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.

1	A	B	C	D	
1	Product 🗸	Qtr 1 💌	Qtr 2 🔽	Grand Tota	Ī
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

1	A	В	С
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.

\times	√ f _x	=SUBTOTAL(109,[Mid	west])	
	С		or SUM	E
Re	evenue	e Audit (Si	mall	Busine
	Europe 🗖	Midwest 🖵	North	east _l
100	\$7,200	\$5,700		\$6,90
00	\$2,300	\$9,400		\$7,30
00	\$9,300	\$3,700		\$8,60
800	\$4,300	\$5,600		\$5,60
300	\$23,100	\$24,400	*	\$28,40
	None Average Count Count N Max Min Sum	lumbers		
	StdDev Var More Fu	inctions		

В	C	D	E
Qtr 1 💌	Qtr 2 🔽	Grand Tota	
\$744.60	\$162.56	=sum(Table1[@[0	2tr 1]:[Qtr 2]]
\$5,079.60	\$1,249.20	SUM(number1, [number2],)
\$1,267.50	\$1,062.50		
\$1,418.00	\$756.00		
\$4,728.00	\$4,547.92		
\$943.89	\$349.60		
\$14,181.59	\$8,127.78	\$0.00	

Figure 3-5 An example of calculated columns

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.

3.1.2 Create a table

\$2,174.00	\$16.00
\$9,275.92	\$4,547.92
\$1 293 / 9	\$349.60

Figure 3-6 An example of total row

Figure 3-7 Resize the table by sizing handle

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" \rightarrow "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".

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Al	• I × ✓ Jx Product						
	A	В	С	D	E	F	G
1	Product	Qtr 1	Qtr 2	Grand Total			
2	Long Rolls	\$304.03	\$502.01	\$806.04			
3	Biscuits	\$2,080.83	\$1,099.20	\$3,180.03			
4	Scones	\$4,504.42	\$6,003.20	\$10,507.62			
5	Muffins	\$1,089.01	\$1,200.80	\$2,289.81			
6	Crossoints	\$203.56	\$607.82	\$811.38			
7	Cookies	\$1,103.33	\$804.60	\$1,907.93			
8			1.00				
9	Select H	lome →	Forma	at as Tab	e		
10							

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

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3	Biscuits	011000	e a sey.	\$3,1						
4	Scones	\$4,504.42	\$6,003.20	\$10,5		00000			20000	00000
5	Muffins	\$1,089.01	\$1,200.80	\$2,2						
6	Crossoints	\$203.56	\$607.82	\$8						
7	Cookies	\$1,103.33	\$804.60	\$1,9						56666
8								8 88888 8		899999
9					Dark					-
10								100000		
10										
11						COLUMN 1		2		

Figure 3-9 Choose a style for your table

1	A		В	с	D	E	F	
1 2	Product Long Rolls	Set	vour ce	ell range	Grand Total \$806.04	Format Aa Table Sphere is the data for your table	1	×
3	Biscuits	an an aile	<i>J</i>		\$3,180.03	1 to he has headers		
4	Scones		\$4,504.42	\$6,003.20	\$10,507.62	J ox	Cam	-
5	Muffins		\$1,089.01	\$1,200.80	\$2,289.81			-
6	Crossoints		\$203.56	\$607.82	\$811.38			
7	Cookies		\$1,103.33	\$804.60	\$1,907.93			

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 Datapractice 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	A	В	С	D	E	F	G	н	1	J
1				Informati	ion and Sala	ary of the Dahua C	ompa	iny		
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

