Chapter 3 Microsoft Excel 2010

Welcome to the world of Excel. Now in the business world, the financial world, the manufacturing world, and any other industry you can think of, you will see people using Excel. It is by far one of the most used programs in the history of business applications.

The contents of this chapter are sketched in Figure 3-1.

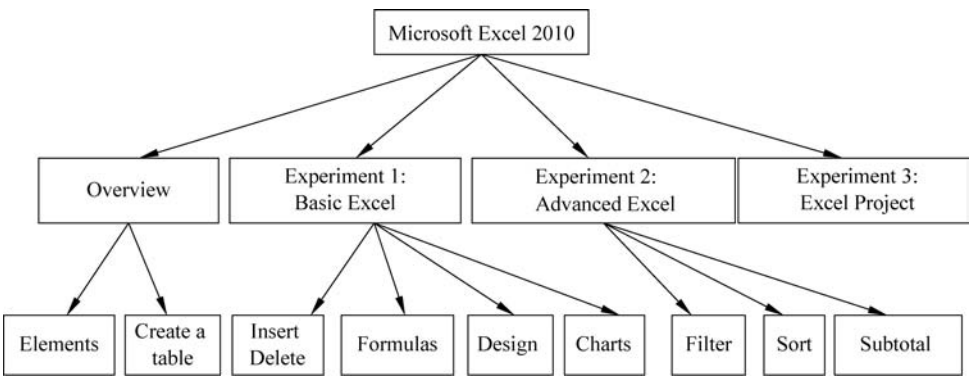


Figure 3-1 The relationship chart of this chapter

3.1 An Overview of Microsoft Excel 2010

To make managing and analyzing a group of related data easier, you can turn a range of cells into an Excel table as shown in Figure 3-2.

	A	B	C	D
1	Product	Qtr 1	Qtr 2	Grand Tota
2	Chocolade	$744.60	$162.56	$907.16
3	Gummibarchen	$5,079.60	$1,249.20	$6,328.80
4	Scottish Longbreads	$1,267.50	$1,062.50	$2,330.00
5	Sir Rodney's Scones	$1,418.00	$756.00	$2,174.00
6	Tarte au sucre	$4,728.00	$4,547.92	$9,275.92
7	Chocolate Biscuits	$943.89	$349.60	$1,293.49
8	Total	$14,181.59	$8,127.78	$22,309.37

Figure 3-2 An example of an Excel table

3.1.1 The elements of Excel table

A table can include the following elements:

1. Header row

By default, a table has a header row. Every table column has filtering enabled in the header row so that you can filter or sort your table data quickly, which are shown in Figure 3-3. And you can turn off the header row in a table.

2. Banded rows

Alternate shading or banding in rows helps to better distinguish the data, as shown in Figure 3-4.

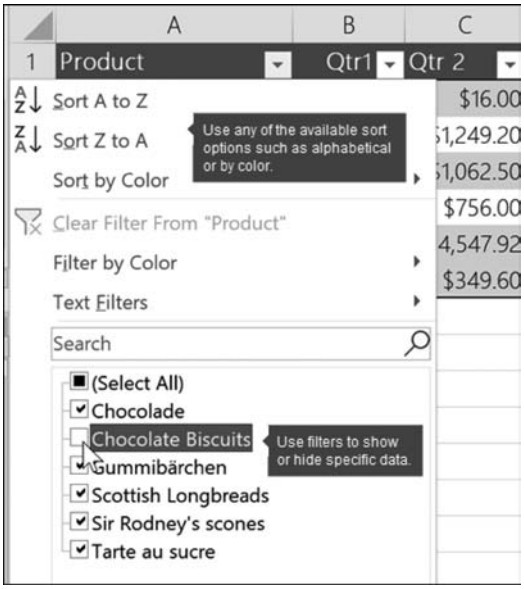


Figure 3-3 Filter data and Sort data

	A	B	C
1	Column1	Column2	Column3
2	Product	Qtr 1	Qtr 2
3	Chocolade	744.6	162.56
4	Gummibarchen	5079.6	1249.2
5	Scottish Longbreads	1267.5	1062.5

Figure 3-4 Banded rows

3. Calculated columns

By entering a formula in one cell in a table column, you can create a calculated column in which that formula is instantly applied to all other cells in that table column, which is shown in Figure 3-5.

4. Total row

Once you add a total row to a table, Excel gives you an AutoSum drop-down list to select from functions such as SUM, AVERAGE, and so on. When you select one of these options, the table will automatically convert them to a SUBTOTAL function, which will ignore rows that have been hidden with a filter by default. If you want to include hidden rows in your calculations, you can change the SUBTOTAL function arguments, which is shown in Figure 3-6.

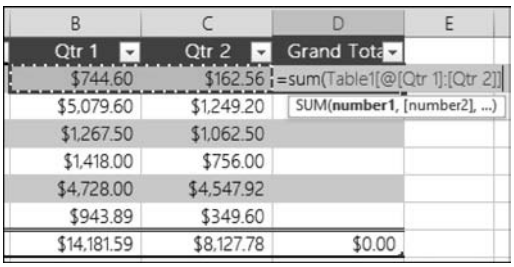


Figure 3-5 An example of calculated columns

Figure 3-6 An example of total row

5. Sizing handle

A sizing handle in the lower-right corner of the table allows you to drag the table to the size that you want, as shown in Figure 3-7.

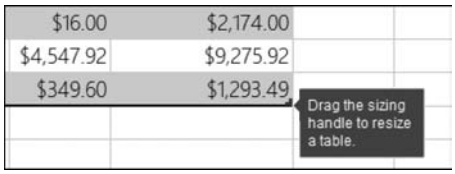


Figure 3-7 Resize the table by sizing handle

3.1.2 Create a table

You can create as many tables as you want in a spreadsheet. To quickly create a table in Excel, do the following:

(1) Select the cell or the range in the data.

(2) Select "Home"→"Format as Table", as shown in Figure 3-8.

(3) Pick a table style, as shown in Figure 3-9.

(4) In the "Format as Table" dialog box, set your cell range.

(5) In the "Format as Table" dialog box, select the checkbox next to "My table as headers", an shown in Figure 3-10. if you want the first row of the range to be the header row, and then click "OK".

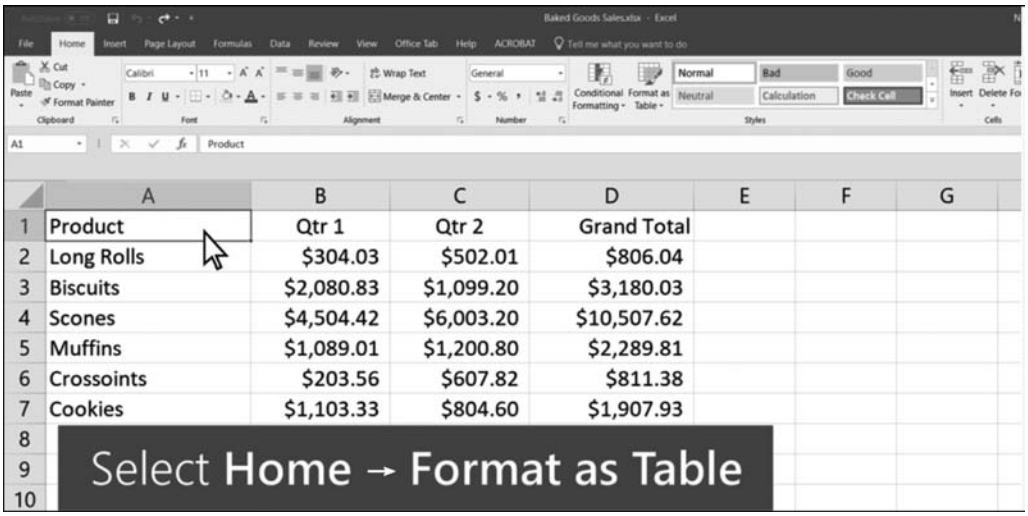


Figure 3-8 Select "Home"→"Format as Table"

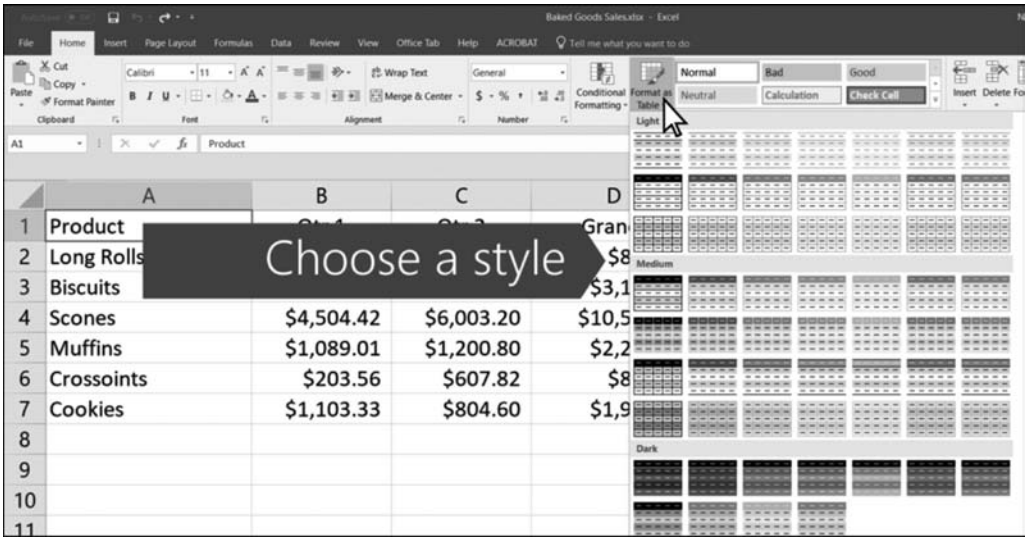


Figure 3-9 Choose a style for your table

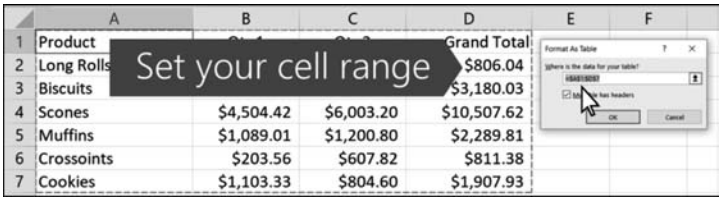


Figure 3-10 Set cell range

3.2 Experiment 1: Basic Excel

3.2.1 Experiment purpose

The purpose of this experiment is to master the operations of building and closing an Excel, some basic operations including inserting and deleting rows and columns, basic formulas, table design and charts.

3.2.2 Experiment contents

Experiment 3.1

This part of experiment should be finished in "Excel Data.xlsx" and save it as "Excel Data-practice 0".

- Insert a new row before the 16th row and input "Tom", "6000", "Master", "132204198810018822", "85.5".
- Delete the 18th row (After inserting).
- Insert a new column named "Index" on the leftmost table and finish indexing.
- Insert a new column named "Location" on the rightmost table and finish the input shown in Figure 3-11.
- Insert a new column named "Total Salary" on the rightmost table. The "Total Salary" equals to "Salary * Score / 100".
- Insert a new column named "Tax Rate" on the rightmost table. When the "Total Salary" is greater than 7000, the "Tax Rate" is 0.3. Otherwise it is 0.
- Insert a new column named "Age" before "Salary" and finish calculations. (Format: int (year(today())-mid(ID Card,7,4)). (Hint: you cannot input "ID Card" directly.)
- Insert a heading:

  ① Insert a new row before the first row and input "Information and Salary of the Dahua Company", Merge and Center A1:K1, and set the font to "Calibri", size 14, bold, light green.

  ② Select A2:K2, and set the font to bold, Orange Accent 6.
- Add "All Borders" on the table, and center texts.
- Insert a Chart of 2D Clustered Column according to A3:C22.

After finishing this part of experiment, the final effect is shown as Figure 3-11 and Figure 3-12.

3.2.3 Experiment procedures

3.2.3.1 Insert and Delete Rows and Columns

(1) Open the file "Excel Data.xlsx", and save it as "Excel Data - practice 0".

(2) Select the 16th row, right click it and select "Insert" (Shown in Figure 3-13).

