SPL WIN Course

- Useful for zero foundation coding newbies
- Great help to promotion and pay raise
- Super practical office skill
- Secretly-becoming-excellent technique

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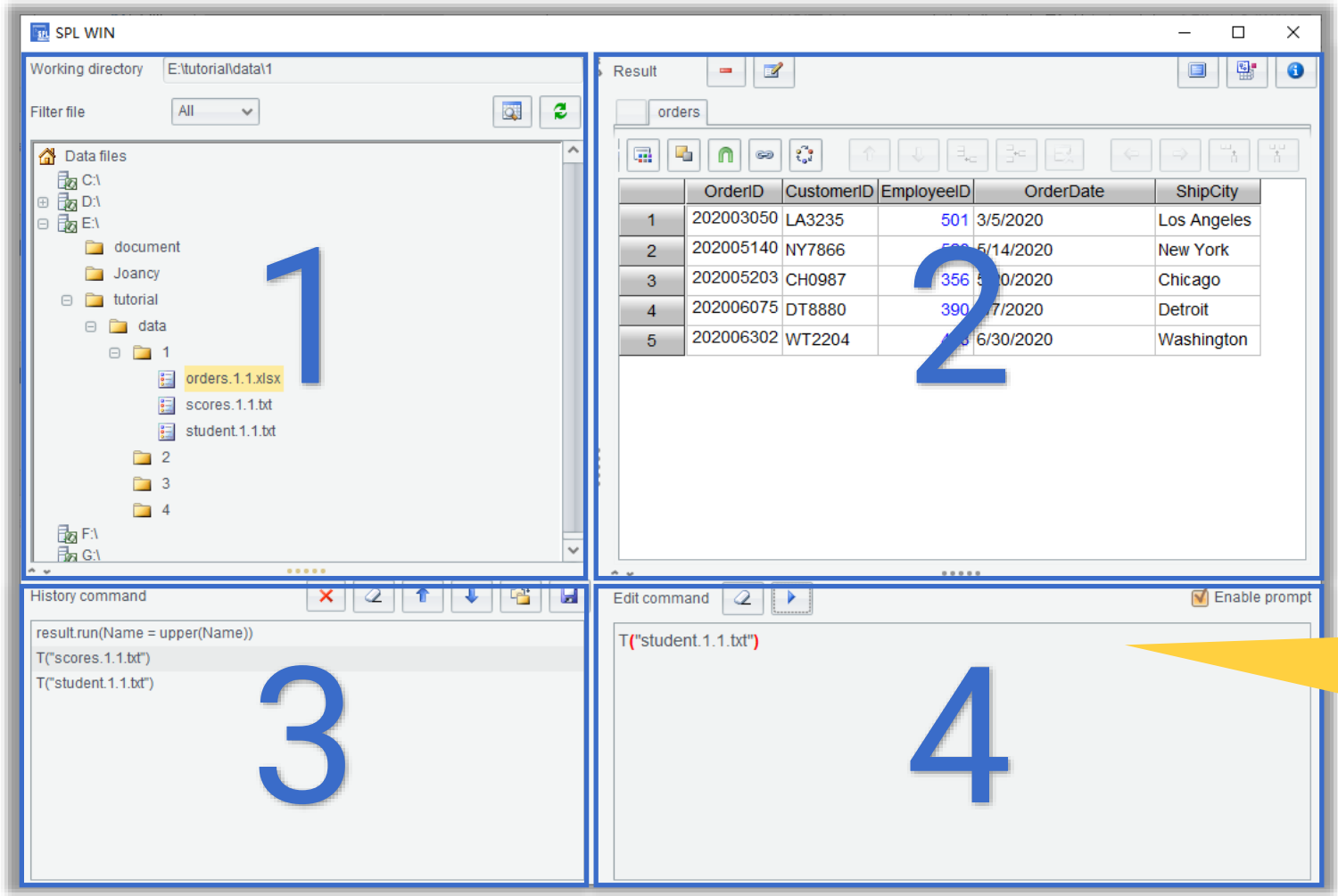
SPL WIN Course

Chapter 1

Functional sections

Functional sections

Below is the SPL WIN interface after the application is started. The interface consists of 4 sections:



1. Data files
2. Dataset panel
3. History command
4. Edit command

The boxes highlighted in blue are indicators of interface sections

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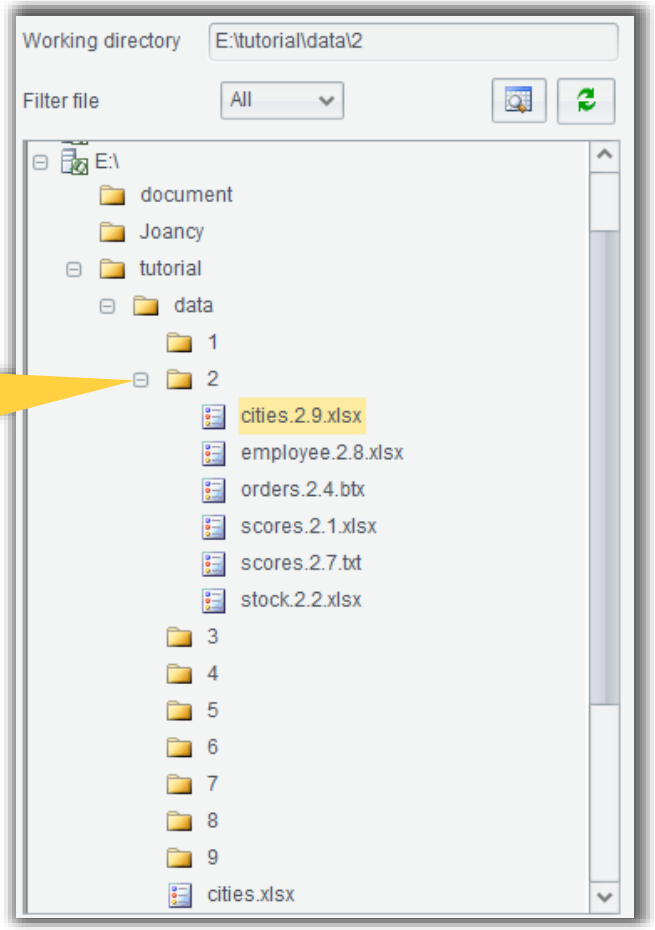
1.1 Data files

1.1 Data files

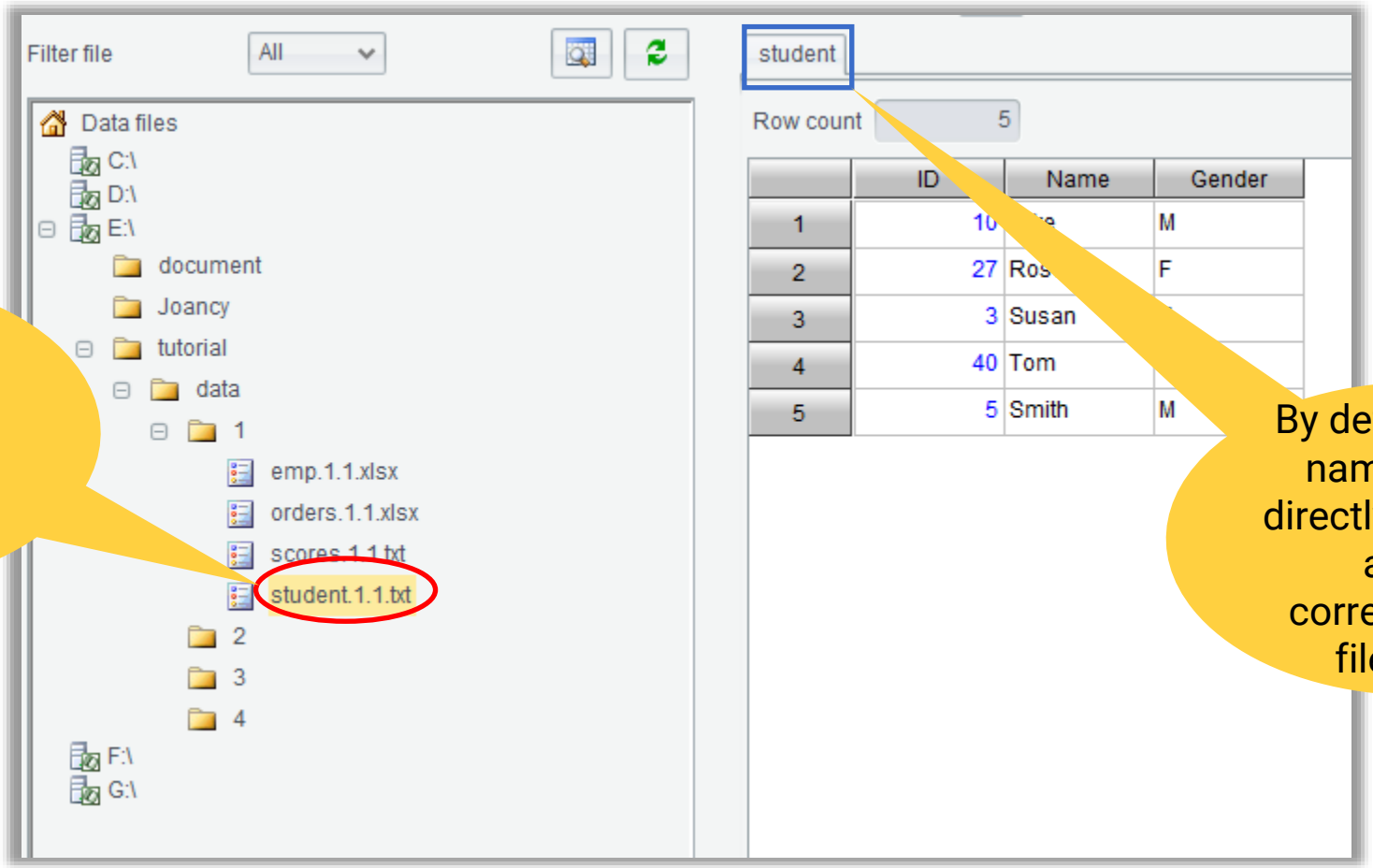
Computable file formats include text files (txt and csv), Excel files, and bin files (btx, which is the esProc proprietary binary format):

As there are too many files in the directory, the file tree adopts lazy loading – files in a folder will be listed only when it is selected



1.1 Data files

Double-click a file name and the corresponding data table is opened according to the default rule (such as displaying the 1st row as field names and using Tab to separate the text file):

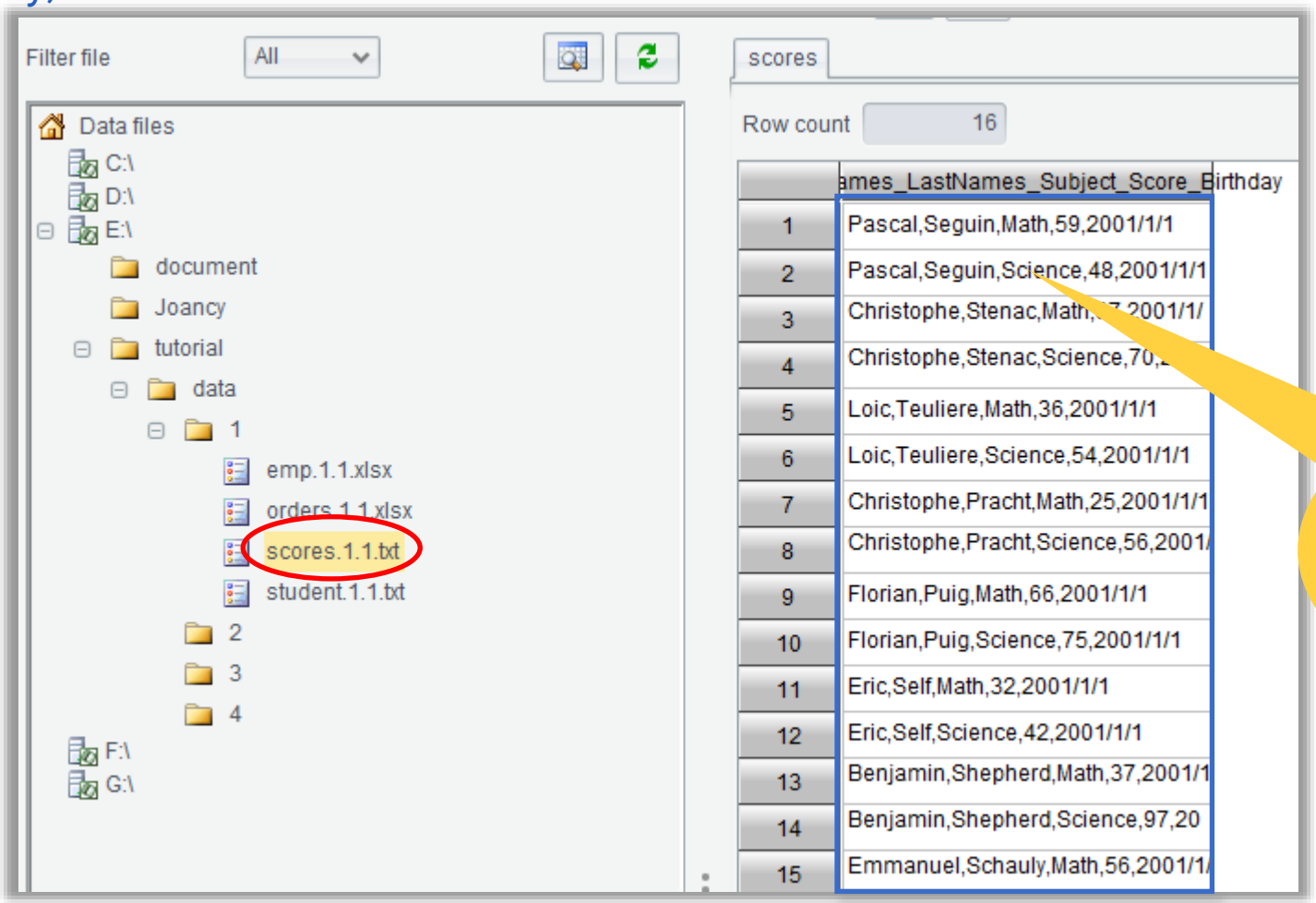


In this crash course, content highlighted by a red circle/oval means a mouse click action

By default, table name will be directly displayed as the corresponding file name

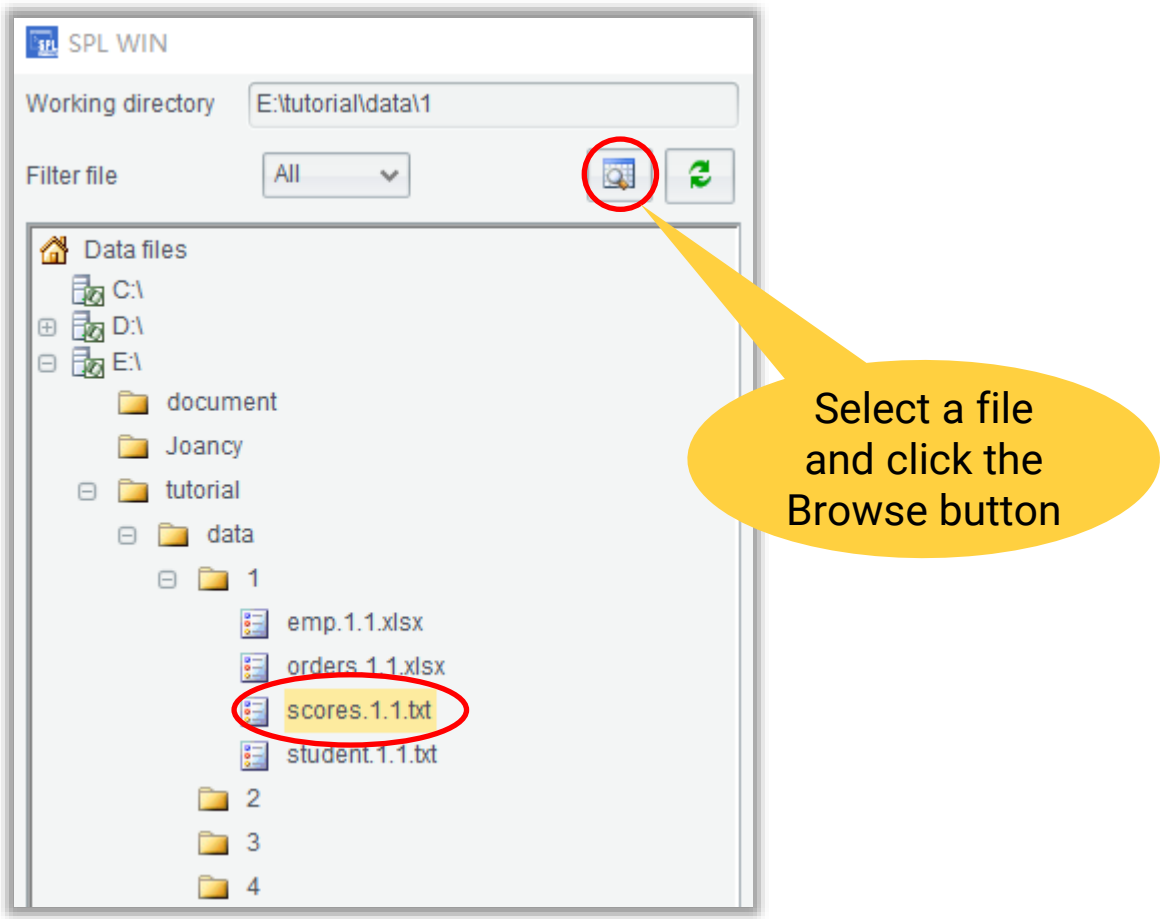
1.1 Data files

If format of a file does not conform to the default open rule, error happens when it is opened directly, such as scores.1.1.txt :



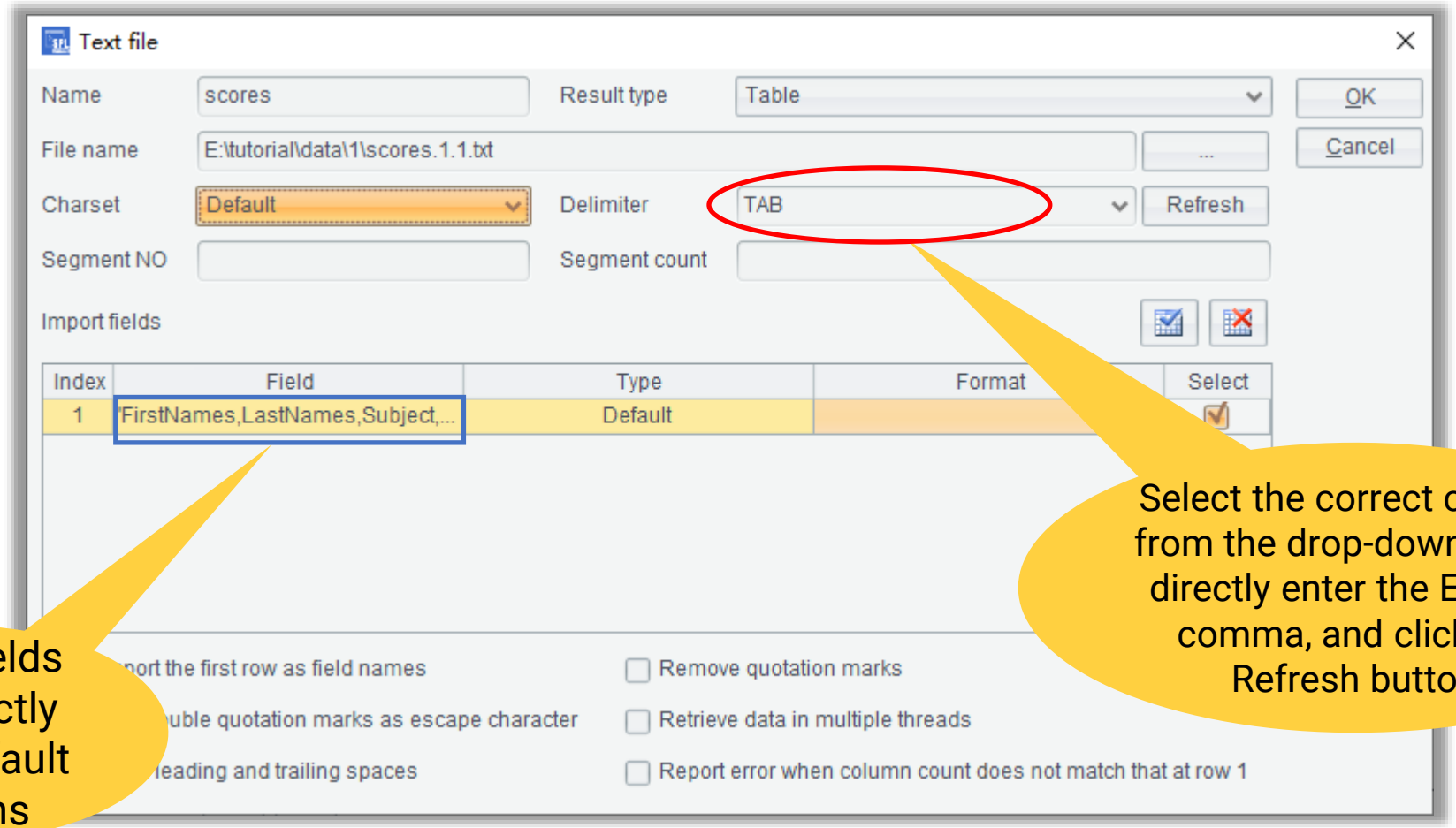
1.1 Data files

To deal with the error, open the File dialog and set up Open options in a more detailed way:



1.1 Data files

On the interface, adjust the delimiter to a correct one:



Load fields incorrectly with default options

Select the correct comma from the drop-down list, or directly enter the English comma, and click the Refresh button

1.1 Data files

In the File dialog, we can choose to import some of the fields:

Text file

Name: scores | Result type: Table

File name: E:\tutorial\data\1\scores.1.1.txt

Charset: Default | Delimiter: , | Refresh

Segment NO: | Segment count:

Import fields

Index	Field	Type	Format	Select
1	FirstNames	Default		☑
2	LastNames	Default		☑
3	Subject	Default		☑
4	Score	Default		☑
5	Birthday	Default		☐

☑ Import the first row as field names

☐ Remove quotation marks

☐ Retrieve data in multi...

☐ Report e...