Figure 3-11 The resulting table for Experiment 1



Figure 3-12 The resulting chart for Experiment 1

	A10	5 • (-	fx	Stu 15						~
4	A	В		С	2	D	E	F	G	н	-
1	Name	Salary	Diple	oma	ID card	l.	Score				
2	Stu 1	8000	X	Cut		18712260546	95.3				
3	Stu 2	6000	B	Com		7905031267	88.2				
4	Stu 3	5000	100	Copy	Intioner	7901211672	92.4				
5	Stu 4	3500	5	Paste C	puons:	6811292168	75				
6	Stu 5	6000				9012193315	85				
7	Stu 6	5000		Paste S	pecial	7605081524	84.6				
8	Stu 7	8000	-	Insert		7606110549	65.6				
9	Stu 8	6000	-	Delete		6706304567	63				
10	Stu 9	5000		Class	ontentr	6810289234	78.1				
11	Stu 10	3500	l	clear c	ontents	15905084945	86				
12	Stu 11	8000	(T	Format	Cells	8007145522	92.5				=
13	Stu 12	6000		Row H	eight	7905031679	75				
14	Stu 13	5000		Hide		6703175756	51.4				
15	Stu 14	3500		Unhide		6008060917	33.2				
16	Stu 15	6000	Bach	elor	132204	198810018822	88		-		
17	Stu 16	5000	Calil	bri + 1	1 · A	A	-11 73				
18	Stu 17	8000	R	1 =	8 - A		0.5				
19	Stu 18	6000	bach		10/341		91				
20	Stu 19	5000	Colle	ege	356715	197607153497	38				
21	Stu 20	3500	Seni	or High	187167	198007168713	60				
22											
23											
24											
25											*
14		ata 1 / Data 2	/Da	ta 3 /	Data 4	82/			101		14

Figure 3-13 Right click and select "Insert"

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

	A16	- (× √ f _x	Tom						*
1	A	В	С	D	E	F	G	н		-
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				T I	
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					
23										
24										
25										
26										
27										
28									1	+
14	+ H Data	1 / Data 2	/ Data 3 /	Data 4 / 💬 /			10		► II	

Figure 3-14 Input the first 3 columns

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

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4	Stu 3	5000	College	4567231979012							_
5	Stu 4	3500	Senior High	5511641968112		insert					
6	Stu 5	6000	Bachelor	1236421990121		Delete					
7	Stu 6	5000	College	5437841976050		Clear Cont	ents				
8	Stu 7	8000	Master	5161951976061		Filter					
9	Stu 8	6000	Bachelor	1237841967063		Sort					
10	Stu 9	5000	College	1549781968102	0.0	Incard Com					
11	Stu 10	3500	Senior High	456789195905	-	Insert Com	ment	_			
12	Stu 11	8000	Master	456713198007	3	Eormat Cel	l\$	_			
13	Stu 12	6000	Bachelor	1547951979050		Pick From D	Drop-down Li	ist	-		
14	Stu 13	5000	College	1571641967031		Define Nan	ne				
15	Stu 14	3500	Senior High	1594561960080	8	Hyperlink					
16	Tom	6000	Master			1	1	1	-		
17	Stu 15	6000	Bachelor	1322041988100	Calib	ri - 10.5	· A	g - %	,	1	
18	Stu 16	5000	College	1234971985112	D	$r \equiv h$	- A - 100	. +.0	.00		
19	Stu 17	8000	Master	1234561967021	0430		· 🕰 · 🖽	.00 4	-0 4		
20	Stu 18	6000	Bachelor	1873411982113	30465	5 93	1				
21	Stu 19	5000	College	3567151976071	15349	7 38	3				
22	Stu 20	3500	Senior High	1871671980071	6871	3 60	5				
23											
24											
25		1				1					
26		1		1							
27						-					
28											1
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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).

ormat Ce	ells					?	×
Number	Alignment	Font	Border	Fill	Protection		
	:						
General Number	1	Samp	ke				
Accounti Date Time Percenta Fraction Scientific	ng ige	Text f The ce	ormat cells a Il is displayed	re treated d exactly	d as text even when a as entered.	a number is in the	e cell.
Special Custom		1					
		1					

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.