	A	B	C	D	E	F	G	H	I	J
1	Information and Salary of the Dahua Company									
2	Index	Name	Age	Salary	Diploma	ID card	Score	Location	Total Salary	Tax Rate
3	1	Stu 1	31	8000	Master	200921198712260546	95.3	Beijing	7624	0.3
4	2	Stu 2	39	6000	Bachelor	110501197905031267	88.2	Beijing	5292	0
5	3	Stu 3	39	5000	College	456723197901211672	92.4	Beijing	4620	0
6	4	Stu 4	50	3500	Senior High	551164196811292168	75	Beijing	2625	0
7	5	Stu 5	28	6000	Bachelor	1236421990121933315	85	Beijing	5100	0
8	6	Stu 6	42	5000	College	543784197605081524	84.6	Beijing	4230	0
9	7	Stu 7	42	8000	Master	516195197606110549	65.6	Beijing	5248	0
10	8	Stu 8	51	6000	Bachelor	1237841967063045 67	63	Beijing	3780	0
11	9	Stu 9	50	5000	College	154978196810289234	78.1	Beijing	3905	0
12	10	Stu 10	59	3500	Senior High	456789195905084945	86	Beijing	3010	0
13	11	Stu 11	38	8000	Master	456713198007145522	92.5	Beijing	7400	0.3
14	12	Stu 12	39	6000	Bachelor	154795197905031679	75	Shanghai	4500	0
15	13	Stu 13	51	5000	College	157164196703175756	51.4	Shanghai	2570	0
16	14	Stu 14	58	3500	Senior High	159456196008060917	33.2	Shanghai	1162	0
17	15	Tom	30	6000	Master	132204198810018822	85.5	Shanghai	5130	0
18	16	Stu 15	30	6000	Bachelor	132204198810018822	88	Shanghai	5280	0
19	17	Stu 17	51	8000	Master	123456196702164567	80.5	Shanghai	6440	0
20	18	Stu 18	36	6000	Bachelor	187341198211304655	91	Shanghai	5460	0
21	19	Stu 19	42	5000	College	356715197607153497	38	Shanghai	1900	0
22	20	Stu 20	38	3500	Senior High	187167198007168713	60	Shanghai	2100	0

Figure 3-11 The resulting table for Experiment 1

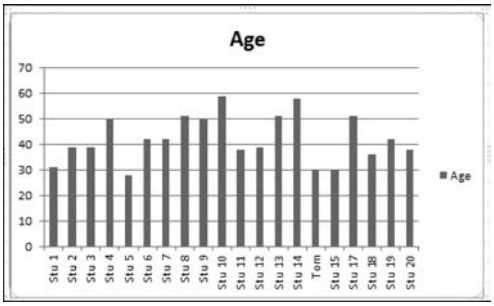


Figure 3-12 The resulting chart for Experiment 1

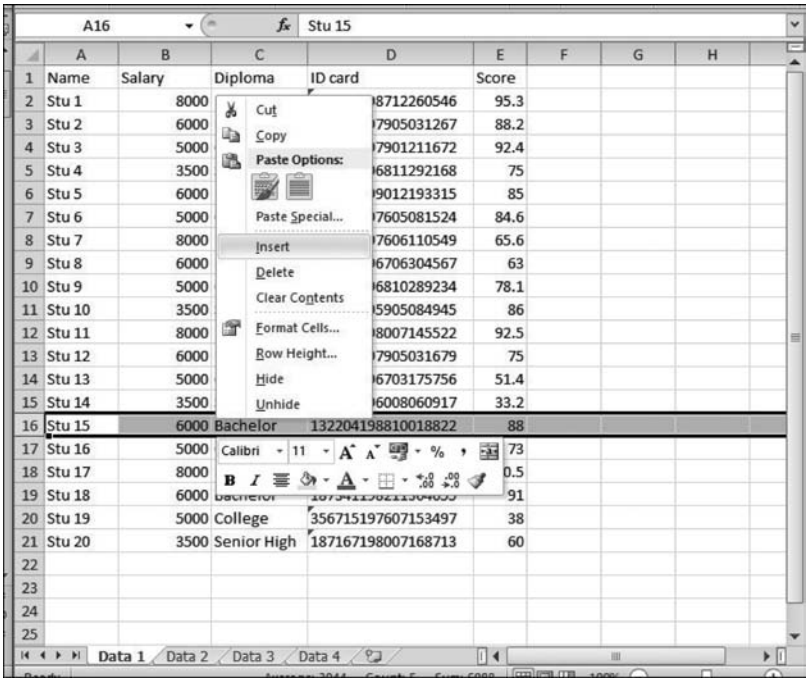
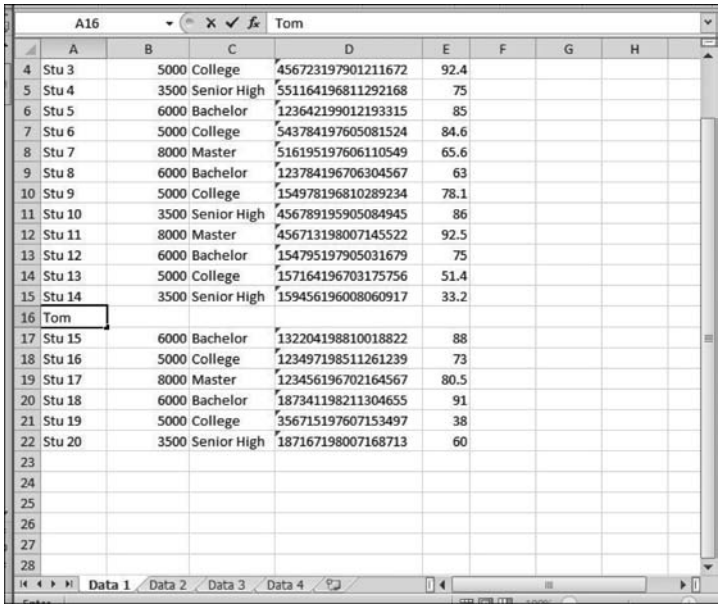


Figure 3-13 Right click and select "Insert"

(3) Input "Tom", "6000" and "Master" from A16 to C16 respectively (Shown in Figure 3-14).



	A	B	C	D	E	F	G	H
4	Stu 3	5000	College	456723197901211672	92.4			
5	Stu 4	3500	Senior High	551164196811292168	75			
6	Stu 5	6000	Bachelor	123642199012193315	85			
7	Stu 6	5000	College	543784197605081524	84.6			
8	Stu 7	8000	Master	516195197606110549	65.6			
9	Stu 8	6000	Bachelor	123784196706304567	63			
10	Stu 9	5000	College	154978196810289234	78.1			
11	Stu 10	3500	Senior High	456789195905084945	86			
12	Stu 11	8000	Master	456713198007145522	92.5			
13	Stu 12	6000	Bachelor	154795197905031679	75			
14	Stu 13	5000	College	157164196703175756	51.4			
15	Stu 14	3500	Senior High	159456196008060917	33.2			
16	Tom							
17	Stu 15	6000	Bachelor	132204198810018822	88			
18	Stu 16	5000	College	123497198511261239	73			
19	Stu 17	8000	Master	123456196702164567	80.5			
20	Stu 18	6000	Bachelor	187341198211304655	91			
21	Stu 19	5000	College	356715197607153497	38			
22	Stu 20	3500	Senior High	187167198007168713	60			
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26								
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Figure 3-14 Input the first 3 columns

(4) Right click D16 and select "Format Cells" (Shown in Figure 3-15).

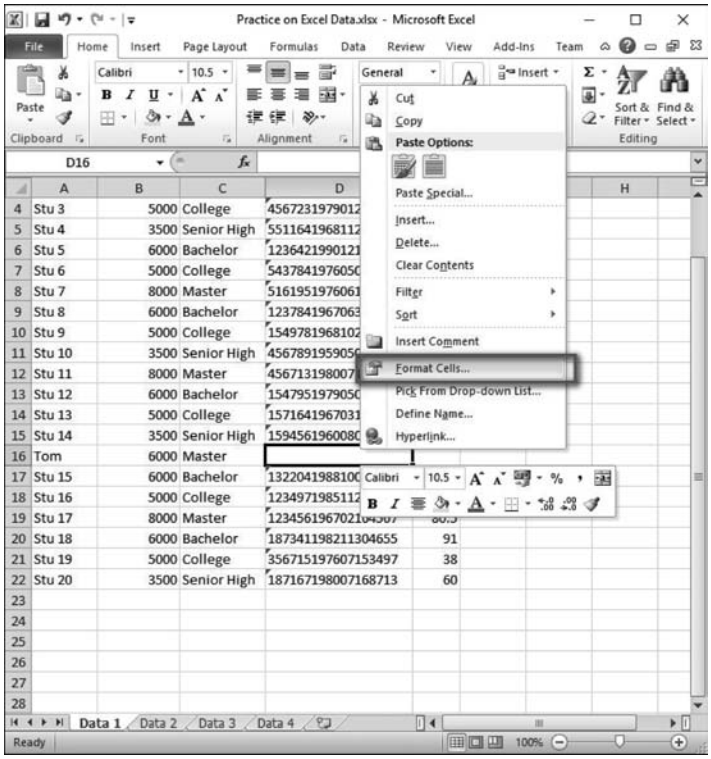


Figure 3-15 Right click D16 and select "Format Cells"

(5) Choose the tab "Number" and select the "Text" on the Category (Shown in Figure 3-16).

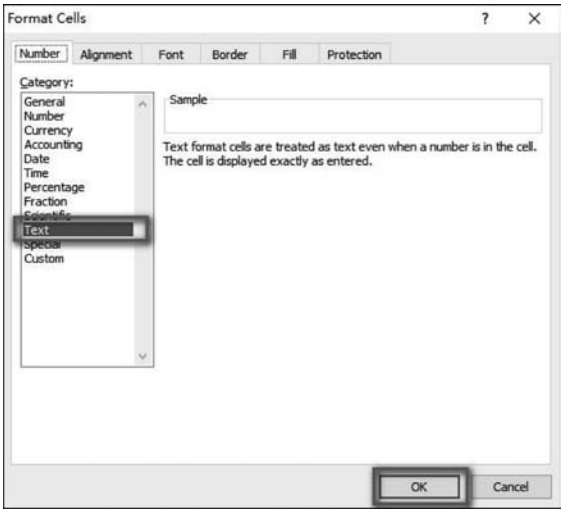


Figure 3-16 Change the format to "Text"

(6) Input "132204198810018822" and "85.5" on D18 and E18 respectively.

(7) Select the 18th row and right click it, choose "Delete" (Shown in Figure 3-17). After deleting, the resulting table is shown in Figure 3-18.

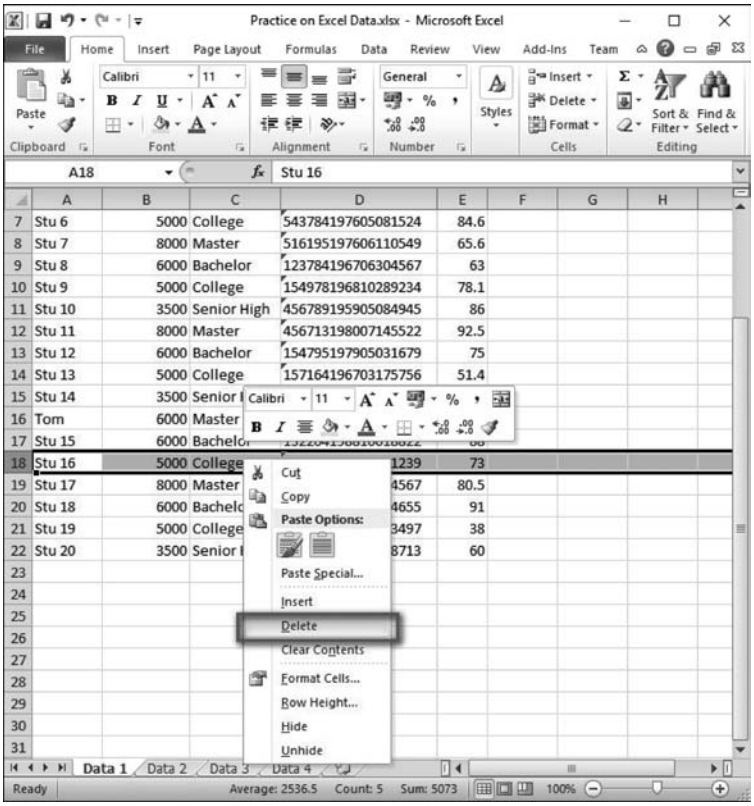


Figure 3-17 Delete the 18th row

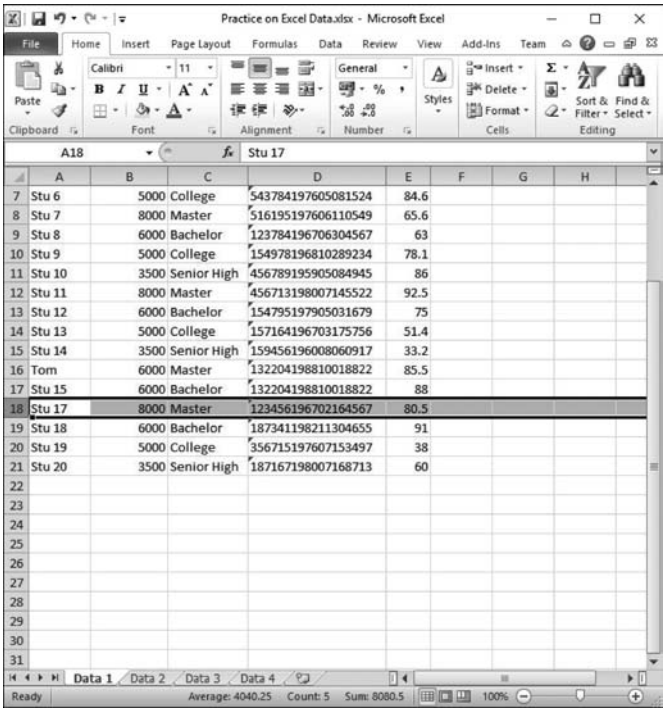


Figure 3-18 The resulting table after deleting

(8) Right click the first column and select "Insert" (Shown in Figure 3-19).

