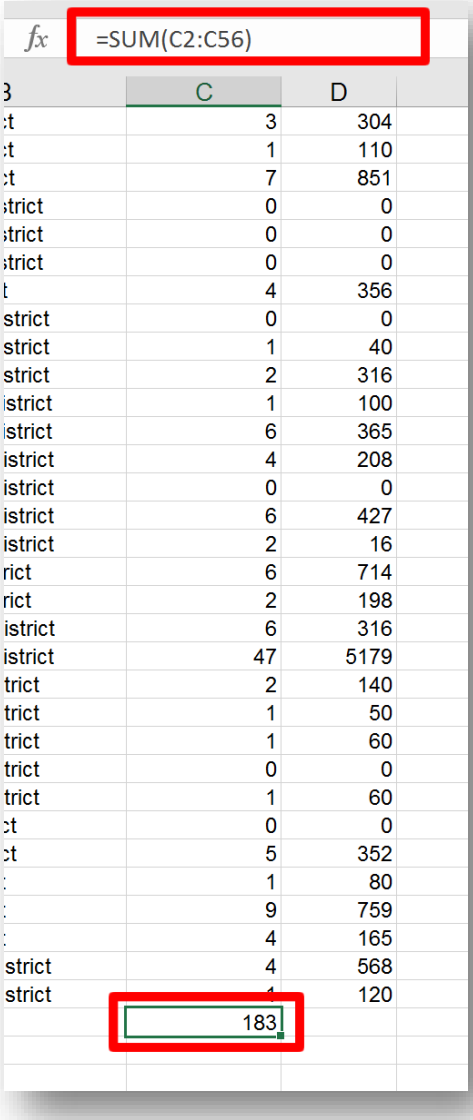
Original 1 | Original 2 | Copy 1 | Copy 2 | Hospitals and Beds | Q1

Ready

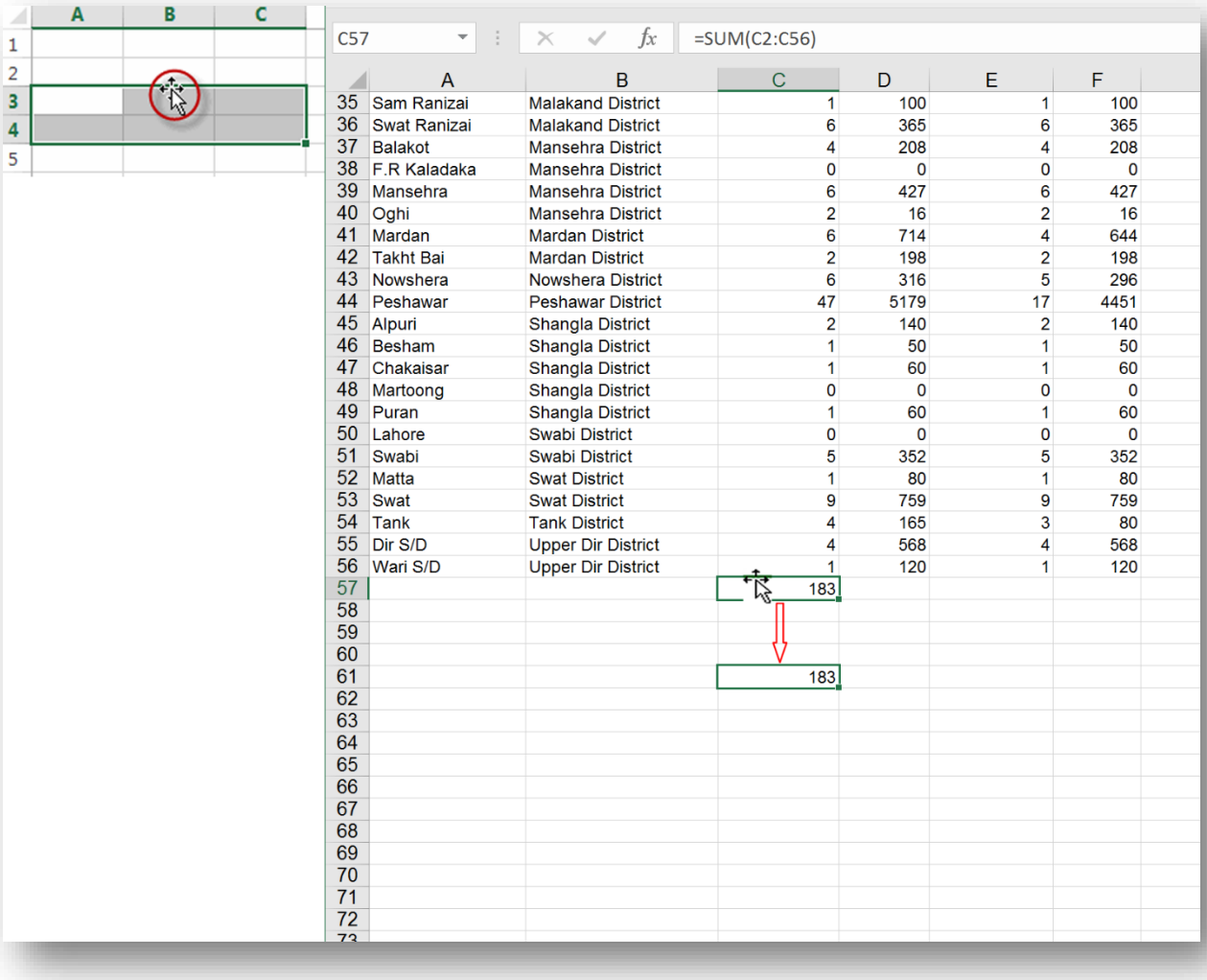
6. Go to Home – Editing – AutoSum



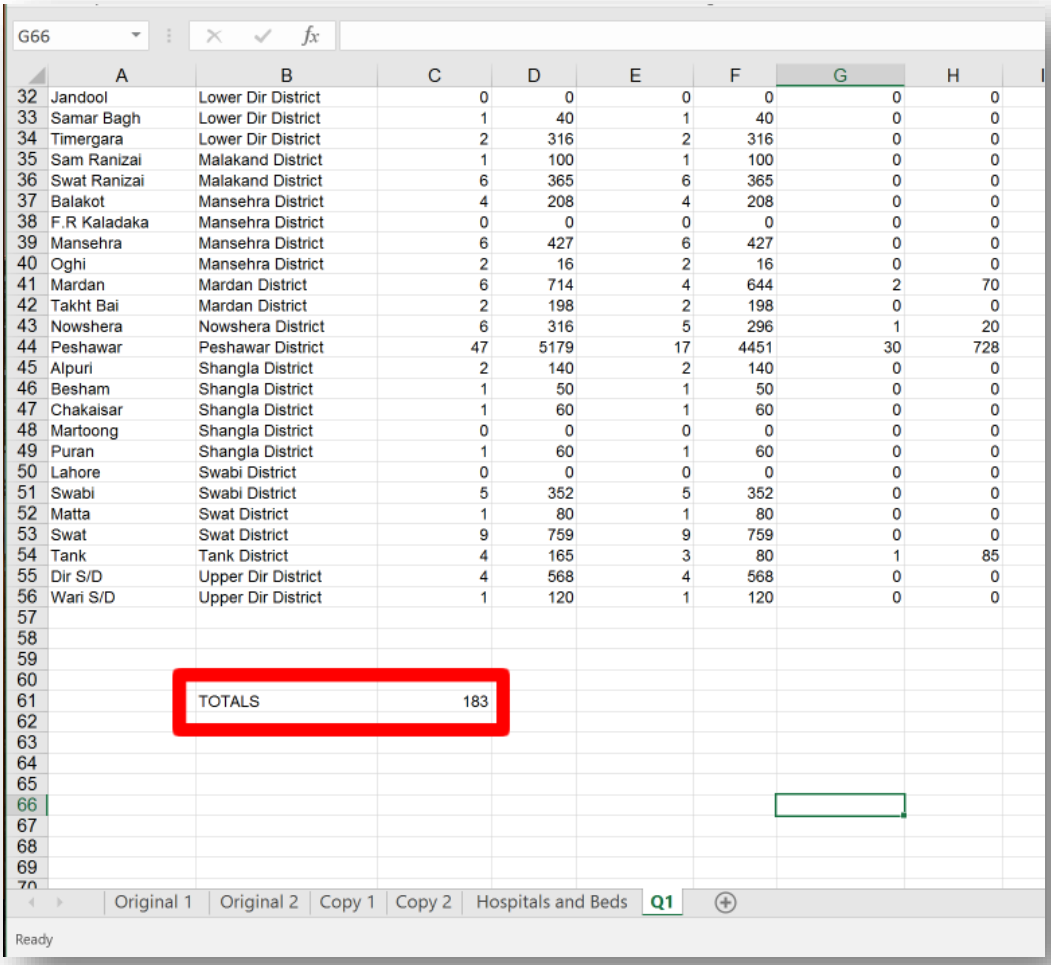
7. As you see C57 is now 183 that means the numbers of hospital in Khyber Pakhtunkhwa. Also the Formula Bar contain the formula to use for the summation.



8. Go to cell C57 and move it to C61. To do this, go to cell C57 to any border until the cursor changes to an arrow pointing in four directions as show in the picture below; move the cell 57 to C61.



9. Type in B61: TOTALS. Moving Totals to several rows below avoids Excel interpreting TOTAL as an additional row of data in the data set.