...ow 1

After the new comma delimiter is set up and Refresh is performed, all fields are listed

Click the checkbox to disable importing the Birthday field

scores

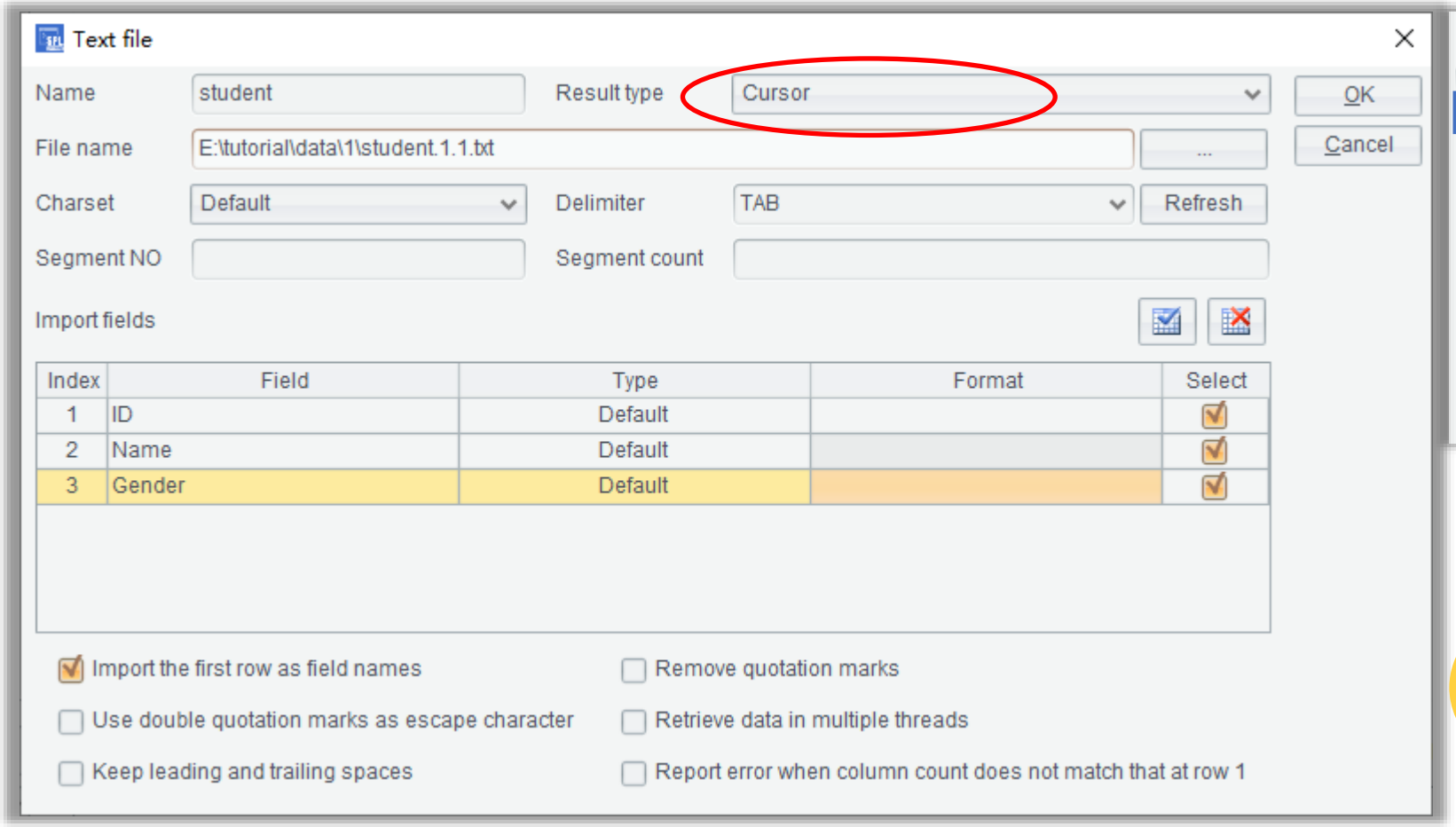
Row count: 16

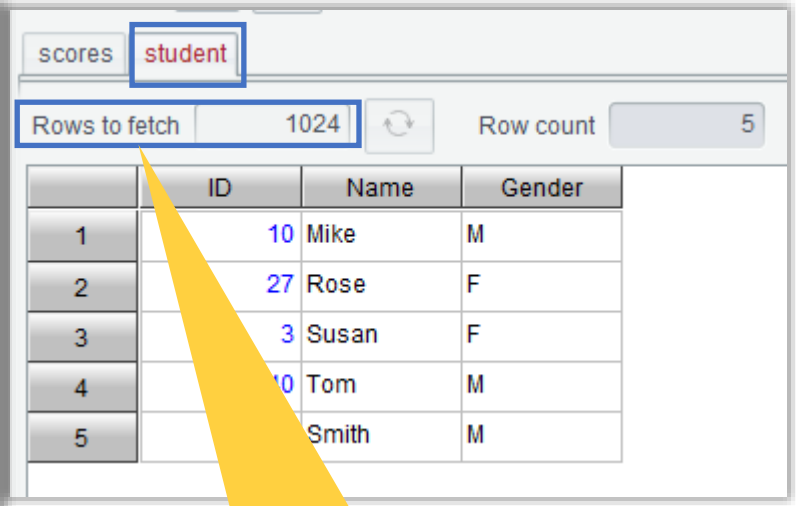
	FirstNames	Last...	...	
1	Pascal	Seguin		
2	Pascal	Seguin		
3	Christophe	Stenac	Math	87
4	Christophe	Stenac	Scie...	70
5	Loic	Teuliere	Mat...	36
6	Loic	Teuliere	Sc...nce	54
7	Christophe	Pracht	Math	25
8	Christophe	Pracht	Science	56
9	Florian	Puig	Math	66
10	Florian	Puig	Science	75
11	Eric	Self	Math	32
12	Eric	Self	Science	42
13	Benjamin	Shepherd	Math	37
14	Benjamin	Shepherd	Science	97
15	Emmanuel	Schauly	Math	56

Import a data table without Birthday field

1.1 Data files

In the File dialog, we can set up the type of big file processing result as the cursor:





Highlight cursor in red to distinguish it from the table sequence; we can set up the number of rows to be fetched from a cursor

1.1 Data files

Data types of text files, default numbers and characters can be all parsed correctly:

Text file

Name: scores | Result type: Table | OK

File name: E:\tutorial\data\1\scores.1.1.txt

Charset: Default | Delimiter: , | Refresh

Segment NO | Segment count

Import fields

Index	Field	Type	Format	Select
1	FirstNames	Default		
2	LastNames	Default		
3	Subject	Default		
4	Score	Default		
5	Birthday	Default		

Import the first row as field names

Remove quotation marks

Use double quotation marks as escape character

Retrieve data in multiple threads

Keep leading and trailing spaces

Report error when column count does not match that at row 1

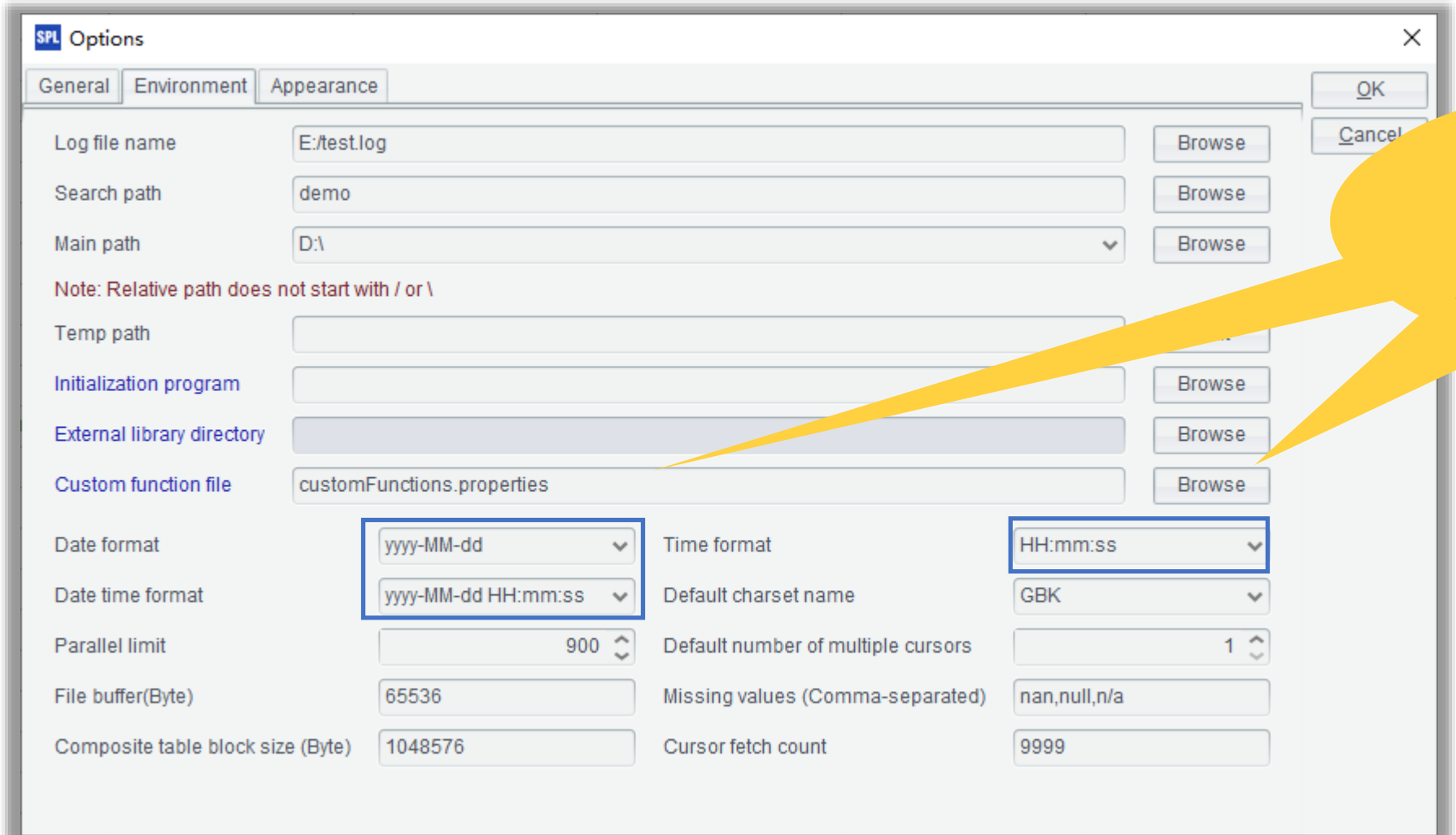
scores

	FirstNames	LastNames	Subject	Score	Birthday
1	Pascal	Seguin	Math	59	2001/1/1
2	Pascal	Seguin	Science	48	2001/1/1
3	Christophe	Stenac	Math	87	2001/1/1
4	Christophe	Stenac	Science	70	2001/1/1
5	Loic	Teuliere	Math	36	2001/1/1
6	Loic	Teuliere	Science	54	2001/1/1
7	Christophe	Pracht	Math	25	2001/1/1
8	Christophe	Pracht	Science	56	2001/1/1
9					2001/1/1
				75	2001/1/1
				32	2001/1/1
				42	2001/1/1
				37	2001/1/1
14			Science	97	2001/1/1

The date type is special, and maybe the parsing is incorrect

1.1 Data files

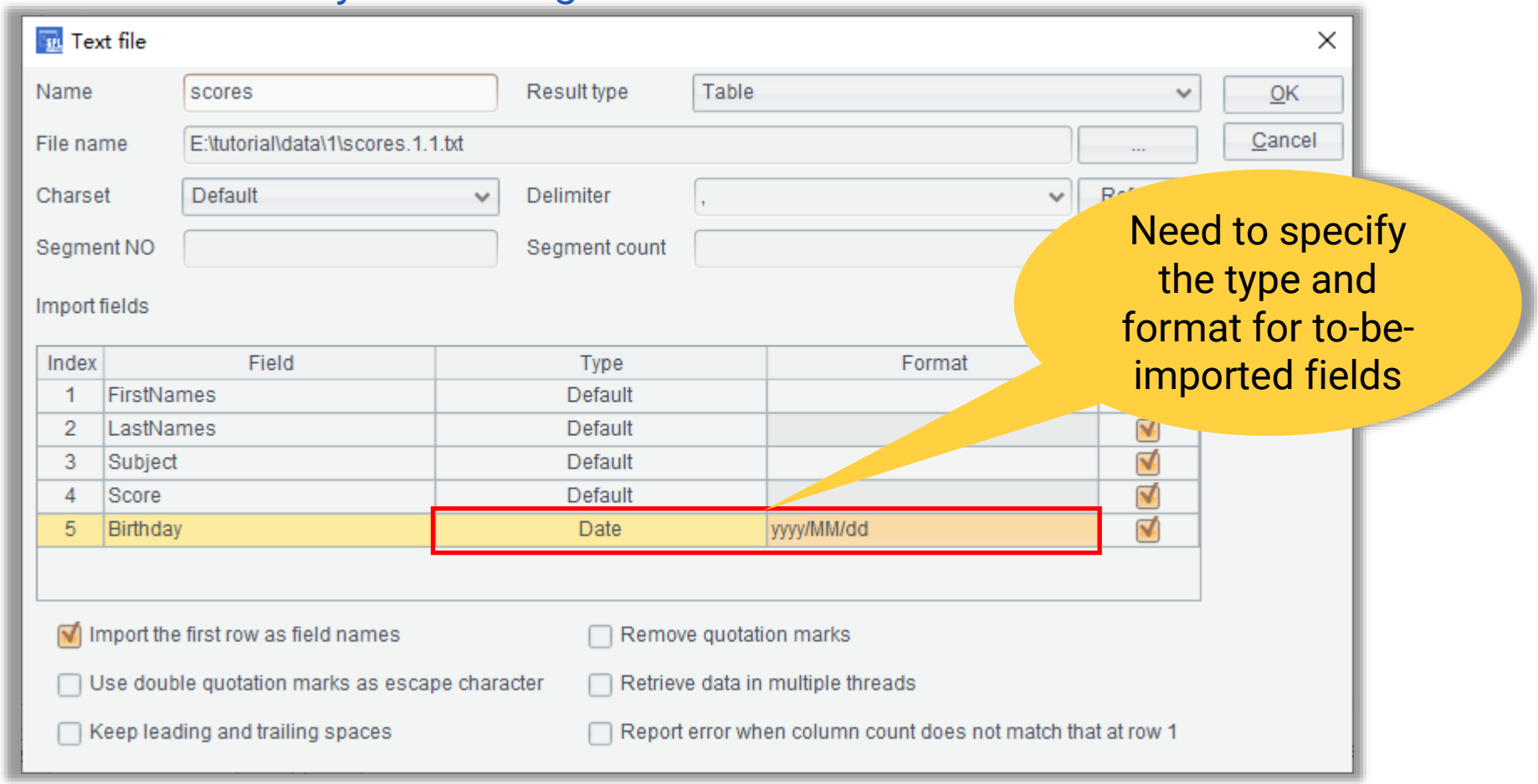
Set up default parse format for date type data through esProc options:



By default, dates in the text can be correctly parsed only when their formats are consistent with the option settings

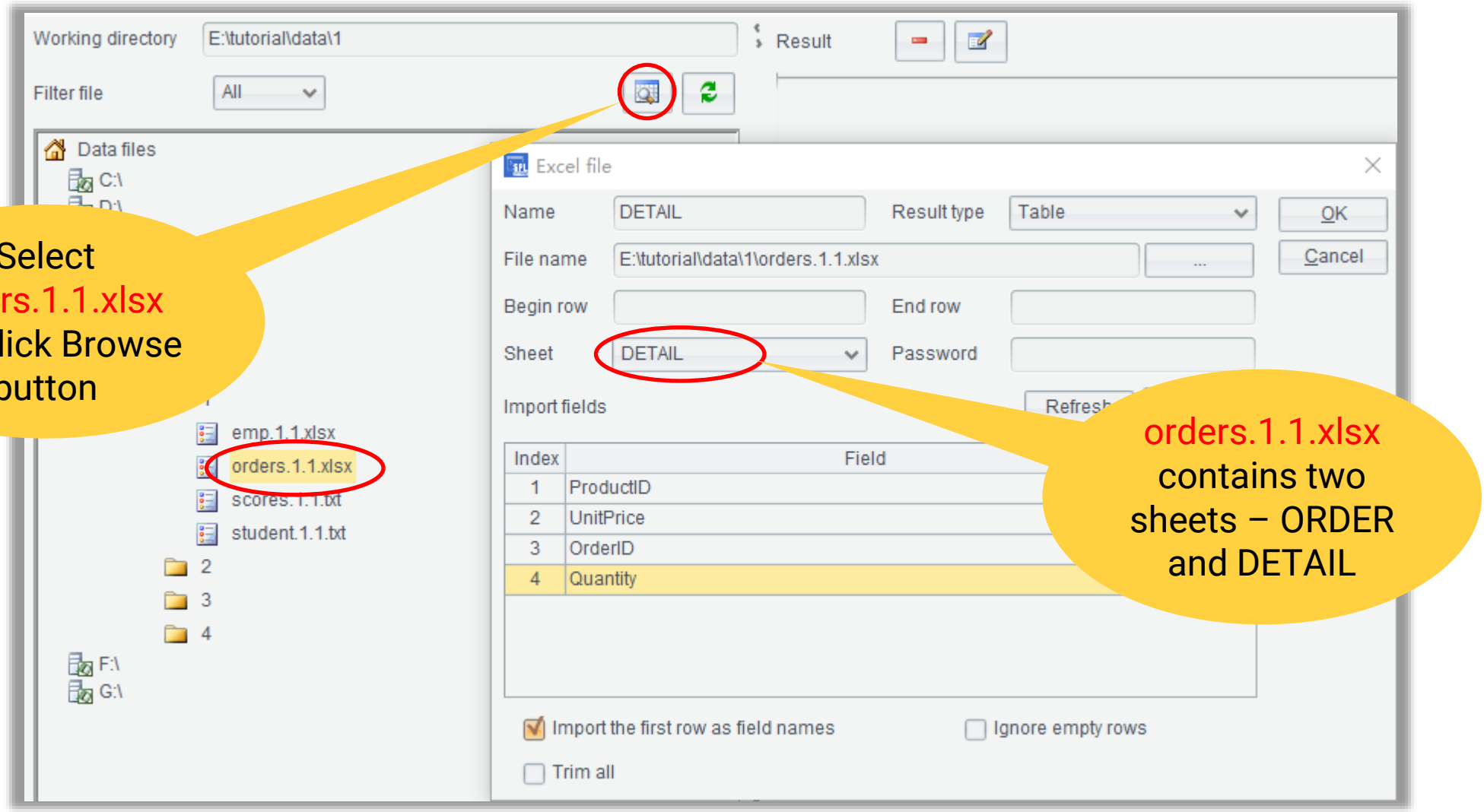
1.1 Data files

If date formats in the text are not consistent with the option settings and you are reluctant to modify the settings:



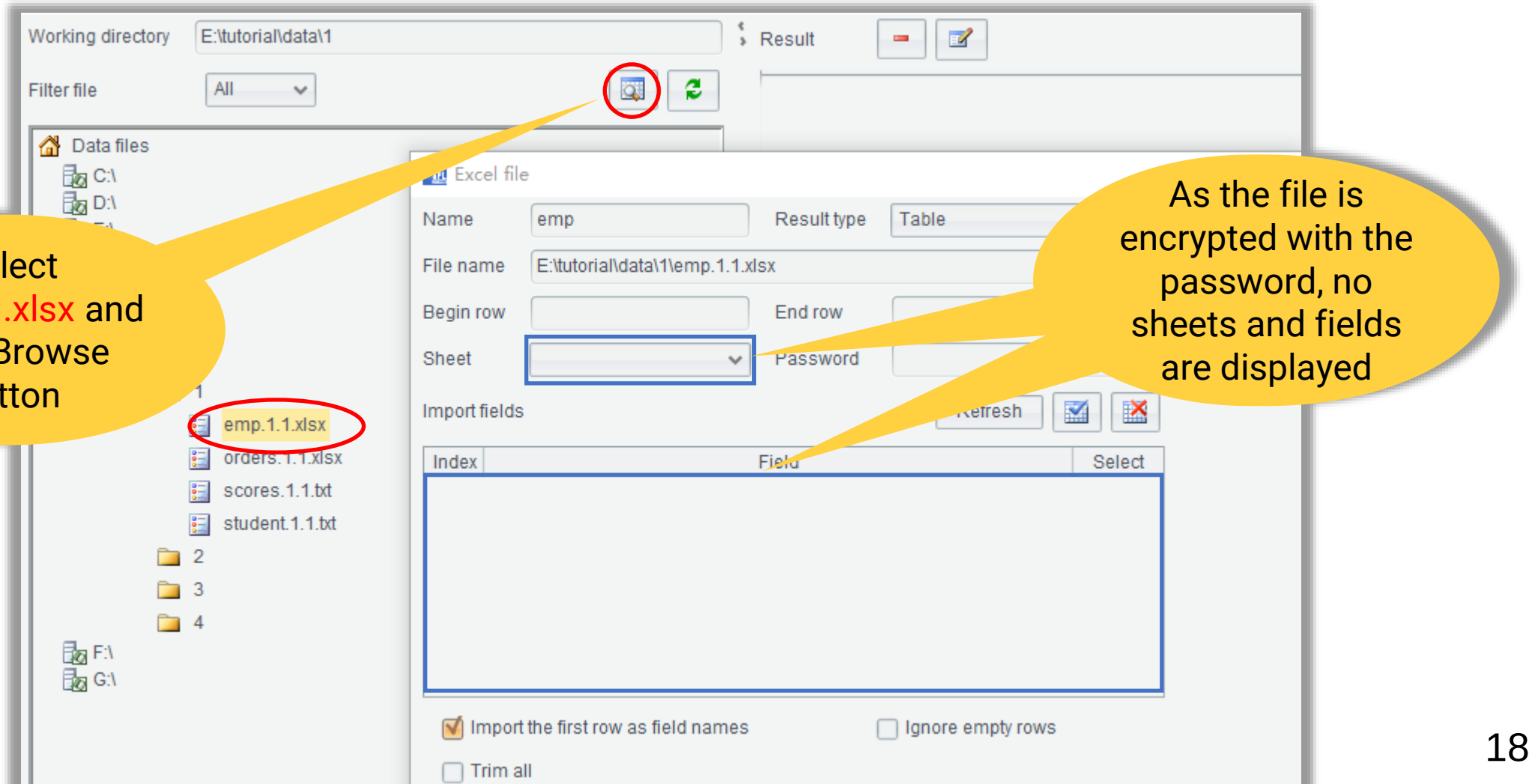
1.1 Data files

Open the other Excel sheets from the File dialog:



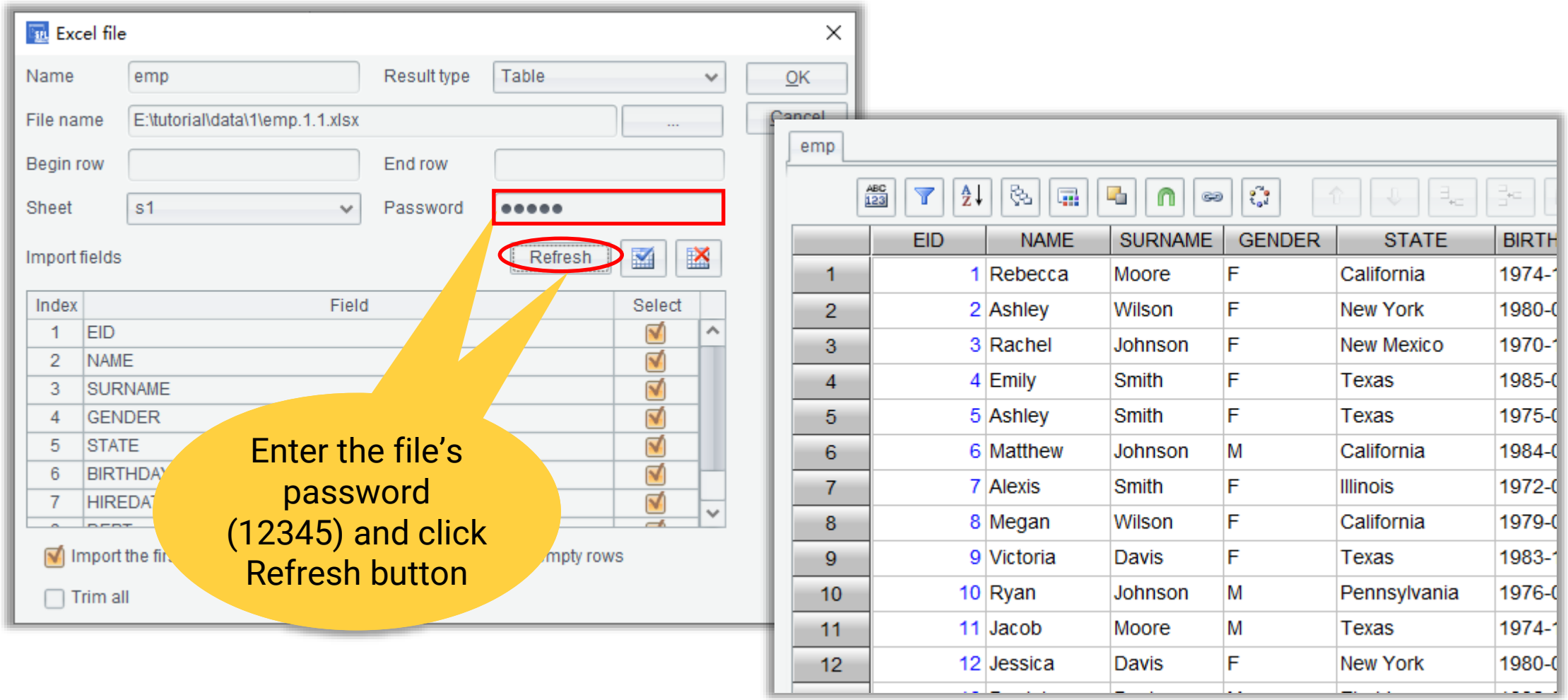
1.1 Data files

When an Excel file is encrypted through a password, you need to enter the password and click Refresh to list the fields:



1.1 Data files

Enter the password correctly and click Refresh button to display sheets and fields:



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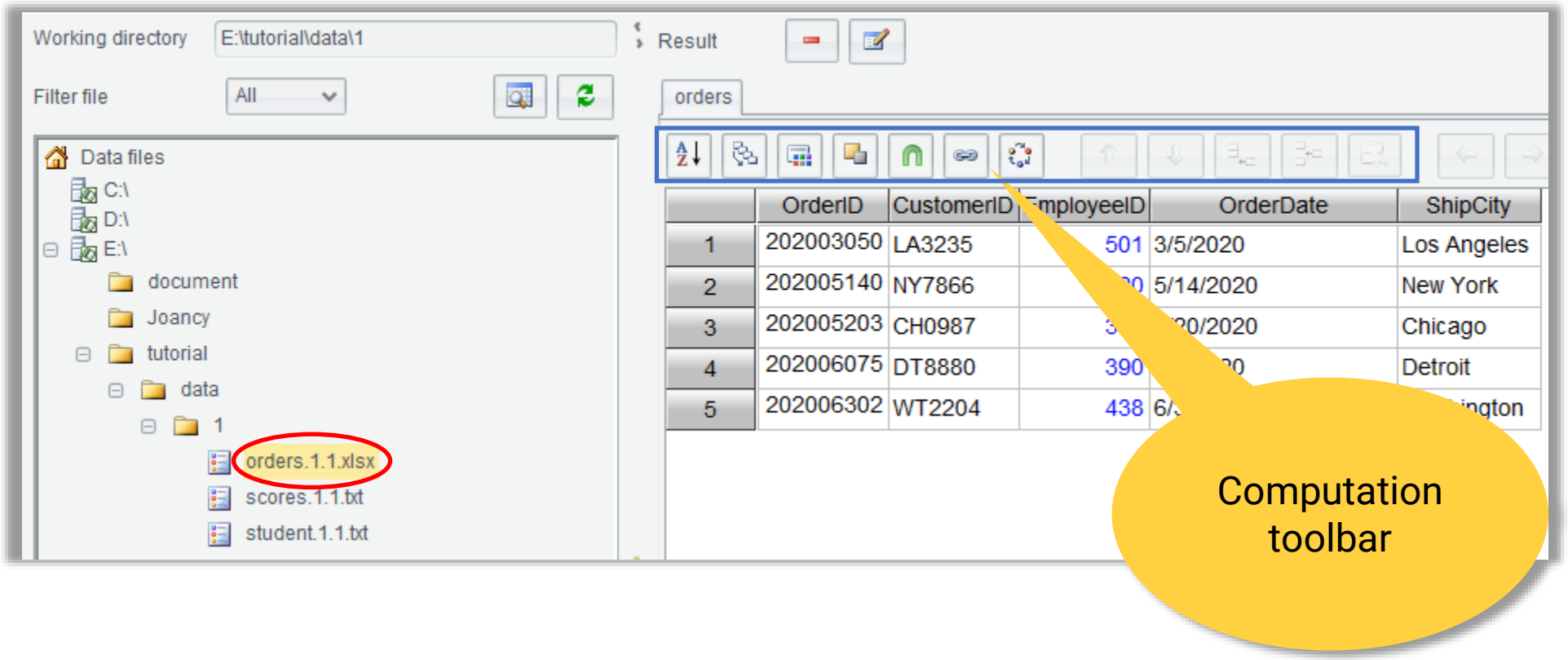
1.2 Dataset panel

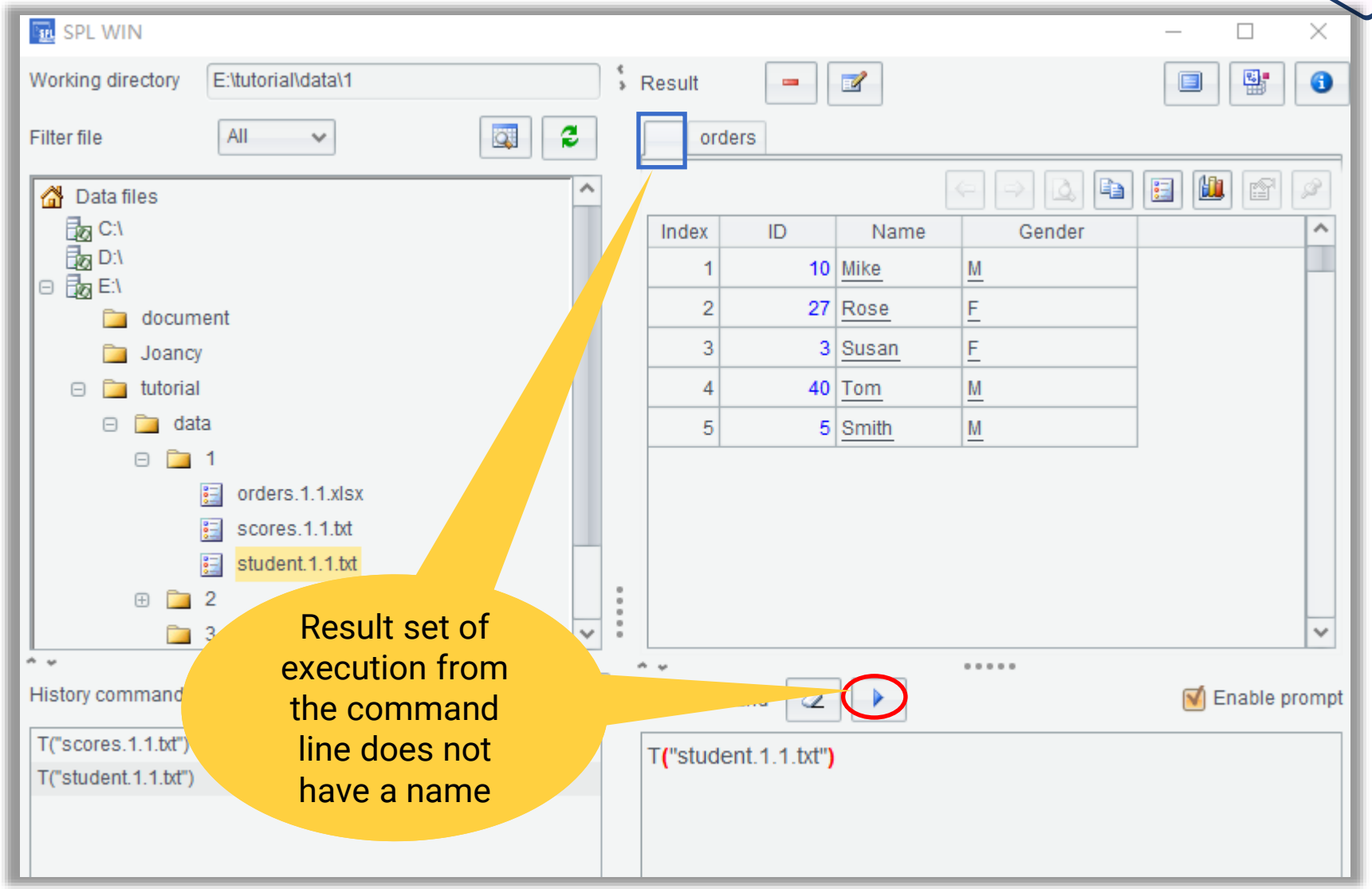
1.2 Dataset panel

View and edit data in an opened data table, and perform computations on it. Icons on the toolbar let you compute a data table as if on a calculator:



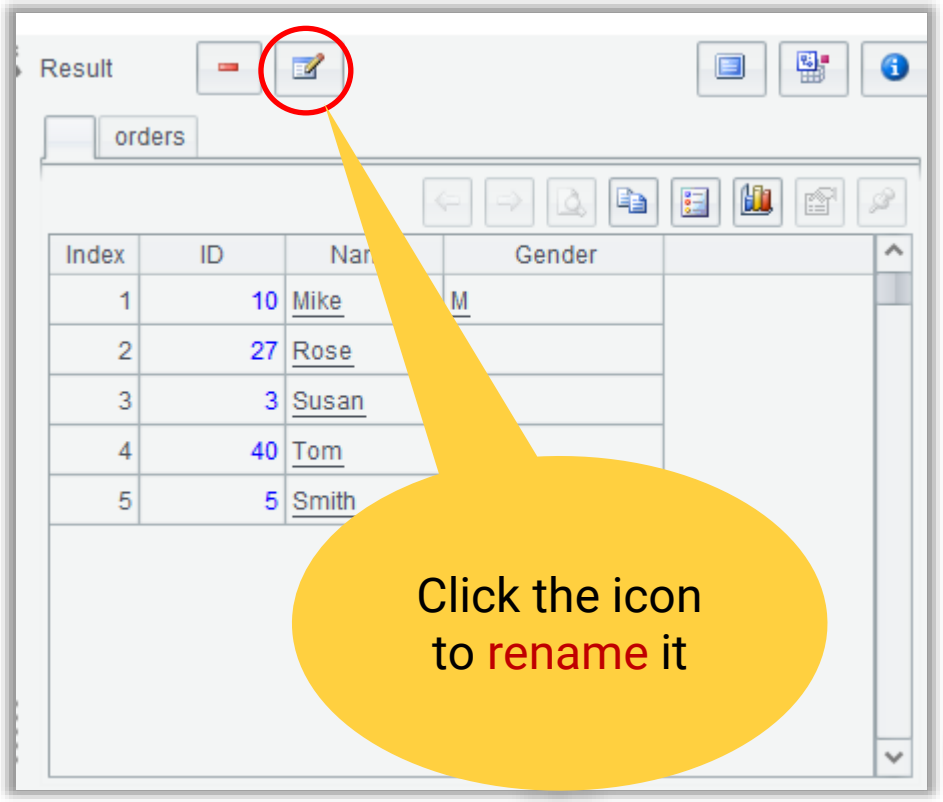
1.2 Dataset panel

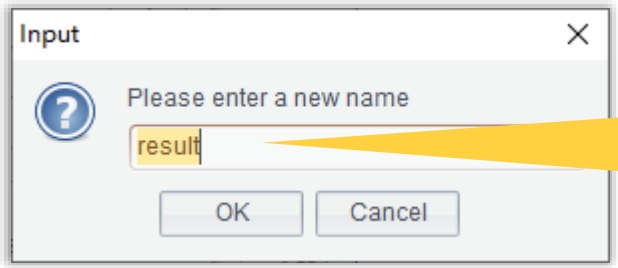
A result returned from executing a SPL command at the command line can only be viewed and won't be named; an existing result set will be overwritten by the result of another execution from the command line:



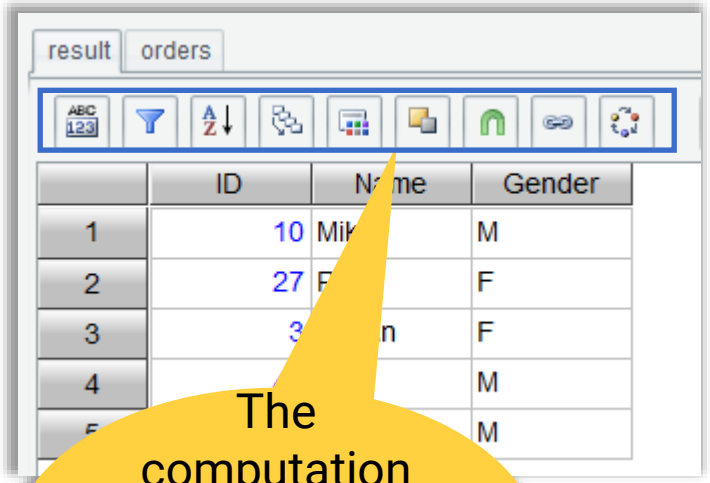
1.2 Dataset panel

To retain the result data table of the current computation for use in subsequent computations, it should be given a name:





Note: The name must be a legal identifier



The computation tool bar only displays for a named data table

Exception: Computation tool bar won't be displayed if the result is a sequence

1.2 Dataset panel

Open orders.2.4.btx, we can see that fields are displayed in different colors according to their own types:

orders

	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	1	UJRNP	17	392.0	2012-11-02 15:28:05
2	2	SJCH	6	4802.0	2012-11-09 15:28:05
3	3	UJRNP	16	13500.0	2012-11-05 15:28:05
4	4	PWQ	9	26100.0	2012-11-08 15:28:05
5	5	PWQ	11	4410.0	2012-11-12 15:28:05
6	6	HANAR	18	6174.0	2012-11-07 15:28:05
7	7	EGU	2	17800.0	2012-11-06 15:28:05
8	8	VILJX	7	2156.0	2012-11-09 15:28:05
9	9	JAYB	14	17400.0	2012-11-12 15:28:05
10	10	JAXE	19	19200.0	2012-11-12 15:28:05
11	11	SJCH	7	13700.0	2012-11-10 15:28:05
12	12	QUICK	11	21200.0	2012-11-13 15:28:05
13	13	HL	12	21400.0	2012-11-21 15:28:05
14	14	JAYB	1	7644.0	2012-11-16 15:28:05

Integers are displayed in blue and right-aligned

Floating point numbers are displayed in light red and right-aligned

Characters and dates are displayed in black

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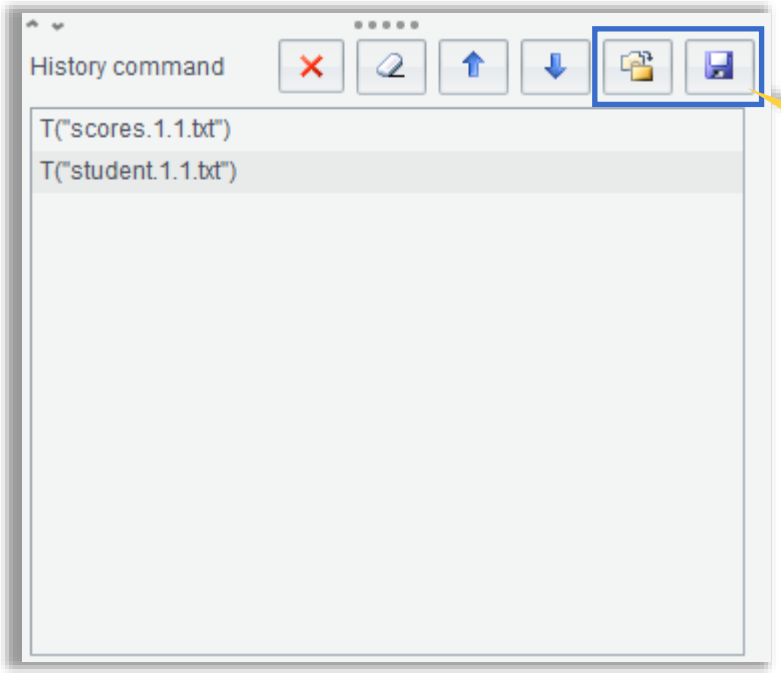
1.3 History command

1.3 History command

Commands executed from the command line will be automatically appended to the "History command" section.

The history commands will be automatically stored and loaded:



Save the history command list as an external file, or load it from the external

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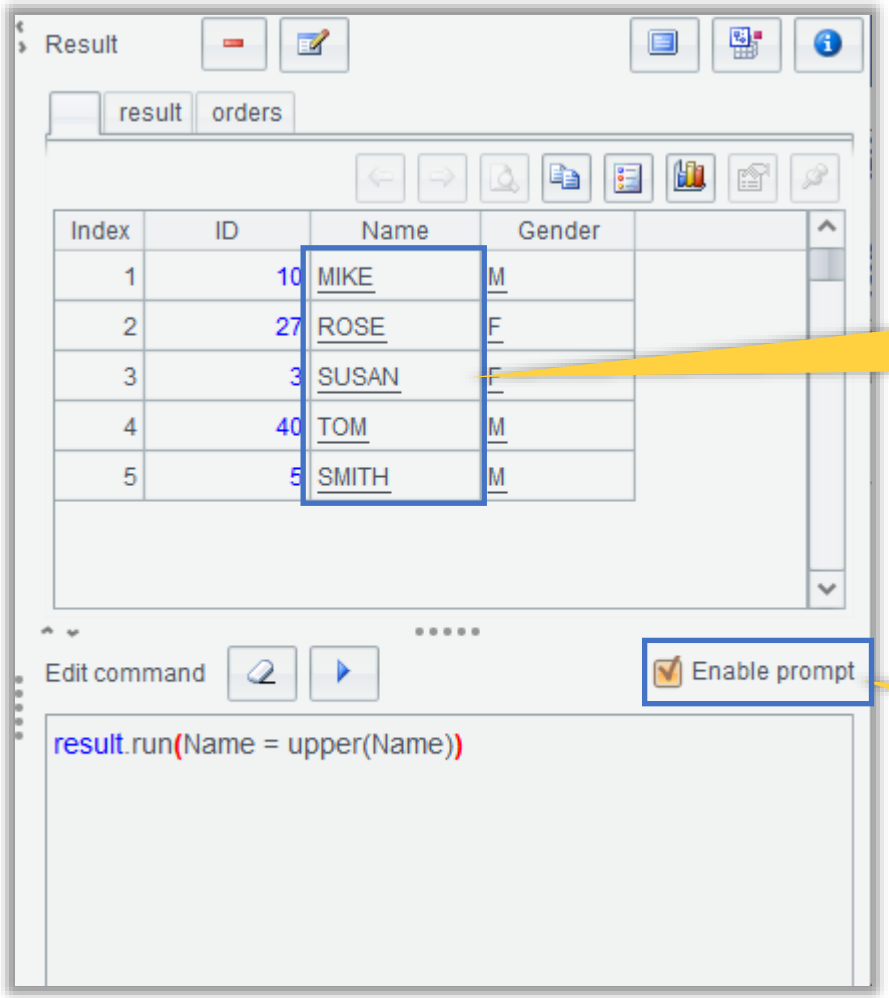
1.4 Edit command

1.4 Edit command

SPL has a rich collection of function libraries. The toolbar on “Dataset panel” only implements some of the commonly used functions. To use more complicated functions, we can manually code and execute it in “Edit command” section:



Code the run() function in “Edit command” section to convert names to uppercase

Check “Enable prompt” to type in function parameters quickly and efficiently

SPL WIN Course

Chapter 2

Interface computations

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2.1 Add computed columns

2.1 Add computed columns

Below is Excel table scores.2.1.xlsx recording students subject scores. We need to compute total score (Total) of each student and the average score (Average:

	A	B	C	D	E	F
1	CLASS	STUDENTID	English	Math	PE	
2	Class one	1	84	77	69	
3	Class one	2	81	80	97	
4	Class one	3	75	86	67	
5	Class one	4	96	63	81	
6	Class one	5	72	60	91	
7	Class one	6	90	69	72	
8	Class one	7	75	90	60	
9	Class one	8	67	86	51	
10	Class one	9	93	73	83	
11	Class one	10	52	97	84	
12	Class one	11	78	63	79	
13	Class one	12	65	71	79	
14	Class one	13	61	97	59	
15	Class one	14	52	60	86	

2.1 Add computed columns

Method 1: Use dialog to configure the computation

Double-click scores.2.1.xlsx in data/2 to open the data table whose default name is scores:

Default table name; if there is a namesake table, add an serial number after it

Click Add computed columns icon

Result

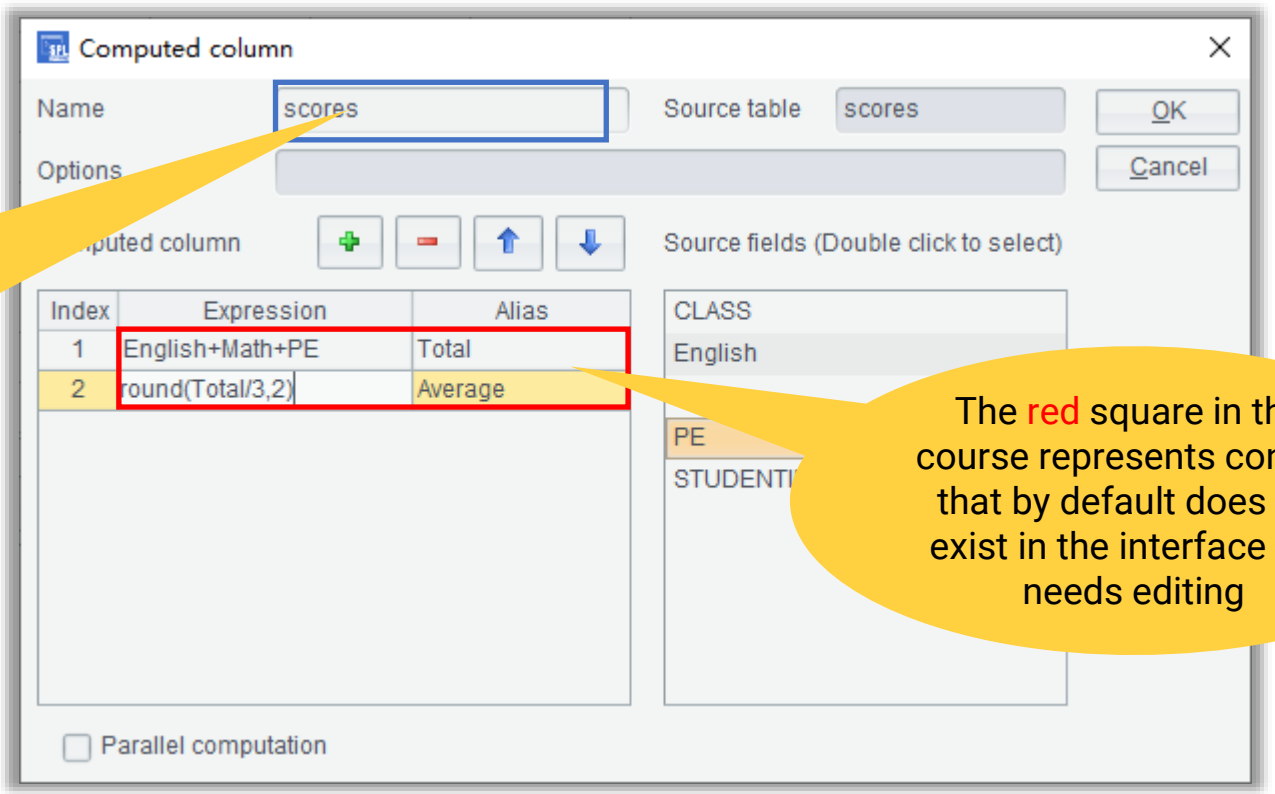
scores

	CLASS	STUDENTID	English	Math	PE
1	Class one	1	84	77	69
2	Class one	2	81	80	97
3	Class one	3	75	86	67
4	Class one	4	96	63	81
5	Class one	5	72	60	91
6	Class one	6	90	69	72
7	Class one	7	75	90	60
8	Class one	8	67	86	51
9	Class one	9	93	73	83
10	Class one	10	52	97	84
11	Class one	11	78	63	79

2.1 Add computed columns

On the “Computed columns” interface, add expressions and aliases for the computed columns (as shown below).