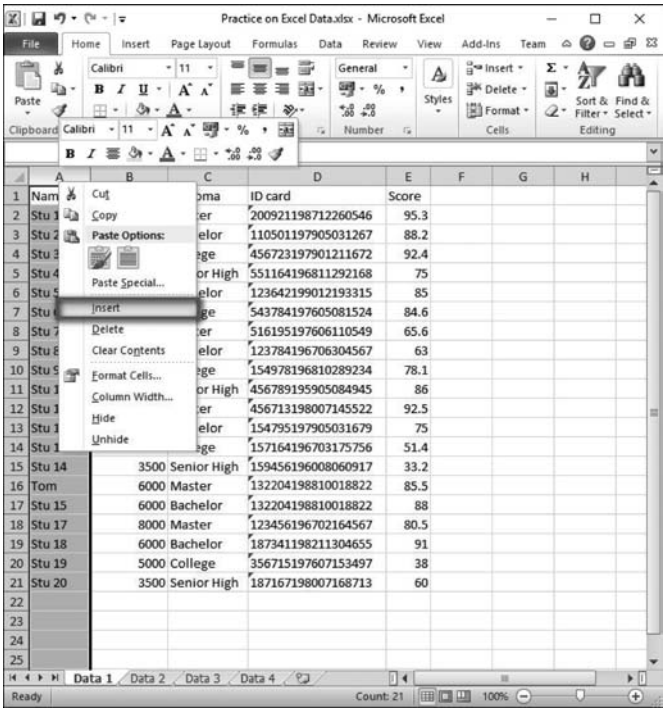
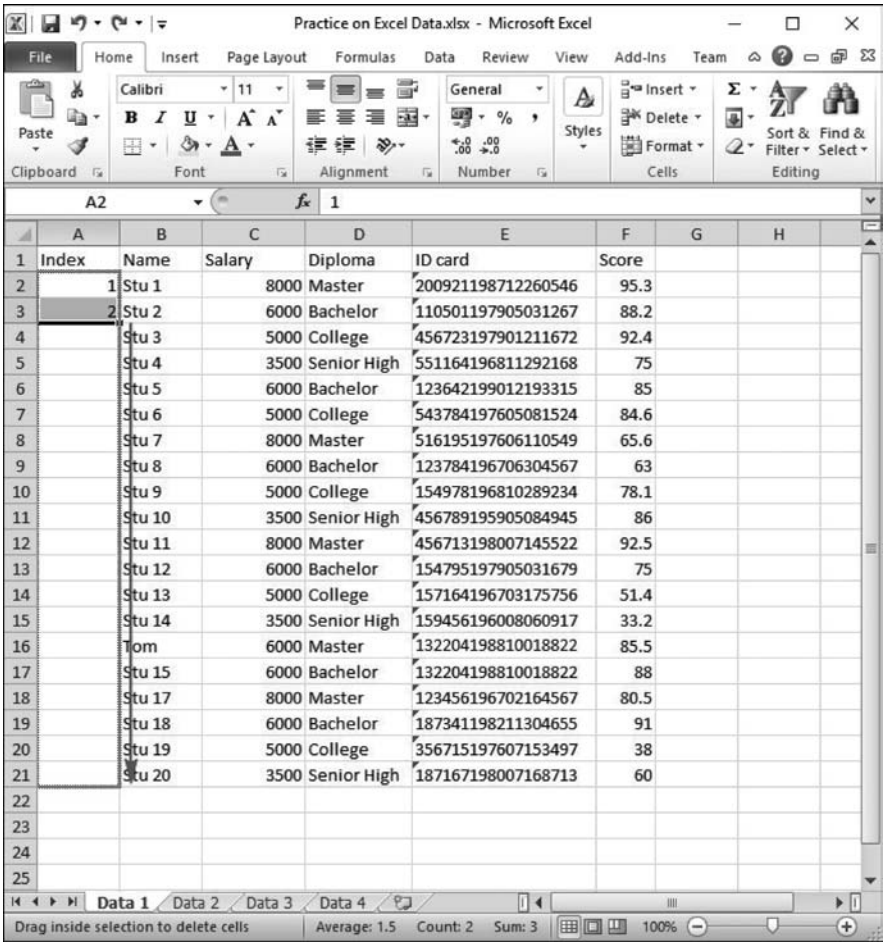


Figure 3-19 Insert a new column

(9) Input "Index" on A1, and "1" and "2" on A2 and A3 respectively. Select A3, press your mouse on the lower right corner of A3 and drag to A21 (Shown in Figure 3-20).



	A	B	C	D	E	F	G	H
1	Index	Name	Salary	Diploma	ID card	Score		
2	1	Stu 1	8000	Master	200921198712260546	95.3		
3	2	Stu 2	6000	Bachelor	110501197905031267	88.2		
4		Stu 3	5000	College	456723197901211672	92.4		
5		Stu 4	3500	Senior High	551164196811292168	75		
6		Stu 5	6000	Bachelor	123642199012193315	85		
7		Stu 6	5000	College	543784197605081524	84.6		
8		Stu 7	8000	Master	516195197606110549	65.6		
9		Stu 8	6000	Bachelor	123784196706304567	63		
10		Stu 9	5000	College	154978196810289234	78.1		
11		Stu 10	3500	Senior High	456789195905084945	86		
12		Stu 11	8000	Master	456713198007145522	92.5		
13		Stu 12	6000	Bachelor	154795197905031679	75		
14		Stu 13	5000	College	157164196703175756	51.4		
15		Stu 14	3500	Senior High	159456196008060917	33.2		
16		Tom	6000	Master	132204198810018822	85.5		
17		Stu 15	6000	Bachelor	132204198810018822	88		
18		Stu 17	8000	Master	123456196702164567	80.5		
19		Stu 18	6000	Bachelor	187341198211304655	91		
20		Stu 19	5000	College	356715197607153497	38		
21		Stu 20	3500	Senior High	187167198007168713	60		
22								
23								
24								
25								

Figure 3-20 Create index for the table

(10) Input "Location" and "Beijing" on relevant positions (Shown in Figure 3-21). Select G2. Press your mouse on the lower right corner of G2 and drag to G12.

(11) Input "Shanghai" from G13 to G21 in the same way (Shown in Figure 3-22).

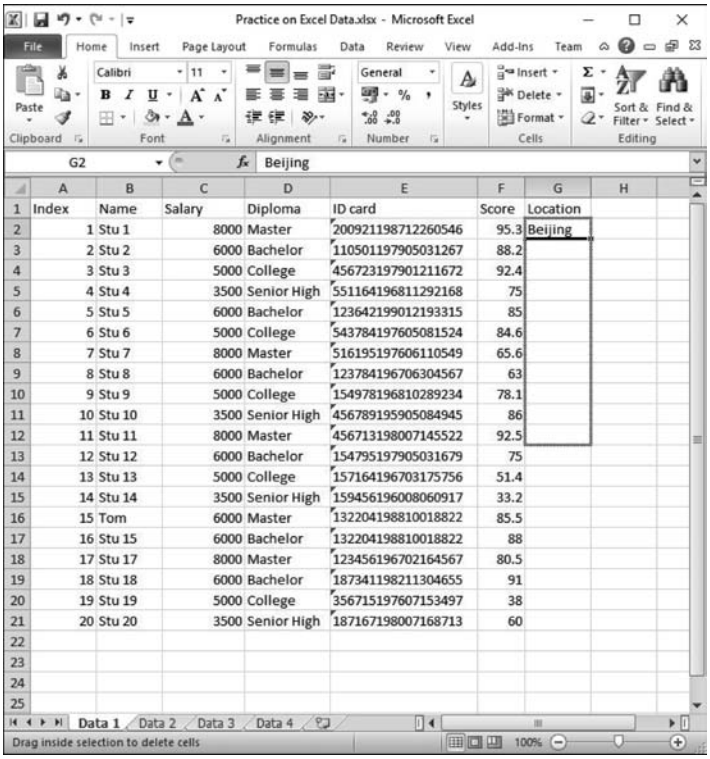
3.2.3.2 Basic Formulas

(1) Input "Total Salary" on H1. Select H2. Input the formula " =C2 * F2/100 ". Or input ' = ', and then click C2, and input ' * ', and click F2, and finally input " /100 ". Press the key Enter (Shown in Figure 3-23).

(2) Select H2 and press the lower right corner of it, drag it to H21 (Shown in Figure 3-24).

(3) Input "Tax Rate" on I1. Select I2. Select "Insert Function" on the "Formulas" tab. Then there will be a dialog box. Select "IF" from the list. Click "OK" (Shown in Figure 3-25).

(4) Input each item in "Logical_test", "Value_if_true" and "Value_if_false" on the dialog box "Function Arguments". After that, click "OK" (Shown in Figure 3-26).



	A	B	C	D	E	F	G	H
1	Index	Name	Salary	Diploma	ID card	Score	Location	
2	1	Stu 1	8000	Master	2009211987122605 46	95.3	Beijing	
3	2	Stu 2	6000	Bachelor	110501197905031267	88.2		
4	3	Stu 3	5000	College	456723197901211672	92.4		
5	4	Stu 4	3500	Senior High	551164196811292168	75		
6	5	Stu 5	6000	Bachelor	123642199012193315	85		
7	6	Stu 6	5000	College	543784197605081524	84.6		
8	7	Stu 7	8000	Master	516195197606110549	65.6		
9	8	Stu 8	6000	Bachelor	123784196706304567	63		
10	9	Stu 9	5000	College	154978196810289234	78.1		
11	10	Stu 10	3500	Senior High	456789195905084945	86		
12	11	Stu 11	8000	Master	456713198007145522	92.5		
13	12	Stu 12	6000	Bachelor	154795197905031679	75		
14	13	Stu 13	5000	College	157164196703175756	51.4		
15	14	Stu 14	3500	Senior High	159456196008060917	33.2		
16	15	Tom	6000	Master	132204198810018822	85.5		
17	16	Stu 15	6000	Bachelor	132204198810018822	88		
18	17	Stu 17	8000	Master	123456196702164567	80.5		
19	18	Stu 18	6000	Bachelor	187341198211304655	91		
20	19	Stu 19	5000	College	356715197607153497	38		
21	20	Stu 20	3500	Senior High	187167198007168713	60		
22								
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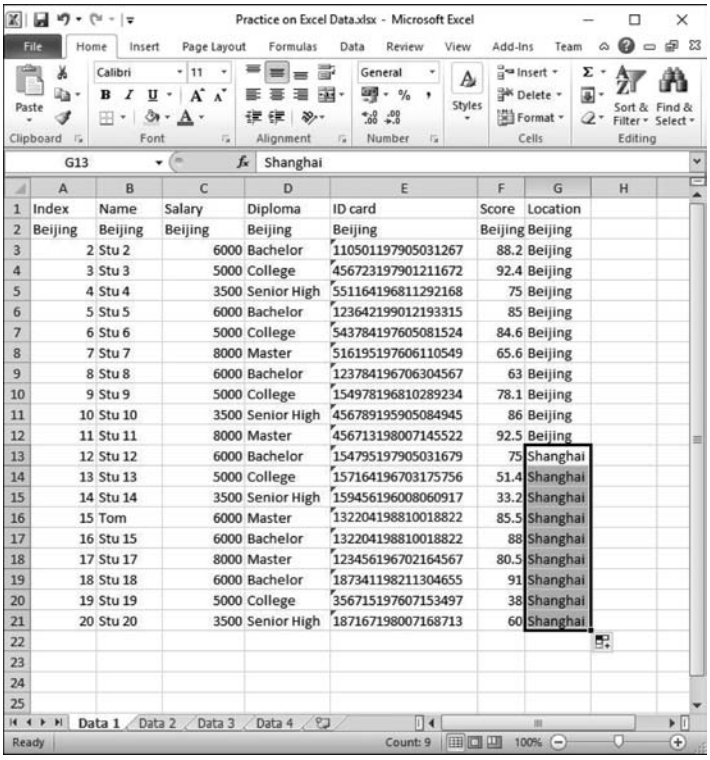
Figure 3-21 Input "Beijing" from G2 to G12



	A	B	C	D	E	F	G	H
1	Index	Name	Salary	Diploma	ID card	Score	Location	
2	Beijing	Beijing	Beijing	Beijing	Beijing	Beijing	Beijing	
3	2	Stu 2	6000	Bachelor	110501197905031267	88.2	Beijing	
4	3	Stu 3	5000	College	456723197901211672	92.4	Beijing	
5	4	Stu 4	3500	Senior High	551164196811292168	75	Beijing	
6	5	Stu 5	6000	Bachelor	123642199012193315	85	Beijing	
7	6	Stu 6	5000	College	543784197605081524	84.6	Beijing	
8	7	Stu 7	8000	Master	516195197606110549	65.6	Beijing	
9	8	Stu 8	6000	Bachelor	123784196706304567	63	Beijing	
10	9	Stu 9	5000	College	154978196810289234	78.1	Beijing	
11	10	Stu 10	3500	Senior High	456789195905084945	86	Beijing	
12	11	Stu 11	8000	Master	456713198007145522	92.5	Beijing	
13	12	Stu 12	6000	Bachelor	154795197905031679	75	Shanghai	
14	13	Stu 13	5000	College	157164196703175756	51.4	Shanghai	
15	14	Stu 14	3500	Senior High	159456196008060917	33.2	Shanghai	
16	15	Tom	6000	Master	132204198810018822	85.5	Shanghai	
17	16	Stu 15	6000	Bachelor	132204198810018822	88	Shanghai	
18	17	Stu 17	8000	Master	123456196702164567	80.5	Shanghai	
19	18	Stu 18	6000	Bachelor	187341198211304655	91	Shanghai	
20	19	Stu 19	5000	College	356715197607153497	38	Shanghai	
21	20	Stu 20	3500	Senior High	187167198007168713	60	Shanghai	
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23								
24								
25								