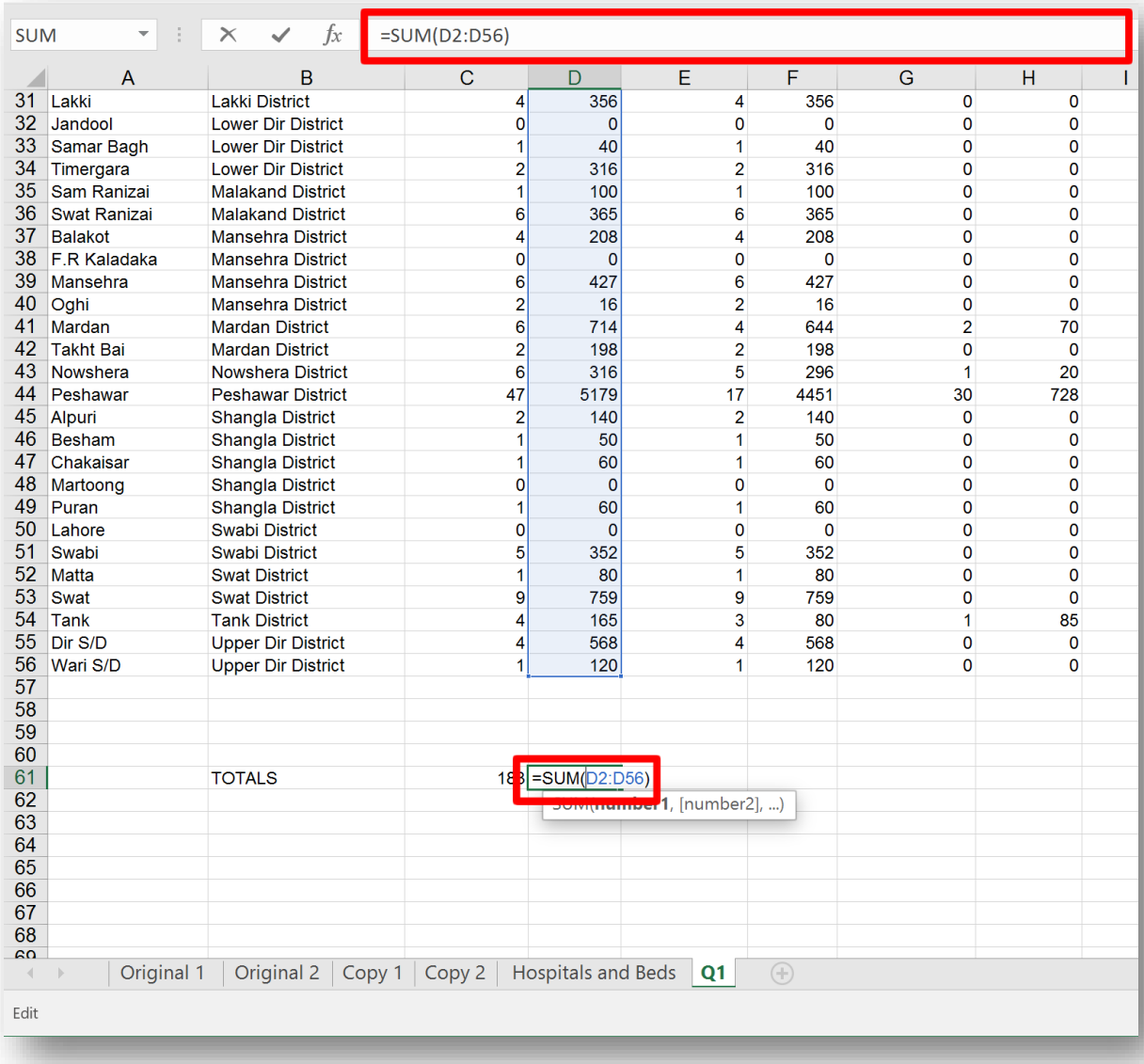


	A	B	C	D	E	F	G	H
32	Jandool	Lower Dir District	0	0	0	0	0	0
33	Samar Bagh	Lower Dir District	1	40	1	40	0	0
34	Timergara	Lower Dir District	2	316	2	316	0	0
35	Sam Ranizai	Malakand District	1	100	1	100	0	0
36	Swat Ranizai	Malakand District	6	365	6	365	0	0
37	Balakot	Mansehra District	4	208	4	208	0	0
38	F.R Kaladaka	Mansehra District	0	0	0	0	0	0
39	Mansehra	Mansehra District	6	427	6	427	0	0
40	Oghi	Mansehra District	2	16	2	16	0	0
41	Mardan	Mardan District	6	714	4	644	2	70
42	Takht Bai	Mardan District	2	198	2	198	0	0
43	Nowshera	Nowshera District	6	316	5	296	1	20
44	Peshawar	Peshawar District	47	5179	17	4451	30	728
45	Alpuri	Shangla District	2	140	2	140	0	0
46	Besham	Shangla District	1	50	1	50	0	0
47	Chakaisar	Shangla District	1	60	1	60	0	0
48	Martoong	Shangla District	0	0	0	0	0	0
49	Puran	Shangla District	1	60	1	60	0	0
50	Lahore	Swabi District	0	0	0	0	0	0
51	Swabi	Swabi District	5	352	5	352	0	0
52	Matta	Swat District	1	80	1	80	0	0
53	Swat	Swat District	9	759	9	759	0	0
54	Tank	Tank District	4	165	3	80	1	85
55	Dir S/D	Upper Dir District	4	568	4	568	0	0
56	Wari S/D	Upper Dir District	1	120	1	120	0	0
57								
58								
59								
60								
61		TOTALS	183					
62								
63								
64								
65								
66								
67								
68								
69								

Original 1 | Original 2 | Copy 1 | Copy 2 | Hospitals and Beds | Q1

Ready

10. Another way to calculate a total is using function call SUM. Go to cell D61 and Type =SUM(D2:D56). The formula means = insert function, SUM AutoSum, D2:D56 from cell D2 to D56. You also can select the cell and type the function in the Formula Bar

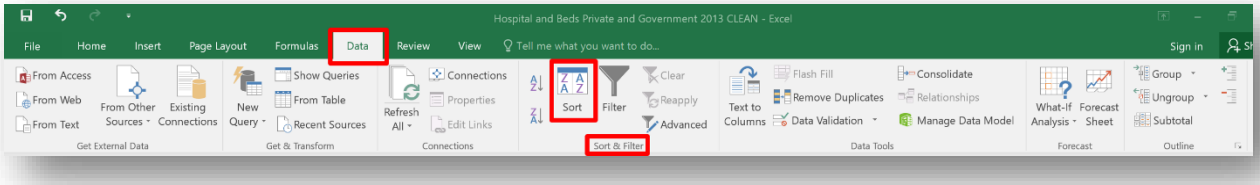


11. **Question 1** What is the total number of hospitals and hospital beds in the province? The answer is in cell C61 and D61 The number of hospitals in Khyber Pakhtunkhwa is 183 and the number of hospital bed in Khyber Pakhtunkhwa is 16867.

Question 2: Which three districts have the highest number of hospitals?
For this question we are going to use a tool call Subtotal in Excel. Subtotal is used for different quick calculation by grouping two or more column and then deriving totals based on these groups. For Question 2, it is necessary to sort the Districts and Tehsil columns, then use the Subtotal tool.

12. Go to Hospital and Beds Sheet
13. Make a Copy of the Hospital and Beds Sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
14. Rename the sheet Hospitals and Beds (2) as Q2 by right-clicking on the tab sheet and click on Rename. Select any cell with data.

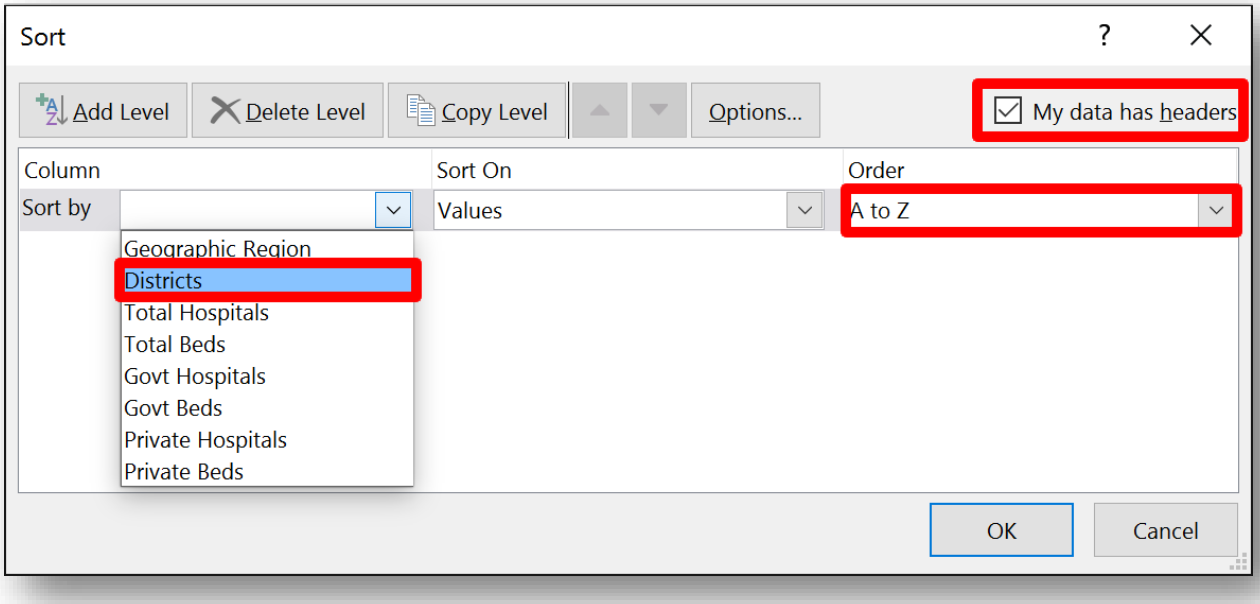
15. In the main menu go to Data - Sort & Filter – Sort



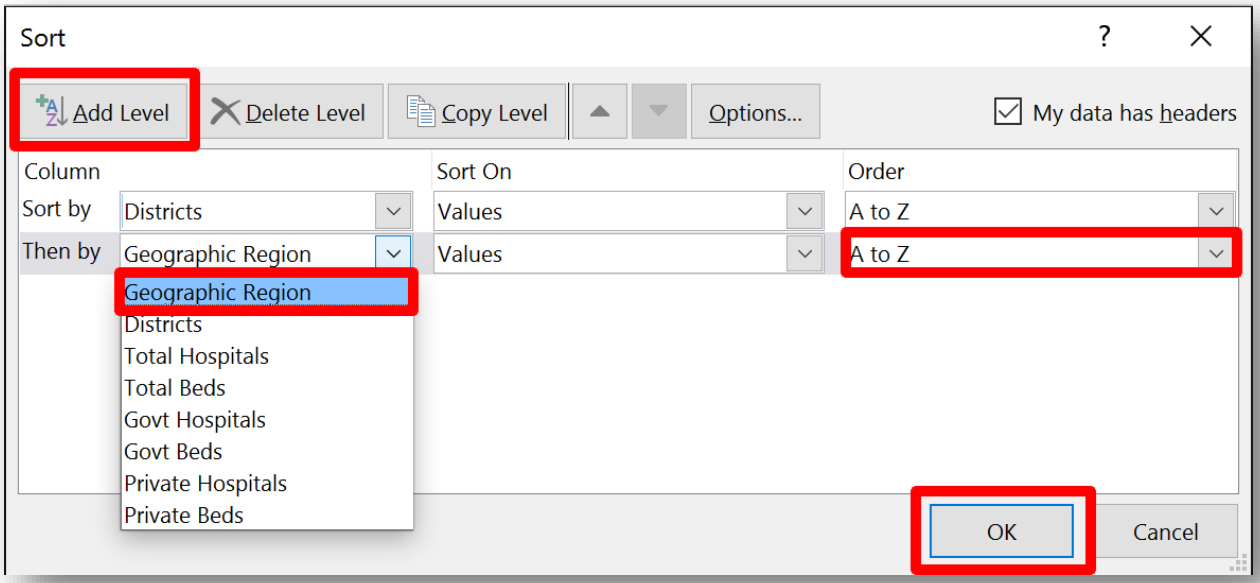
16. In the Sort window

a. Be sure My list has headers is selected, because you do not want the headers mixed with the data.

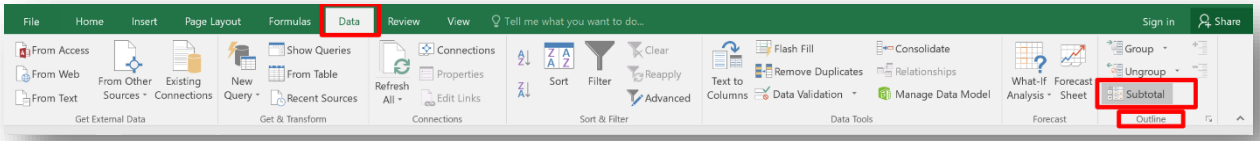
b. In the first menu: Sort by select District and Order A to Z



c. Then, click on Add Level, in column select Geographic Region and Order A to Z. Click on OK