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8	Stu 7	8000	Master	516195197606	110549	65.	6						
9	Stu 8	6000	Bachelor	123784196706	304567	6	3						
10	Stu 9	5000	College	154978196810	289234	78.	1						
11	Stu 10	3500	Senior High	456789195905	084945	8	6						
12	Stu 11	8000	Master	456713198007	145522	92.	5						
13	Stu 12	6000	Bachelor	154795197905	031679	7	5						
14	Stu 13	5000	College	157164196703	175756	51.	4						
15	Stu 14	3500	Senior I Cal	ibri • 11 • A	A" III -	%	南						
16	Tom	6000	Master "	$r = \Delta - \Delta$.0 .00	-						
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18	Stu 16	5000	College v	64	1239	7	3						
19	Stu 17	8000	Master	Cuĩ	4567	80.	5						
20	Stu 18	6000	Bacheld	Copy	4655	9	1						
21	Stu 19	5000	College	Paste Options:	3497	3	8						ė
22	Stu 20	3500	Senior I		8713	6	0						
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Figure 3-17 Delete the 18th row

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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									
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26									
27									
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Rea	ady		Average: 40	040.25 Count: 5 Sum: 808	0.5	100	% 🕀	0	+

Figure 3-18 The resulting table after deleting

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

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3	Stu 2	Paste Options:	elor	110501197905	031267	88.2	2				
4	Stu 3		ege	456723197901	211672	92.4	4		_		
5	Stu 4	Paste Special	or High	551164196811	292168	75	5		_		
6	Stu 5	Inced	elor	123642199012	193315	8	5				
7	Stu	Insert	ge	543784197605	081524	84.0	5		-		
8	Stu 7	Delete	er	516195197606	110549	65.6	5		-		
9	Stu 8	Clear Contents	elor	123784196706	304567	63	3				
10	Stu 9	Eormat Cells	ege	154978196810	289234	78.1	1				
11	Stu 1	Column Width	or High	456789195905	084945	80	5				
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18	Stu 17	8000 M	aster	123456196702	164567	80.3	5				
19	Stu 18	6000 Ba	chelor	187341198211	304655	93	1				
20	Stu 19	5000 C	ollege	356715197607	153497	38	8				
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Figure 3-19 Insert a new column

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(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).

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7		Stu 5	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			
4		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			
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Figure 3-20 Create index for the table

(10) Input "Location" and "Beijing" on relevant positions (Shown in Figure 3-21). SelectG2. 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).

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2	1	Stu 1	8000	Master	20092119871226054	6	95.3	Beijing	-		
3	2	Stu 2	6000	Bachelor	11050119790503126	7	88.2				
4	3	Stu 3	5000	College	45672319790121167	2	92.4				
5	4	Stu 4	3500	Senior High	55116419681129216	8	75	-			
6	5	Stu 5	6000	Bachelor	12364219901219331	5	85	1	-		
7	6	Stu 6	5000	College	543784197605081524	4	84.6	-	-		
8	7	Stu 7	8000	Master	516195197606110549	9	65.6		+		
9	8	Stu 8	6000	Bachelor	12378419670630456	7	63		+		
10	9	Stu 9	5000	College	154978196810289234	4	78.1	-	+		
11	10	Stu 10	3500	Senior High	45678919590508494	5	86		+		
12	11	Stu 11	8000	Master	45671319800714552	2	92.5		_		_
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14	13	Stu 13	5000	College	157164196703175750	6	51.4		_		
15	14	Stu 14	3500	Senior High	15945619600806091	7	33.2		-		
16	15	Tom	6000	Master	13220419881001882	2	85.5		-		
17	16	Stu 15	6000	Bachelor	13220419881001882	2	88		-		
18	17	Stu 17	8000	Master	12345619670216456	7	80.5		-		
19	18	Stu 18	6000	Bachelor	18734119821130465	5	91				
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Figure 3-21 Input "Beijing" from G2 to G12