Figure 3-22 Input "Shanghai" from G13 to G21

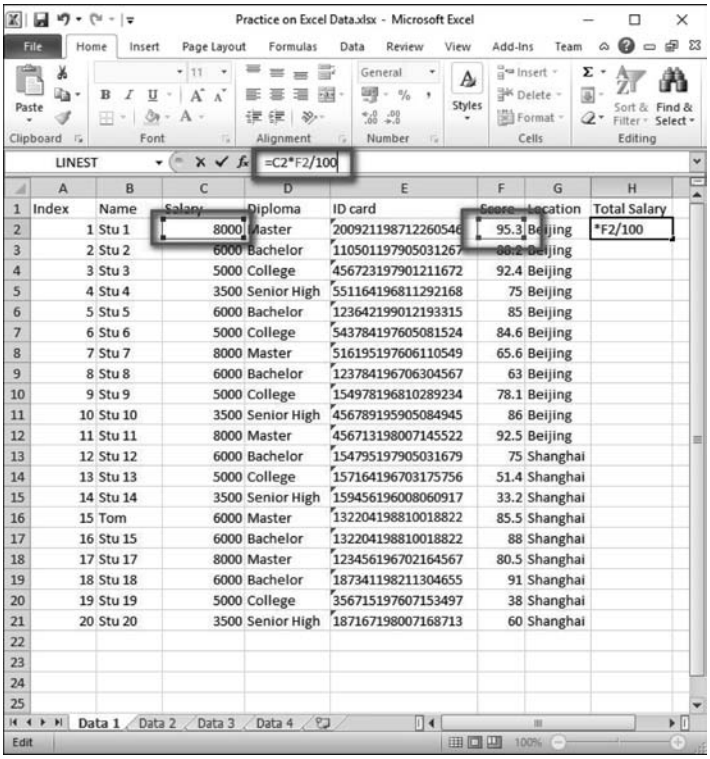


Figure 3-23 Input a formula

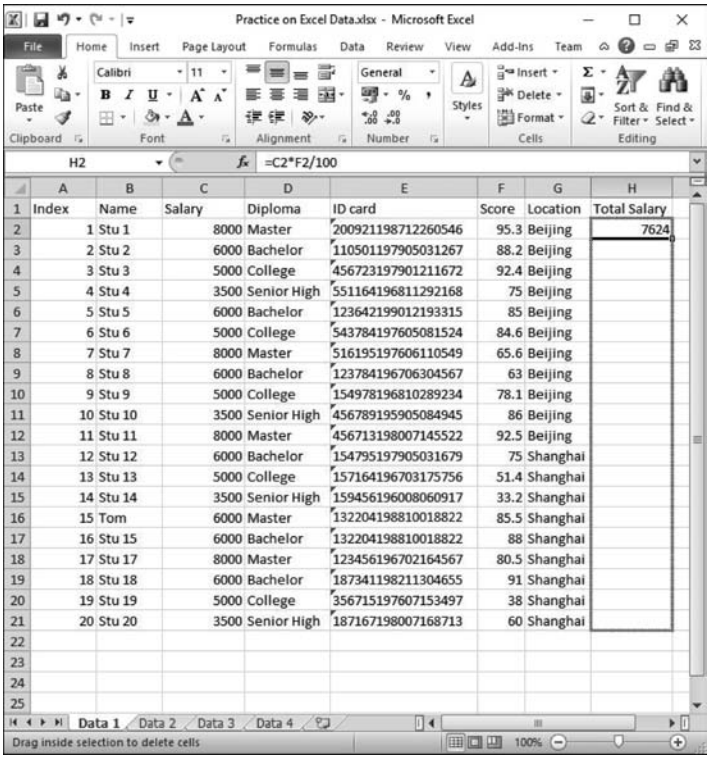


Figure 3-24 Fill the column "Total Salary"

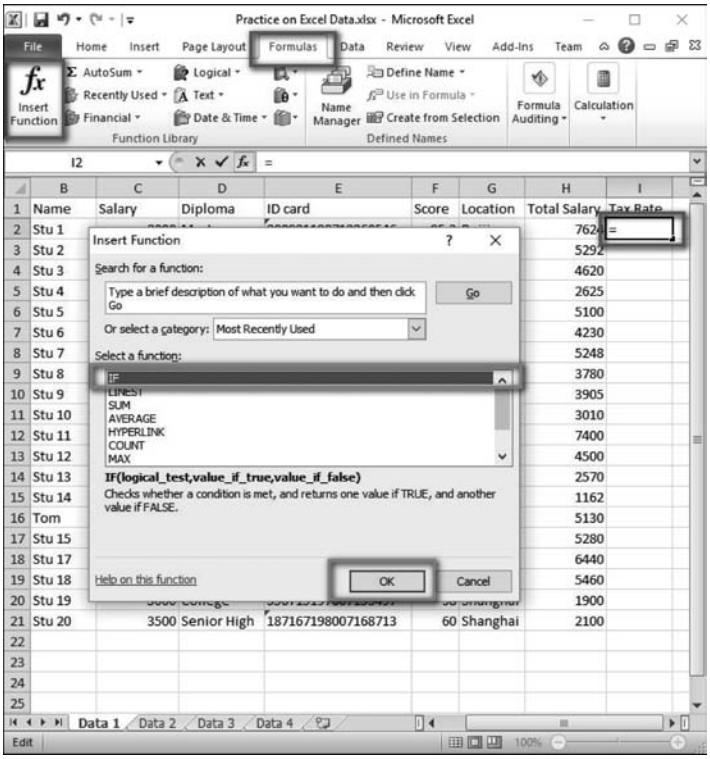


Figure 3-25 Another way to input a formula

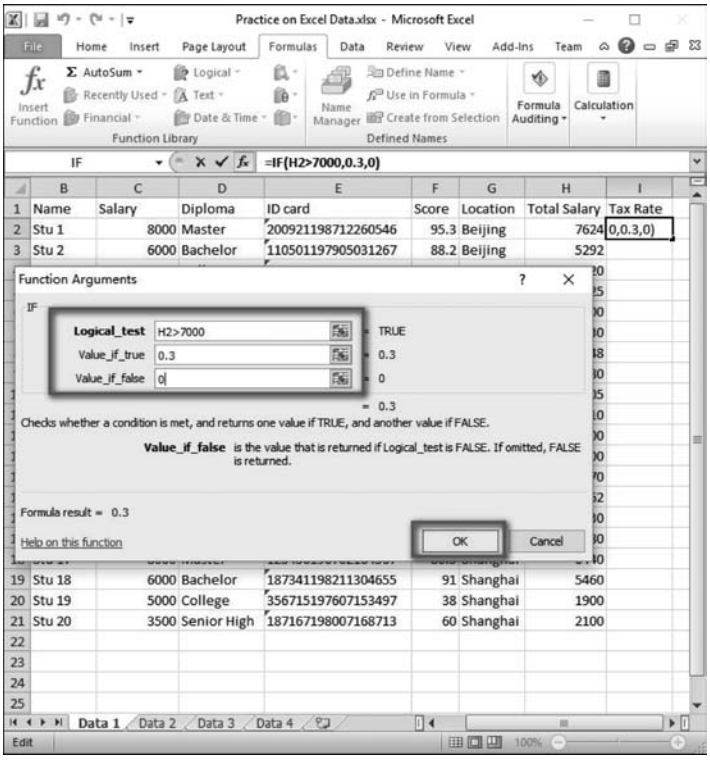
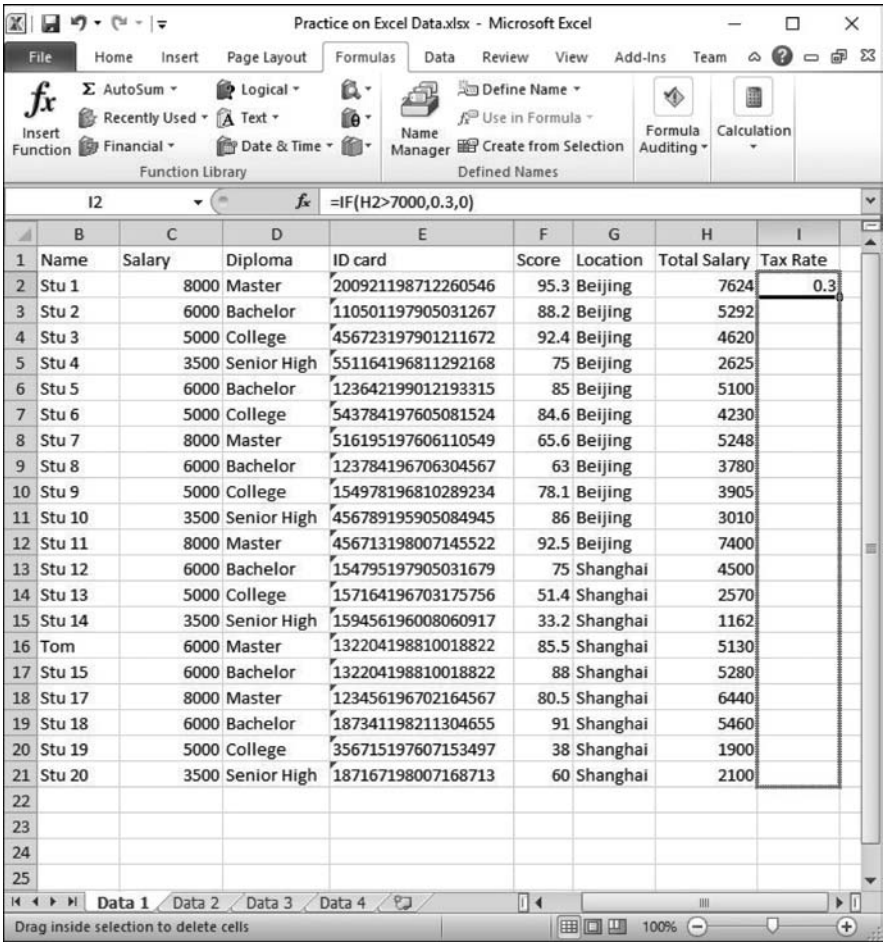


Figure 3-26 Input a formula in "Function Arguments"

(5) Select I2 and press the lower right corner of it. Drag it to I21 to finish the calculation (Shown in Figure 3-27).



	B	C	D	E	F	G	H	I
1	Name	Salary	Diploma	ID card	Score	Location	Total Salary	Tax Rate
2	Stu 1	8000	Master	200921198712260546	95.3	Beijing	7624	0.3
3	Stu 2	6000	Bachelor	110501197905031267	88.2	Beijing	5292	
4	Stu 3	5000	College	456723197901211672	92.4	Beijing	4620	
5	Stu 4	3500	Senior High	551164196811292168	75	Beijing	2625	
6	Stu 5	6000	Bachelor	123642199012193315	85	Beijing	5100	
7	Stu 6	5000	College	543784197605081524	84.6	Beijing	4230	
8	Stu 7	8000	Master	516195197606110549	65.6	Beijing	5248	
9	Stu 8	6000	Bachelor	123784196706304567	63	Beijing	3780	
10	Stu 9	5000	College	154978196810289234	78.1	Beijing	3905	
11	Stu 10	3500	Senior High	456789195905084945	86	Beijing	3010	
12	Stu 11	8000	Master	456713198007145522	92.5	Beijing	7400	
13	Stu 12	6000	Bachelor	154795197905031679	75	Shanghai	4500	
14	Stu 13	5000	College	157164196703175756	51.4	Shanghai	2570	
15	Stu 14	3500	Senior High	159456196008060917	33.2	Shanghai	1162	
16	Tom	6000	Master	132204198810018822	85.5	Shanghai	5130	
17	Stu 15	6000	Bachelor	132204198810018822	88	Shanghai	5280	
18	Stu 17	8000	Master	123456196702164567	80.5	Shanghai	6440	
19	Stu 18	6000	Bachelor	187341198211304655	91	Shanghai	5460	
20	Stu 19	5000	College	356715197607153497	38	Shanghai	1900	
21	Stu 20	3500	Senior High	187167198007168713	60	Shanghai	2100	
22								
23								
24								
25								

Figure 3-27 Calculate Tax Rate for all students

(6) To calculate the age of each students, add a new column named Age before the column D. Select C2 and input "=INT(YEAR(TODAY())-MID(F2,7,4))" on the "Formula Bar" (Shown in Figure 3-28).

(7) Select C2 and press the lower right corner of it. Drag it to C21 (Shown in Figure 3-29).

3.2.3.3 Table Design

(1) Insert a new row before the first row and input the title "Information and Salary of the Dahua Company" (Shown in Figure 3-30).

(2) Set the title's font to "Calibri", size 14, bold, light green, center, and the second row's font to bold. Fill the second row with "Orange Accent 6" by using "Fill Color" on the "Home" tab (Shown in Figure 3-31).

(3) Select A1:J22. Double click Center button on the "Home" tab to center all texts. Add all borders for it by using "More Borders" on the "Home" tab (Shown in Figure 3-32).