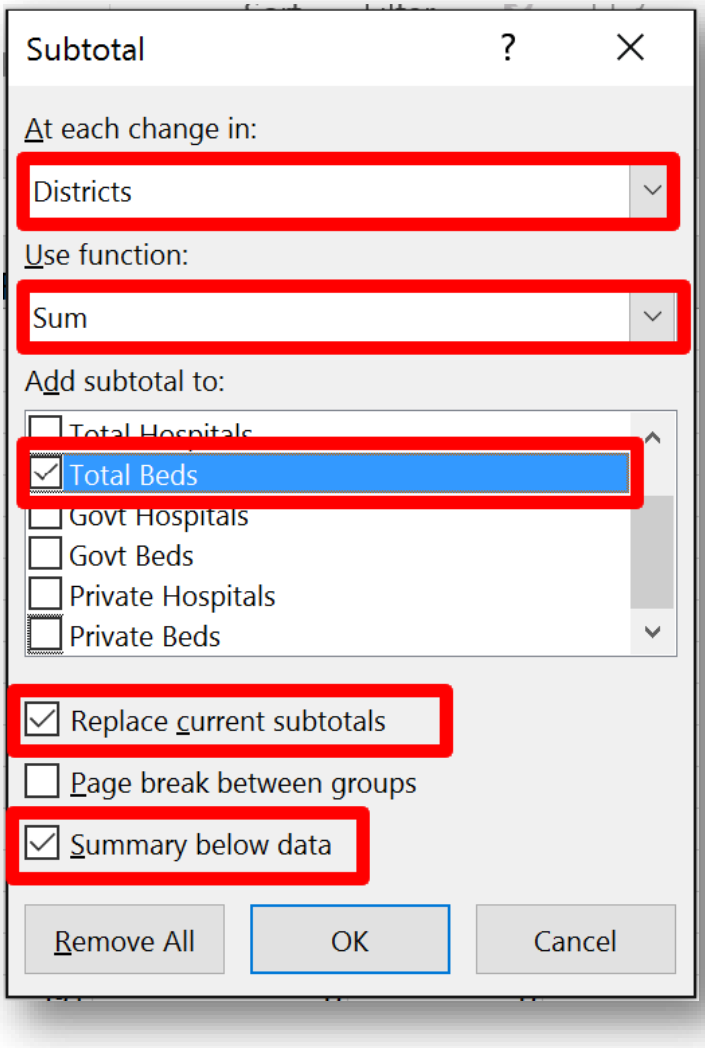


17. In the main menu go to Data – Outline and click on Subtotal

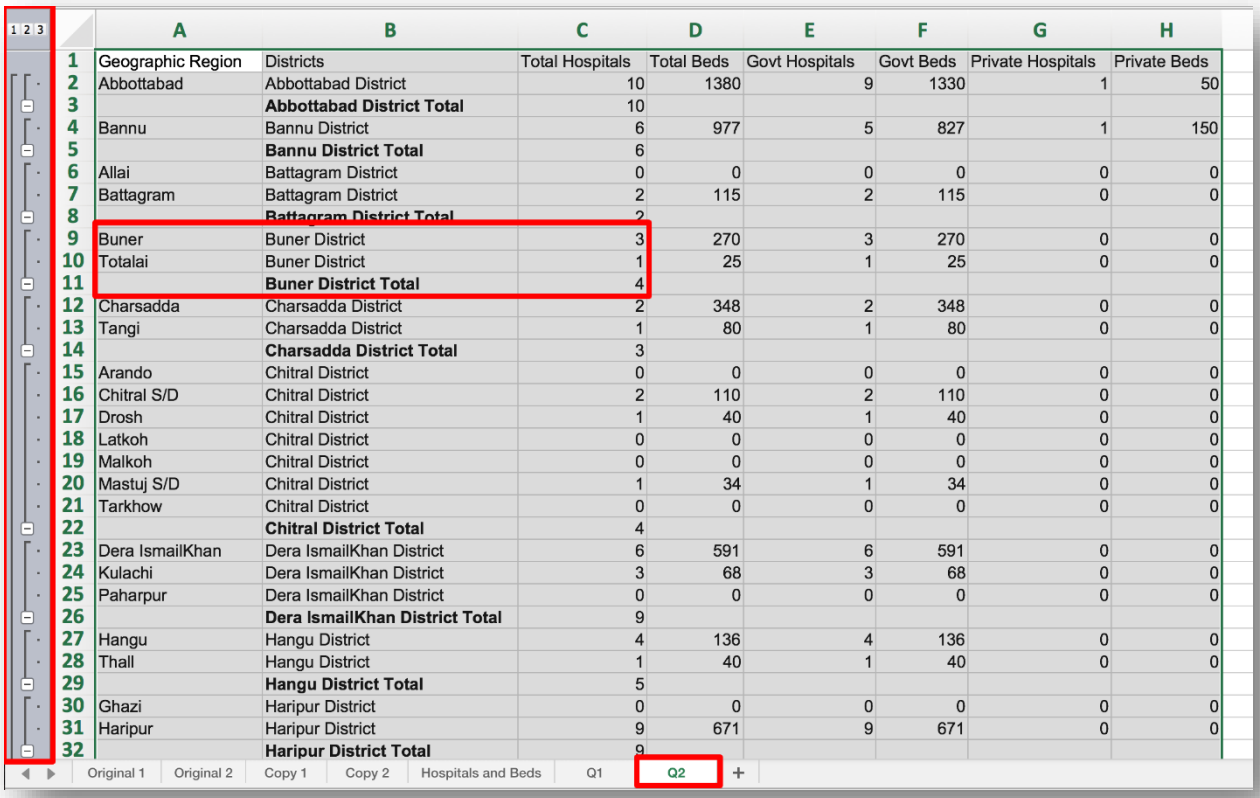


18. The subtotal window has a default configuration that probably isn't the one you are looking for, so double check before clicks on OK. In Subtotal window

- **a.** At each change in: select District because we want the subtotal for each district
- **b.** Use function: use Sum, because we need a summation of total hospitals
- **c.** Add subtotal to: Select Total Hospital because this column contains the number of total number of Hospitals and as question is requires
- **d.** Leave select Replace Current Subtotals and Summary below data. Click OK



19. As you can see now Excel added multiple rows as result of the Subtotal function, labeled as the district and Total and in bold. As example Buner District Total is 4 as a summation of 3 hospitals in Buner and 1 hospitals in Totalai Tehsils. Also there is another panel on the left side.

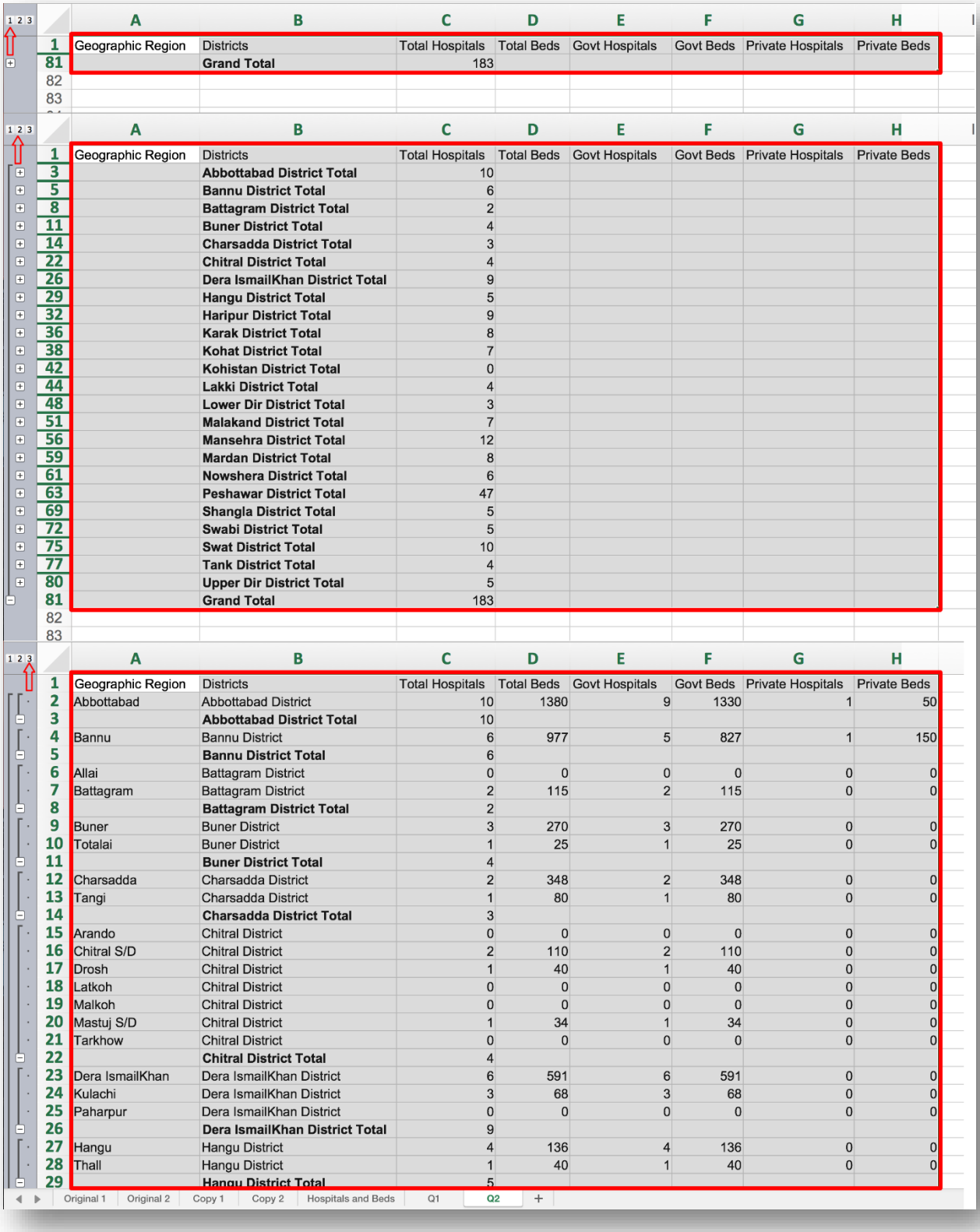


	A	B	C	D	E	F	G	H
1	Geographic Region	Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
2	Abbottabad	Abbottabad District	10	1380	9	1330	1	50
3		**Abbottabad District Total**	10					
4	Bannu	Bannu District	6	977	5	827	1	150
5		**Bannu District Total**	6					
6	Allai	Battagram District	0	0	0	0	0	0
7	Battagram	Battagram District	2	115	2	115	0	0
8		**Battagram District Total**	2					
9	Buner	Buner District	3	270	3	270	0	0
10	Totalai	Buner District	1	25	1	25	0	0
11		**Buner District Total**	4					
12	Charsadda	Charsadda District	2	348	2	348	0	0
13	Tangi	Charsadda District	1	80	1	80	0	0
14		**Charsadda District Total**	3					
15	Arando	Chitral District	0	0	0	0	0	0
16	Chitral S/D	Chitral District	2	110	2	110	0	0
17	Drosh	Chitral District	1	40	1	40	0	0
18	Latkoh	Chitral District	0	0	0	0	0	0
19	Malkoh	Chitral District	0	0	0	0	0	0
20	Mastuj S/D	Chitral District	1	34	1	34	0	0
21	Tarkhow	Chitral District	0	0	0	0	0	0
22		**Chitral District Total**	4					
23	Dera IsmailKhan	Dera IsmailKhan District	6	591	6	591	0	0
24	Kulachi	Dera IsmailKhan District	3	68	3	68	0	0
25	Paharpur	Dera IsmailKhan District	0	0	0	0	0	0
26		**Dera IsmailKhan District Total**	9					
27	Hangu	Hangu District	4	136	4	136	0	0
28	Thall	Hangu District	1	40	1	40	0	0
29		**Hangu District Total**	5					
30	Ghazi	Haripur District	0	0	0	0	0	0
31	Haripur	Haripur District	9	671	9	671	0	0
32		**Haripur District Total**	9					

Original 1 | Original 2 | Copy 1 | Copy 2 | Hospitals and Beds | Q1 | Q2 | +

20. The panel on the left with the numbers 1, 2, and 3 provides different ways to analyze the results. For instance:

- **a.** (1) is the Total of hospitals in the Khyber Pakhtunkhwa province,
- **b.** (2) is the Total of hospitals by Districts, and
- **c.** (3) is the full data set



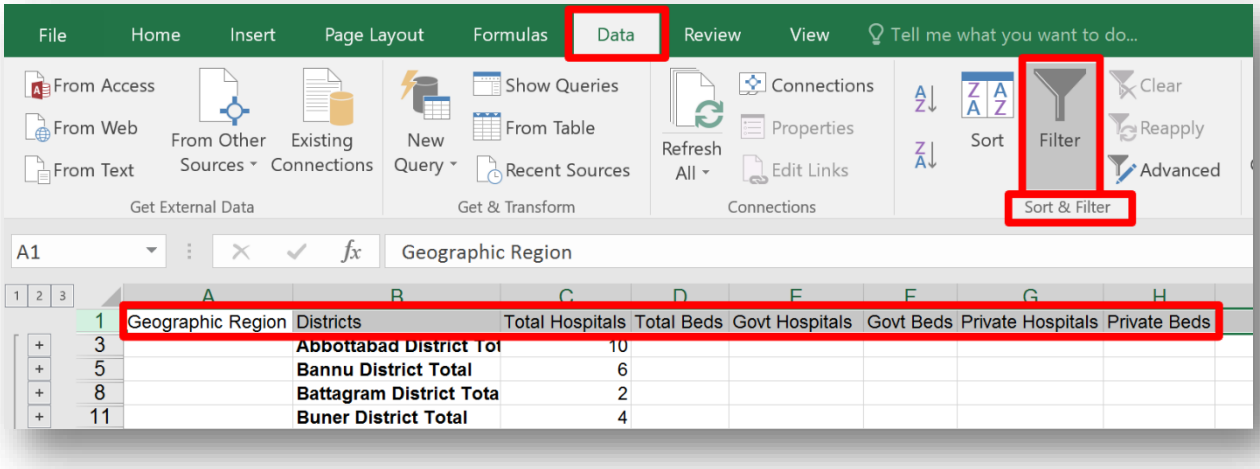
Geographic Region	Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
	Grand Total	183					