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2	Beijing	Beijing	Beijing	Beijing	Beijing		Beijing	Beijing		
3	2	Stu 2	6000	Bachelor	110501197905031	267	88.2	Beijing		
4	3	Stu 3	5000	College	456723197901211	672	92.4	Beijing		-
5	4	Stu 4	3500	Senior High	551164196811292	168	75	Beijing		
6	5	Stu 5	6000	Bachelor	123642199012193	315	85	Beijing		
7	6	Stu 6	5000	College	543784197605081	524	84.6	Beijing		
8	7	Stu 7	8000	Master	516195197606110	549	65.6	Beijing		
9	8	Stu 8	6000	Bachelor	123784196706304	567	63	Beijing		
10	9	Stu 9	5000	College	154978196810289	234	78.1	Beijing		
11	10	Stu 10	3500	Senior High	456789195905084	945	86	Beijing		
12	11	Stu 11	8000	Master	456713198007145	522	92.5	Beijing		
13	12	Stu 12	6000	Bachelor	154795197905031	679	75	Shanghai		
14	13	Stu 13	5000	College	157164196703175	756	51.4	Shanghai		
15	14	Stu 14	3500	Senior High	159456196008060	917	33.2	Shanghai		
16	15	Tom	6000	Master	132204198810018	822	85.5	Shanghai		
17	16	Stu 15	6000	Bachelor	132204198810018	822	88	Shanghai		
18	17	Stu 17	8000	Master	123456196702164	567	80.5	Shanghai		
19	18	Stu 18	6000	Bachelor	187341198211304	655	91	Shanghai		
20	19	Stu 19	5000	College	356715197607153	497	38	Shanghai		
21	20	Stu 20	3500	Senior High	187167198007168	713	60	Shanghai		
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Figure 3-22 Input "Shanghai" from G13 to G21

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5	4	Stu 4	3500	Senior High	5511641968112921	168	75	Beijing		
6	5	Stu 5	6000	Bachelor	1236421990121933	315	85	Beijing		
7	6	Stu 6	5000	College	5437841976050815	524	84.6	Beijing		
8	7	Stu 7	8000	Master	5161951976061105	549	65.6	Beijing		
9	8	Stu 8	6000	Bachelor	1237841967063045	67	63	Beijing		
10	9	Stu 9	5000	College	1549781968102892	234	78.1	Beijing		
11	10	Stu 10	3500	Senior High	4567891959050849	945	86	Beijing		
12	11	Stu 11	8000	Master	4567131980071455	522	92.5	Beijing		
13	12	Stu 12	6000	Bachelor	1547951979050316	579	75	Shanghai		
14	13	Stu 13	5000	College	1571641967031757	756	51.4	Shanghai		
15	14	Stu 14	3500	Senior High	1594561960080609	917	33.2	Shanghai		
16	15	Tom	6000	Master	1322041988100188	322	85.5	Shanghai		
17	16	Stu 15	6000	Bachelor	1322041988100188	322	88	Shanghai		
18	17	Stu 17	8000	Master	1234561967021645	67	80.5	Shanghai		
19	18	Stu 18	6000	Bachelor	1873411982113046	555	91	Shanghai		
20	19	Stu 19	5000	College	3567151976071534	197	38	Shanghai		
21	20	Stu 20	3500	Senior High	1871671980071687	713	60	Shanghai		
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Figure 3-23 Input a formula

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2	1	Stu 1	8000	Master	200921198712260546	95.3	Beijing	7624	-
3	2	Stu 2	6000	Bachelor	110501197905031267	88.2	Beijing		
4	3	Stu 3	5000	College	456/2319/9012116/2	92.4	Beijing		
5	4	Stu 4	3500	Senior High	551164196811292168	/5	Beijing		
0	5	Stu 5	6000	Bachelor	123042199012193315	85	Beijing		
/	0	Stu 0	5000	College	543784197605081524	84.0	Beijing		
0	1	Stu 7	6000	Naster	10195197000110549	05.0	Beijing		
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12	12	Stu 12	6000	Bachelor	154795197905031679	75	Shanghai		-11
14	12	Stu 12	5000	College	157164196703175756	51.4	Shanghai		
15	14	Stu 14	3500	Senior High	159456196008060917	33.9	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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Figure 3-24 Fill the column "Total Salary"

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7	Stu 6	Or select a g	ategory: Most R	ecently Used		~			4230			1
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Figure 3-25 Another way to input a formula

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3 Stu	2	6000	Bachelor	11050119	7905031267	88.2	Beijing		5292		- 1	-
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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).

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sil	В	С	D	E	F	G	Н	1	
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		
4	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		
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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 columnD. 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).