It is convenient to do the editing on the interface. We can add multiple computed columns at one time.



It is the table name after the computation is finished. If it is namesake with the “Source table” on the right, it will overwrite the table currently-computed table“Name”

The red square in this course represents content that by default does not exist in the interface and needs editing

2.1 Add computed columns

Below is the result set after the two computed columns are added:

scores

	CLASS	STUDENTID	English	Math	PE	Total	Average
1	Class one	1	84	77	69	230	76.67
2	Class one	2	81	80	97	258	86.0
3	Class one	3	75	86	67	228	76.0
4	Class one	4	96	63	81	240	80.0
5	Class one	5	72	60	91	223	74.33
6	Class one	6	90	69	72	231	77.0
7	Class one	7	75	90	60	225	75.0
8	Class one	8	67	86	51	204	68.0
9	Class one	9	93	73	83	249	83.0
10	Class one	10	52	97	84	233	77.67
11	Class one	11	78	63	79	220	73.33
12	Class one	12	65	71	79	215	71.67
13	Class one	13	61	97	59	217	72.33
14	Class one	14	52	60	86	198	66.0
15	Class two	1	84	77	69	230	76.67

2.1 Add computed columns

Method 2: Add computed columns directly in the interface through writing expressions:

Open the *scores* table:

Click any column name, as the column operations toolbar will be activated only when a column is selected

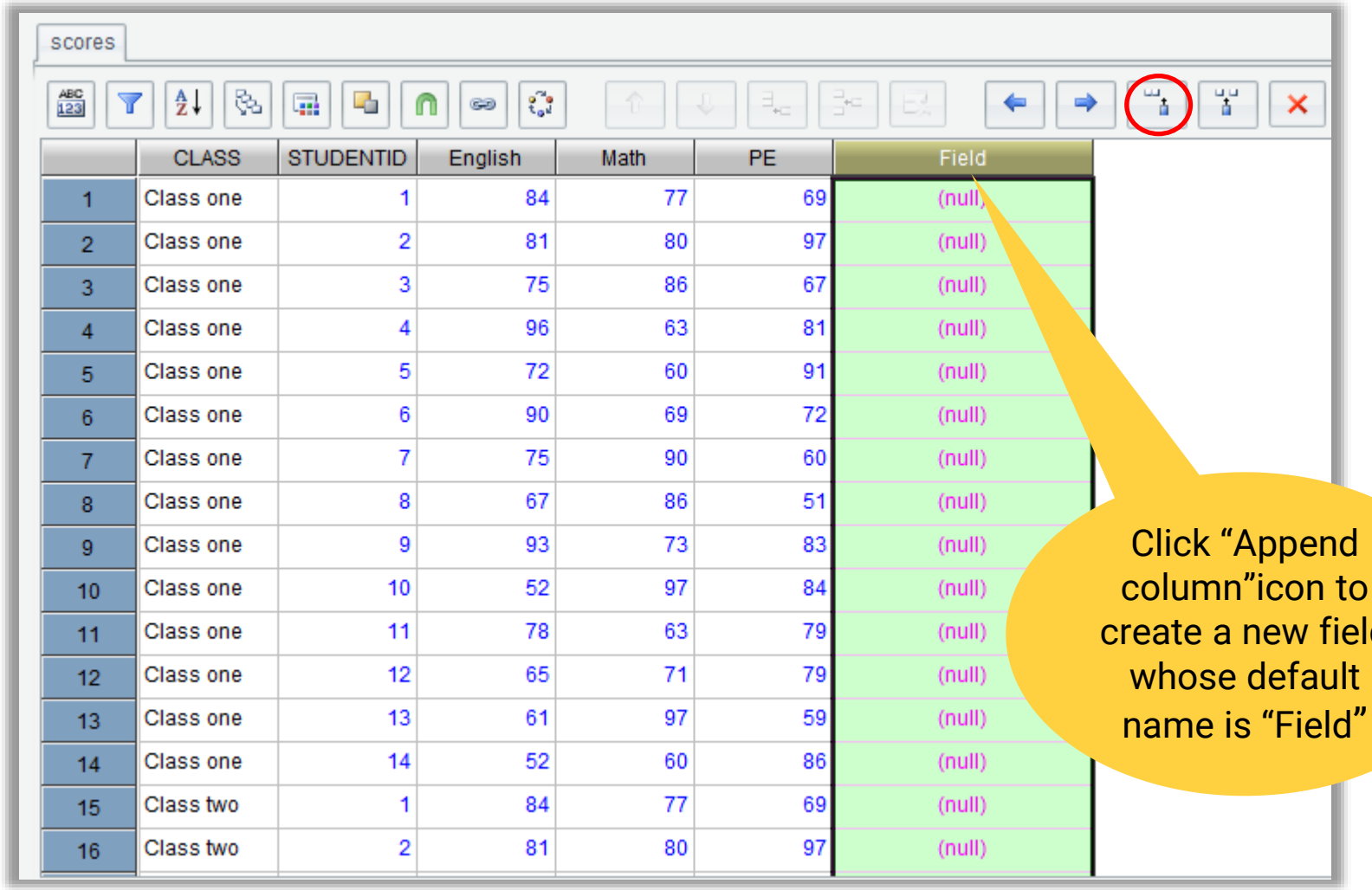
Column operations toolbar

scores

	CLASS	STUDENTID	English	Math	PE
1	Class one	1	84	77	69
2	Class one	2	81	80	97
3	Class one	3	75	86	67
4	Class one	4	96	63	81
5	Class one	5	72	60	91
6	Class one	6	90	69	72
7	Class one	7	75	90	60
8	Class one	8	67	86	51
9	Class one	9	93	73	83
10	Class one	10	52	97	84
11	Class one	11	78	63	79
12	Class one	12	65	71	79
13	Class one	13	61	97	59
14	Class one	14	52	60	86
15	Class two	1	84	77	69
16	Class two	2	81	80	97

2.1 Add computed columns

Add a field through the toolbar icon:



	CLASS	STUDENTID	English	Math	PE	Field
1	Class one	1	84	77	69	(null)
2	Class one	2	81	80	97	(null)
3	Class one	3	75	86	67	(null)
4	Class one	4	96	63	81	(null)
5	Class one	5	72	60	91	(null)
6	Class one	6	90	69	72	(null)
7	Class one	7	75	90	60	(null)
8	Class one	8	67	86	51	(null)
9	Class one	9	93	73	83	(null)
10	Class one	10	52	97	84	(null)
11	Class one	11	78	63	79	(null)
12	Class one	12	65	71	79	(null)
13	Class one	13	61	97	59	(null)
14	Class one	14	52	60	86	(null)
15	Class two	1	84	77	69	(null)
16	Class two	2	81	80	97	(null)

2.1 Add computed columns

Enter a formula in the first row. Note that the double equal sign should be used to begin the formula:

scores

	CLASS	STUDENTID	English	Math	PE	Field
1	Class one	1	84	77	69	==English+Math+PE
2	Class one	2	81	80	97	(null)
3	Class one	3	75	86	67	(null)
4	Class one	4	96	63	81	(null)
5	Class one	5	72	60	91	(null)
6	Class one	6	90	69	72	(null)
7	Class one	7	75	90	60	(null)
8	Class one	8	67	86	51	(null)
9	Class one	9	93	73	83	(null)
10	Class one	10	52	97	84	(null)
11	Class one	11	78	63	79	(null)
12	Class one	12	65	71	79	(null)
13	Class one	13	61	97	59	(null)
14	Class one	14	52	60	86	(null)
15	Class two	1	84	77	69	(null)

2.1 Add computed columns

Press carriage return to execute the formula and get the new computed column:

scores

	CLASS	STUDENTID	English	Math	PE	Field
1	Class one	1	84	77	69	230
2	Class one	2	81	80	97	258
3	Class one	3	75	86	67	228
4	Class one	4	96	63	81	240
5	Class one	5	72	60	91	223
6	Class one	6	90	69	72	231
7	Class one	7	75	90	60	225
8	Class one	8	67	86	51	204
9	Class one	9	93	73	83	249
10	Class one	10	52	97	84	233
11	Class one	11	78	63	79	220
12	Class one	12	65	71	79	215
13	Class one	13	61	97	59	217
14	Class one	14	52	60	86	198
15	Class two	1	84	77	69	230

2.1 Add computed columns

Rename the computed column through the pop-up menu:

scores

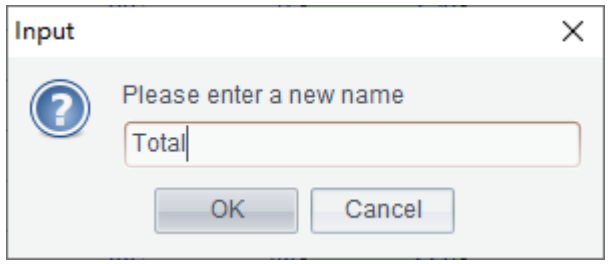
	CLASS	STUDENTID	English	Math	PE	Field
1	Class one	1	84	77	69	
2	Class one	2	81	80	97	
3	Class one	3	75	86	67	
4	Class one	4	96	63	81	
5	Class one	5	72	60	91	
6	Class one	6	90	69	72	
7	Class one	7	75	90	60	
8	Class one	8	67	86	51	
9	Class one	9	93	73	83	249
10	Class one	10	52	97	84	233
11	Class one	11	78	63	79	220
12	Class one	12	65	71	79	215
13	Class one	13	61	97	59	217
14	Class one	14	52	60	86	198
15	Class two	1	84	77	69	230

- Insert column
- Append column
- Delete column
- Shift column left
- Shift column right
- Sort by Field ascendingly
- Sort by Field descendingly
- Rename field Field

Click column name to select the column and execute “Rename field” on the pop-up menu

2.1 Add computed columns

Enter a new field name to finish adding the computed column:



scores

	CLASS	STUDENTID	English	Math	PE	Total
1	Class one	1	84	77	69	230
2	Class one	2	81	80	97	258
3	Class one	3	75	86	67	228
4	Class one	4	96	63	81	240
5	Class one	5	72	60	91	223
6	Class one	6	90	69	72	231
7	Class one	7	75	90	60	225
8	Class one	8	67	86	51	204
9	Class one	9	93	73	83	249
10	Class one	10	52	97	84	233
11	Class one	11	78	63	79	220
12	Class one	12	65	71	79	215
13	Class one	13	61	97	59	217
14	Class one	14	52	60	86	198
15	Class two	1	84	77	69	230

CONTENTS

2.2 Filter data

2.2 Filter data

Below is Excel table stock.2.2.xlsx recording stock opening indexes in May – June, 2020. We need to find the dates when the opening prices are greater than 2900:

	A	B	C
1	date	open	
2	2020/06/22	2966.9	
3	2020/06/19	2938.79	
4	2020/06/18	2929.88	
5	2020/06/17	2932.67	
6	2020/06/16	2912.83	
7	2020/06/15	2908.28	
8	2020/06/12	2876.8	
9	2020/06/11	2939.79	
10	2020/06/10	2951.28	
11	2020/06/09	2939.54	
12	2020/06/08	2941.98	
13	2020/06/05	2923.19	
14	2020/06/04	2931.84	
15	2020/06/03	2930.39	
16	2020/06/02	2916.32	
17	2020/06/01	2871.96	
18	2020/05/29	2835.58	
19	2020/05/28	2838.21	

Sheet1

2.2 Filter data

Double-click stock.2.2.xlsx in data/2 to open the data table named stock:

Then click “Filter” icon

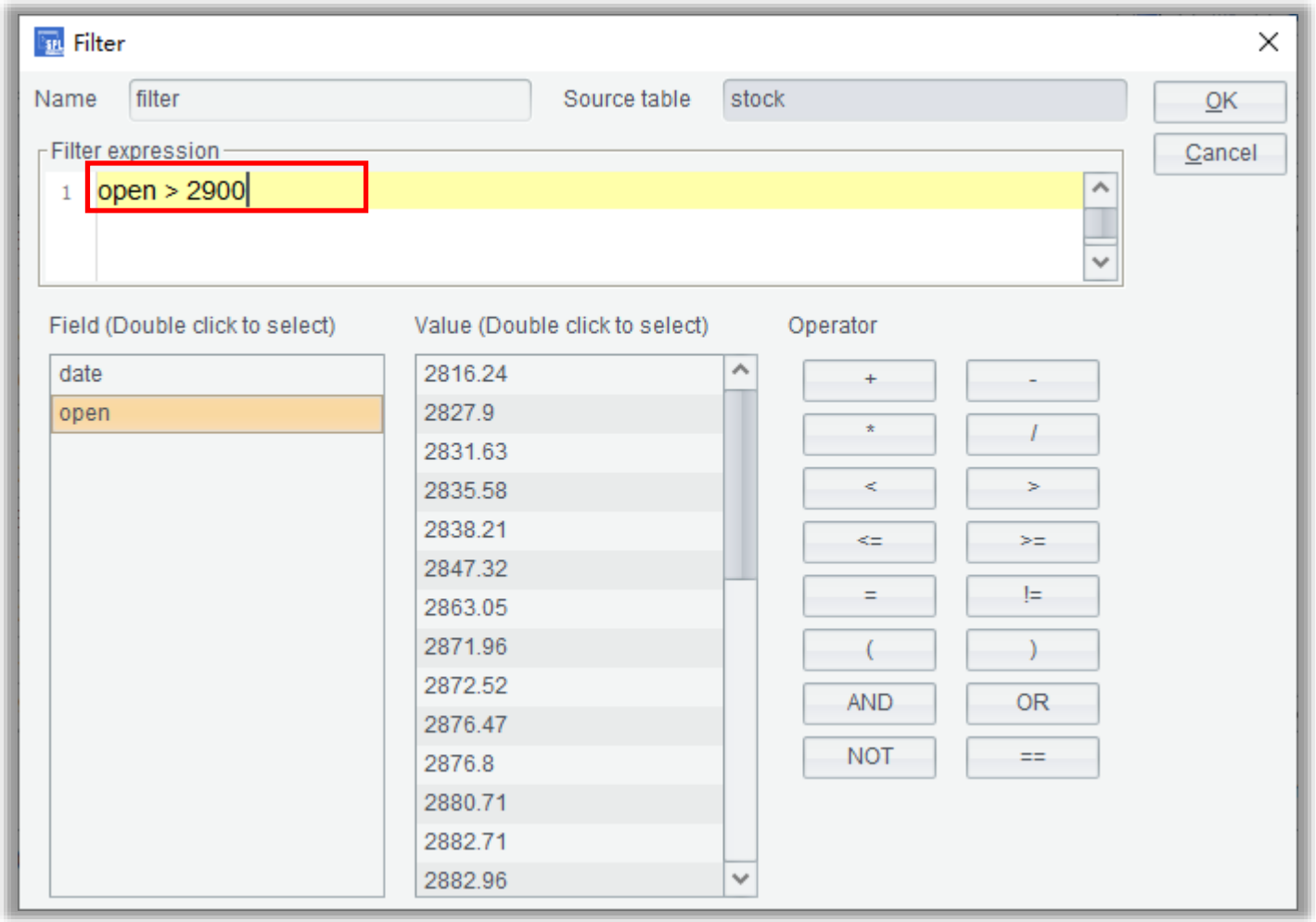
Result

stock

	date	open
1	2020-06-22	2966.9
2	2020-06-19	2938.79
3	2020-06-18	2929.88
4	2020-06-17	2932.67
5	2020-06-16	2912.83
6	2020-06-15	2908.28
7	2020-06-12	2876.8
8	2020-06-11	2939.79
9	2020-06-10	2951.28
10	2020-06-09	2939.54
11	2020-06-08	2941.98

2.2 Filter data

Set up the following filter expression on “Filter”edit interface:



2.2 Filter data

Execute the filtering operation to get the following result:

Result

stock | filter

	date	open
1	2020-06-22	2966.9
2	2020-06-19	2938.79
3	2020-06-18	2929.88
4	2020-06-17	2932.67
5	2020-06-16	2912.83
6	2020-06-15	2908.28
7	2020-06-11	2939.79
8	2020-06-10	2951.28
9	2020-06-09	2939.54
10	2020-06-08	2941.98
11	2020-06-05	2923.19

CONTENTS

2.3 Sort data

2.3 Sort data

In section 2.1, a total score field named Total was added to the student score table.

For the convenience of checking the scores, we want to sort rows by total score (Total) field in descending order:

Click Sort icon above the result table containing the Total field

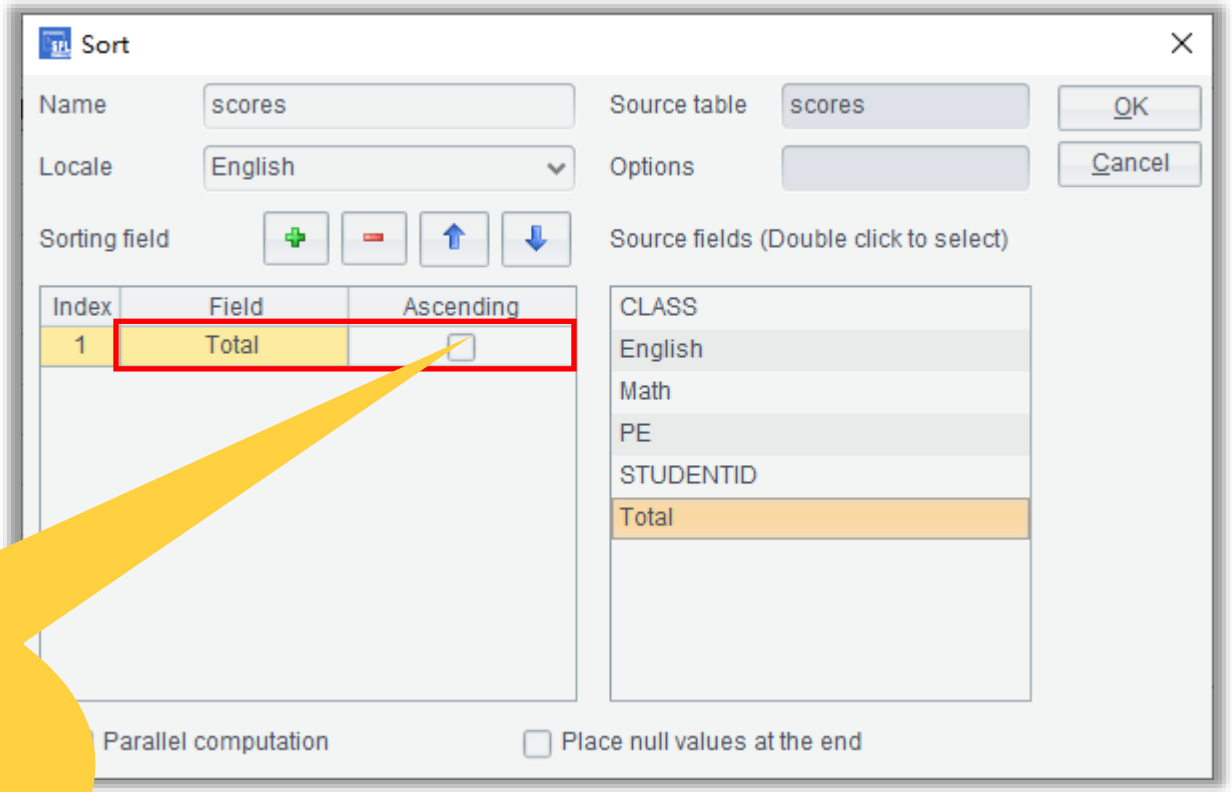
Result

scores

	CLASS	STUDENTID	English	Math	PE	Total
1	Class one	1	84	77	69	230
2	Class one	2	81	80	97	258
3	Class one	3	75	86	67	228
4	Class one	4	96	63	81	240
5	Class one	5	72	60	91	223
6	Class one	6	90	69	72	231
7	Class one	7	75	90	60	225
8	Class one	8	67	86	51	204
9	Class one	9	93	73	83	249
10	Class one	10	52	97	84	233
11	Class one	11	78	63	79	220

2.3 Sort data

In the “Sort” edit interface, add a sorting field in the place highlighted by the red square:



Note: If the source table is a cursor, the sorting field can only be arranged in ascending order and sorting direction cannot be edited

2.3 Sort data

Execute the sorting operation and get the following result:

scores

	CLASS	STUDENTID	English	Math	PE	Total
1	Class one	2	81	80	97	258
2	Class two	2	81	80	97	258
3	Class one	9	93	73	83	249
4	Class two	9	93	73	83	249
5	Class one	4	96		81	240
6	Class two	4	96	63		240
7	Class one	10	52	97	84	
8	Class two	10	52	97	84	233
9	Class one	6	90	69	72	231
10	Class two	6	90	69	72	231
11	Class one	1	84	77	69	230

Sort rows by total score in descending order to get the top 3 in grade

CONTENTS

2.4

Group data

2.4 Group data

Below is sale orders table orders.2.4.btx. We want to compute order amount for each seller.