Geographic Region	Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
	Abbottabad District Total	10					
	Bannu District Total	6					
	Battagram District Total	2					
	Buner District Total	4					
	Charsadda District Total	3					
	Chitral District Total	4					
	Dera IsmailKhan District Total	9					
	Hangu District Total	5					
	Haripur District Total	9					
	Karak District Total	8					
	Kohat District Total	7					
	Kohistan District Total	0					
	Lakki District Total	4					
	Lower Dir District Total	3					
	Malakand District Total	7					
	Mansehra District Total	12					
	Mardan District Total	8					
	Nowshera District Total	6					
	Peshawar District Total	47					
	Shangla District Total	5					
	Swabi District Total	5					
	Swat District Total	10					
	Tank District Total	4					
	Upper Dir District Total	5					
	Grand Total	183					

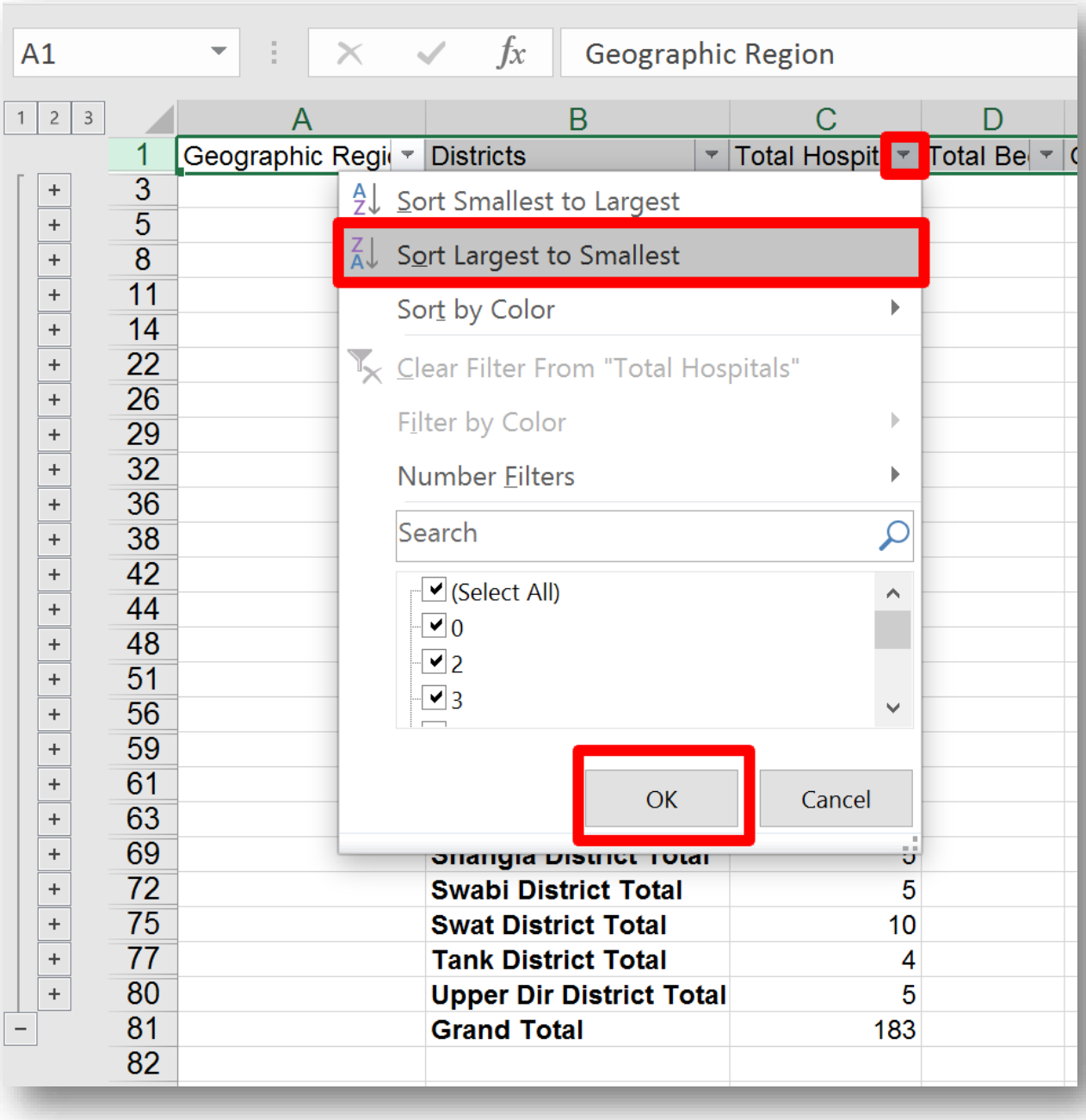
Geographic Region	Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
Abbottabad	Abbottabad District	10	1380	9	1330	1	50
	Abbottabad District Total	10					
Bannu	Bannu District	6	977	5	827	1	150
	Bannu District Total	6					
Allai	Battagram District	0	0	0	0	0	0
Battagram	Battagram District	2	115	2	115	0	0
	Battagram District Total	2					
Buner	Buner District	3	270	3	270	0	0
Totalai	Buner District	1	25	1	25	0	0
	Buner District Total	4					
Charsadda	Charsadda District	2	348	2	348	0	0
Tangi	Charsadda District	1	80	1	80	0	0
	Charsadda District Total	3					
Arando	Chitral District	0	0	0	0	0	0
Chitral S/D	Chitral District	2	110	2	110	0	0
Drosh	Chitral District	1	40	1	40	0	0
Latkoh	Chitral District	0	0	0	0	0	0
Malkoh	Chitral District	0	0	0	0	0	0
Mastuj S/D	Chitral District	1	34	1	34	0	0
Tarkhow	Chitral District	0	0	0	0	0	0
	Chitral District Total	4					
Dera IsmailKhan	Dera IsmailKhan District	6	591	6	591	0	0
Kulachi	Dera IsmailKhan District	3	68	3	68	0	0
Paharpur	Dera IsmailKhan District	0	0	0	0	0	0
	Dera IsmailKhan District Total	9					
Hangu	Hangu District	4	136	4	136	0	0
Thall	Hangu District	1	40	1	40	0	0
	Hangu District Total	5					

Original 1 | Original 2 | Copy 1 | Copy 2 | Hospitals and Beds | Q1 | Q2 | +

21. Leave the left panel on number (2) with the Total of Hospital by districts. Select Row 1 and in the Main Menu go to Data – Sort & Filter – Filter.



22. Headers in row 1 now have a small arrow in the corner; click on the triangle inside Total Hospitals column and click on Sort Largest to Smallest



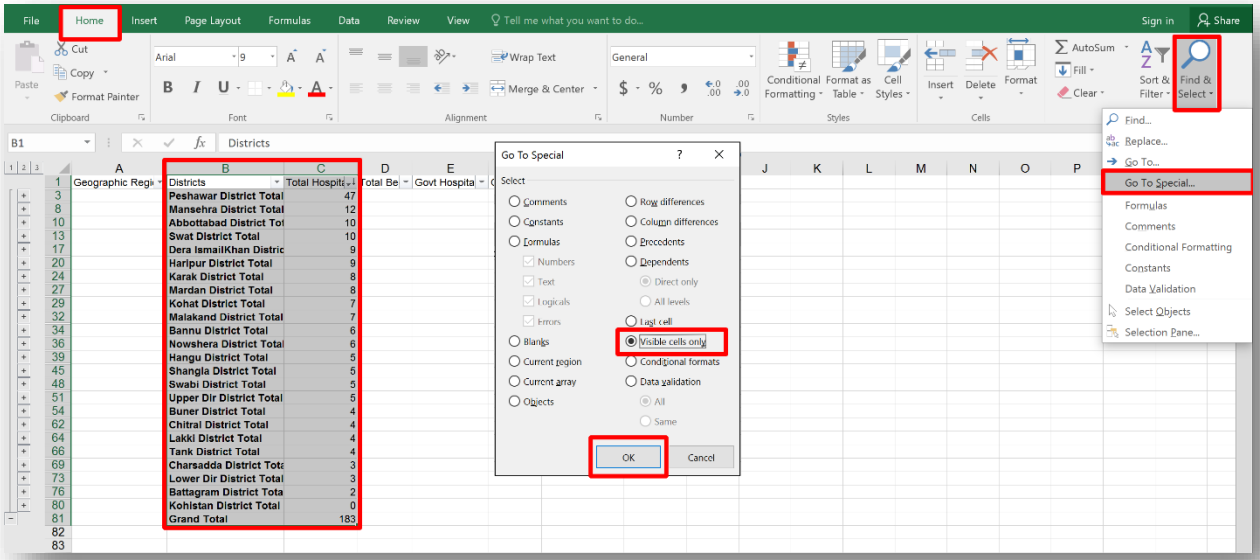
23. **Question 2:** Which three districts have the highest number of hospitals?

Districts	Total Hospitals
Peshawar District Total	47
Mansehra District Total	12
Abbottabad District Total	10
Swat District Total	10

24. But let's say than you need to copy the calculation we just made (the number of total hospital by districts) to create a chart, filters or do more calculations.

a. Select the data

b. In the Main Menu go to Home – Editing – Find & Select - Go to Special, in the Go to Special window select Visible cell only and click on OK

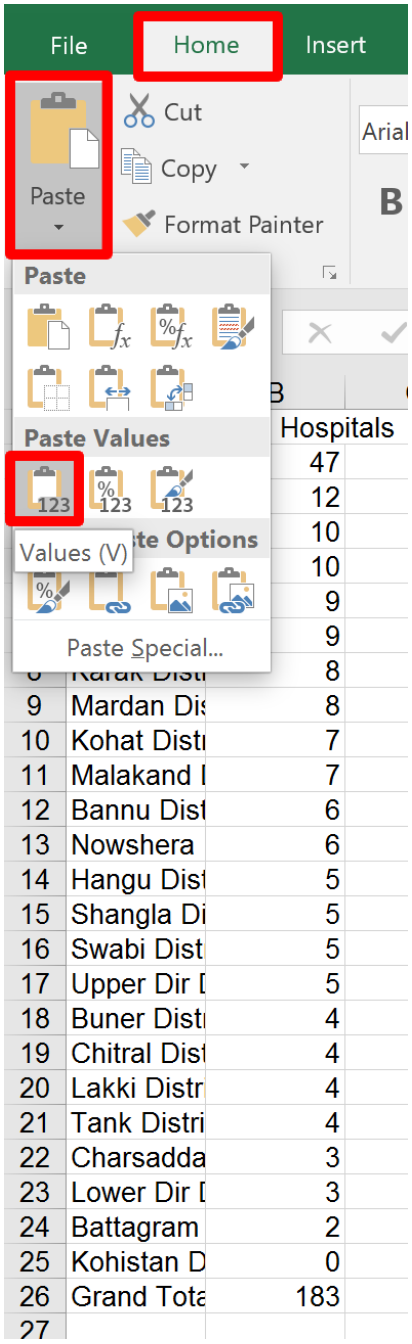


c. Copy the selection

d. Add another sheet

e. Rename it as Q2.1

f. In the Main Menu go to Home – Clipboard – Paste – Value



Question 3: Which three districts have the highest number of hospital beds? Which is a better measurement of access to hospital care?