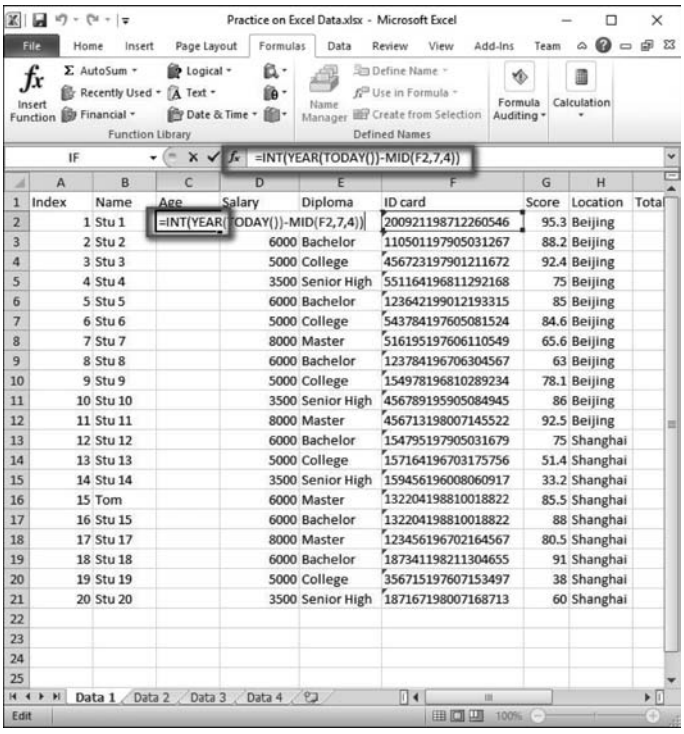


Figure 3-28 Calculate age for each students

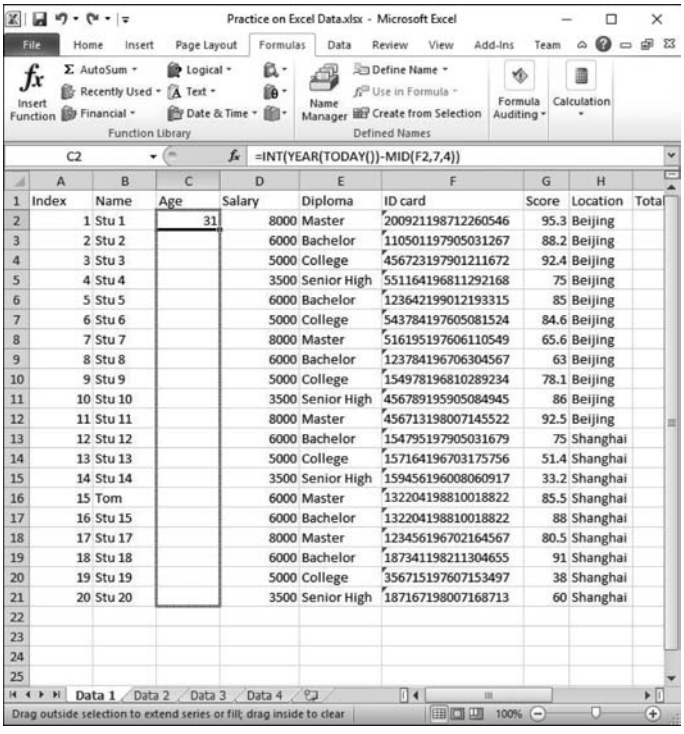
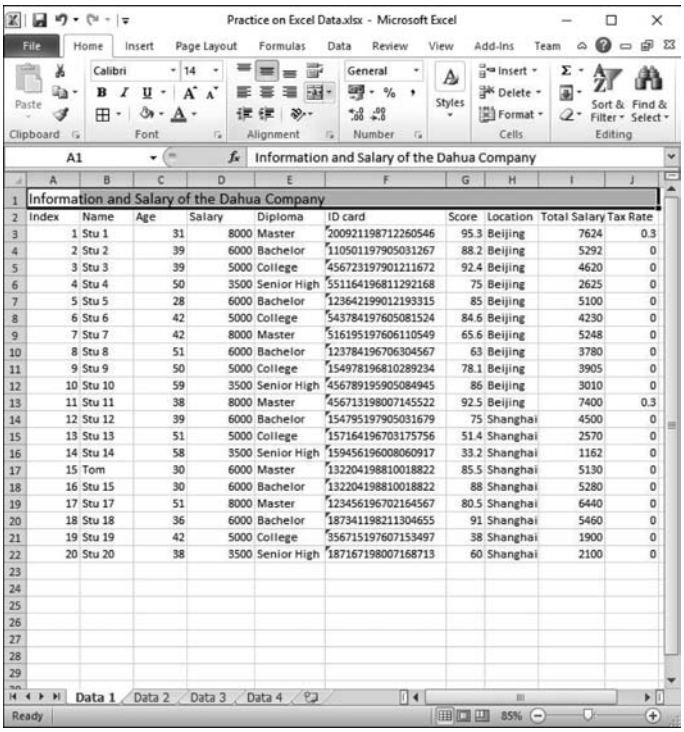


Figure 3-29 Finish calculating ages



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Calibri 14 General Paste Styles Insert Delete Format Sort & Filter Find & Select

Clipboard Font Alignment Number Cells Editing

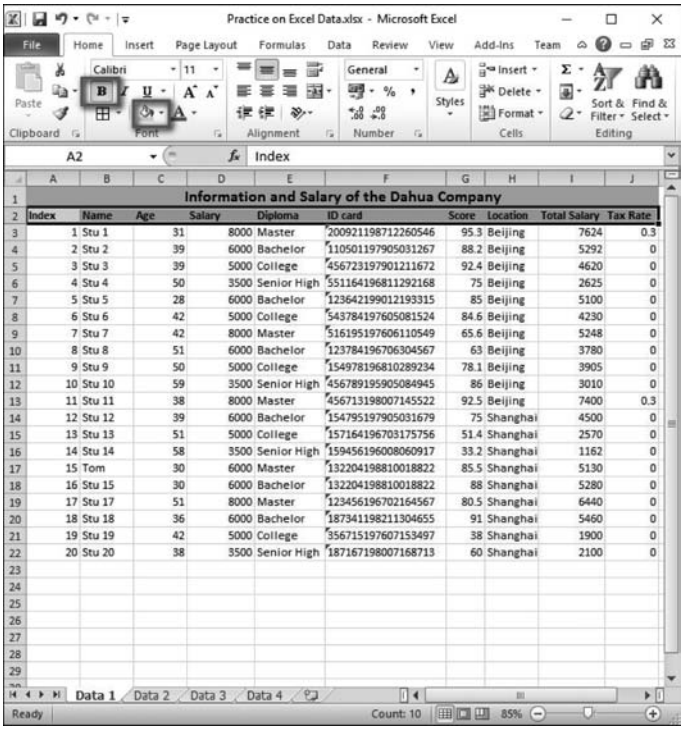
A1 Information and Salary of the Dahua Company

	A	B	C	D	E	F	G	H	I	J
1	Information and Salary of the Dahua Company									
2	Index	Name	Age	Salary	Diploma	ID card	Score	Location	Total Salary	Tax Rate
3	1	Stu 1	31	8000	Master	200921198712260546	95.3	Beijing	7624	0.3
4	2	Stu 2	39	6000	Bachelor	110501197905031267	88.2	Beijing	5292	0
5	3	Stu 3	39	5000	College	456723197901211672	92.4	Beijing	4620	0
6	4	Stu 4	50	3500	Senior High	551164196811292168	75	Beijing	2625	0
7	5	Stu 5	28	6000	Bachelor	123642199012193315	85	Beijing	5100	0
8	6	Stu 6	42	5000	College	543784197605081524	84.6	Beijing	4230	0
9	7	Stu 7	42	8000	Master	516195197606110549	65.6	Beijing	5248	0
10	8	Stu 8	51	6000	Bachelor	123784196706304567	63	Beijing	3780	0
11	9	Stu 9	50	5000	College	154978196810289234	78.1	Beijing	3905	0
12	10	Stu 10	59	3500	Senior High	456789195905084945	86	Beijing	3010	0
13	11	Stu 11	38	8000	Master	456713198007145522	92.5	Beijing	7400	0.3
14	12	Stu 12	39	6000	Bachelor	154795197905031679	75	Shanghai	4500	0
15	13	Stu 13	51	5000	College	157164196703175756	51.4	Shanghai	2570	0
16	14	Stu 14	58	3500	Senior High	159456196008060917	33.2	Shanghai	1162	0
17	15	Tom	30	6000	Master	132204198810018822	85.5	Shanghai	5130	0
18	16	Stu 15	30	6000	Bachelor	132204198810018822	88	Shanghai	5280	0
19	17	Stu 17	51	8000	Master	123456196702164567	80.5	Shanghai	6440	0
20	18	Stu 18	36	6000	Bachelor	187341198211304655	91	Shanghai	5460	0
21	19	Stu 19	42	5000	College	356715197607153497	38	Shanghai	1900	0
22	20	Stu 20	38	3500	Senior High	187167198007168713	60	Shanghai	2100	0

Data 1 Data 2 Data 3 Data 4

Ready 85%

Figure 3-30 Input the title



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Calibri 11 General Paste Styles Insert Delete Format Sort & Filter Find & Select

Clipboard Font Alignment Number Cells Editing

A2 Index

	A	B	C	D	E	F	G	H	I	J
1	Information and Salary of the Dahua Company									
2	Index	Name	Age	Salary	Diploma	ID card	Score	Location	Total Salary	Tax Rate
3	1	Stu 1	31	8000	Master	200921198712260546	95.3	Beijing	7624	0.3
4	2	Stu 2	39	6000	Bachelor	110501197905031267	88.2	Beijing	5292	0
5	3	Stu 3	39	5000	College	456723197901211672	92.4	Beijing	4620	0
6	4	Stu 4	50	3500	Senior High	551164196811292168	75	Beijing	2625	0
7	5	Stu 5	28	6000	Bachelor	123642199012193315	85	Beijing	5100	0
8	6	Stu 6	42	5000	College	543784197605081524	84.6	Beijing	4230	0
9	7	Stu 7	42	8000	Master	516195197606110549	65.6	Beijing	5248	0
10	8	Stu 8	51	6000	Bachelor	123784196706304567	63	Beijing	3780	0
11	9	Stu 9	50	5000	College	154978196810289234	78.1	Beijing	3905	0
12	10	Stu 10	59	3500	Senior High	456789195905084945	86	Beijing	3010	0
13	11	Stu 11	38	8000	Master	456713198007145522	92.5	Beijing	7400	0.3
14	12	Stu 12	39	6000	Bachelor	154795197905031679	75	Shanghai	4500	0
15	13	Stu 13	51	5000	College	157164196703175756	51.4	Shanghai	2570	0
16	14	Stu 14	58	3500	Senior High	159456196008060917	33.2	Shanghai	1162	0
17	15	Tom	30	6000	Master	132204198810018822	85.5	Shanghai	5130	0
18	16	Stu 15	30	6000	Bachelor	132204198810018822	88	Shanghai	5280	0
19	17	Stu 17	51	8000	Master	123456196702164567	80.5	Shanghai	6440	0
20	18	Stu 18	36	6000	Bachelor	187341198211304655	91	Shanghai	5460	0
21	19	Stu 19	42	5000	College	356715197607153497	38	Shanghai	1900	0
22	20	Stu 20	38	3500	Senior High	187167198007168713	60	Shanghai	2100	0

Data 1 Data 2 Data 3 Data 4

Ready Count: 10 85%

Figure 3-31 Design for title and the second row

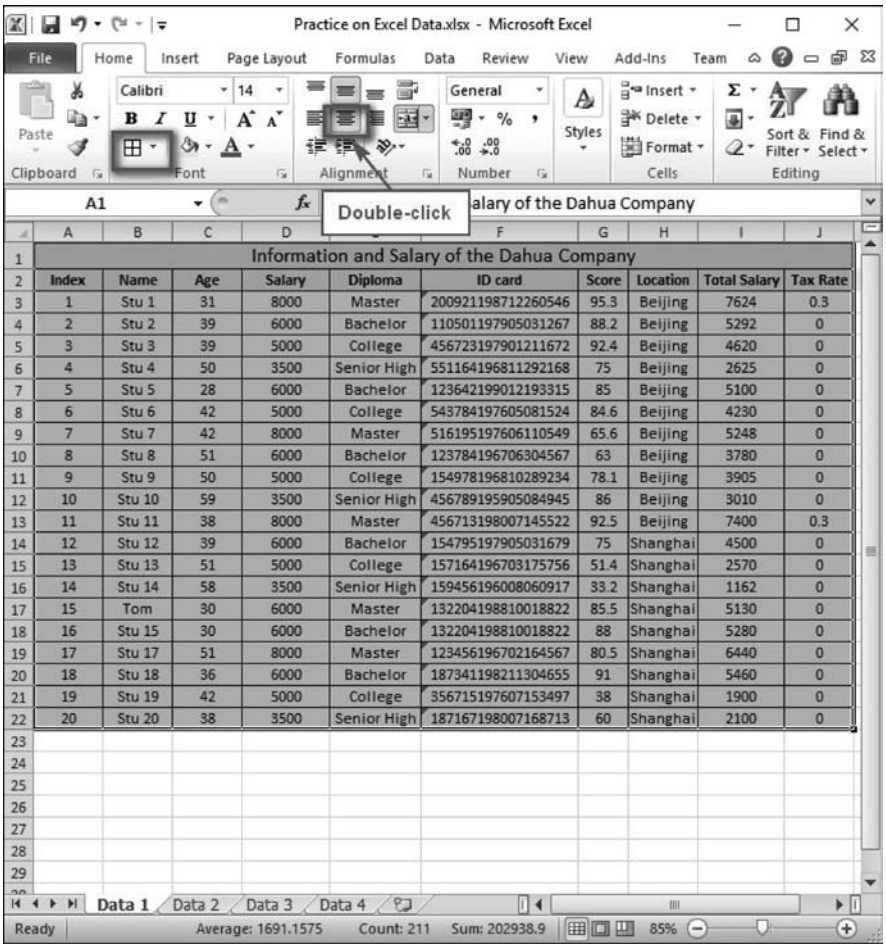


Figure 3-32 Finish the basic design of the table

3.2.3.4 Charts

(1) To insert a chart of 2D Clustered Column, Select B2:C22. Find "Charts" on the Insert tab. Click it. It will show a list of all kinds of charts. Select "Column" and the first chart type under "2-D Column" (Shown in Figure 3-33).