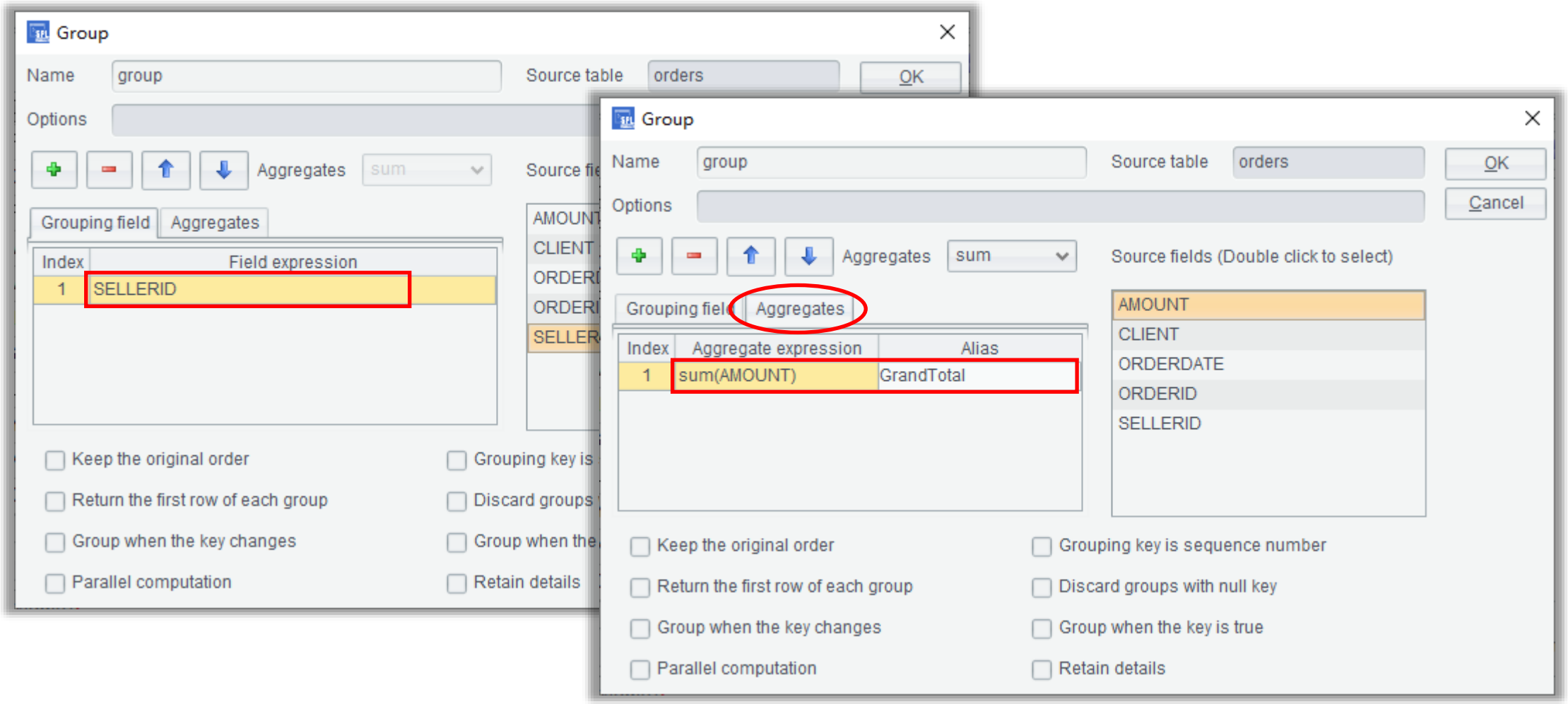
Click Group icon

orders

	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	1	UJRNP	17	392.0	2012-11-02 15:28:05
2	2	SJCH	6	4802.0	2012-11-09 15:28:05
3	3	UJRNP	16	13500.0	2012-11-05 15:28:05
4	4	PWQ	9	26100.0	2012-11-08 15:28:05
5	5	PWQ	11	4410.0	2012-11-12 15:28:05
6	6	HANAR	18	6174.0	2012-11-07 15:28:05
7	7	EGU	2	17800.0	2012-11-06 15:28:05
8	8	VILJX	7	2156.0	2012-11-09 15:28:05
9	9	JAYB	14	17400.0	2012-11-12 15:28:05
10	10	JAXE	19	19200.0	2012-11-12 15:28:05
11	11	SJCH	7	13700.0	2012-11-10 15:28:05

2.4 Group data

On the “Group” edit interface, set up grouping field and aggregate expression, as shown by the red squares:



2.4 Group data

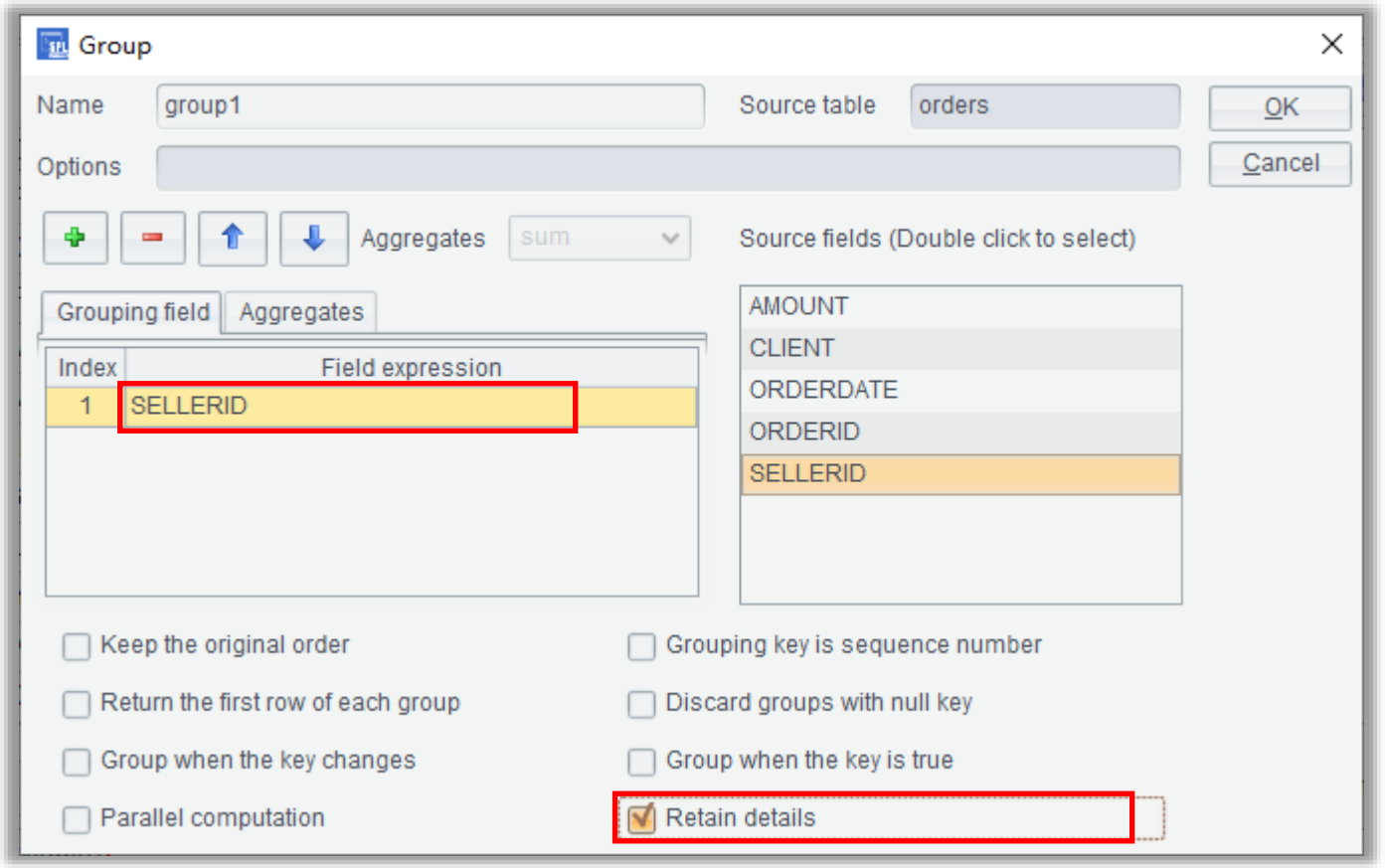
Execute the grouping operation and get the following result:

orders | group

	SELLERID	GrandTotal
1	1	687850.0
2	2	734276.0
3	3	554724.0
4	4	565594.0
5	5	564516.0
6	6	672064.0
7	7	504764.0
8	8	602648.0
9	9	596578.0
10	10	541826.0
11	11	687894.0

2.4 Group data

Different from SQL that must specify the aggregate expression for each grouping operation, SPL supports returning a set after data is grouped. As the following shows, set up the grouping field and select“Retain details”option:



2.4 Group data

Execute the grouping operation and a Details field is generated. In the field, each group of rows is a set:

orders | group | group1

	SELLERID	Details
1	1	[[14,JAYB,1, ...],[77,HANAR,1,
2	2	[[7,EGU,2, ...],[19,JOPO,2,
3	3	[[17,PJIPE,3, ...],[22,JAXE,3,
4	4	[[16,AYWYN,4,
5	5	[[21,DILRT,5, ...],[34,HANAR,5,
6	6	[[2,SJCH,6, ...],[31,QHHW,6,
7	7	[[8,VILJX,7, ...],[11,SJCH,7,
8	8	[[20,EGU,8, ...],[24,FHYBR,8,
9	9	[[4,PWQ,9, ...],[32,SAVEA,9,
10	10	[[29,QHHW,10,
11	11	[[5,PWQ,11, ...],[12,QUICK,11,

Double-click Details field to open a subtable and view its data

orders | group | group1 | group1.Details(4)

	ORDERID	CLIEN	SELLERID	AMOUNT	ORDERDATE
1	16	AYWYN	4	6566.0	2012-11-21 15:28:05
2	37	ERNSH	4	98.0	2012-12-07 15:28:05
3	90	EGU	4	26700.0	2013-01-30 15:28:05
4	118	AVU	4	1764.0	2013-02-26 15:28:05
5	134	JOPO			2013-03-19 15:28:05
6	165	H			15:28:05
7					
8					
9					
10					
11					

A table in the form of P.F(r) is details table, where P is the parent table, F is a field name of the parent table, and r is the record number. Separators should be removed when the table is referenced at the command line; it is written as PFr, such as group1Details4

CONTENTS

2.5 Concatenate detailed data

2.5 Concatenate detailed data

The detailed data field Details generated from the grouping operation can be concatenated as a table sequence:

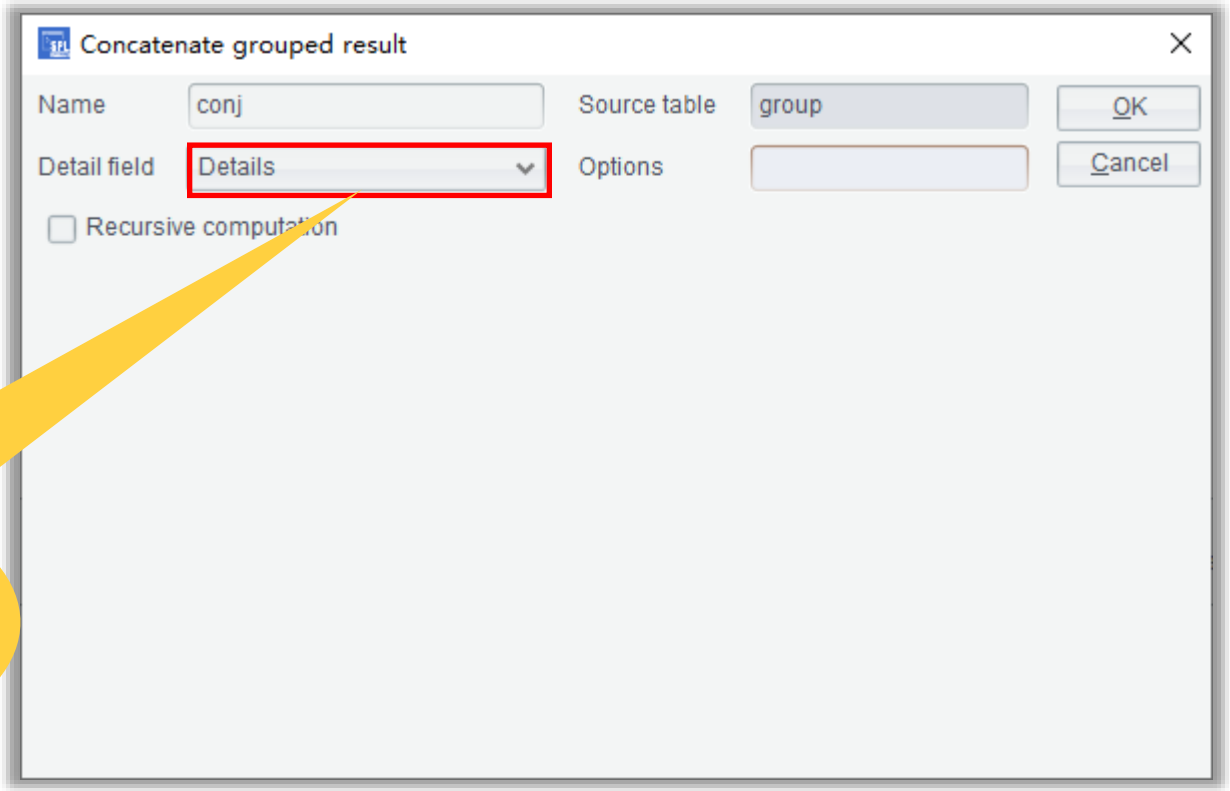
Click Concatenate detailed data icon

orders | group

	SEQ_ERID	Details
1		[[14,JAYB,1, ...],[77,HANAR,1,
2	2	[[7,EGU,2, ...],[19,JOPO,2,
3	3	[[17,PJIPE,3, ...],[22,JAXE,3,
4	4	[[16,AYWYN,4,
5	5	[[21,DILRT,5, ...],[34,HANAR,5,
6	6	[[2,SJCH,6, ...],[31,QHHW,6,
7	7	[[8,VILJX,7, ...],[11,SJCH,7,
8	8	[[20,EGU,8, ...],[24,FHYBR,8,
9	9	[[4,PWQ,9, ...],[32,SAVEA,9,
10	10	[[29,QHHW,10,
11	11	[[5,PWQ,11, ...],[12,QUICK,11,
12	12	[[13,HL,12, ...],[38,DILRT,12,
13	13	[[54,JAXE,13, ...],[64,HP,13,
14	14	[[9,JAYB,14, ...],[39,GLH,14,
15	15	[[28,AVU,15, ...],[114,PWQ,15,

2.5 Concatenate detailed data

On the “Concatenate detailed data” edit interface, select Details field highlighted in red square:



2.5 Concatenate detailed data

Concatenate Details field as table sequence conj. Below is the result data:

orders | group | conj

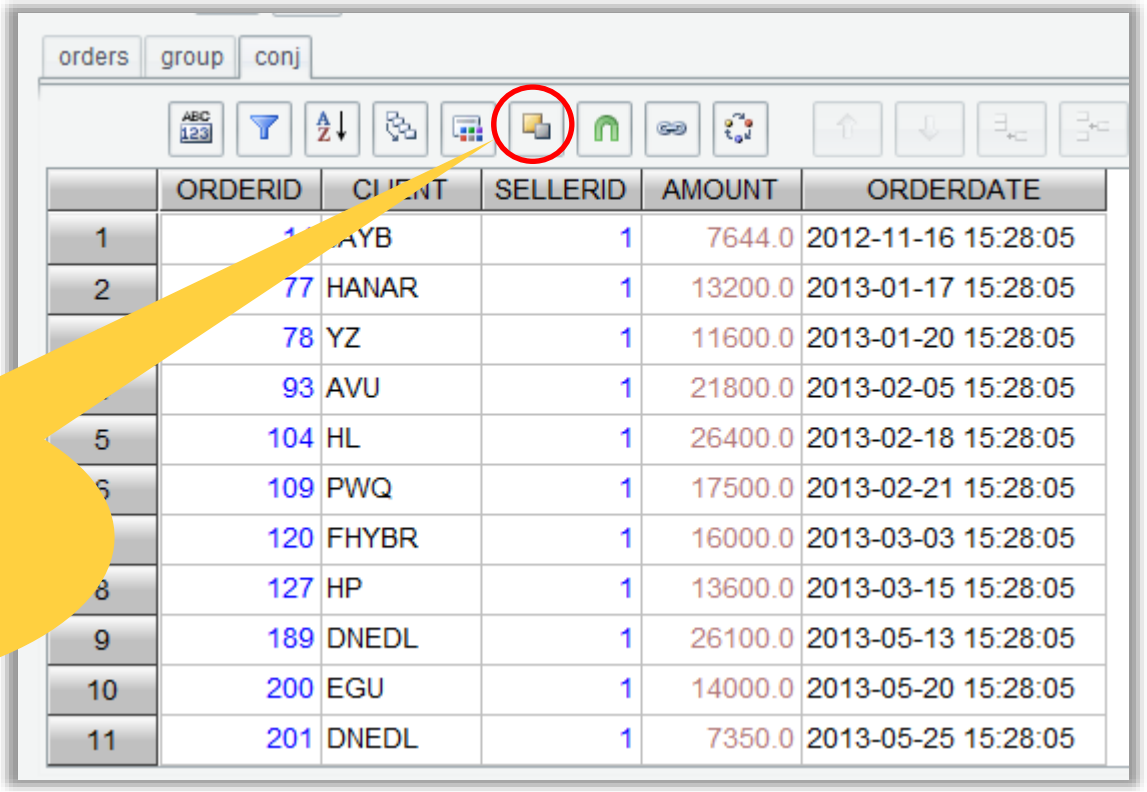
	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	14	JAYB	1	7644.0	2012-11-16 15:28:05
2	77	HANAR	1	13200.0	2013-01-17 15:28:05
3	78	YZ	1	11600.0	2013-01-20 15:28:05
4	93	AVU	1	21800.0	2013-02-05 15:28:05
5	104	HL	1	26400.0	2013-02-18 15:28:05
6	109	PWQ	1	17500.0	2013-02-21 15:28:05
7	120	FHYBR	1	16000.0	2013-03-03 15:28:05
8	127	HP	1	13600.0	2013-03-15 15:28:05
9	189	DNEDL	1	26100.0	2013-05-13 15:28:05
10	200	EGU	1	14000.0	2013-05-20 15:28:05
11	201	DNEDL	1	7350.0	2013-05-25 15:28:05

CONTENTS

2.6 Select fields

2.6 Select fields

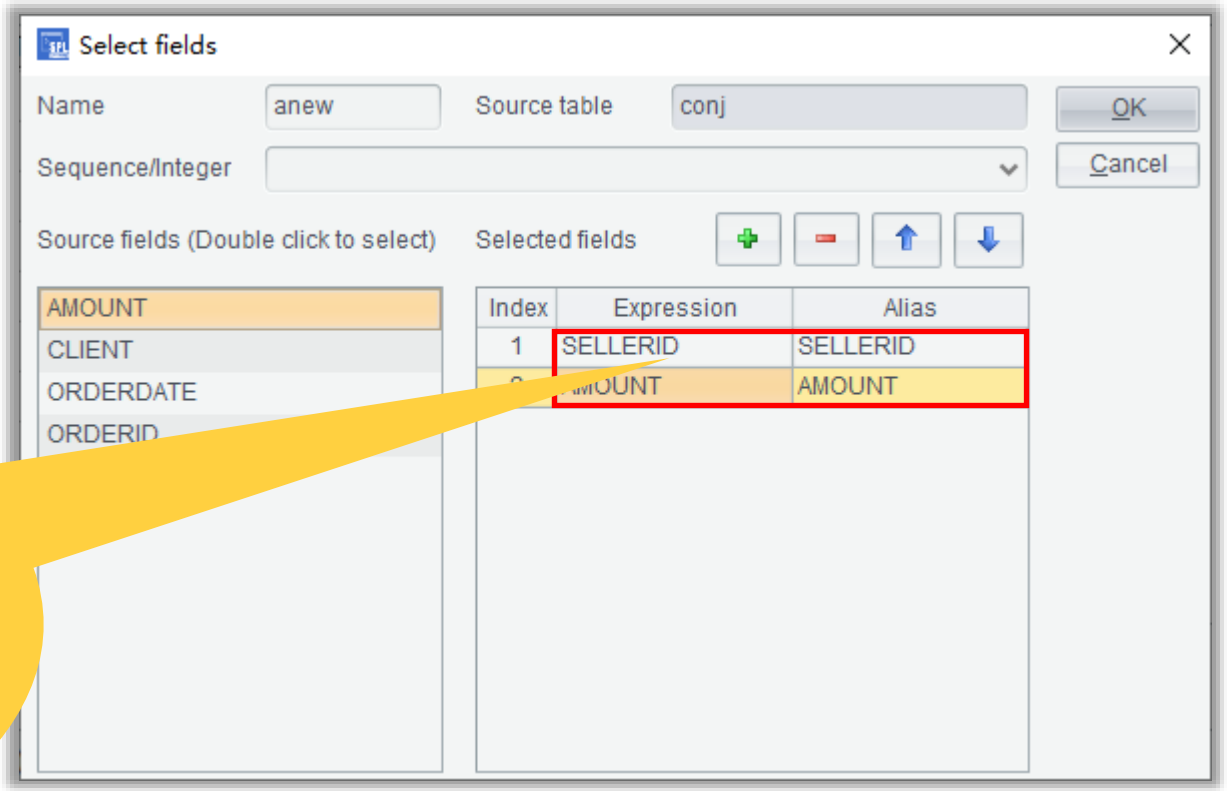
Select desired fields though “Select fields” option. For example, to select SELLERID and AMOUNT from data table conj:



	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	1	AYB	1	7644.0	2012-11-16 15:28:05
2	77	HANAR	1	13200.0	2013-01-17 15:28:05
	78	YZ	1	11600.0	2013-01-20 15:28:05
	93	AVU	1	21800.0	2013-02-05 15:28:05
5	104	HL	1	26400.0	2013-02-18 15:28:05
6	109	PWQ	1	17500.0	2013-02-21 15:28:05
	120	FHYBR	1	16000.0	2013-03-03 15:28:05
8	127	HP	1	13600.0	2013-03-15 15:28:05
9	189	DNEDL	1	26100.0	2013-05-13 15:28:05
10	200	EGU	1	14000.0	2013-05-20 15:28:05
11	201	DNEDL	1	7350.0	2013-05-25 15:28:05

2.6 Select fields

As the following shows, add expressions of fields to be selected:



Similar to adding computed columns, a to-be-selected field can be specified by an expression. Their difference is that the former is to add fields to the source table and “Select fields” is to generate a new table sequence through setting up expressions

2.6 Select fields

Execute field selection operation and get the following result:

orders | group | conj | anew

	SELLERID	AMOUNT
1	1	7644.0
2	1	13200.0
3	1	11600.0
4	1	21800.0
5	1	26400.0
6	1	17500.0
7	1	16000.0
8	1	13600.0
9	1	26100.0
10	1	14000.0
11	1	7350.0