25. Go to Hospital and Beds Sheet

26. Make a Copy of the Hospital and Beds Sheet by right-click on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK

27. Rename the sheet Hospitals and Beds (2) as Q3 by right-click on the tab sheet and click on Rename. Select any cell with data.

28. In the main menu go to Data - Sort & Filter – Sort

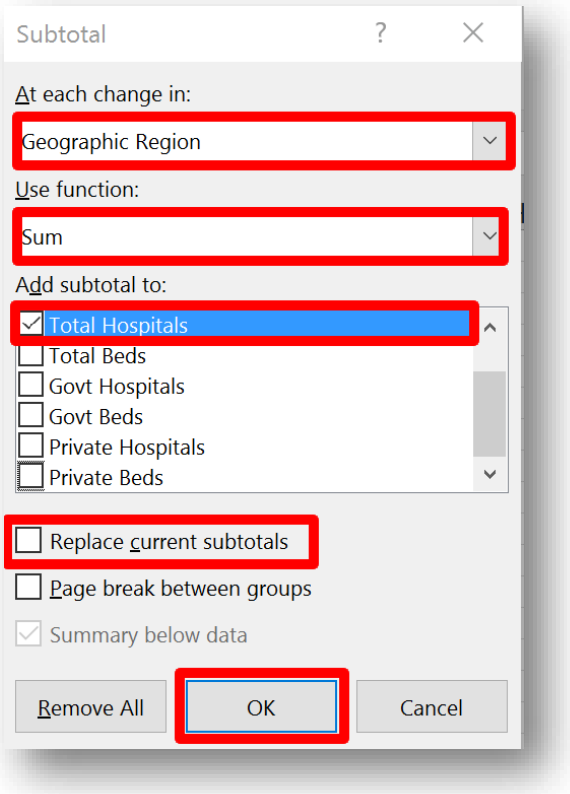
29. In the Sort window

   a. Be sure 'My list has headers' is selected, because you do not want the headers combined with the data.
   b. In the first menu, Sort by select District and Order A to Z
   c. Then, click on Add Level, in column select Geographic Region and Order A to Z. Click on OK
30. In the main menu go to Data – Outline and click on Subtotal
31. The subtotal window has a default configuration that probably isn't the one you are looking for, so double check before clicks on OK. In Subtotal window
   a. At each change in: select District because this is the column we need to focus on to answer question 3
   b. Use function: use Sum, because we need a summation of total beds
   c. Add subtotal to: Select Total Beds because this column contains the total number of beds as question is requires
   d. Leave selected 'Replace Current Subtotals' and 'Summary below data'. Click OK
32. The panel in the left with the numbers 1, 2, and 3 provides different ways to see the data. For instance:
   a. (1) is the Total of Beds in the Khyber Pakhtunkhwa province,
   b. (2) is the Total of Beds by Districts, and
   c. (3) is the full data set
33. Select number (2) with the Total of Beds by districts. Select Row 1 and in the Main Menu go to Data – Sort & Filter – Filter.
34. Headers in row 1 now have a small arrow; click on the one inside Total Beds column and click on sort Largest to Smallest
35. **Question 3:** Which three districts have the highest number of hospital beds? Which is a better measurement of access to hospital care?

Districts	Total Beds
Peshawar District Total	5179
Abbottabad District Total	1380
Bannu District Total	977

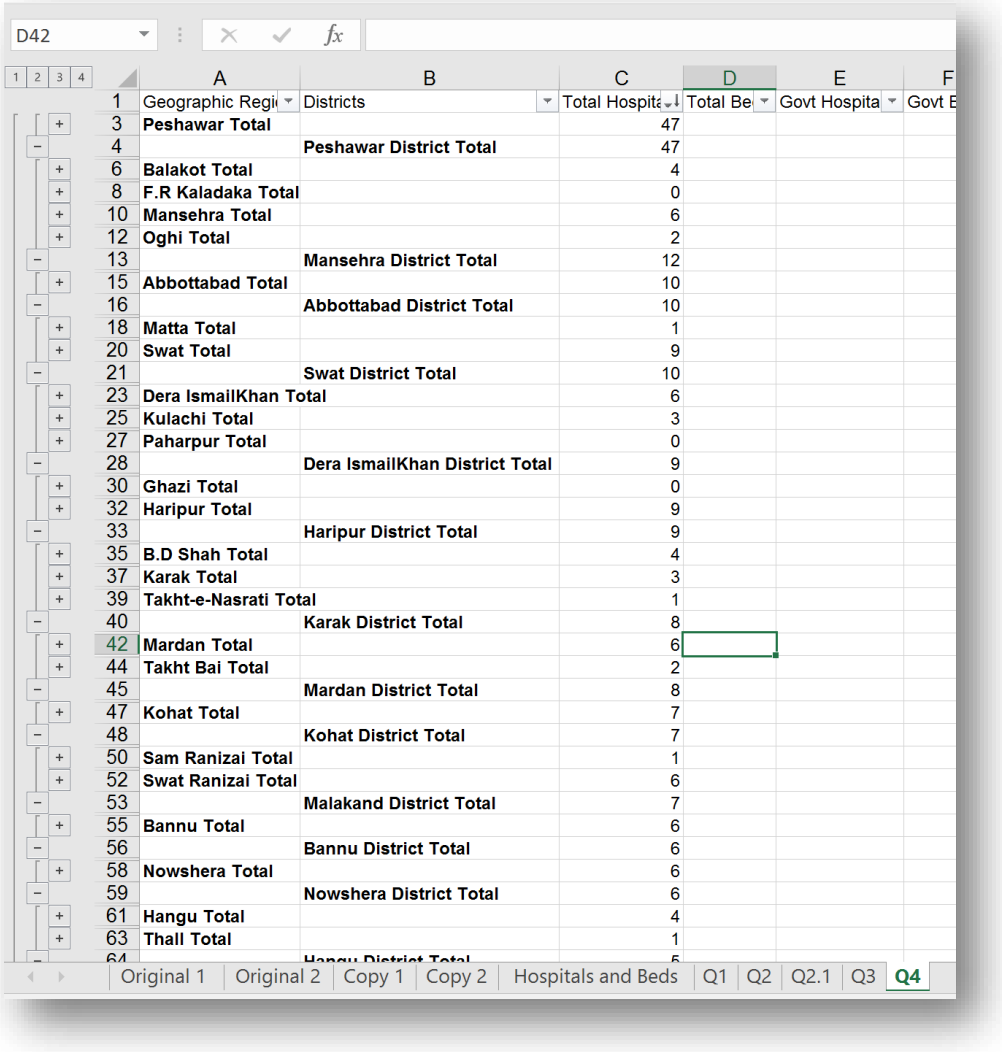
Question 4: Within the three districts with the highest number of hospitals, which tehsil has the most? To answer this question you can use the work you did in Question 2 just by adding the tehsils variable.

36. Go to Q2 Sheet
37. Make a Copy of the Q2 Sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
38. Rename the sheet Q2 (2) as Q4 by right-clicking on the tab sheet and click on Rename.
39. Go to number 3 in the left panel (the one that shows the whole data set)
40. In the Main Menu go to Data – Outline – Subtotal
41. Change the Subtotal window as:
   a. At each change in: select Geographic Region because this is the new variable to include
   b. Use function: use Sum, because we need a summation of total hospitals
   c. Add subtotal to: Select Total Hospitals because this column contains the number hospitals as the question is requires
   d. **Uncheck Replace Current Subtotals**. Click OK



42. Go to number (3) in the left panel

43. As you see we just add Tehsil to Total of Hospitals



44. **Question 4:** Within the three districts with the highest number of hospitals, which Tehsil has the most?

Geographic Region	Districts	Total Hospitals
Peshawar Total		47
	Peshawar District Total	47
Balakot Total		4
F.R Kaladaka Total		0
Mansehra Total		6
Oghi Total		2
	Mansehra District Total	12
Abbottabad Total		10
	Abbottabad District Total	10
Matta Total		1
Swat Total		9
	Swat District Total	10

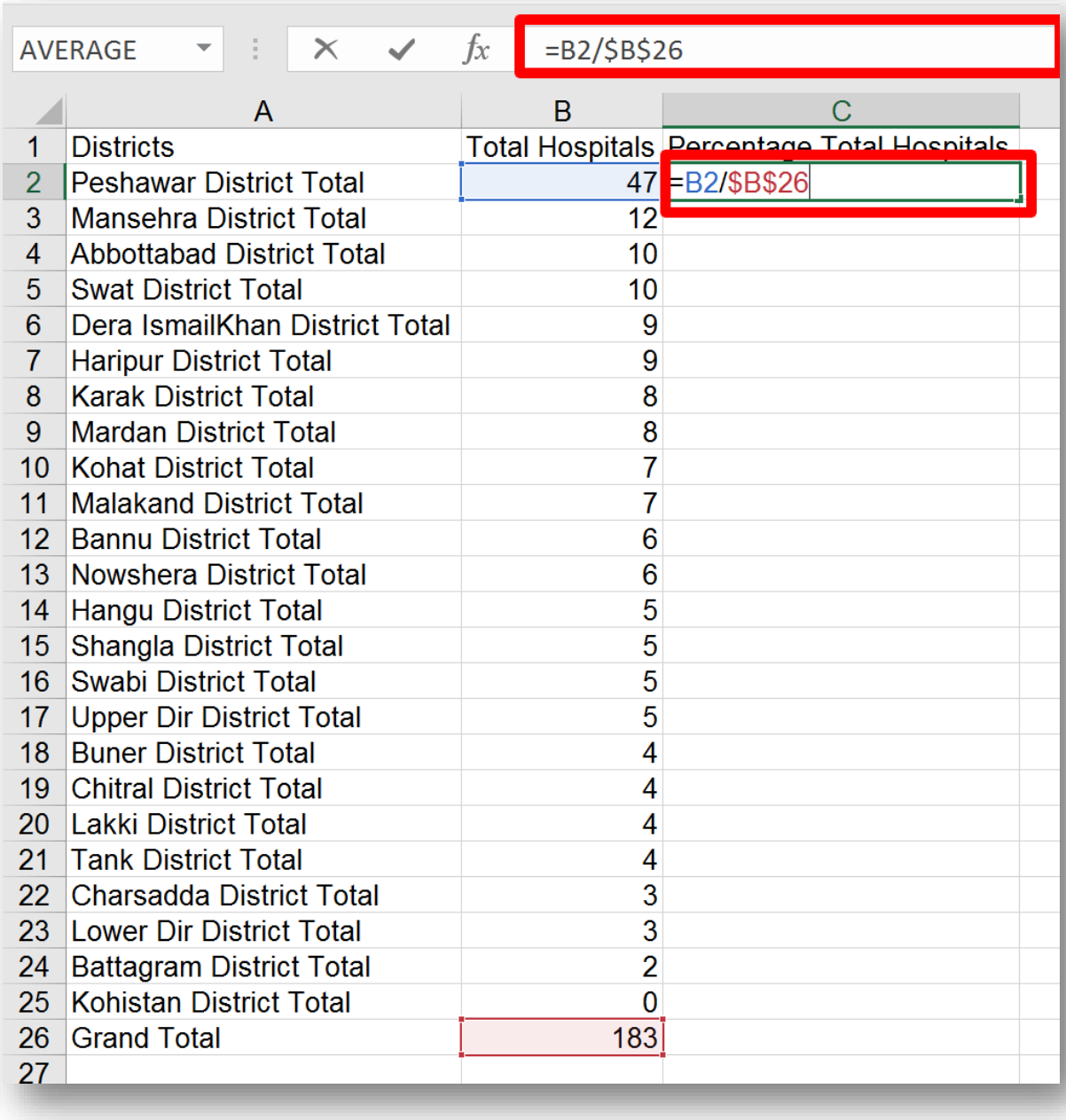
Question 5: Within the three districts that have the highest number of hospital beds, which Tehsil has the most? In these question you can use the work did in Question 3 just by adding the variable of Tehsils.