(2) The resulting chart will be shown in Figure 3-34. You can try some other charts and other settings if you like.

3.2.4 Self test practice

1. Practice 1

Open "Excel Data. xlsx" and copy the table in worksheet 2 and paste it onto a new Excel. Save it as "Excel Data-practice 1. xlsx".

- Insert a chart of 2D Clustered Column by using the table in worksheet 2 according to Figure 3-35.
- Set the gridlines to "Dash Dot".

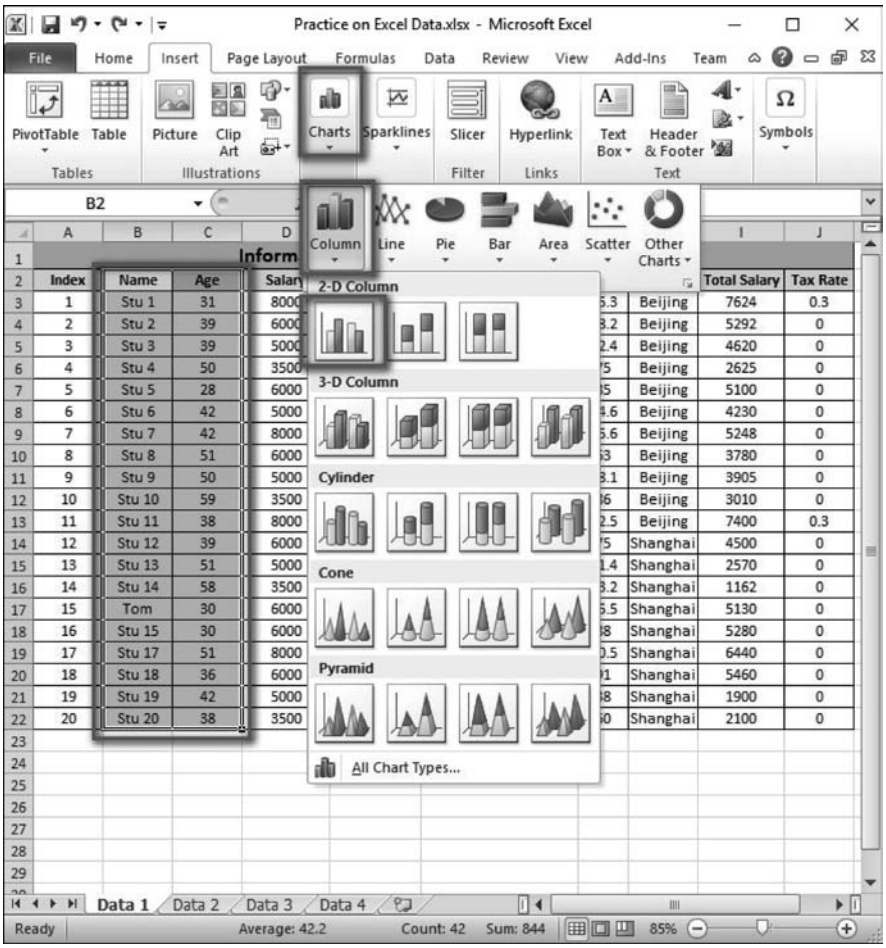


Figure 3-33 Insert a chart of 2D Clustered Column

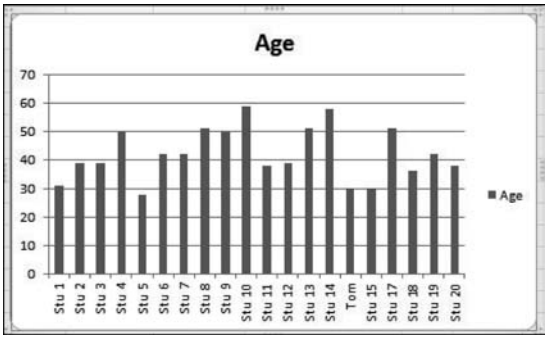


Figure 3-34 The resulting chart

- Set the "Maximum" of y-axis to 800 with the "Major Unit" of 200.
- Set the y-axis to "No Border".
- Set the Chart Title to "Printers are more popular than projectors".
- Set the Shape Color to Green and Dark Blue respectively.

- Set the table size to 12 * 10 (Height 12, Width 10).

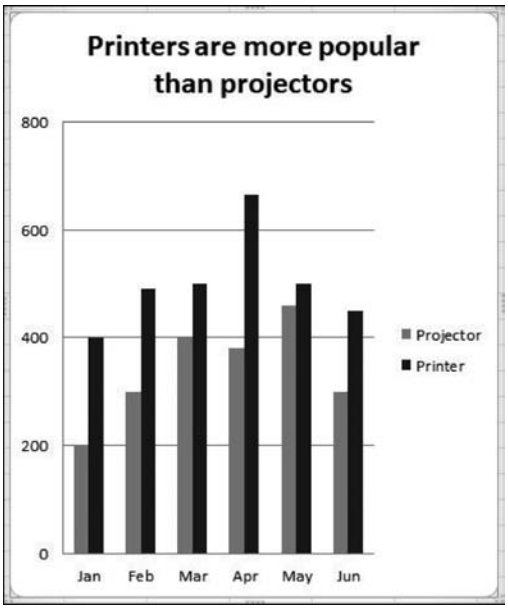


Figure 3-35 The resulting chart for practice 1

2. Practice 2

Open "Excel Data. xlsx" and copy the table in worksheet 3 and paste it onto a new Excel. Save it as "Excel Data-practice 2. xlsx".

- Insert a chart of 2D Clustered Column by using the table in worksheet 3 according to Figure 3-36.
- Put "Rate of Paid Users" to the Secondary Axis, and change its type to "Line".

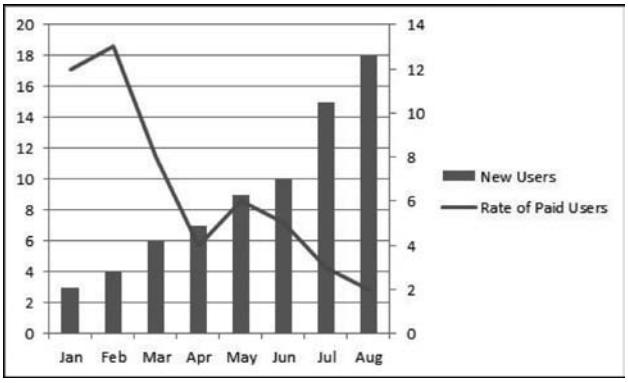


Figure 3-36 The resulting chart for practice 2

3. Practice 3

Open "Excel Data. xlsx" and copy the table in worksheet 4 and paste it onto a new Excel. Save it as "Excel Data-practice 3. xlsx".

- Add the table named "Sales Figure for Fenghua Market", and set it to Calibra, size 18,

bold, italic according to Figure 3-37.

- Fill the Index column with 01001 to 01007.
- Calculate the Total Sale by multiplying "Price" and "Sale".
- Merge and Center A10 : D10, and calculate "Total" on E10.
- Set the "Format Cells" of the two columns "Price" and "Sale" to "Number" with 2 Decimal places.
- Add solid blue Outside Borders to the table.
- On D12, Calculate the amount of goods which has more than 300 Sales(Hint: Use the formula =COUNTIF(D3:D9), ">"&300).

	A	B	C	D	E
1	Sales Figure for Fenghua Market				
2	Index	Name	Price	Sale	Total Sale
3	01001	TV	12150.00	185.00	2247750.00
4	01002	Camera	6500.00	103.00	669500.00
5	01003	Fridge	3880.00	268.00	1039840.00
6	01004	Computer	4888.00	500.00	2444000.00
7	01005	Speaker	8588.00	88.00	755744.00
8	01006	Washing Machine	1950.00	311.00	606450.00
9	01007	Air Conditioner	3190.00	458.00	1461020.00
10	Total				9224304.00
11					
12				3	

Figure 3-37 The resulting chart for the Practice 3

3.3 Experiment 2: Advanced Excel

3.3.1 Experiment purpose

The purpose of this experiment is to master other advanced operations of Excel, including sorting, filter, and subtotal. There are more advanced tools that you should study by yourself on the practice part. After finishing this manual, you will have the capability to handle many practical problems by using Excel.

3.3.2 Experiment contents

This part of experiment should be finished in worksheet named "Data 2" of "Excel Data 2.xlsx". Copy the worksheet and paste to a new Excel. Save it as "Excel Data 2-practice 0.xlsx".

- Filter all staff whose gender is Female (Shown in Figure 3-38).
- Clear the filter.
- To find out which person gets the highest salary, or which gets the lowest, sort by the column "Salary" from largest to smallest first, then sort by the column "Name" from A to

Z (Multi-level sort) (Shown in Figure 3-39).

- To calculate the average salary of different diploma, you can use the "Subtotal" tool (Shown in Figure 3-40).

① Sort by the column "Diploma" from A to Z.

② Add subtotal to "Salary" at each change in "Diploma" by using average function.

	A	B	C	D	E
1	Name	Departmen	Diploma	Gende	Salar
2	Staff 1	Market	Master	Female	8000
3	Staff 11	HR	Master	Female	8000
4	Staff 17	Finance	Master	Female	8000
5	Staff 7	Market	Master	Female	8000
9	Staff 2	Sales	Bachelor	Female	6000
11	Staff 8	Sales	Bachelor	Female	6000
16	Staff 6	Finance	College	Female	5000
18	Staff 10	Product	Senior High	Female	3500
21	Staff 4	Product	Senior High	Female	3500

Figure 3-38 The resulting table after filtering

	A	B	C	D	E
1	Name	Department	Diploma	Gender	Salary
2	Staff 1	Market	Master	Female	8000
3	Staff 11	HR	Master	Female	8000
4	Staff 17	Finance	Master	Female	8000
5	Staff 7	Market	Master	Female	8000
6	Staff 12	Finance	Bachelor	Male	6000
7	Staff 15	Product	Bachelor	Male	6000
8	Staff 18	Market	Bachelor	Male	6000
9	Staff 2	Sales	Bachelor	Female	6000
10	Staff 5	HR	Bachelor	Male	6000
11	Staff 8	Sales	Bachelor	Female	6000
12	Staff 13	Market	College	Male	5000
13	Staff 16	HR	College	Male	5000
14	Staff 19	Sales	College	Male	5000
15	Staff 3	Product	College	Male	5000
16	Staff 6	Finance	College	Female	5000
17	Staff 9	Product	College	Male	5000
18	Staff 10	Product	Senior High	Female	3500
19	Staff 14	Sales	Senior High	Male	3500
20	Staff 20	Product	Senior High	Male	3500
21	Staff 4	Product	Senior High	Female	3500

Figure 3-39 The resulting table after sorting

1 2 3		A	B	C	D	E
	1	Name	Department	Diploma	Gender	Salary
	2	Staff 12	Finance	Bachelor	Male	6000
	3	Staff 15	Product	Bachelor	Male	6000
	4	Staff 18	Market	Bachelor	Male	6000
	5	Staff 2	Sales	Bachelor	Female	6000
	6	Staff 5	HR	Bachelor	Male	6000
	7	Staff 8	Sales	Bachelor	Female	6000
−	8			**Bachelor Average**		6000
	9	Staff 13	Market	College	Male	5000
	10	Staff 16	HR	College	Male	5000
	11	Staff 19	Sales	College	Male	5000
	12	Staff 3	Product	College	Male	5000
	13	Staff 6	Finance	College	Female	5000
	14	Staff 9	Product	College	Male	5000
−	15			**College Average**		5000
	16	Staff 1	Market	Master	Female	8000
	17	Staff 11	HR	Master	Female	8000
	18	Staff 17	Finance	Master	Female	8000
	19	Staff 7	Market	Master	Female	8000
−	20			**Master Average**		8000
	21	Staff 10	Product	Senior High	Female	3500
	22	Staff 14	Sales	Senior High	Male	3500
	23	Staff 20	Product	Senior High	Male	3500
	24	Staff 4	Product	Senior High	Female	3500
−	25			**Senior High Average**		3500
−	26			**Grand Average**		5600

Figure 3-40 The resulting table after subtotal

3.3.3 Experiment procedures

3.3.3.1 Filter

(1) Open the worksheet 2 named "Data 2" in "Excel Data 2.xlsx". Copy the table and paste it to a new Excel. Save it as "Excel Data 2-practice 0.xlsx".

(2) Select A1, and then click the "Filter" button on the "Data" tab. The filter is now available by simply clicking the list button on each item in row 1 (Shown in Figure 3-41).