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_	IF		• (= X •	fx =INT(YE	AR(TODAY())	-MID(F2,7,4))			
4	А	В	C	D	E	F	G	н	
1	Index	Name	Age S	alary	Diploma	ID card	Score	Location	Tota
2	1	Stu 1	=INT(YEAR(ODAY())-N	IID(F2,7,4))	200921198712260546	95.3	Beijing	
3	2	Stu 2	and the second s	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	
3	12	Stu 12		6000	Bachelor	154795197905031679	75	Shanghai	
4	13	Stu 13		5000	College	157164196703175756	51.4	Shanghai	
15	14	Stu 14		3500	Senior High	159456196008060917	33.2	Shanghai	
6	15	Tom		6000	Master	132204198810018822	85.5	Shanghai	
7	16	Stu 15		6000	Bachelor	132204198810018822	88	Shanghai	
8	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	
1	20	Stu 20		3500	Senior High	187167198007168713	60	Shanghai	
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Figure 3-28 Calculate age for each students

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-	А	В	C	D	E	F	G	н		E
1	Index	Name	Age	Salary	Diploma	ID card	Score	Location	Tota	al
2	1	Stu 1	31	8000	Master	200921198712260546	95.3	Beijing		1
3	2	Stu 2		6000	Bachelor	110501197905031267	88.2	Beijing		1
4	3	Stu 3		5000	College	456723197901211672	92.4	Beijing		Ш
5	4	Stu 4		3500	Senior High	551164196811292168	75	Beijing		1
6	5	Stu 5		6000	Bachelor	123642199012193315	85	Beijing		1
7	6	Stu 6		5000	College	543784197605081524	84.6	Beijing		1
8	7	Stu 7		8000	Master	516195197606110549	65.6	Beijing		1
9	8	Stu 8		6000	Bachelor	123784196706304567	63	Beijing		1
10	9	Stu 9		5000	College	154978196810289234	78.1	Beijing		1
11	10	Stu 10		3500	Senior High	456789195905084945	86	Beijing		1
12	11	Stu 11		8000	Master	456713198007145522	92.5	Beijing		1
13	12	Stu 12		6000	Bachelor	154795197905031679	75	Shanghai		1
14	13	Stu 13		5000	College	157164196703175756	51.4	Shanghai		1
15	14	Stu 14		3500	Senior High	159456196008060917	33.2	Shanghai		1
16	15	Tom		6000	Master	132204198810018822	85.5	Shanghai		1
17	16	Stu 15		6000	Bachelor	132204198810018822	88	Shanghai		1
18	17	Stu 17		8000	Master	123456196702164567	80.5	Shanghai		1
19	18	Stu 18		6000	Bachelor	187341198211304655	91	Shanghai		1
20	19	Stu 19		5000	College	356715197607153497	38	Shanghai		1
21	20	Stu 20		3500	Senior High	187167198007168713	60	Shanghai		1
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Figure 3-29 Finish calculating ages

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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	5	Stu 6	42		5000	College	543784197605081524	84.6	Beijing	4230	0
9	7	Stu 7	42	-	8000	Master	516195197606110549	65.6	Beijing	5248	(
10	8	Stu 8	51		6000	Bachelor	123784196706304567	63	Beijing	3780	6
11	9	Stu 9	50		5000	College	154978196810289234	78.1	Beijing	3905	
12	10	Stu 10	59		3500	Senior High	456789195905084945	80	Beijing	3010	0
13	11	Stu 11	38		8000	Master	456/1319800/145522	92.5	Beijing	7400	0.3
14	12	Stu 12	39		6000	Bachelor	154/9519/9050316/9	/5	Shanghai	4500	0
15	15	Stu 15	51	-	5000	College	15/164196/031/5/56	51.4	Shanghai	2570	0
15	14	Stu 14	58		3500	Senior righ	159456196008060917	33.4	Shanghai	1162	U
17	15	10m	30		6000	Master	132204198810018822	85.5	Shanghai	5130	0
18	16	Stu 15	30		6000	Bachelor	132204198810018822	60	Shanghai	5280	0
19	17	Stu 1/	20		6000	Pachelor	123430190/0210430/	80.5	Shanghai	6440	0
20	10	Stu 10	30		5000	College	356715107607159403	91	Shanabai	1000	0
22	20	Stu 20	29		8500	Senior High	187167108007168719	50	Shanghai	2100	0
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Figure 3-30 Input the title