CONTENTS

Transpose rows/ columns to /columns/rows

2.7 Transpose rows/columns to columns/rows

Generally, courses for students from different majors are dynamic and not suitable to be used as field names, but a report using courses as column headers is preferred. Below is opened student score table scores.2.7. txt :

scores

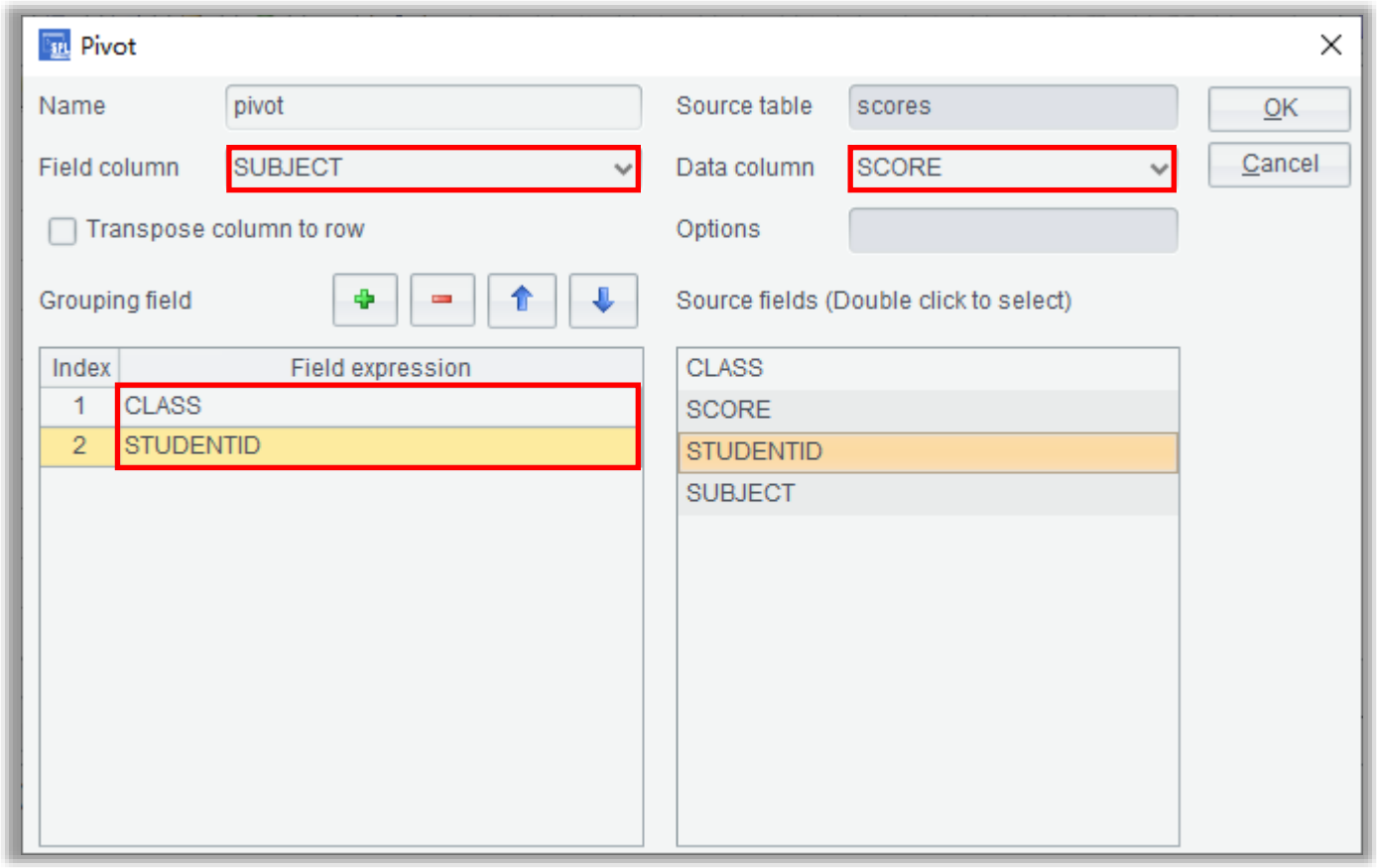
	CLASS	STUDENTID	SUBJECT	SCORE
1	Class one	1	English	84
2	Class one	1	Math	77
3	Class one	1	PE	69
4	Class one	2	English	81
5	Class one	2	Math	80
6	Class one	2	PE	97
7	Class one	3	English	75
8	Class one	3	Math	86
9	Class one	3	PE	67
10	Class one	4	English	96
11	Class one	4	Math	63

Click Transpose row to column icon

Note: A cursor type source table does not support this operation

2.7 Transpose rows/columns to columns/rows

Set up the following values on “Pivot” interface:



2.7 Transpose rows/columns to columns/rows

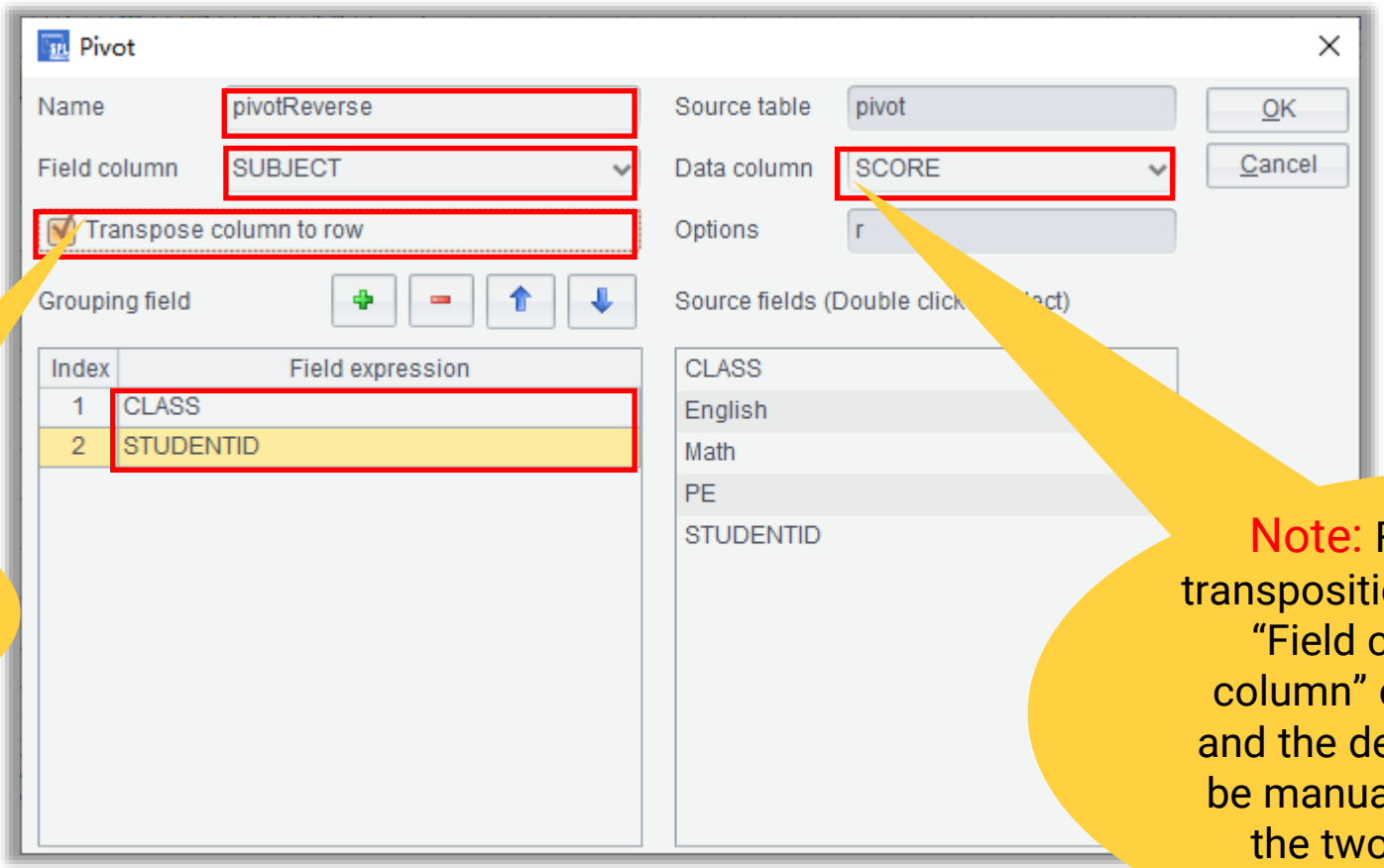
Transpose rows to columns and get the following result table:

scores | pivot

	CLASS	STUDENTID	English	Math	PE
1	Class one	1	84	77	69
2	Class one	2	81	80	97
3	Class one	3	75	86	67
4	Class one	4	96	63	81
5	Class one	5	72	60	91
6	Class one	6	90	69	72
7	Class one	7	75	90	60
8	Class one	8	67	86	51
9	Class one	9	93	73	83
10	Class one	10	52	97	84
11	Class one	11	78	63	79

2.7 Transpose rows/columns to columns/rows

We can also rotate the pivot table by setting up these values as follows:



Select “Transpose column to row”checkbox

Note: For column-to-row transposition, drop-down lists of “Field column” and “Data column” cannot be displayed and the desired values need to be manually typed in because the two names are to-be-generated columns

2.7 Transpose rows/columns to columns/rows

Transpose columns to rows and get the following result set:

scores | pivot | pivotReverse

	CLASS	STUDENTID	SUBJECT	SCORE
1	Class one	1	English	84
2	Class one	1	Math	77
3	Class one	1	PE	69
4	Class one	2	English	81
5	Class one	2	Math	80
6	Class one	2	PE	97
7	Class one	3	English	75
8	Class one	3	Math	86
9	Class one	3	PE	67
10	Class one	4	English	96
11	Class one	4	Math	63

CONTENTS

2.3 Data association

2.8 Data association

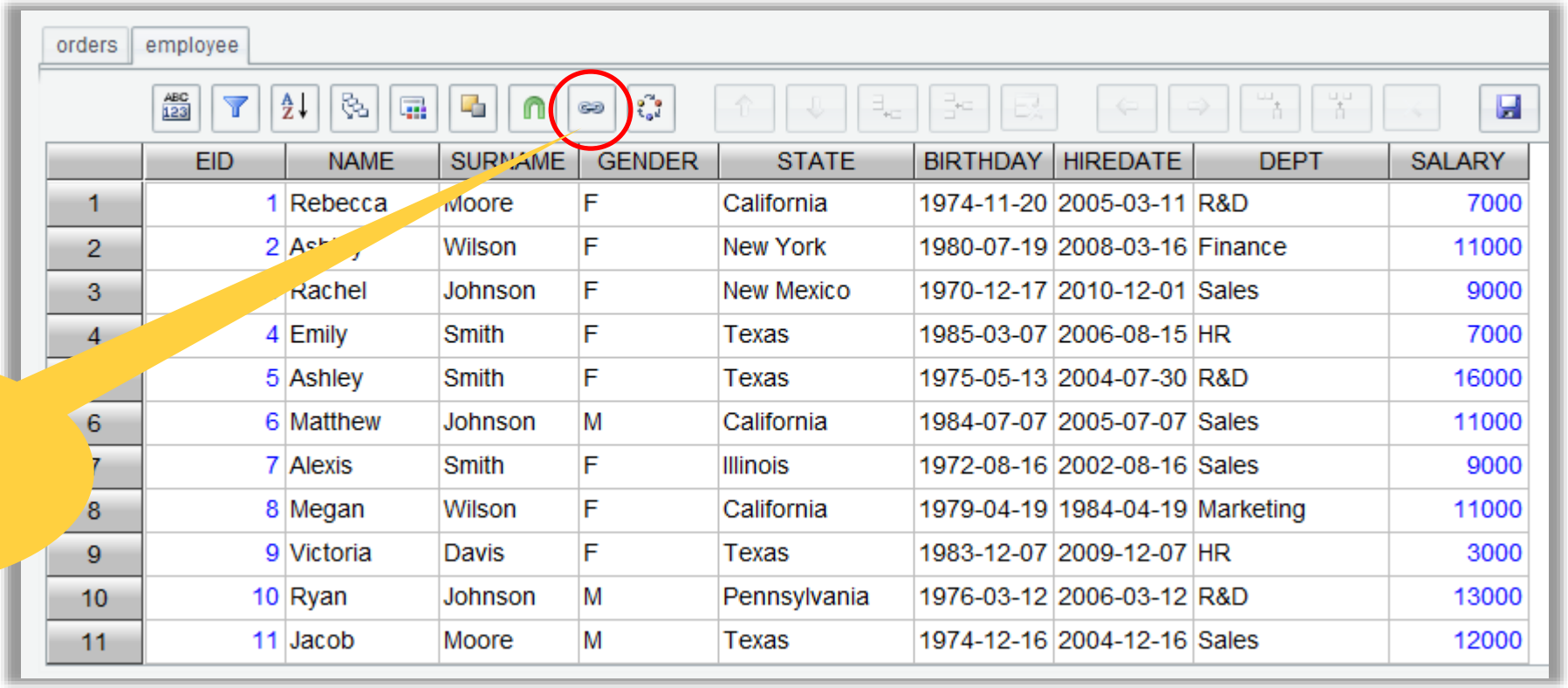
In the orders table in section 2.4, sellers are stored as IDs, which are inconvenient to view. Open data table orders.2.4.btx and its data is as follows:

orders

	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	1	UJRNP	17	392.0	2012-11-02 15:28:05
2	2	SJCH	6	4802.0	2012-11-09 15:28:05
3	3	UJRNP	16	13500.0	2012-11-05 15:28:05
4	4	PWQ	9	26100.0	2012-11-08 15:28:05
5	5	PWQ	11	4410.0	2012-11-12 15:28:05
6	6	HANAR	18	6174.0	2012-11-07 15:28:05
7	7	EGU	2	17800.0	2012-11-06 15:28:05
8	8	VILJX	7	2156.0	2012-11-09 15:28:05
9	9	JAYB	14	17400.0	2012-11-12 15:28:05
10	10	JAXE	19	19200.0	2012-11-12 15:28:05
11	11	SJCH	7	13700.0	2012-11-10 15:28:05

2.8 Data association

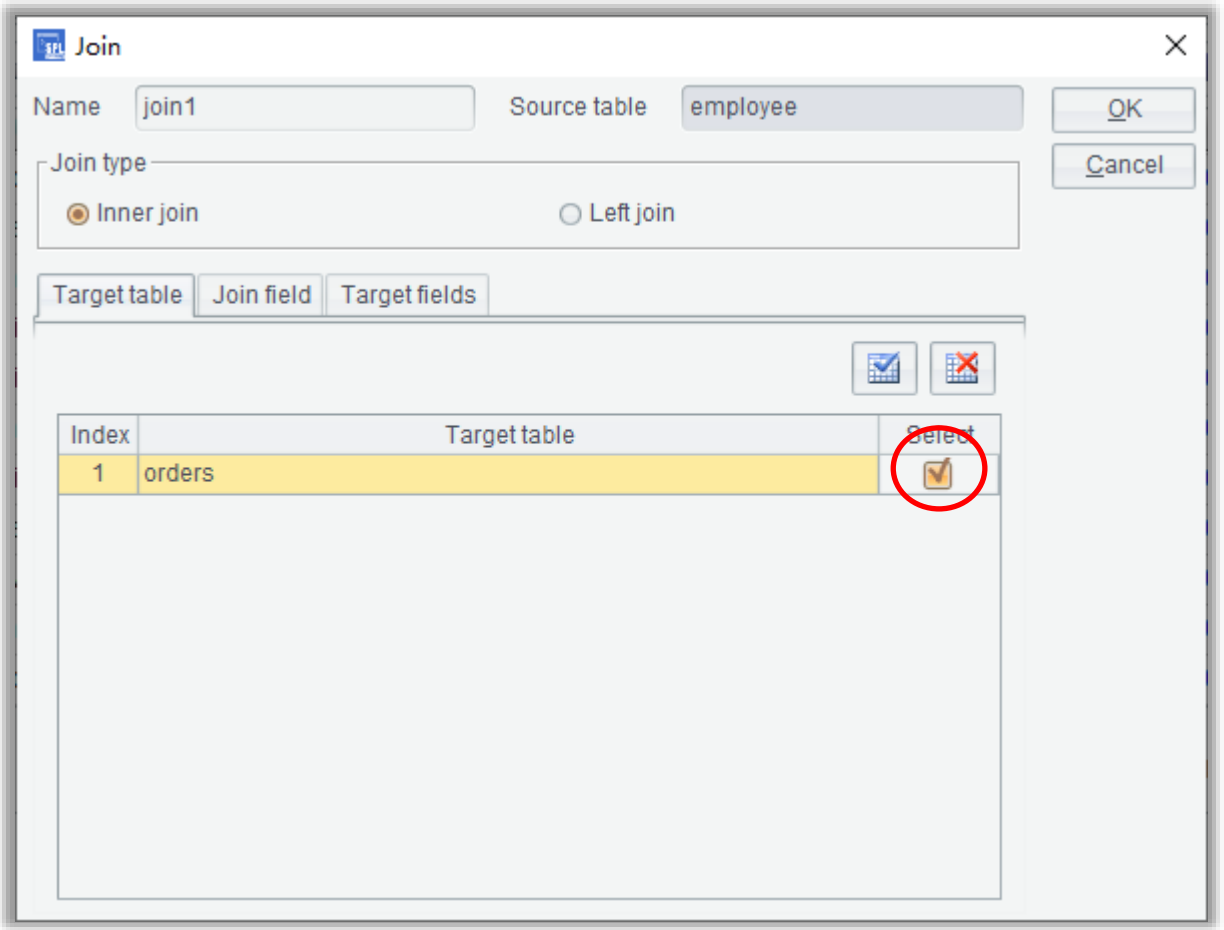
Then open employees table employee.2.8.xlsx, whose data is as follows:



	EID	NAME	SURNAME	GENDER	STATE	BIRTHDAY	HIREDATE	DEPT	SALARY
1	1	Rebecca	Moore	F	California	1974-11-20	2005-03-11	R&D	7000
2	2	[illegible]	Wilson	F	New York	1980-07-19	2008-03-16	Finance	11000
3		Rachel	Johnson	F	New Mexico	1970-12-17	2010-12-01	Sales	9000
4	4	Emily	Smith	F	Texas	1985-03-07	2006-08-15	HR	7000
5	5	Ashley	Smith	F	Texas	1975-05-13	2004-07-30	R&D	16000
6	6	Matthew	Johnson	M	California	1984-07-07	2005-07-07	Sales	11000
7	7	Alexis	Smith	F	Illinois	1972-08-16	2002-08-16	Sales	9000
8	8	Megan	Wilson	F	California	1979-04-19	1984-04-19	Marketing	11000
9	9	Victoria	Davis	F	Texas	1983-12-07	2009-12-07	HR	3000
10	10	Ryan	Johnson	M	Pennsylvania	1976-03-12	2006-03-12	R&D	13000
11	11	Jacob	Moore	M	Texas	1974-12-16	2004-12-16	Sales	12000

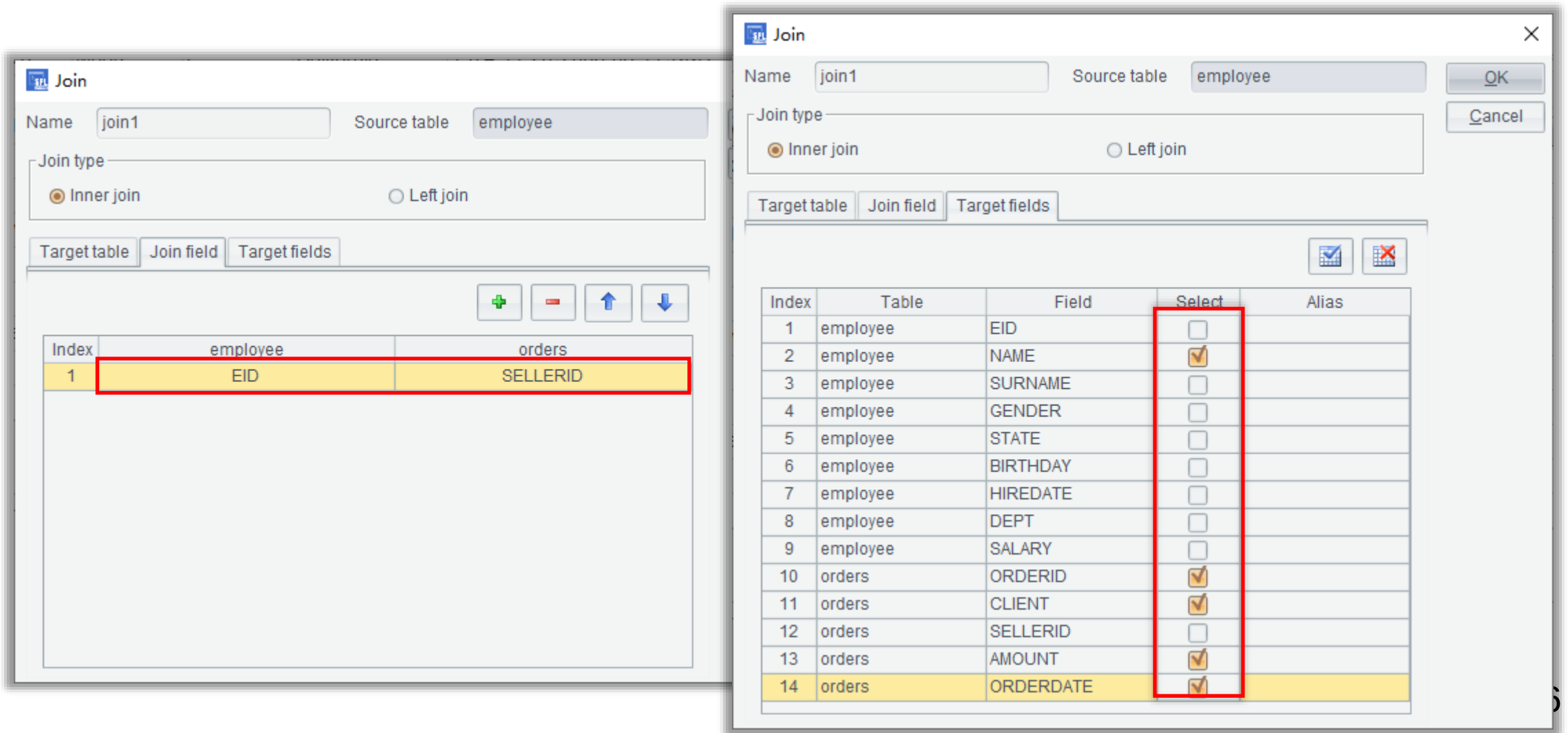
2.8 Data association

Select “orders” table under “Target table” panel:



2.8 Data association

And then set up join fields and select desired fields:



2.8 Data association

Perform data association and get the following result set:

orders | employee | join1

	NAME	ORDERID	CLIENT	AMOUNT	ORDERDATE
1	Rebecca	14	JAYB	7644.0	2012-11-16 15:28:05
2	Rebecca	78	YZ	11600.0	2013-01-20 15:28:05
3	Rebecca	104	HL	26400.0	2013-02-18 15:28:05
4	Rebecca	120	FHYBR	16000.0	2013-03-03 15:28:05
5	Rebecca	189	DNEDL	26100.0	2013-05-13 15:28:05
6	Rebecca	201	DNEDL	7350.0	2013-05-25 15:28:05
7	Rebecca	237	PWQ	23400.0	2013-06-24 15:28:05
8	Rebecca	278	FHYBR	23900.0	2013-08-12 15:28:05
9	Rebecca	288	UJRNP	4998.0	2013-08-22 15:28:05
10	Rebecca	380	JAYB	13000.0	2013-11-17 15:28:05
11	Rebecca	401	DILRT	20200.0	2013-12-08 15:28:05