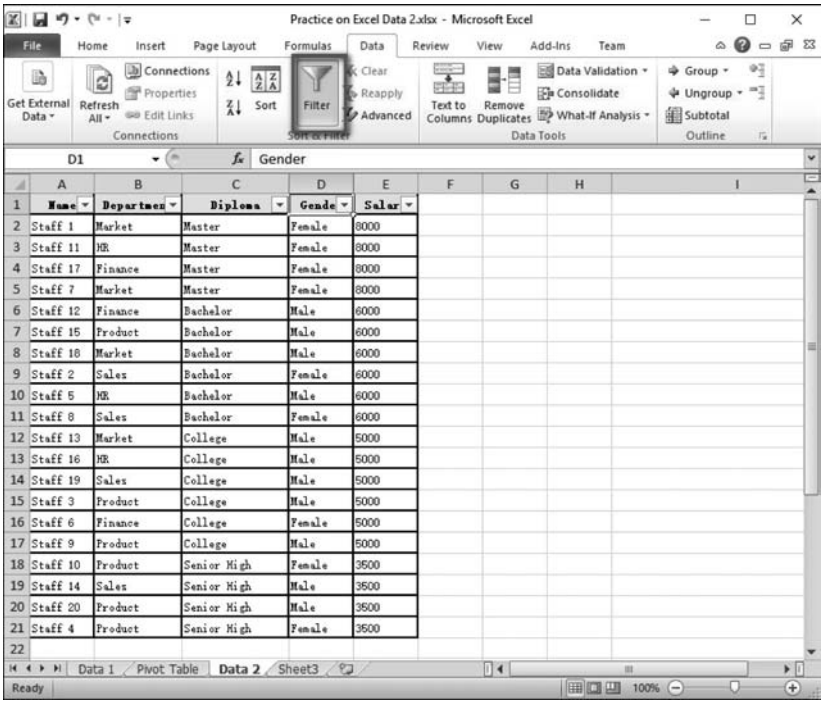


Figure 3-41　Click the button "Filter" to enable filtering

(3) Click the list button on D1, and you can see the list for both sorting and filtering. Click the checkbox "Male" to cancel the selection. It means we want to filter all female staff but not all male staff (Shown in Figure 3-42). Click "OK".

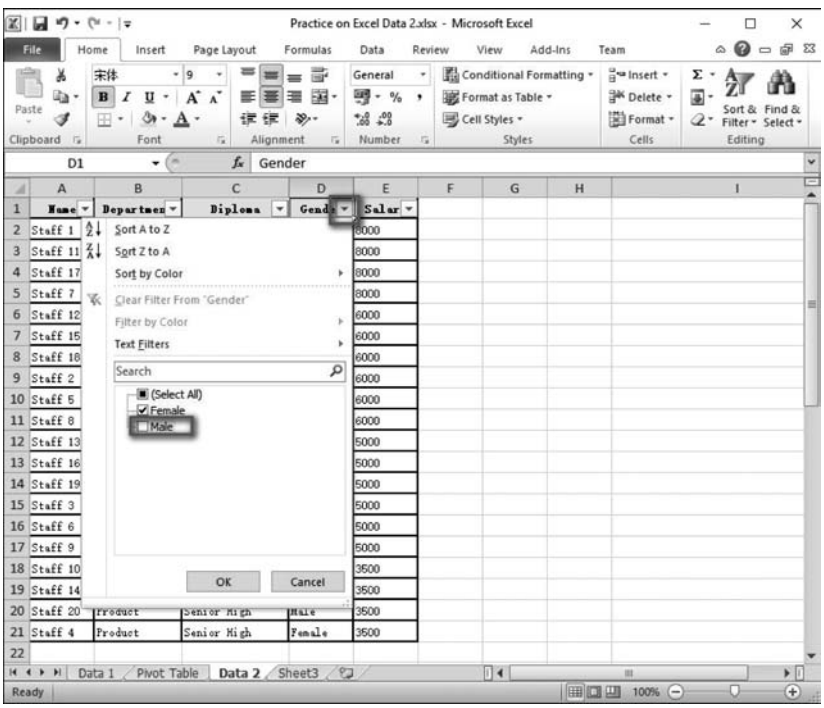


Figure 3-42　Click the list button on D1 and set the filter

(4) The resulting table is shown in Figure 3-43. You can notice the list button on D1 is different from others.

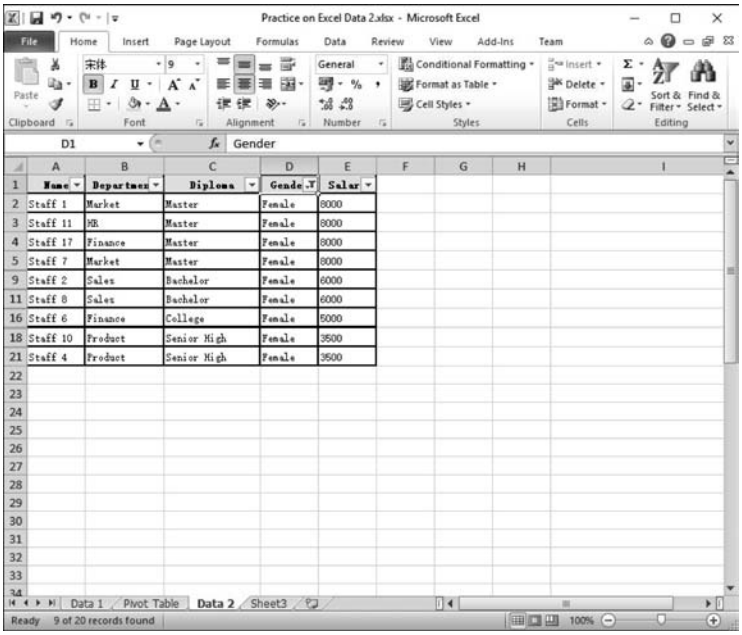


Figure 3-43 The resulting table after filtering all female staff

(5) You should cancel the filter before you want to do other works on Excel. To cancel it, you can simply click the "Filter" button on the "Data" tab again. The button is not selected after doing that. The table will go back to the original one (Shown in Figure 3-44).

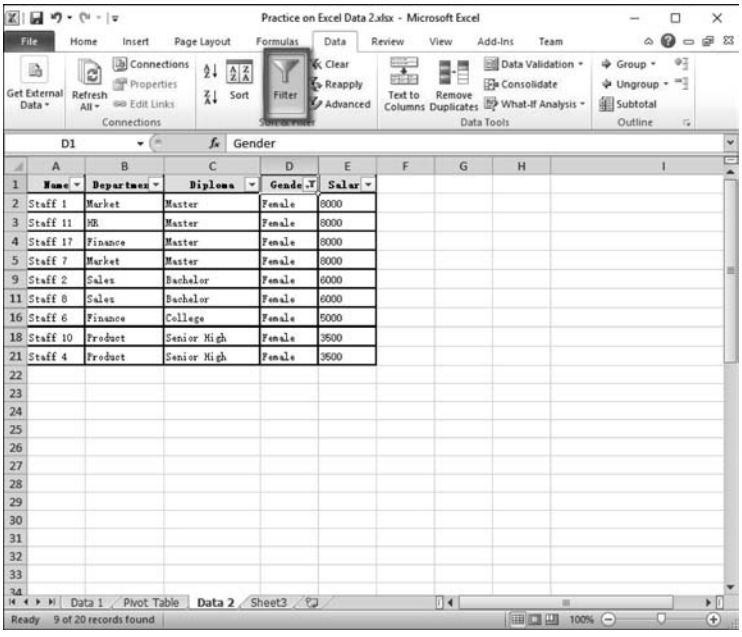


Figure 3-44 The way to cancel the filter

3.3.3.2 Multi-level Sort

(1) Click the "Sort" button on the "Data" tab. The sort dialog will be open as shown in Figure 3-45.

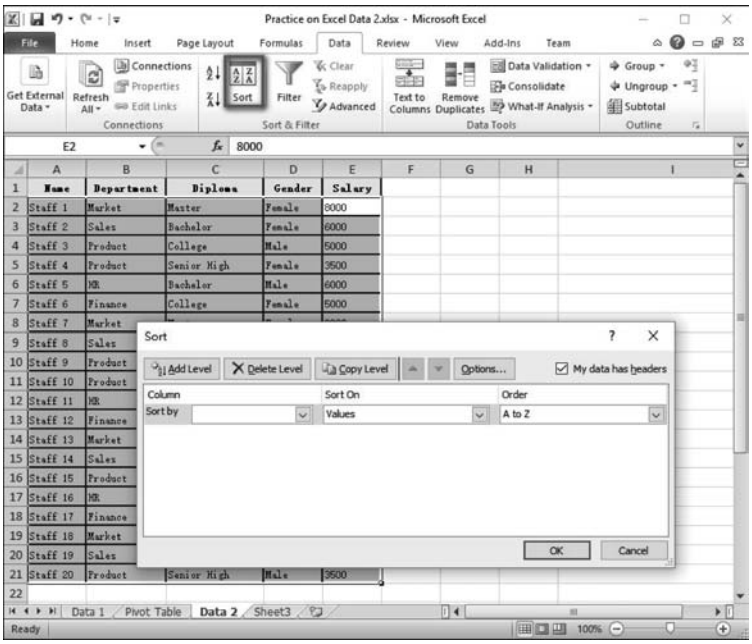


Figure 3-45 Click the "Sort" button

(2) Select the value for each field: Sort by "Salary", Sort on "Values", and Order from "Largest to Smallest" (Shown in Figure 3-46).

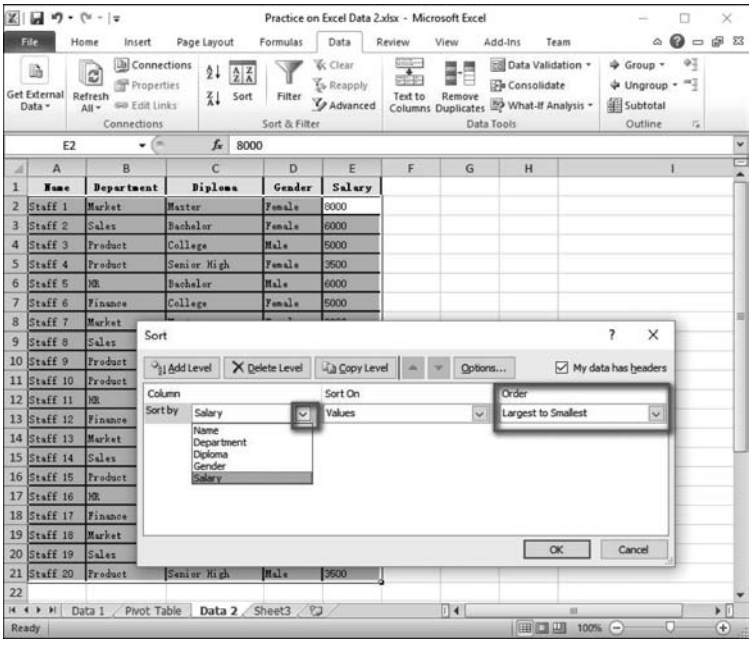


Figure 3-46 Select the value for each field

(3) If you click "OK" right now, it can only implement a one-level sort. To implement the multi-level sort, Click the "Add Level" button to add the second level for the sort (Shown in Figure 3-47).

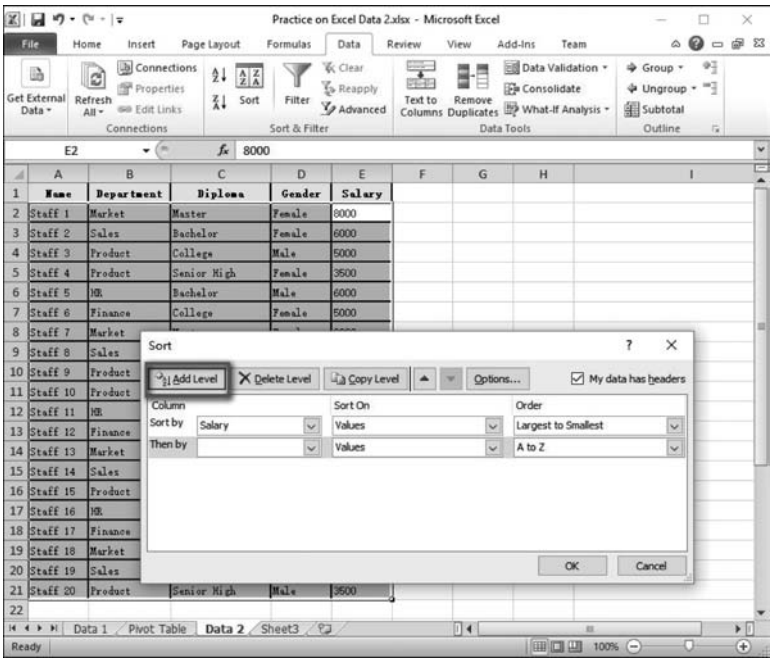


Figure 3-47 Add a new level for the sort

(4) Select the value for each field (Shown in Figure 3-48). Click "OK".

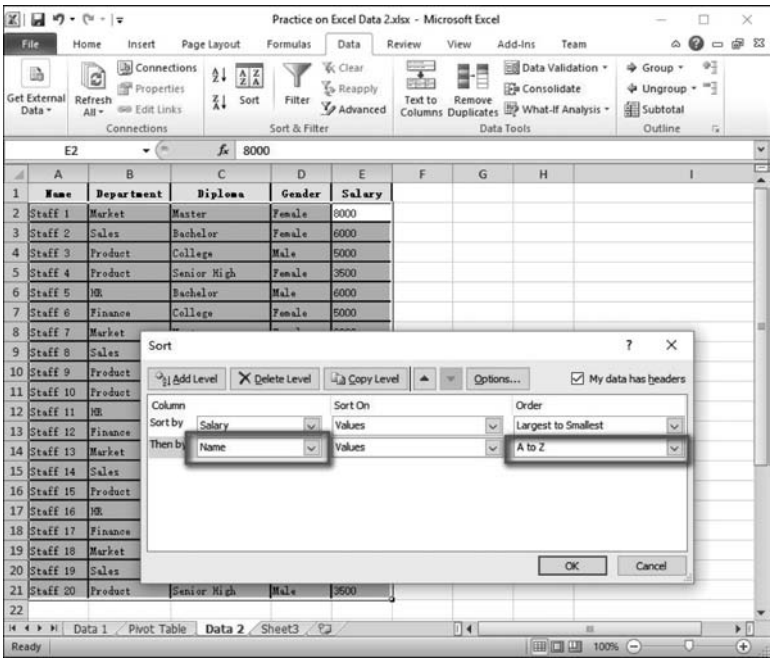


Figure 3-48 Select the value for the second level of sort

(5) The resulting table after multi-level sort is shown in Figure 3-49.