45. Go to Q3 Sheet
46. Make a Copy of the Q3 Sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
47. Rename the sheet Q3 (2) as Q5 by right-clicking on the tab sheet and click on Rename.
48. Go to number 3 in the left panel (the one that shows the whole data set)
49. In the Main Menu go to Data – Outline – Subtotal
50. Change the Subtotal window to:
  a. At each change in: select Geographic Region because this is the new variable to include
  b. Use function: use Sum, because we need a summation of total beds
  c. Add subtotal to: Select Total Beds because this column contains the number of beds as the question is requires
  d. **Uncheck Replace Current Subtotals**. Click OK
51. Go to number (3) in the left panel
52. As you see we just add Tehsil to Total of Hospitals
53. **Question 5:** Within the three districts that have the highest number of hospital beds, which Tehsil has the most?

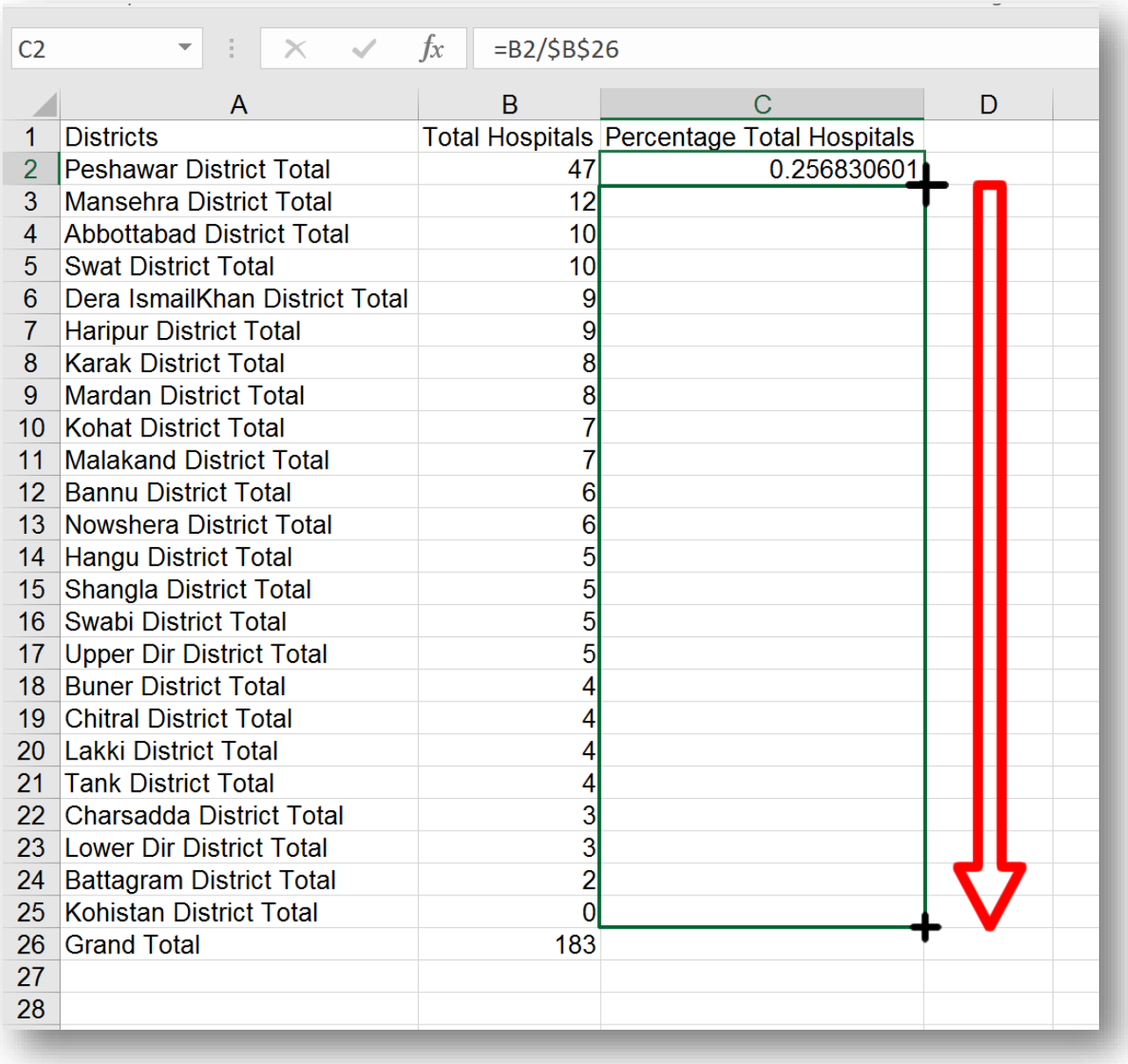
Geographic Region	Districts	Total Beds
Peshawar Total		5179
	Peshawar District Total	5179
Abbottabad Total		1380
	Abbottabad District Total	1380
Bannu Total		977
	Bannu District Total	977

Question 6: Which district has the highest percentage of hospitals?

54. In number 24 we made another sheet with a copy of the Total of Hospital by district and we named it Q2.1 sheet. Go to Q2.1
55. Make a Copy of the Q2.1 sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
56. Rename the sheet Q2.1 (2) as Q5 by right-clicking on the tab sheet and click on Rename
57. Name cell C1 as Percentage Total Hospitals
58. The question is about the percentage of hospital in each districts compared to the total in the province. In C2 use the Formula **=B2/$B$26**. It means, divide a part by the total, the part is the number of hospitals column B divided by Grand Total of hospitals in the province (cell B26).

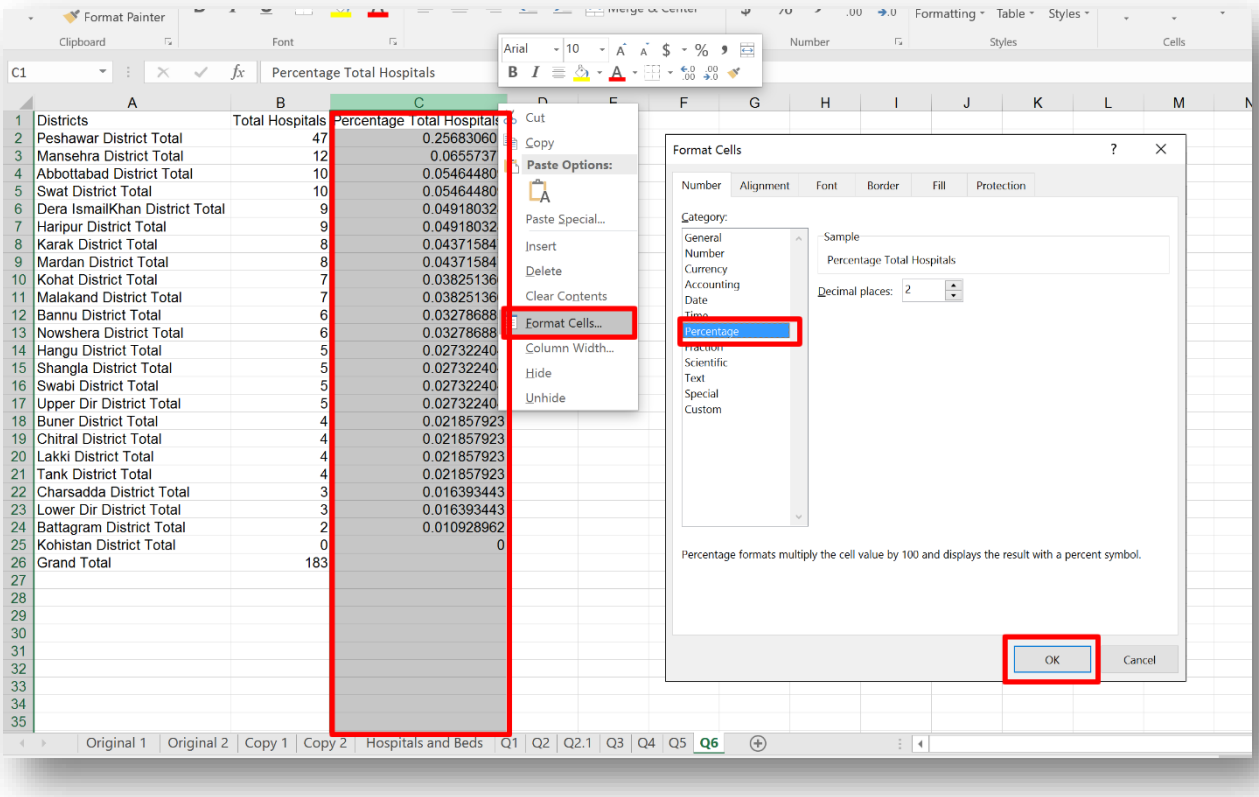


59. Copy the formula for the rest of the districts by moving the cursor acrooss the bottom-right of the cell



	A	B	C	D
1	Districts	Total Hospitals	Percentage Total Hospitals	
2	Peshawar District Total	47	0.256830601	
3	Mansehra District Total	12		
4	Abbottabad District Total	10		
5	Swat District Total	10		
6	Dera IsmailKhan District Total	9		
7	Haripur District Total	9		
8	Karak District Total	8		
9	Mardan District Total	8		
10	Kohat District Total	7		
11	Malakand District Total	7		
12	Bannu District Total	6		
13	Nowshera District Total	6		
14	Hangu District Total	5		
15	Shangla District Total	5		
16	Swabi District Total	5		
17	Upper Dir District Total	5		
18	Buner District Total	4		
19	Chitral District Total	4		
20	Lakki District Total	4		
21	Tank District Total	4		
22	Charsadda District Total	3		
23	Lower Dir District Total	3		
24	Battagram District Total	2		
25	Kohistan District Total	0		
26	Grand Total	183		
27				
28				

60. Then change column C to a percentage. Select column C, right-click on the selected data, click on Format Cells and in the new window click on Percentage and OK



61. **Question 6:** Which district has the highest percentage of hospitals? **Peshawar District with 25.68%**

Question 7: Which district has the lowest percentage of private hospital beds?

62. Go to Hospital and Beds Sheet
63. Make a Copy of the Hospital and Beds Sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
64. Rename the sheet Hospitals and Beds (2) as Q7 by right-clicking on the tab sheet and click on Rename. Select any cell with data.
65. In the main menu go to Data - Sort & Filter – Sort
66. In the Sort window
    a. Be sure My list has headers is, because you do not want the headers combined with the data, in these case as another district or Tehsil
    b. In the first Sort by select District and Order A to Z
    c. Then, click on Add Level, in column select Geographic Region and Order A to Z. Click on OK
67. In the main menu go to Data – Outline and click on Subtotal
68. Subtotal window have a default configuration than most probably is not what you are looking for, so double check before clicking on OK. In the Subtotal window
    a. At each change in: select District because this is the column we need to focus on to answer question 7.
    b. Use function: use Sum, because we need a summation of Private Beds
    c. Add subtotal to: Select Private Beds because this column contains the total number of Private Beds as the question requires