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d.	A	B	C	D	E	F	G	н	1	J
1	4	_		Informati	on and Sal	ary of the Dahua	Compa	iny		
2	Index	Name	Age	Salary	Diploma	ID card	Score	Location	Total Salary	Tax Rate
3	1	Stu 1	3:	1 800	Master	20092119871226054	5 95.3	Beijing	7624	0.3
4	2	Stu 2	35	9 600	Bachelor	11050119790503126	7 88.2	Beijing	5292	0
5	3	Stu 3	35	9 500	College	45672319790121167	2 92.4	Beijing	4620	0
6	4	Stu 4	50	350	Senior High	55116419681129216	8 75	Beijing	2625	0
7	5	Stu 5	21	8 600	Bachelor	12364219901219331	5 85	Beijing	5100	0
8	6	Stu 6	4	2 500	College	54378419760508152	\$ 84.6	Beijing	4230	0
9	1	Stu 7	43	2 800	Master	51619519760611054	65.6	Beijing	5248	0
10	8	Stu 8	5	1 600	Bachelor	12378419670630456	7 63	Beijing	3780	0
11	9	Stu 9	50	500	College	15497819681028923	\$ 78.1	Beijing	3905	0
2	10	Stu 10	55	350	Senior High	45678919590508494	5 86	Beijing	3010	0
3	11	Stu 11	30	8 800	Master	45671319800714552	2 92.5	Beijing	7400	0.3
4	12	Stu 12	35	9 600	Bachelor	15479519790503167	9 75	Shanghai	4500	0
5	13	Stu 13	5	1 500	College	15716419670317575	5 51.4	Shanghai	2570	0
6	14	Stu 14	54	8 350	Senior High	15945619600806091	7 33.2	Shanghai	1162	0
7	15	Tom	30	0 600	Master	13220419881001882	2 85.5	Shanghai	5130	0
8	16	Stu 15	30	600	Bachelor	13220419881001882	2 88	Shanghai	5280	0
9	17	Stu 17	5	1 800) Master	12345619670216456	7 80.5	Shanghai	6440	0
0	18	Stu 18	30	5 600	Bachelor	18734119821130465	5 91	Shanghai	5460	0
1	19	Stu 19	4.	2 500	College	35671519760715349	7 38	Shanghai	1900	0
2	20	Stu 20	3	\$ 350	Senior High	18716719800716871	5 60	Shanghai	2100	0
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Figure 3-31 Design for title and the second row

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1		a:		Informat	ion and Sala	ry of the Dahua Co	mpan	iy		
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
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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".

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2	Index	Name	Age	Sala	2-D Col	umn				G	Total Salary	Tax Rate
3	1	Stu 1	31	800				1	5.3	Beijing	7624	0.3
\$	2	Stu 2	39	600	- dia	ll a B I			3.2	Beijing	5292	0
	3	Stu 3	39	500		Lall			2.4	Beijing	4620	0
	4	Stu 4	50	350	2.0.6ek			-	5	Beijing	2625	0
7	5	Stu 5	28	600	3-0 CO				15	Beijing	5100	0
5	6	Stu 6	42	500	1 AR	all	190	L A	1.6	Beijing	4230	0
	7	Stu 7	42	800			AA		5.6	Beijing	5248	0
D	8	Stu 8	51	600					- j3	Beijing	3780	0
1	9	Stu 9	50	500	Cylinde	r			8.1	Beijing	3905	0
2	10	Stu 10	59	350		1.8	188	lei	6	Beijing	3010	0
3	11	Stu 11	38	800				I A A	2.5	Beijing	7400	0.3
4	12	Stu 12	39	600		1 100-	100	100	5	Shanghai	4500	0
5	13	Stu 13	51	500	Cone				1.4	Shanghai	2570	0
6	14	Stu 14	58	350	2	1		1	3.2	Shanghai	1162	0
7	15	Tom	30	600	D . A .	A	AA	AN	5.5	Shanghai	5130	0
8	16	Stu 15	30	600		100-	100	- 00	8	Shanghai	5280	0
9	17	Stu 17	51	800) Decomic				0.5	Shanghai	6440	0
0	18	Stu 18	36	600) Fyramic				1	Shanghai	5460	0
1	19	Stu 19	42	500			AA	A.1	18	Shanghai	1900	0
2	20	Stu 20	38	350		A	100		0	Shanghai	2100	0
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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).