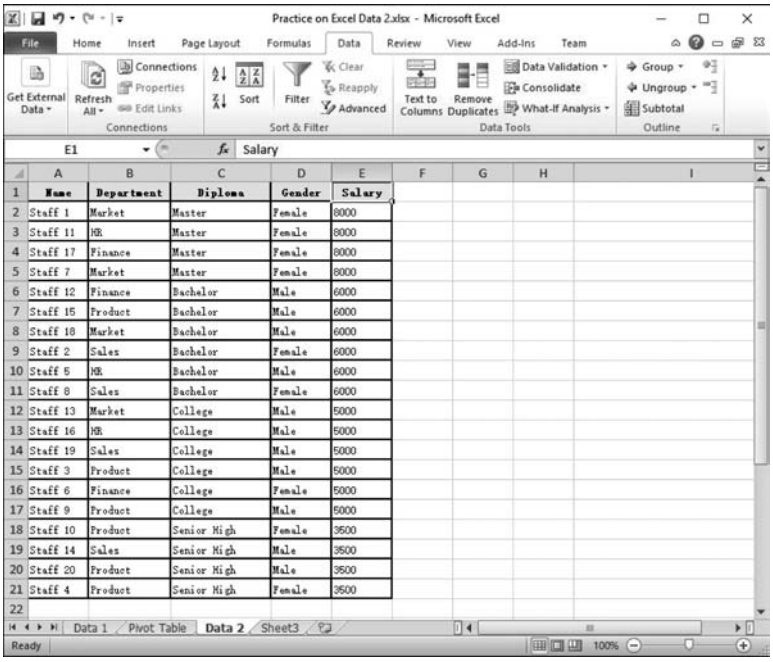


Figure 3-49 The resulting table after multi-level sort

3.3.3.3 Subtotal

(1) Before adding a subtotal, sort by the "Diploma" from "A to Z" first (Shown in Figure 3-50).

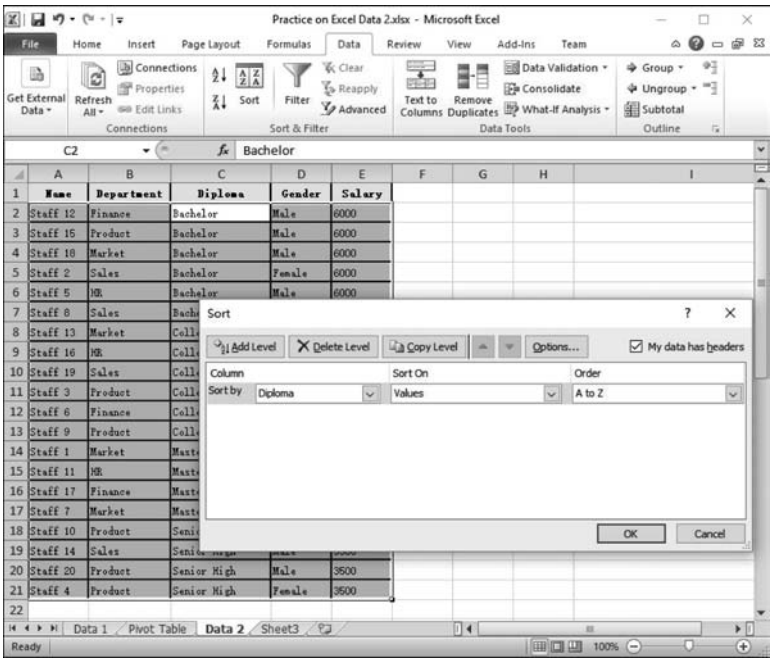


Figure 3-50 Sort by "Diploma" from "A to Z" first

(2) Click the "Subtotal" button on "Online" of the "Data" tab. Then the subtotal dialog will be displayed as shown in Figure 3-51. To add the subtotal to "Salary" at each change in Diploma, select the value for each field according to the Figure 3-51. Click "OK" after finishing.

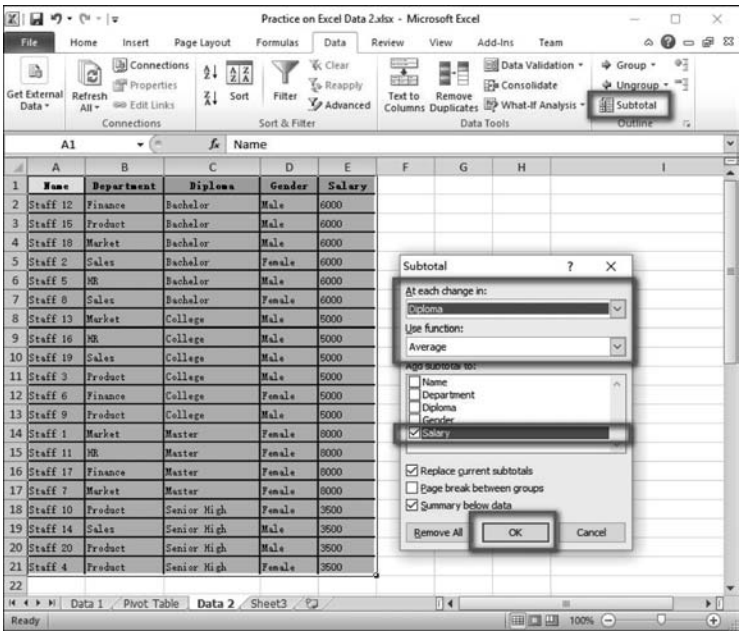
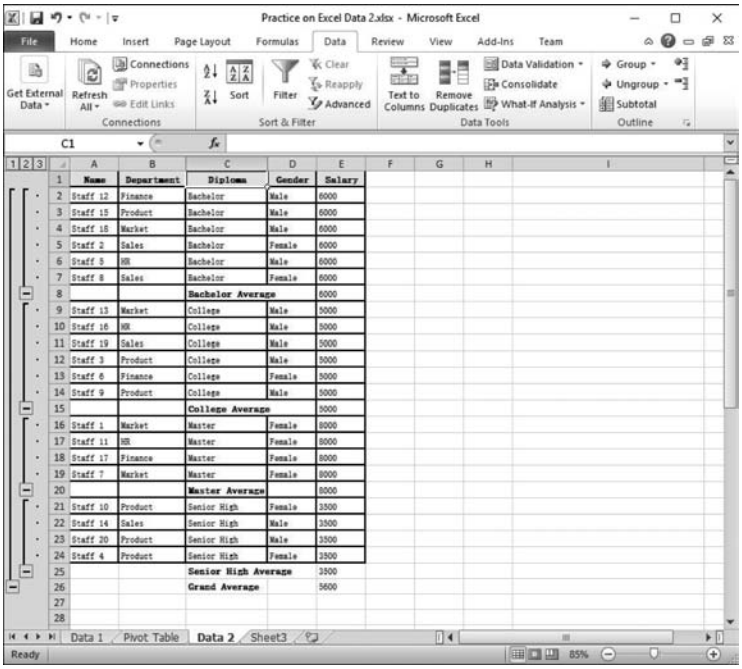


Figure 3-51 Open the Subtotal dialog and select the value for each field

(3) The resulting table will be shown in Figure 3-52.



	Name	Department	Diploma	Gender	Salary
2	Staff 12	Finance	Bachelor	Male	6000
3	Staff 15	Product	Bachelor	Male	6000
4	Staff 18	Market	Bachelor	Male	6000
5	Staff 2	Sales	Bachelor	Female	6000
6	Staff 5	HR	Bachelor	Male	6000
7	Staff 8	Sales	Bachelor	Female	6000
8			**Bachelor Average**		6000
9	Staff 13	Market	College	Male	5000
10	Staff 16	HR	College	Male	5000
11	Staff 19	Sales	College	Male	5000
12	Staff 3	Product	College	Male	5000
13	Staff 6	Finance	College	Female	5000
14	Staff 9	Product	College	Male	5000
15			**College Average**		5000
16	Staff 1	Market	Master	Female	8000
17	Staff 11	HR	Master	Female	8000
18	Staff 17	Finance	Master	Female	8000
19	Staff 7	Market	Master	Female	8000
20			**Master Average**		8000
21	Staff 10	Product	Senior High	Female	3500
22	Staff 14	Sales	Senior High	Male	3500
23	Staff 20	Product	Senior High	Male	3500
24	Staff 4	Product	Senior High	Female	3500
25			**Senior High Average**		3500
26			**Grand Average**		5600

Figure 3-52 The resulting table after adding subtotal to "Salary"

3.3.4 Self test practice

1. Practice 1

Open "Excel Data 2. xlsx" and copy the table in worksheet named "Data 1" and paste it to a new Excel. Save it as "Excel Data 2-practice 1. xlsx". Open a new document and save it as "Screenshots-practice 1. xlsx" to save screenshots.

- Add the column "Total" and "Average" after "Physics", and use the formula or function to calculate the total score and the average score of each student.
- To find out the ranking for total scores, do multi-level sort: first, sort by "Total" from largest to smallest, then by "Student ID" from smallest to largest. Take a screenshot of the resulting table and insert it to the document you have built.
- Add a new column "Rank" after "Average", and input the rank of each student according to the table.
- To find out the ranking for physics scores, do multi-level sort again: first, sort by "Physics" from largest to smallest, and then by "Name" from "Z to A". Take a screenshot of the resulting table and insert it to the document.
- Filter all students whose gender is "Female". Take a screenshot and insert it to the document.
- Clear the filter. Input "Average" in A15, "=SUBTOTAL(1, K2:K10)" in B15, and "=SUBTOTAL(104, J2:J10)" in B16. Take a screenshot and insert it to the document.
- Clear the filter.
- Filter all students whose gender is "Male" and ethnicity is "Han". Take a screenshot and insert it to the document.
- Insert the filter condition in E19:G22 to filter all students who is failed in at least one course (shown in Figure 3-53). In the Figure 3-53, there's a logical relation "and" in the same row, while "or" in the same column. So the Figure means to filter all students whose math is less than 60, or English is less than 60, or physics is less than 60. Take a screenshot of the resulting table and insert it to the document (Hint: the filter condition can be added by selecting the "Advanced" button).
- Change the filter condition to in E19:G21 to filter all students who are failed in both math and English, or failed in physics (shown in Figure 3-54). The Figure 3-54 means to filter all students whose math is less than 60 and English is less than 60, or physics is less than 60. Take the screenshot and insert it to the document.

Math	English	Physics
<60		
	<60	
		<60

Figure 3-53 Filter condition(1)

Math	English	Physics
<60	<60	
		<60

Figure 3-54 Filter condition(2)

- Clear the filter.
- Use the same tool to filter all students whose math and English is greater than 80. Take the screenshot and insert it to the document.
- Clear the filter.
- Add subtotal to A1:K10. Set "At each change in" to "Class", "Use function" to "Average", "Add subtotal to" math, English, physics and average. Take the screenshot and insert it to the document.
- Clear the subtotal. Add another subtotal to the total score of each course according to "Gender". Take the screenshot and insert it to the document.
- Clear the filter.
- After sorting by "Class" from "A to Z", select all students in class 1601 and their three courses' scores. Create a Doughnut chart. Take the screenshot on the chart and insert it to the document (Hint: study how to insert a Doughnut by yourself).
- After sorting by "Class" from "A to Z", select all students in class 1602 and their three courses' scores. Create a Cylinder chart. Take the screenshot on the chart and insert it to the document.

2. Practice 2

Open "Excel Data. xlsx" and copy the table in worksheet 2 named "Data 2" and paste it to a new Excel. Save it as "Excel Data 2-practice 2. xlsx". Study how to insert a "Pivot Table" by yourself.

- Insert a "Pivot Table" and count the total amount of male and female for each department (Hint: Row Label: Department, Column Label: Gender, Value: Name). Take the screenshot and insert it to the document.
- Insert another "Pivot Table" and count the total amount of staff and the average salary for each department. Take the screenshot and insert it to the document.

3.4 Experiment 3: Excel Project

3.4.1 Project topic

(1) You can select any topic you like to analyze data in Excel. There are some topics you can choose from.

① Student grade analysis.

② Sales report.

③ Personal consumption statistic.

(2) Suggestions: It will be better if you analyze data related to your major. You can also choose data from your daily life, such as the statistics on the book information, on the consumption in cafeteria, or on the scores for some or all courses.

3.4.2 Experiment requirements

(1) Do data analysis to meet requirements in your chosen topic. For example, the analyses on the students' score are as follows:

- Count the total score, and the total amount of courses a student chooses.
- The average score of each course.
- Sort the data by scores or by classes.
- Insert a pie chart to compare the average score of several courses.
- Any useful statistic methods you can think of...

(2) The attributes should be included in the table, that is, what does each column refer to? For example, if you do analysis on the students' score, the following columns should be contained:

- Student ID.
- Student name.
- Class.
- Course ID.
- Course name.
- Score.
- Any attributes you can think of...

(3) The table should be in at least 20 rows and 4 columns.