d. Leave selected 'Replace Current Subtotals' and Summary below data. Click OK

69. The panel in the left with the numbers 1, 2, and 3 give a different view the data. For instance:

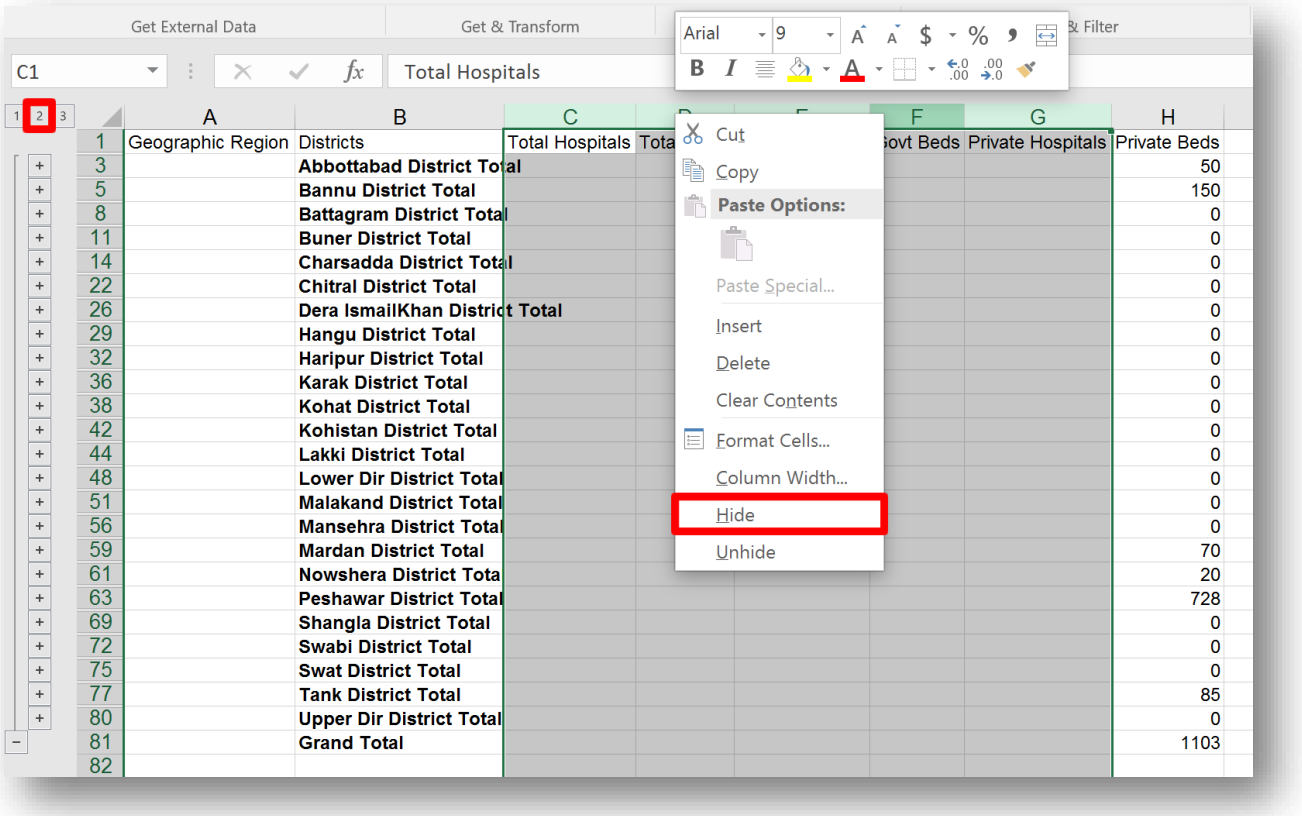
a. (1) is the Total of Private Beds in the Khyber Pakhtunkhwa province,

b. (2) is the Total of Private Beds by Districts, and

c. (3) is the full data set

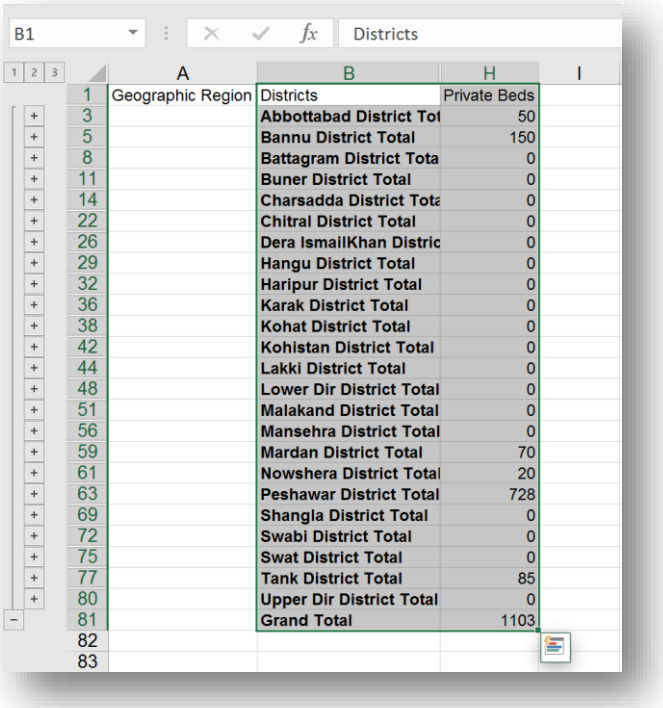
70. Go to number (2) in the left panel with the Total of Private Beds by districts

71. Hide Column C, D, E, F and G by selecting those columns right-click and click on Hide



	A	B	C	F	G	H
1	Geographic Region	Districts	Total Hospitals	Govt Beds	Private Hospitals	Private Beds
3		**Abbottabad District Total**				50
5		**Bannu District Total**				150
8		**Battagram District Total**				0
11		**Buner District Total**				0
14		**Charsadda District Total**				0
22		**Chitral District Total**				0
26		**Dera IsmailKhan District Total**				0
29		**Hangu District Total**				0
32		**Haripur District Total**				0
36		**Karak District Total**				0
38		**Kohat District Total**				0
42		**Kohistan District Total**				0
44		**Lakki District Total**				0
48		**Lower Dir District Total**				0
51		**Malakand District Total**				0
56		**Mansehra District Total**				0
59		**Mardan District Total**				70
61		**Nowshera District Total**				20
63		**Peshawar District Total**				728
69		**Shangla District Total**				0
72		**Swabi District Total**				0
75		**Swat District Total**				0
77		**Tank District Total**				85
80		**Upper Dir District Total**				0
81		**Grand Total**				1103
82						

72. Select date in column B and H



	A	B	H
1	Geographic Region	Districts	Private Beds
3		Abbottabad District Tot	50
5		Bannu District Total	150
8		Battagram District Tota	0
11		Buner District Total	0
14		Charsadda District Tota	0
22		Chitral District Total	0
26		Dera IsmailKhan Distric	0
29		Hangu District Total	0
32		Haripur District Total	0
36		Karak District Total	0
38		Kohat District Total	0
42		Kohistan District Total	0
44		Lakki District Total	0
48		Lower Dir District Total	0
51		Malakand District Total	0
56		Mansehra District Total	0
59		Mardan District Total	70
61		Nowshera District Total	20
63		Peshawar District Total	728
69		Shangla District Total	0
72		Swabi District Total	0
75		Swat District Total	0
77		Tank District Total	85
80		Upper Dir District Total	0
81		Grand Total	1103
82			
83			

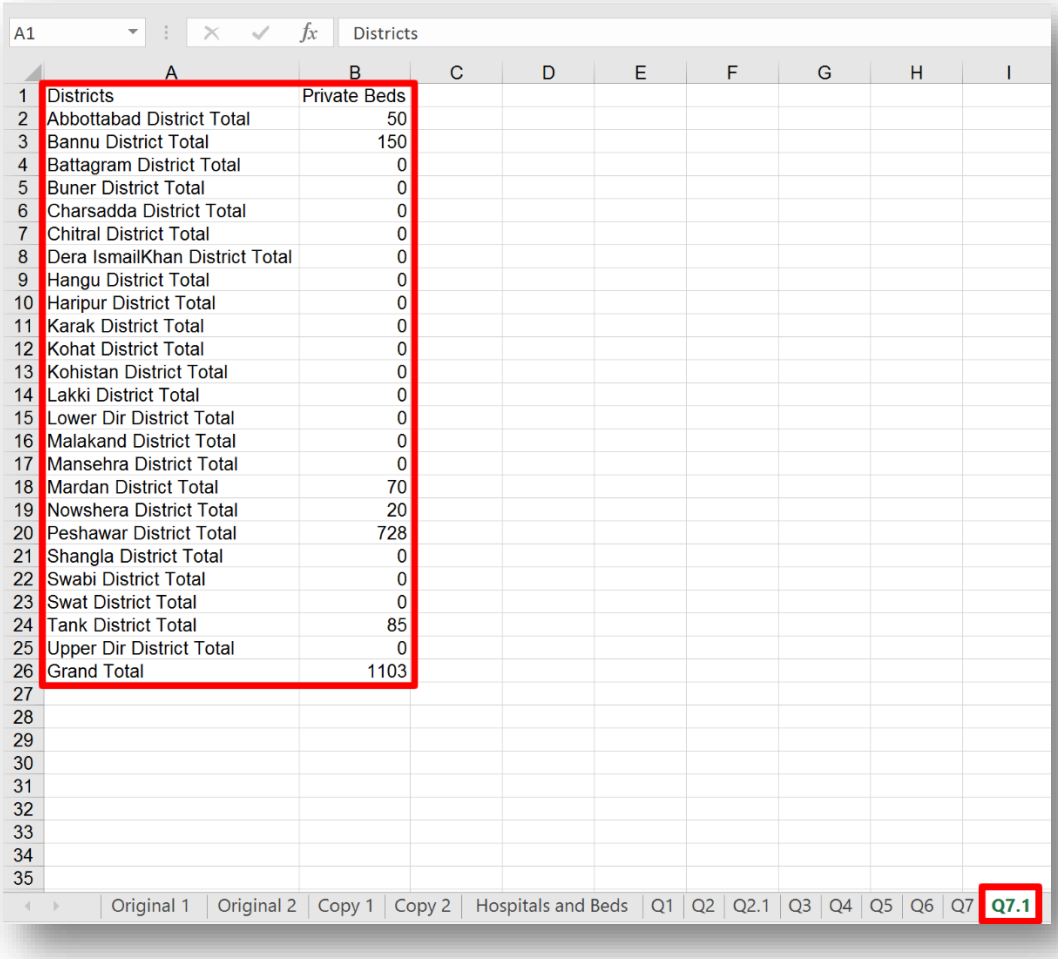
73. In the Main Menu go to Home – Editing – Find & Select - Go to Special, in the Go to Special window select Visible cell only and click on OK

74. Copy the selection

75. Add another sheet

76. Rename it as Q7.1

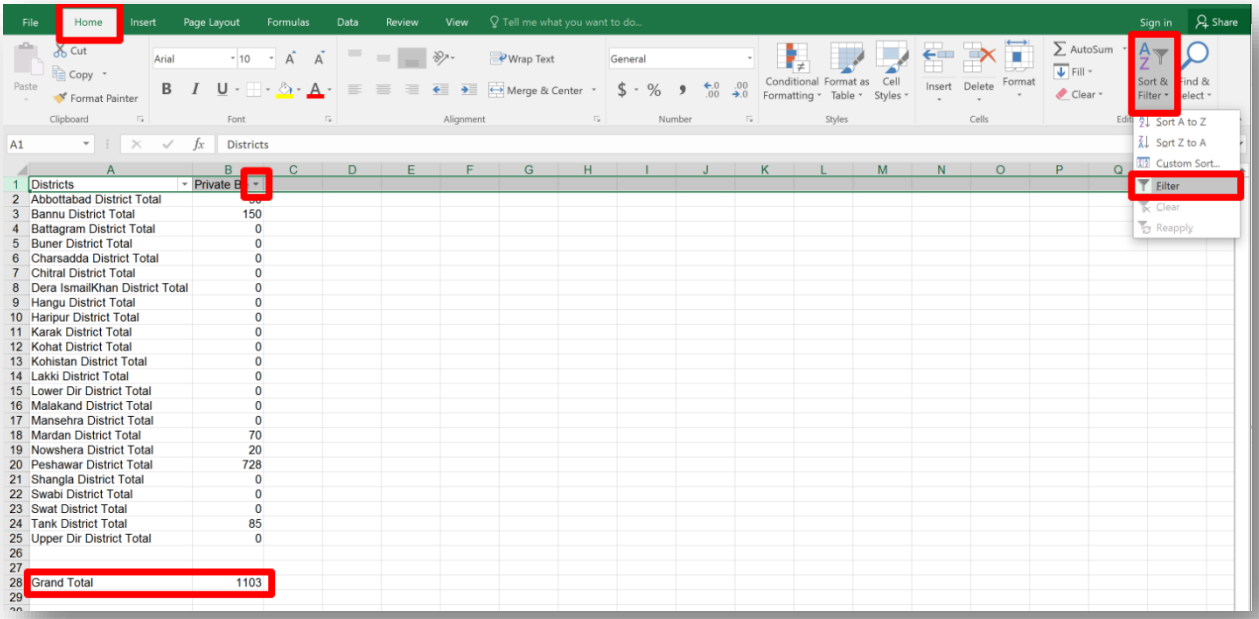
77. In the Main Menu go to Home – Clipboard – Paste – Value



	A	B
1	Districts	Private Beds
2	Abbottabad District Total	50
3	Bannu District Total	150
4	Battagram District Total	0
5	Buner District Total	0
6	Charsadda District Total	0
7	Chitral District Total	0
8	Dera IsmailKhan District Total	0
9	Hangu District Total	0
10	Haripur District Total	0
11	Karak District Total	0
12	Kohat District Total	0
13	Kohistan District Total	0
14	Lakki District Total	0
15	Lower Dir District Total	0
16	Malakand District Total	0
17	Mansehra District Total	0
18	Mardan District Total	70
19	Nowshera District Total	20
20	Peshawar District Total	728
21	Shangla District Total	0
22	Swabi District Total	0
23	Swat District Total	0
24	Tank District Total	85
25	Upper Dir District Total	0
26	Grand Total	1103

78. Move data content in row 26 to row 29 to avoid including Grand Total in filters

79. Select Row 1, in the Main menu go to Home – Editing – Sort & Filter – Filter



80. Click on the small arrow inside the Private Hospital Column and Sort Largest to Smallest

81. Name Column C as Percentage of Private Beds

82. Use the formula for percentage **=B2/$B$29** as explained in number 58.

83. Copy the formula for the rest of the districts by moving the cursor across the bottom-right of the cell as explained in number 59

84. Format Column as Percentage as explain in number 60

85. **Question 7:** Which district has the lowest percentage of private hospital beds in the province?