1	A	В	С	D	E
1	Sale	s Figure f	or Feng	hua M	arket
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		Tot	ما		9224304.00
11					
12				3	
1222					

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.

						1.1	A	8	C	D	E
						1	Ine	Bepartment	Diploma	Gender	Salary
						2	Staff 1	Market	Master	Female	8000
						3	Staff 11	XR	Master	Female	8000
						4	Staff 17	Finance	Master	Fenale	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
Å	A	B	С	D	E	10	Staff 5	HR.	Bachelor	Male	6000
1	Xune -	Departmen -	Diploma -	Gende .T	Salar -	11	Staff 8	Sales	Bachelor	Fenale	6000
2	Staff 1	Market	Master	Fenale	8000	12	Staff 13	Market	College	Male	5000
3	Staff 11	HR	Master	Fenale	8000	13	Staff 16	XR	College	Male	5000
4	Staff 17	Finance	Master	Fenale	8000	14	Staff 19	Sales	College	Male	5000
5	Staff 7	Market	Master	Fenale	8000	15	Staff 3	Product	College	Male	5000
9	St. 66 2	Salar	Rashalar	Female	6000	16	Staff 6	Finance	College	Fenale	5000
	01411 c	C.l.s	Duchelor D. J. J.	P	0000	17	Staff 9	Product	College	Male	5000
-	Staff 8	Dales	Bachelor	Zenale	6000	18	Staff 10	Product	Senior Migh	Female	3500
10	Staff 6	Finance	College	Fenale	5000	19	Staff 14	Sales	Senior Migh	Male	3500
18	Staff 10	Product	Senior High	Fenale	3500	20	Staff 20	Product	Senior Migh	Male	3500
21	Staff 4	Product	Senior High	Fenale	3500	21	Staff 4	Product	Senior High	Female	3500

Figure 3-38 The resulting table after filtering Figure 3-39 The resulting table after sorting

23	1.4	A	B	С	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
1.4	6	Staff 5	國	Bachelor	Male	6000
	7	Staff 8	Sales	Bachelor	Female	6000
	8			Bachelor Avera	ge .	6000
Γ· ٦	9	Staff 13	Market	College	Male	5000
	10	Staff 16	民	College	Male	5000
•	11	Staff 19	Sales	College	Male	5000
	12	Staff 3	Product	College	Male	5000
•	13	Staff 6	Finance	College	Fenale	5000
	14	Staff 9	Product	College	Male	5000
Ē.	15			College Average		5000
[·]	16	Staff 1	Market	Master	Female	8000
1.0	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 Av	erage	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).

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104	A	В	с	D	E	F	G	н		1	L.
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2	Staff 1	Market	Master	Female	8000						
3	Staff 11	HR	Master	Female	8000						
4	Staff 17	Finance	Master	Fenale	8000						
5	Staff 7	Market	Master	Fenale	8000						
б	Staff 12	Finance	Bachelor	Hale	6000						
7	Staff 15	Product	Bachelor	Male	6000						
8	Staff 18	Market	Bachelor	Hale	6000						-
9	Staff 2	Sales	Bachelor	Fenale	6000						
10	Staff 5	HR	Bachelor	Hale	6000						
11	Staff 8	Sales	Bachelor	Fenale	6000						
12	Staff 13	Market	College	Male	5000						
13	Staff 16	HR	College	Hale	5000						
14	Staff 19	Sales	College	Hale	5000						
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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".

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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.

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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).

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Figure 3-44 The way to cancel the filter

Chapter 3 Microsoft Excel 2010

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.

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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).

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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).

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Figure 3-47 Add a new level for the sort

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

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

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(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).

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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.

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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.

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	22	Staff 14	Sales	Senior High	Male	3500							
	23	Staff 20	Product	Senior High	Male	3500							
	24	Staff 4	Product	Senior High	Female	3500							
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Figure 3-52 The resulting table after adding subtotal to "Salary"

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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

 Math
 English
 Physics

 <60</td>
 <60</td>
 <60</td>

Figure 3-53 Filter condition(1)

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.