Districts	Private Beds	Percentage of Private Beds
Peshawar District Total	728	66.00%
Bannu District Total	150	13.60%
Tank District Total	85	7.71%
Mardan District Total	70	6.35%
Abbottabad District Total	50	4.53%
Nowshera District Total	20	1.81%
Battagram District Total	0	0.00%
Buner District Total	0	0.00%
Charsadda District Total	0	0.00%
Chitral District Total	0	0.00%
Dera IsmailKhan District Total	0	0.00%
Hangu District Total	0	0.00%
Haripur District Total	0	0.00%
Karak District Total	0	0.00%
Kohat District Total	0	0.00%
Kohistan District Total	0	0.00%
Lakki District Total	0	0.00%
Lower Dir District Total	0	0.00%
Malakand District Total	0	0.00%
Mansehra District Total	0	0.00%

Shangla District Total	0	0.00%
Swabi District Total	0	0.00%
Swat District Total	0	0.00%
Upper Dir District Total	0	0.00%

Question 8: Which district has the highest percentage of private hospitals? and the lowest percentage?

86. Go to Hospital and Beds Sheet
87. Make a Copy of the Hospital and Beds Sheet by right-click on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK
88. Rename the sheet Hospitals and Beds (2) as Q8 by right-click on the tab sheet and click on Rename. Select any cell with data.
89. In the main menu go to Data - Sort & Filter – Sort
90. In the Sort window
  a. Be sure My list has headers is, because you do not want the headers mix with the data as another component of the data, in these case as another district or Tehsil
  b. In the first Sort by select District and Order A to Z
  c. Then, click on Add Level, in column select Geographic Region and Order A to Z. Click on OK
91. In the main menu go to Data – Outline and click on Subtotal
92. Subtotal window have a default configuration than most probably is not the one that you are looking for, so double check before clicks on OK. In Subtotal window
  a. At each change in: select District because these the column we need to focus on and as the question 8 is require
  b. Use function: use Sum, because we need a summarization of Private Beds
  c. Add subtotal to: Select Private Hospital because this column contains the number of total number of Private Beds as question requires
  d. Leave select Replace Current Subtotals and Summary below data. Click OK
93. The panel in the left with the numbers 1, 2, and 3 give a different way to analyze the calculation just made. For instance:
  a. (1) is the Total of Private Hospitals in the Khyber Pakhtunkhwa province,
  b. (2) is the Total of Private Hospitals by Districts, and
  c. (3) is the full data set
94. Go to number (2) in the left panel with the Total of Private Beds by districts
95. Hide Column C, D, E, and F by selecting those columns right-click and click on Hide
96. Select date in column B and G
97. In the Main Menu go to Home – Editing – Find & Select - Go to Special, in the Go to Special window select Visible cell only and click on OK
98. Copy the selection
99. Add another sheet
100. Rename it as Q8.1
101. In the Main Menu go to Home – Clipboard – Paste – Value
102. Move data content in row 26 to row 29 to avoid include Grand Total in filters
103. Select Row 1, in the Main menu go to Home – Editing – Sort & Filter – Filter
104. Click on the small arrow inside Private Hospital Column and Sort Largest to Smallest
105. Name Column C as Percentage of Private Hospitals
106. Use the formula for percentage **=B2/$B$29** explained in number 58.
107. Move the formula for the rest of the districts by move the cursor the bottom-right of the cell as explained in number 59

108. Format Column as Percentage as explain in number 60

109. **Question 8:** Which district has the highest percentage of private hospitals? and the lowest percentage?

Districts	Private Hospitals	Percentage of Private Hospitals
Peshawar District Total	30	83.33%
Mardan District Total	2	5.56%
Abbottabad District Total	1	2.78%
Bannu District Total	1	2.78%
Nowshera District Total	1	2.78%
Tank District Total	1	2.78%
Battagram District Total	0	0.00%
Buner District Total	0	0.00%
Charsadda District Total	0	0.00%
Chitral District Total	0	0.00%
Dera IsmailKhan District Total	0	0.00%
Hangu District Total	0	0.00%
Haripur District Total	0	0.00%
Karak District Total	0	0.00%
Kohat District Total	0	0.00%
Kohistan District Total	0	0.00%
Lakki District Total	0	0.00%
Lower Dir District Total	0	0.00%
Malakand District Total	0	0.00%
Mansehra District Total	0	0.00%
Shangla District Total	0	0.00%
Swabi District Total	0	0.00%
Swat District Total	0	0.00%
Upper Dir District Total	0	0.00%

Question 9: What is the average number of total, private and public hospitals and hospital beds per district? And for the province?

110. Go to the Hospital and Beds Sheet

111. Make a Copy of the Hospital and Beds Sheet by right-clicking on the sheet tab and select "(move to the end)" and Create a Copy, then click on OK

112. Rename the sheet Hospitals and Beds (2) as Q9 by right-clicking on the sheet tab and click on Rename. Select any cell with data.

113. In the main menu go to Data - Sort & Filter – Sort

114. In the Sort window

- **a.** Be sure My list has headers is, because you do not want the headers combined with the data in these case as another district or Tehsil
- **b.** In the first menu Sort by select District and Order A to Z
- **c.** Then, click on Add Level, in column select Geographic Region and Order A to Z. Click on OK

115. In the main menu go to Data – Outline and click on Subtotal

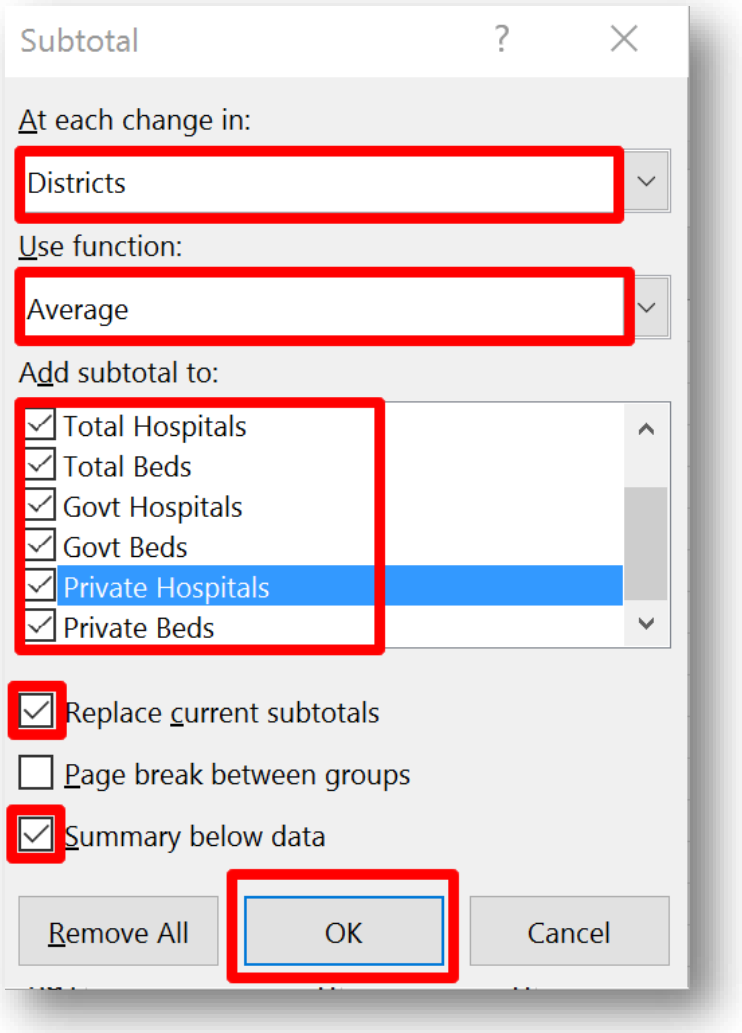
116. Subtotal windows have a default configuration than most probably is not what you are looking for, so double check before clicking on OK. In Subtotal window

a. At each change in: select District because these the column we need to focus on and as the question 8 is require

b. Use function: use **Average**, because question 9 is asking about averages

c. Add subtotal to: Select Total Hospitals, Total Beds, Govt Hospitals, Govt Beds, Private Hospital, and Private Beds.

d. Leave select Replace Current Subtotals and Summary below data. Click OK



117. The panel in the left with the numbers 1, 2, and 3 provide different views of the data
For instance:

a. (1) is the Total Hospitals, Total Beds, Govt Hospitals, Govt Beds, Private Hospital, and Private Beds in the Khyber Pakhtunkhwa province (answer to second part of the question 9)

b. (2) is the Average of Total Hospitals, Total Beds, Govt Hospitals, Govt Beds, Private Hospital, and Private Beds by Districts, and

Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
Grand Average	3.327272727	306.67273	2.672727273	286.6182	0.654545455	20.0545455

a. (3) is the full data set

118. Go to number (2) in the left panel with the Total Hospitals, Total Beds, Govt Hospitals, Govt Beds, Private Hospital, and Private Beds by Districts

119. **Question 9:** What is the average number of total, private and public hospitals and hospital beds per district? And for the province?

Districts	Total Hospitals	Total Beds	Govt Hospitals	Govt Beds	Private Hospitals	Private Beds
Abbottabad District Average	10	1380	9	1330	1	50
Bannu District Average	6	977	5	827	1	150
Battagram District Average	1	57.5	1	57.5	0	0
Buner District Average	2	147.5	2	147.5	0	0
Charsadda District Average	1.5	214	1.5	214	0	0
Chitral District Average	0.571428571	26.285714	0.571428571	26.28571	0	0
Dera IsmailKhan District Average	3	219.66667	3	219.6667	0	0
Hangu District Average	2.5	88	2.5	88	0	0
Haripur District Average	4.5	335.5	4.5	335.5	0	0
Karak District Average	2.666666667	180.66667	2.666666667	180.6667	0	0
Kohat District Average	7	851	7	851	0	0
Kohistan District Average	0	0	0	0	0	0
Lakki District Average	4	356	4	356	0	0
Lower Dir District Average	1	118.66667	1	118.6667	0	0
Malakand District Average	3.5	232.5	3.5	232.5	0	0
Mansehra District Average	3	162.75	3	162.75	0	0
Mardan District Average	4	456	3	421	1	35
Nowshera District Average	6	316	5	296	1	20
Peshawar District Average	47	5179	17	4451	30	728
Shangla District Average	1	62	1	62	0	0
Swabi District Average	2.5	176	2.5	176	0	0
Swat District Average	5	419.5	5	419.5	0	0
Tank District Average	4	165	3	80	1	85
Upper Dir District Average	2.5	344	2.5	344	0	0
Grand Average	3.327272727	306.67273	2.672727273	286.6182	0.654545455	20.0545455