It is sellers'names that are displayed

CONTENTS

2.2 Set operations

2.9 Set operations

cities.2.9.xlsx stores two sheets of city population data; they have some common records. We need to organize them to get all unique city population records. Here are the two sheets:

	A	B	C	D
1	CID	NAME	POPULATION	STATEID
2	101	Durham	209009	33
3	75	Buffalo	276059	32
4	54	El Paso	609415	43
5	97	Chula Vista	212756	5
6	5	Philadelphia	1492231	38
7	62	Raleigh	356321	33
8	32	Albuquerque	463874	31
9	30	Cleveland	467851	35
10	103	Modesto	205721	5
11	70	Riverside	293761	5
12	44	Colorado Springs	371182	6
13	4	Houston	2009834	43
14	40	Tulsa	391908	36
15	79	Fort Wayne	248637	14
16	45	St. Louis	338353	25
17	22	Denver	560415	6
18	66	Cincinnati	332252	35
19	86	Norfolk	238832	46

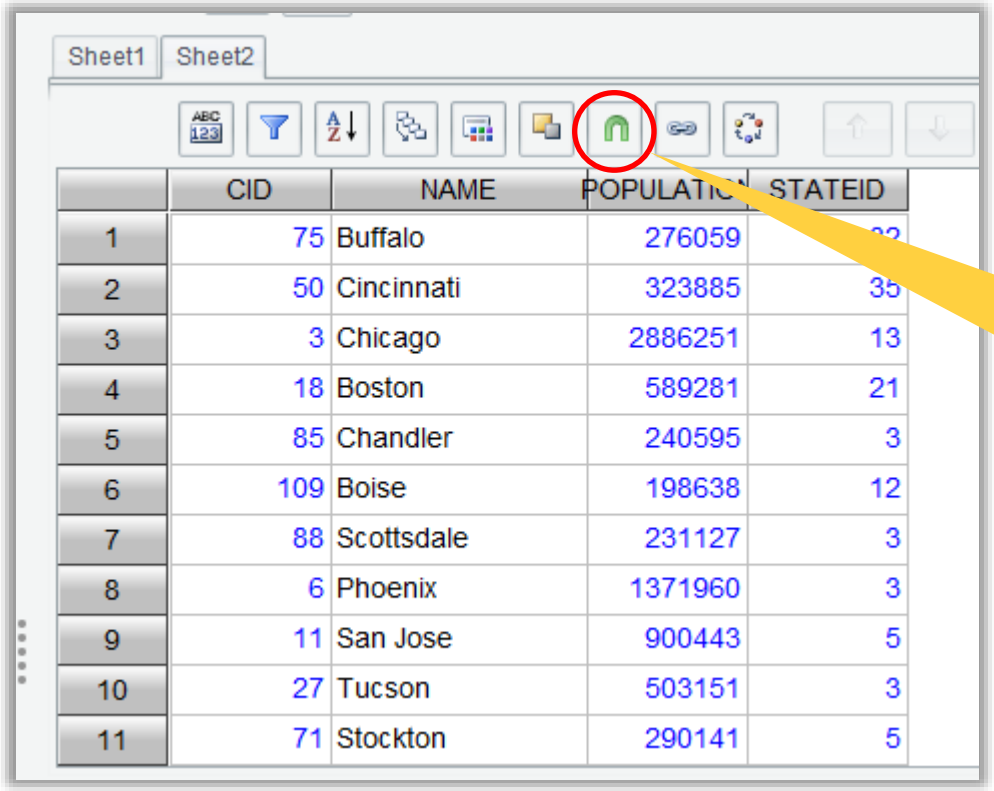
Sheet1 Sheet2

	A	B	C	D
1	CID	NAME	POPULATION	STATEID
2	75	Buffalo	276059	32
3	50	Cincinnati	323885	35
4	3	Chicago	2886251	13
5	18	Boston	589281	21
6	85	Chandler	240595	3
7	109	Boise	198638	12
8	88	Scottsdale	231127	3
9	6	Phoenix	1371960	3
10	11	San Jose	900443	5
11	27	Tucson	503151	3
12	71	Stockton	290141	5
13	44	Colorado Springs	371182	6
14	99	Reno	210255	28
15	66	Cincinnati	332252	35
16	81	Glendale	246531	3
17	73	Newark	281402	30
18	22	Denver	560415	6
19	79	Fort Wayne	248637	14

Sheet1 Sheet2

2.9 Set operations

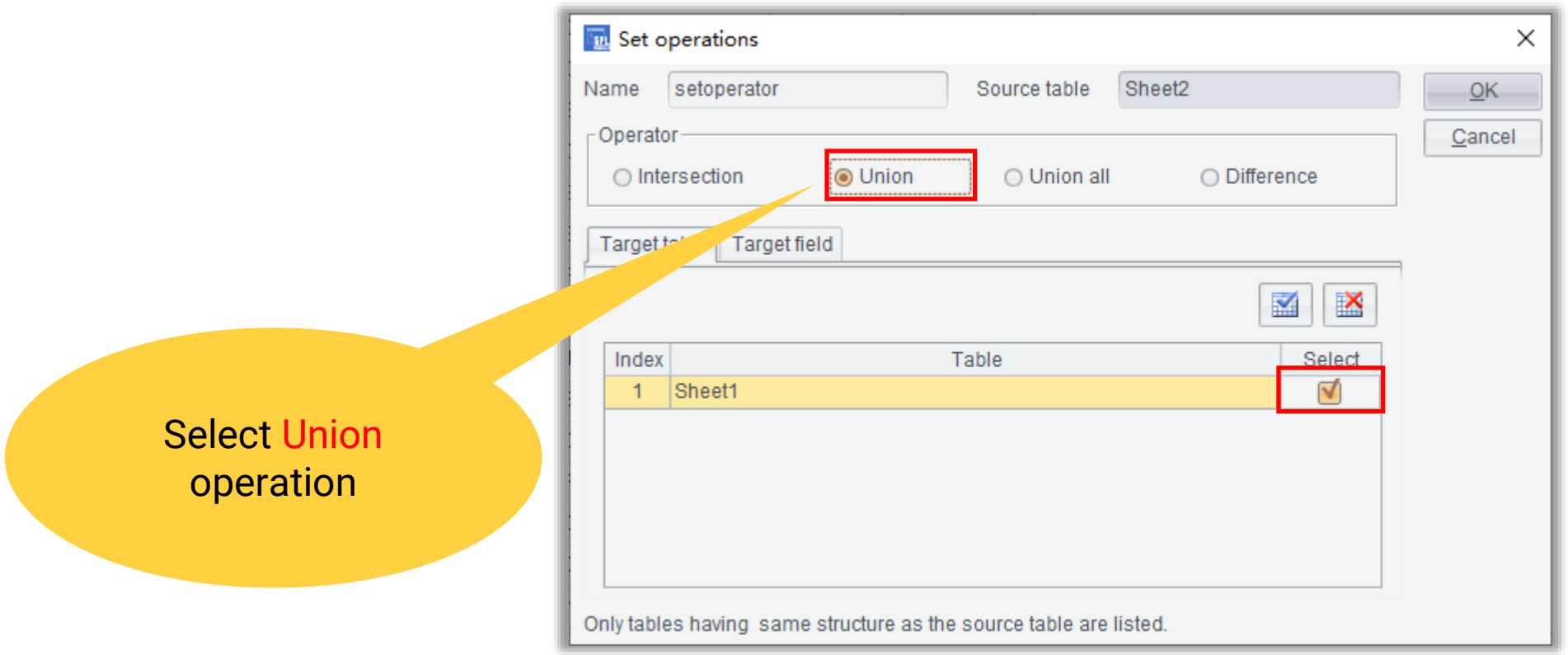
Open the two sheets through “Browse” button:



Click set operations icon

2.9 Set operations

Do the following configurations in “Set operations” edit interface:



2.9 Set operations

Perform union operation and get the following result set:

Sheet1 | Sheet2 | setoperator

	CID	NAME	POPULATION	STATEID
1	75	Buffalo	276059	32
2	50	Cincinnati	323885	35
3	3	Chicago	2886251	13
4	18	Boston	589281	21
5	85	Chandler	240595	3
6	109	Boise	198638	12
7	88	Scottsdale	231127	3
8	6	Phoenix	1371960	3
9	11	San Jose	900443	5
10	27	Tucson	503151	3
11	71	Stockton	290141	5

SPL WIN Course

Chapter 3

Comprehensive scenarios

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3.1 Aggregation on a computed column in a grouped table

3.1 Aggregation on a computed column in a grouped table

Below is a food sales table ordered by food types. We need to compute the sales amount of each food item, the total sales amount of each type of food, and that of all foods. Below is the table (food.3.1.xlsx):

	A	B	C	D	E
1	Commodity	Type	UnitPrice	Unit	Quantity
2	Milk	Drink	3.99	GAL	50
3	Coke	Drink	0.9	L	300
4	Juice	Drink	0.5	L	120
5	Apple	Fruit	0.99	LB	150.5
6	Avocado	Fruit	1.49	EA	77
7	Pineapple	Fruit	1.49	LB	30.99
8	Peach	Fruit	0.88	LB	118.99
9	Orange	Fruit	0.49	LB	277.25
10	Pork Spareribs	Meat	1.99	LB	58.45
11	Drum stick	Meat	0.99	LB	35.88
12	Fresh Salmon	Seafood	7.99	LB	25.66
13	Razor Clam	Seafood	3.99	LB	33.89
14	Shrimp	Seafood	15.99	LB	20.75
15	Scallop	Seafood	4.99	LB	66.5
16	Spinach	Vegetable	0.89	LB	123.35
17	Lettuce	Vegetable	0.79	LB	133
18					

3.1 Aggregation on a computed column in a grouped table

Open the data table, add a computed column, and compute sales amount of each food:

food

	Commodity	Type	UnitPrice	Unit
1	Milk	Drink	3.99	GAL
2	Coke	Drink	0.9	L
3	Juice	Drink	0.5	L
4	Apple	Fruit	0.99	LB
5	Avocado	Fruit	1.49	EA
6	Pineapple	Fruit	1.49	LB
7	Peach	Fruit	0.88	LB
8	Orange	Fruit	0.49	LB
9	Pork Spareribs	Meat	1.99	LB
10	Drum stick	Meat	0.99	LB
11	Fresh Salmon	Seafood	7.99	LB
12	Razor Clam	Seafood	3.99	LB

Here is a long expression, you can directly copy it during learning

Computed column

Name: food

Options

Computed column

Source f... Double click to sel...

Index	Expression	Alias
1	UnitPrice*Quantity	Amount

OK

Cancel

Comm...

Quan...

Type

Uni...

UnitPrice

Expression: UnitPrice*Quantity

Parallel computation

3.1 Aggregation on a computed column in a grouped table

Compute sales amount of each food and get a result set as follows:

food

	Commodity	Type	UnitPrice	Unit	Quantity	Amount
1	Milk	Drink	3.99	GAL	50	199.5
2	Coke	Drink	0.9	L	300	270.0
3	Juice	Drink	0.5	L	120	60.0
4	Apple	Fruit	0.99	LB	150.5	148.995
5	Avocado	Fruit	1.49	EA	77	114.73
6	Pineapple	Fruit	1.49	LB	30.99	46.1751
7	Peach	Fruit	0.88	LB	118.99	104.711199999
8	Orange	Fruit	0.49	LB	277.25	135.8525
9	Pork Spareribs	Meat	1.99	LB	58.45	116.3155
10	Drum stick	Meat	0.99	LB	35.88	35.5212
11	Fresh Salmon	Seafood	7.99	LB	25.66	205.0234
12	Razor Clam	Seafood	3.99	LB	33.89	135.2211

3.1 Aggregation on a computed column in a grouped table

Group rows by commodity type (Type field) and compute total sales amount of each type of food:

food

	Commodity	Type	UnitPrice	Unit	Qu
1	Milk	Drink	3.99	GAL	
2	Coke	Drink	0.9	L	
3	Juice	Drink	0.5	L	
4	Apple	Fruit	0.99	LB	
5	Avocado	Fruit	1.49	EA	
6	Pineapple	Fruit	1.49	LB	
7	Peach	Fruit	0.88	LB	
8	Orange	Fruit	0.49	LB	
9	Pork Spareribs	Meat	1.99	LB	
10	Drum stick	Meat	0.99	LB	
11	Fresh Salmon	Seafood	7.99	LB	
12	Razor Clam	Seafood	3.99	LB	

Group

Name: groupType

Source table: food

OK

Cancel

Options

Aggregates: sum

Source fields (Double click to select)

Amount
Commodity
Quantity
Type
Unit
UnitPrice

Grouping field | Aggregates

Index	Field expression
1	Type

Keep the original order

Return the first row of each group

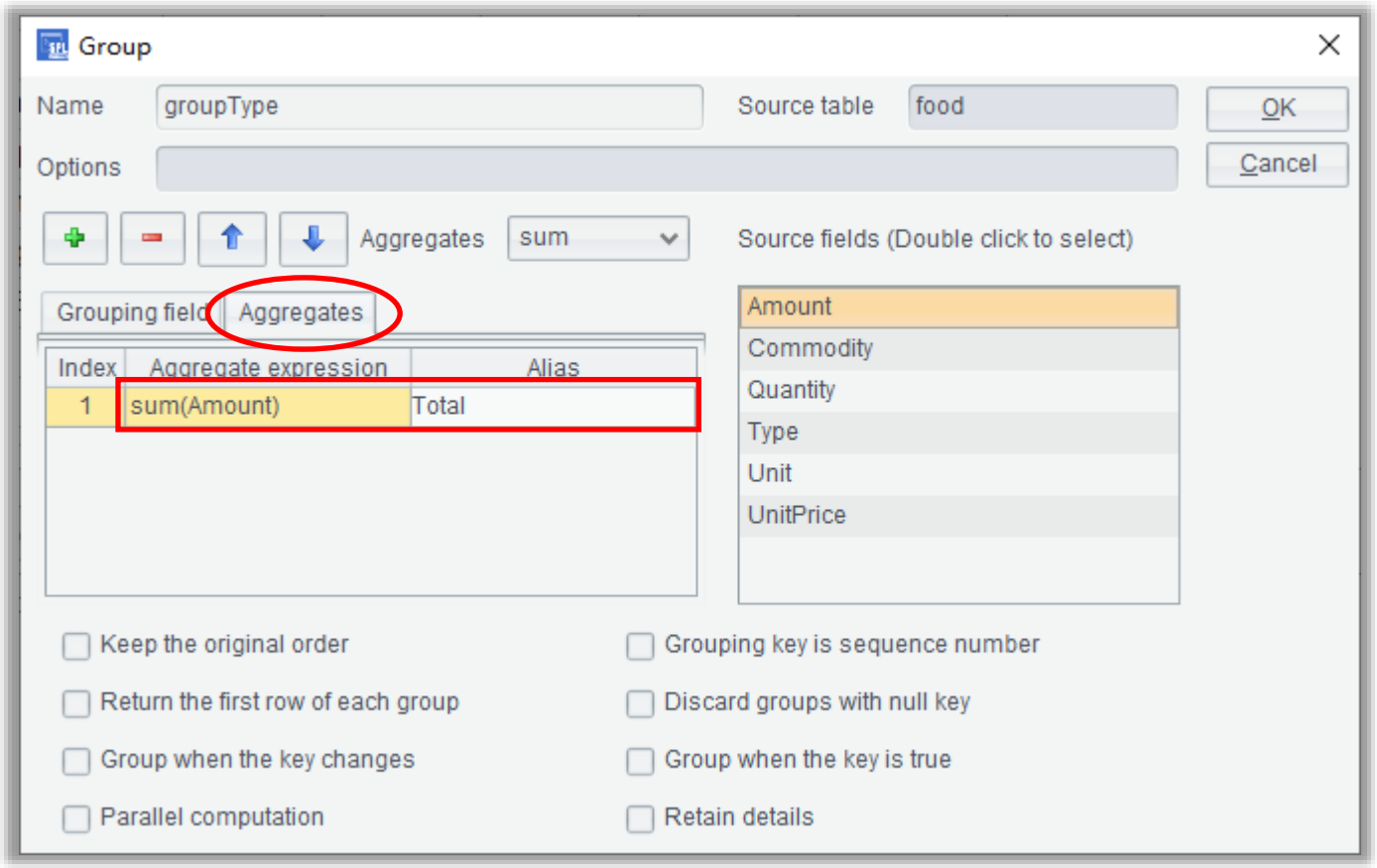
Group when the key changes

Parallel computation

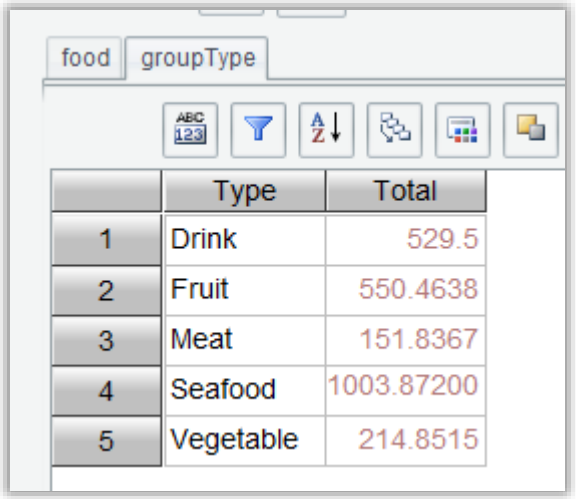
Group by Type field

3.1 Aggregation on a computed column in a grouped table

Set the aggregate expression:

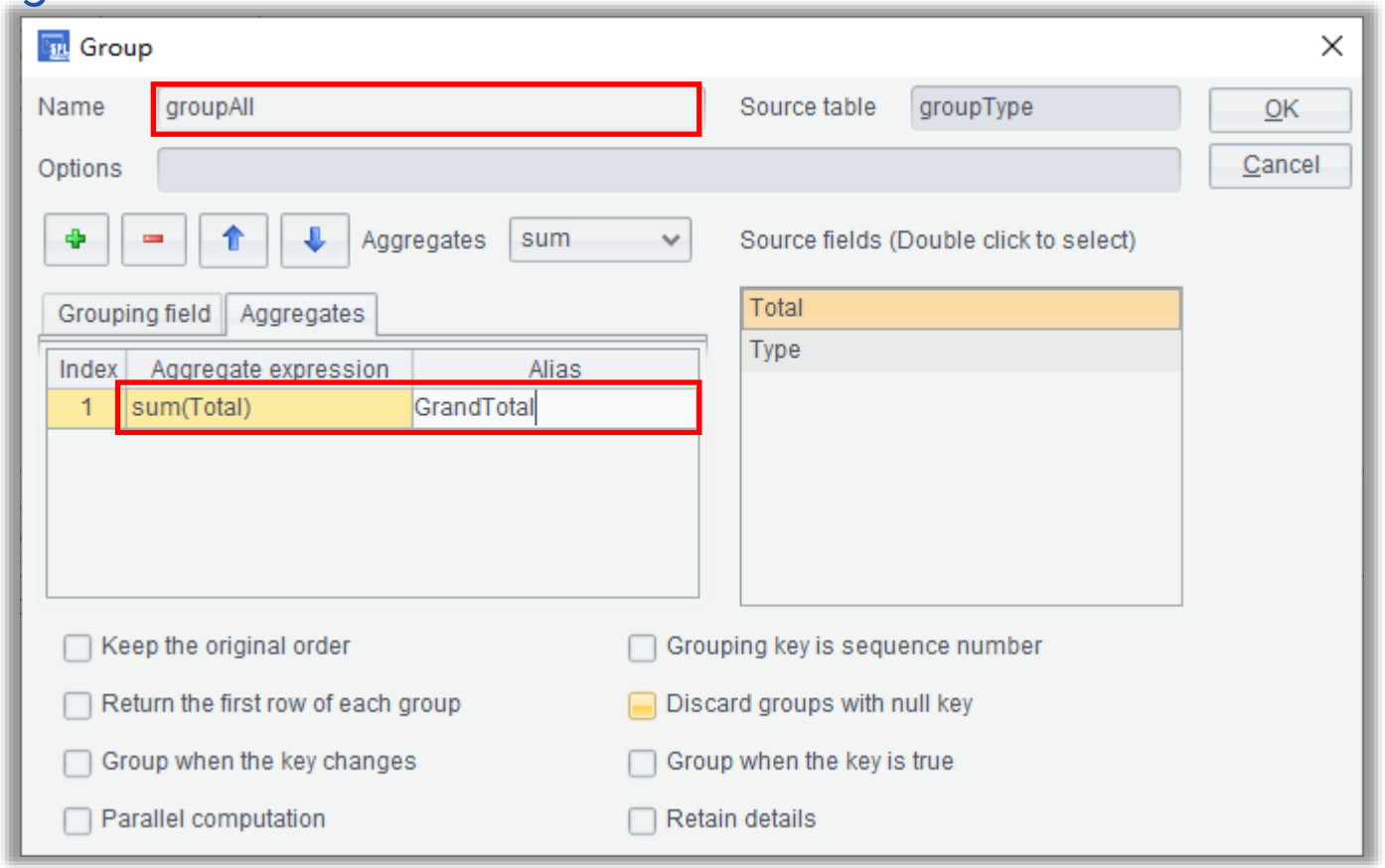


Total sales amounts of each type of foods:

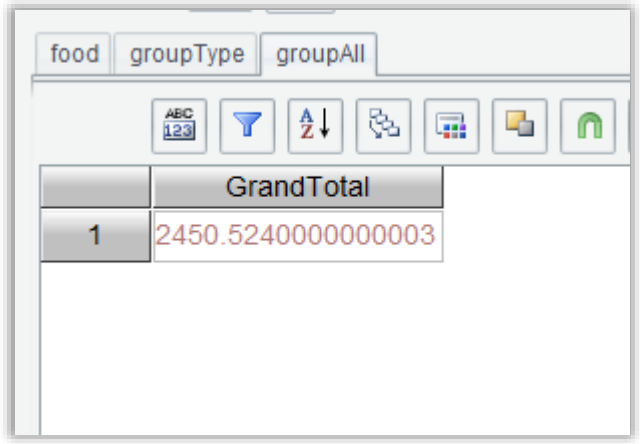


3.1 Aggregation on a computed column in a grouped table

Group the GroupType table without the need of setting up grouping field, and compute the grand total:



The total sales amount of all foods:



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3.2.1 Intragroup sorting on a grouped table

3.2 Intragroup sorting on a grouped table

Based on transaction records of stock 600038 in June, 2023, compute the growth rate of each date's closing price, and group rows by week and sort them by closing price in descending order for the convenience of viewing. Open table 600038.3.2.xlsx and its data is as follows:

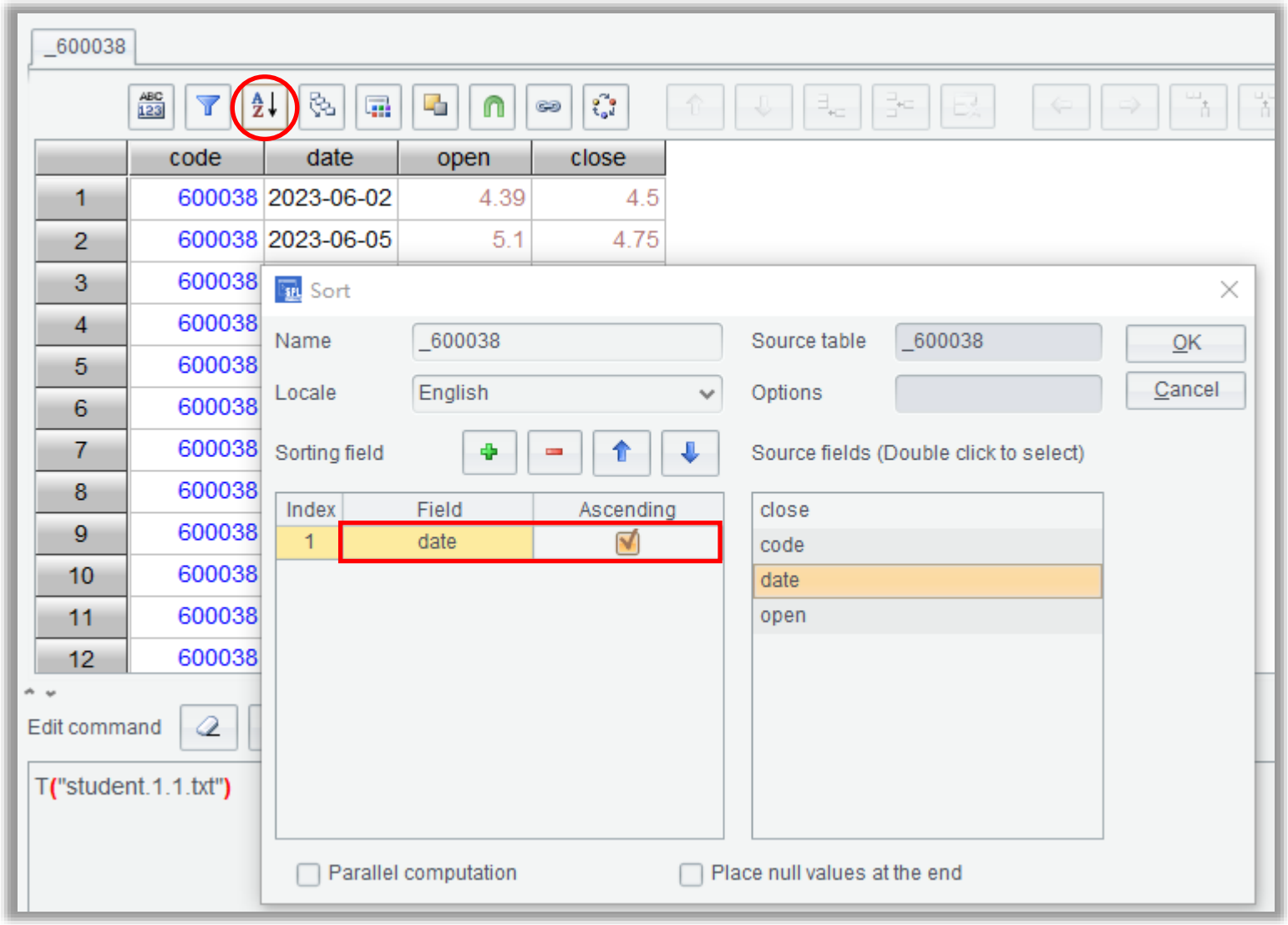
If a file name is a number, a prefix will by default added to form a legal identifier

_600038

	code	date	open	close
1	600038	2023-06-02	4.39	4.5
2	600038	2023-06-05	5.1	4.75
3	600038	2023-06-06	4.91	4.63
4	600038	2023-06-07	4.28	4.25
5	600038	2023-06-08	4.51	4.39
6	600038	2023-06-09	4.43	4.81
7	600038	2023-06-12	4.63	4.92
8	600038	2023-06-13	4.69	4.49
9	600038	2023-06-14	4.53	4.84
10	600038	2023-06-15	5.61	5.2
11	600038	2023-06-16	5.22	5.35
12	600038	2023-06-19	5.5	5.25

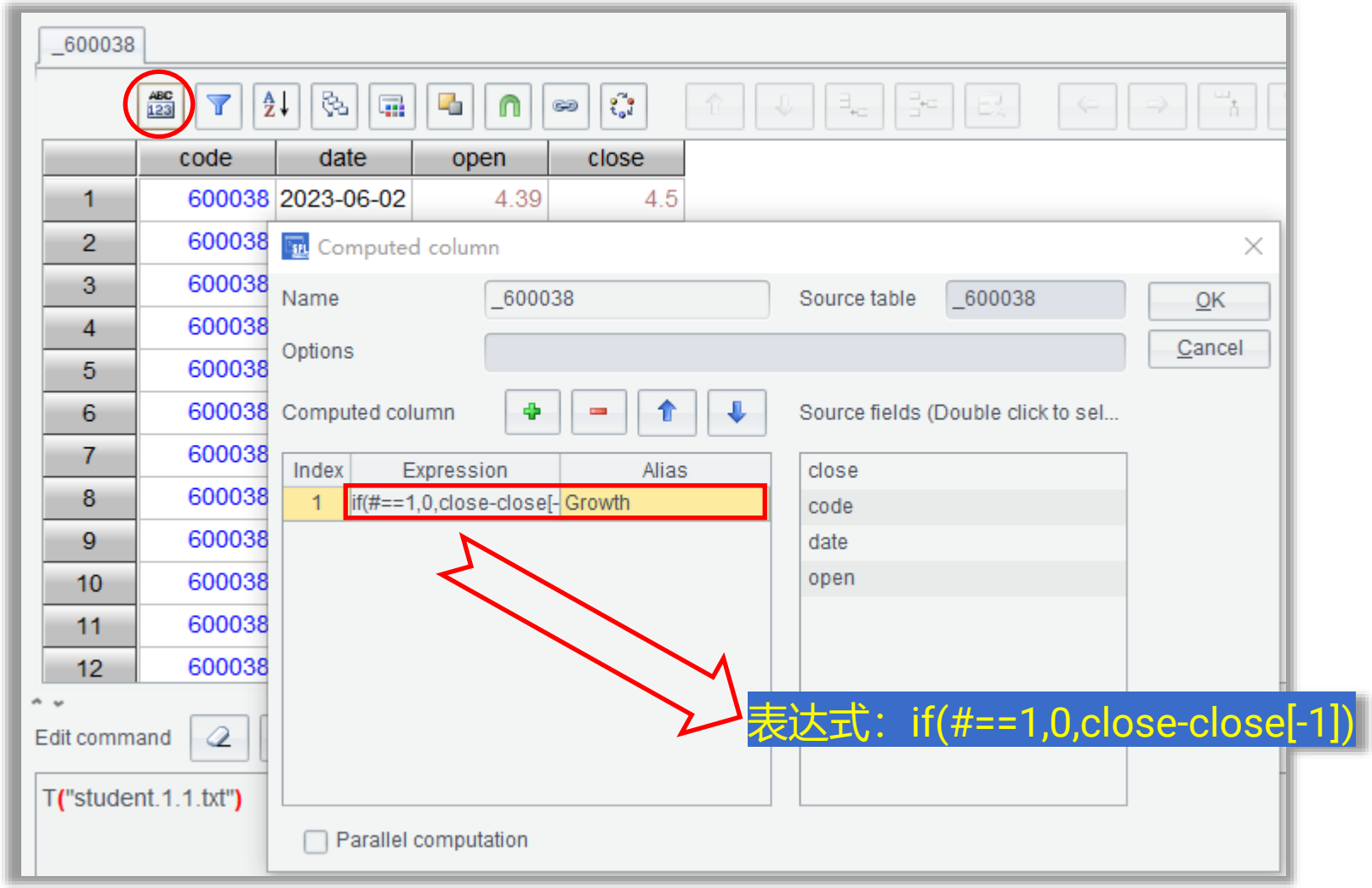
3.2 Intragroup sorting on a grouped table

Sort rows by transaction date:



3.2 Intragroup sorting on a grouped table

Then set up a computed column to add to the table and compute growth rate of each closing price:



3.2 Intragroup sorting on a grouped table

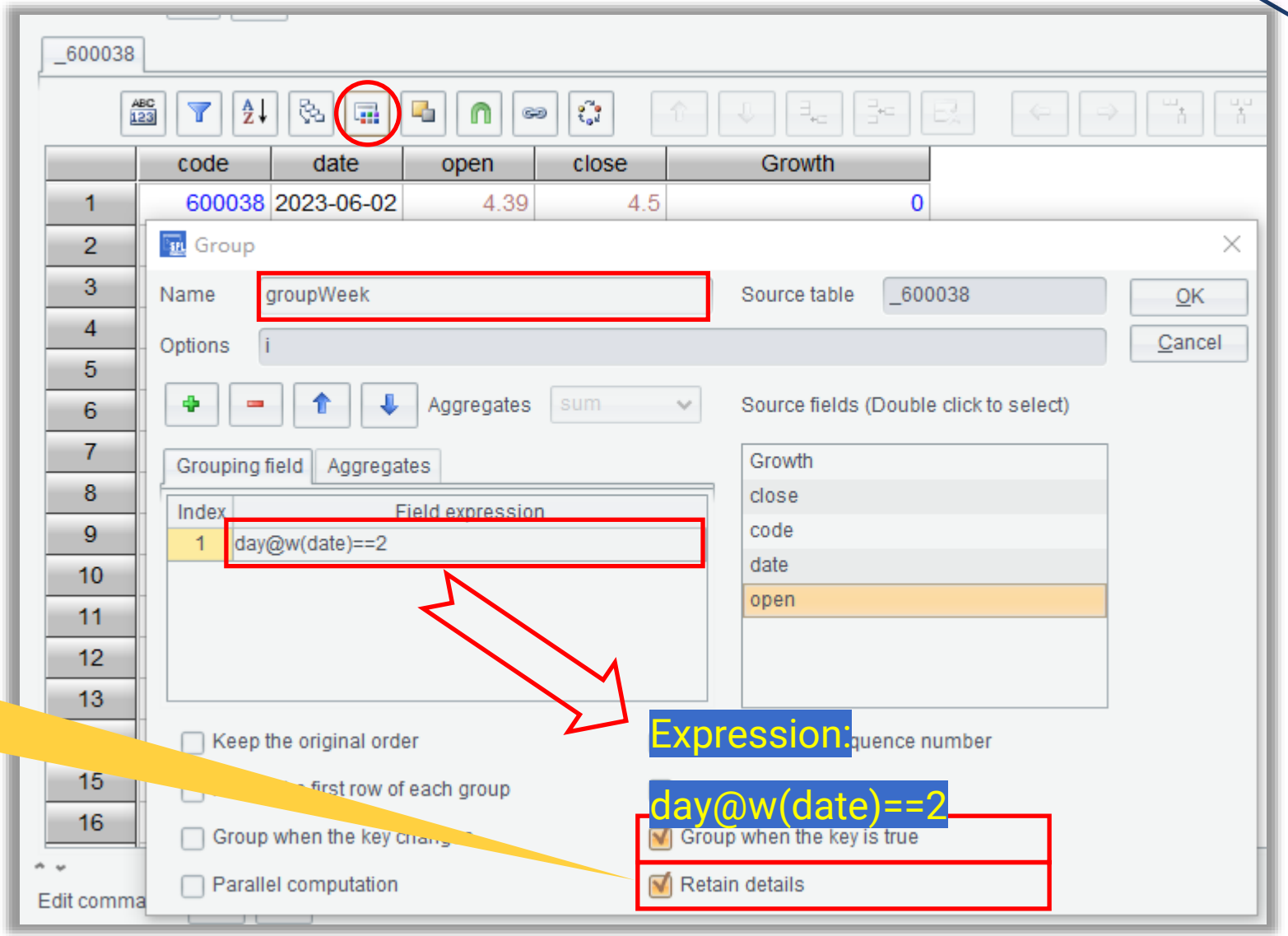
And get the following result set:

_600038

	code	date	open	close	Growth
1	600038	2023-06-02	4.39	4.5	0
2	600038	2023-06-05	5.1	4.75	0.25
3	600038	2023-06-06	4.91	4.63	-0.1200000000000001
4	600038	2023-06-07	4.28	4.25	-0.3799999999999999
5	600038	2023-06-08	4.51	4.39	0.13999999999999968
6	600038	2023-06-09	4.43	4.81	0.41999999999999993
7	600038	2023-06-12	4.63	4.92	0.11000000000000032
8	600038	2023-06-13	4.69	4.49	-0.4299999999999997
9	600038	2023-06-14	4.53	4.84	0.34999999999999964
10	600038	2023-06-15	5.61	5.2	0.3600000000000003
11	600038	2023-06-16	5.22	5.35	0.14999999999999947
12	600038	2023-06-19	5.5	5.25	-0.09999999999999964

3.2 Intragroup sorting on a grouped table

Group transaction records by week:



Select the two options

3.2 Intragroup sorting on a grouped table

Below is result set of grouping records by week:

_600038 | groupWeek

	v_date_date_	Details
1	false	[[600038,2023-06-02,4.39, ...]]
2	true	[[600038,2023-06-05,5.1,
3	true	[[600038,2023-06-12,4.63,
4	true	[[600038,2023-06-19,5.5,
5	true	[[600038,2023-06-26,4.8,

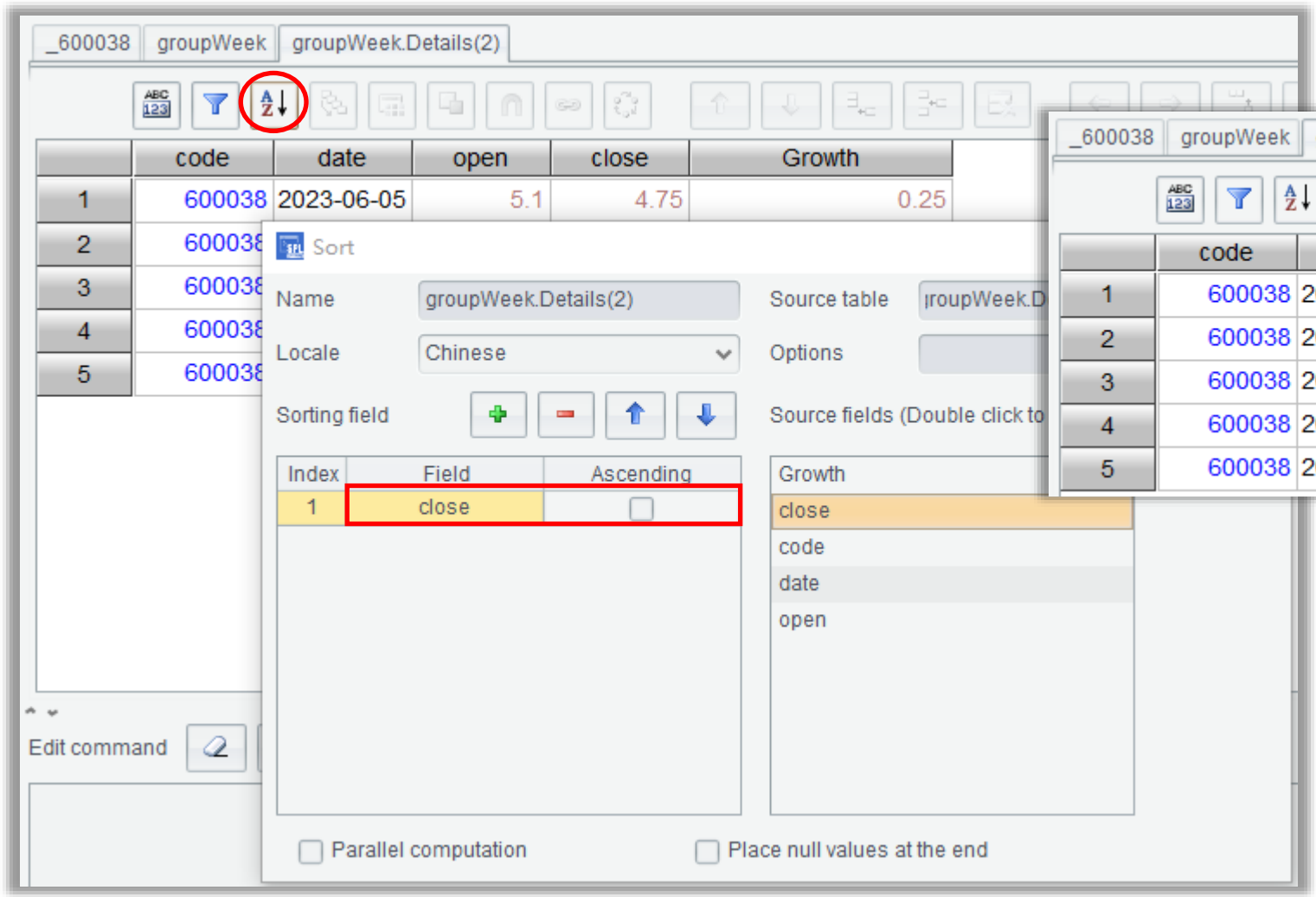
Open the details table of the 2nd row and sort it:

_600038 | groupWeek | groupWeek.Details(2)

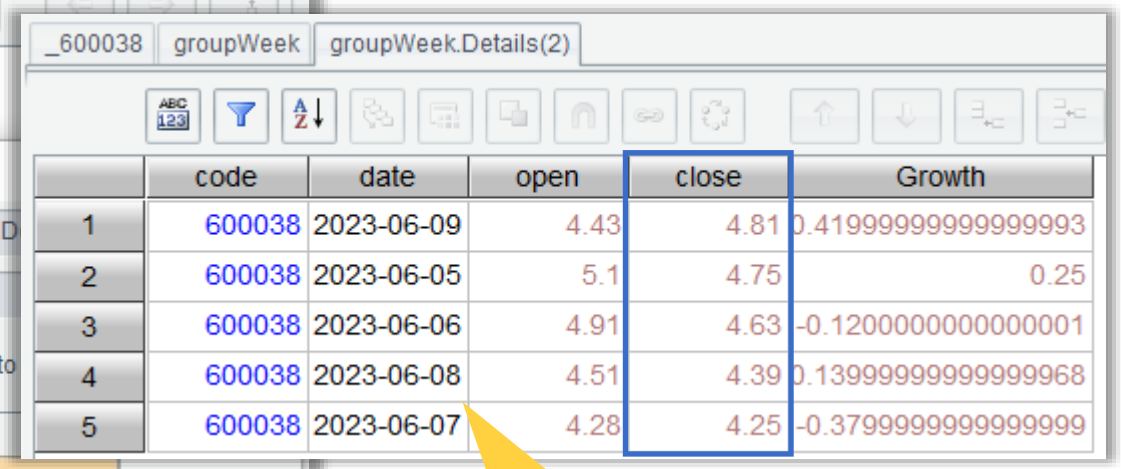
	code	date	open	close	Growth
1	600038	2023-06-05	5.1	4.75	0.25
2	600038	2023-06-06	4.91	4.63	-0.1200000000000001
3	600038	2023-06-07	4.28	4.25	-0.3799999999999999
4	600038	2023-06-08	4.51	4.39	0.13999999999999968
5	600038	2023-06-09	4.43	4.81	0.41999999999999993

3.2 Intragroup sorting on a grouped table

Sort records by closing price field close:



The sorting result set:

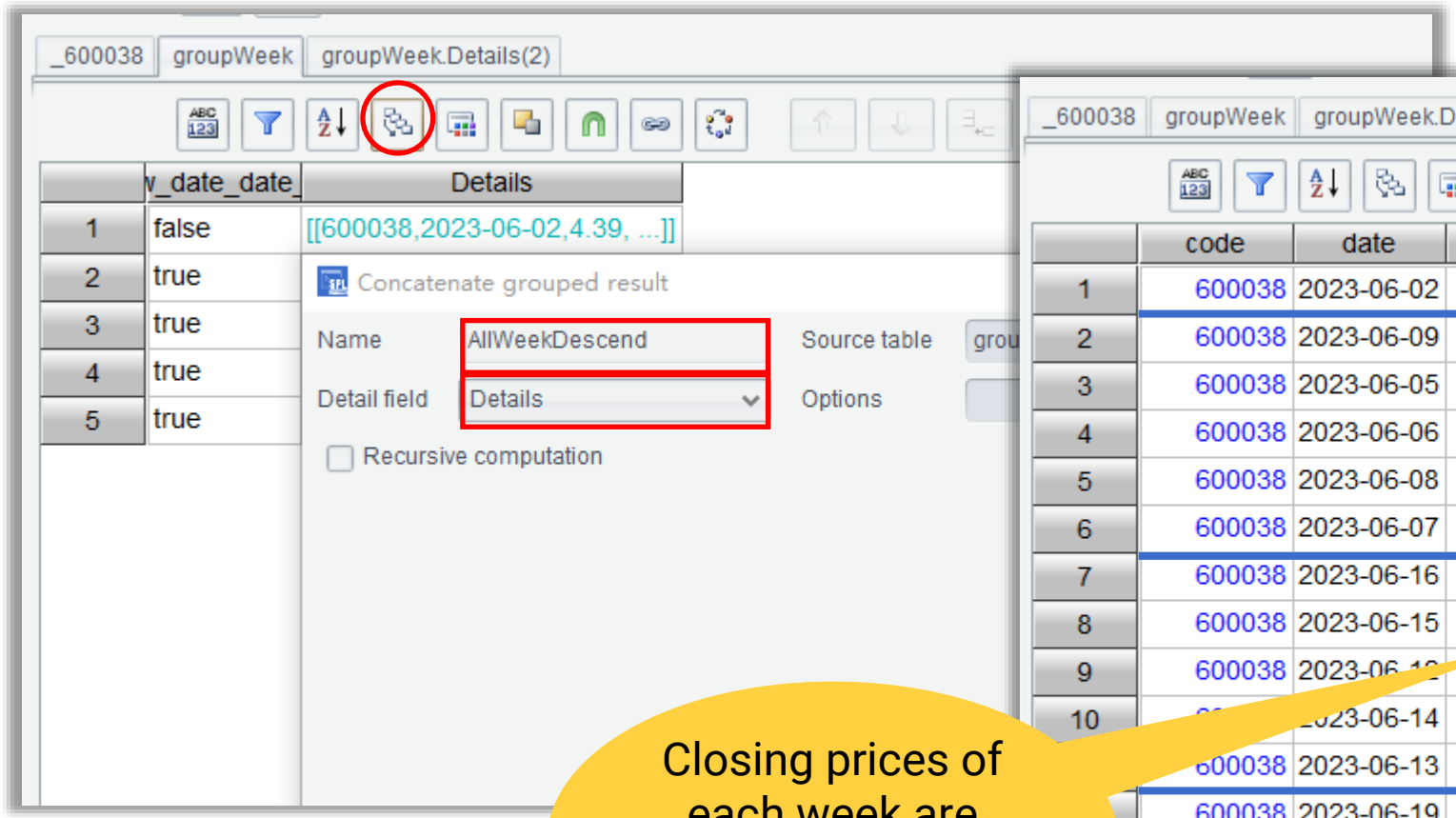


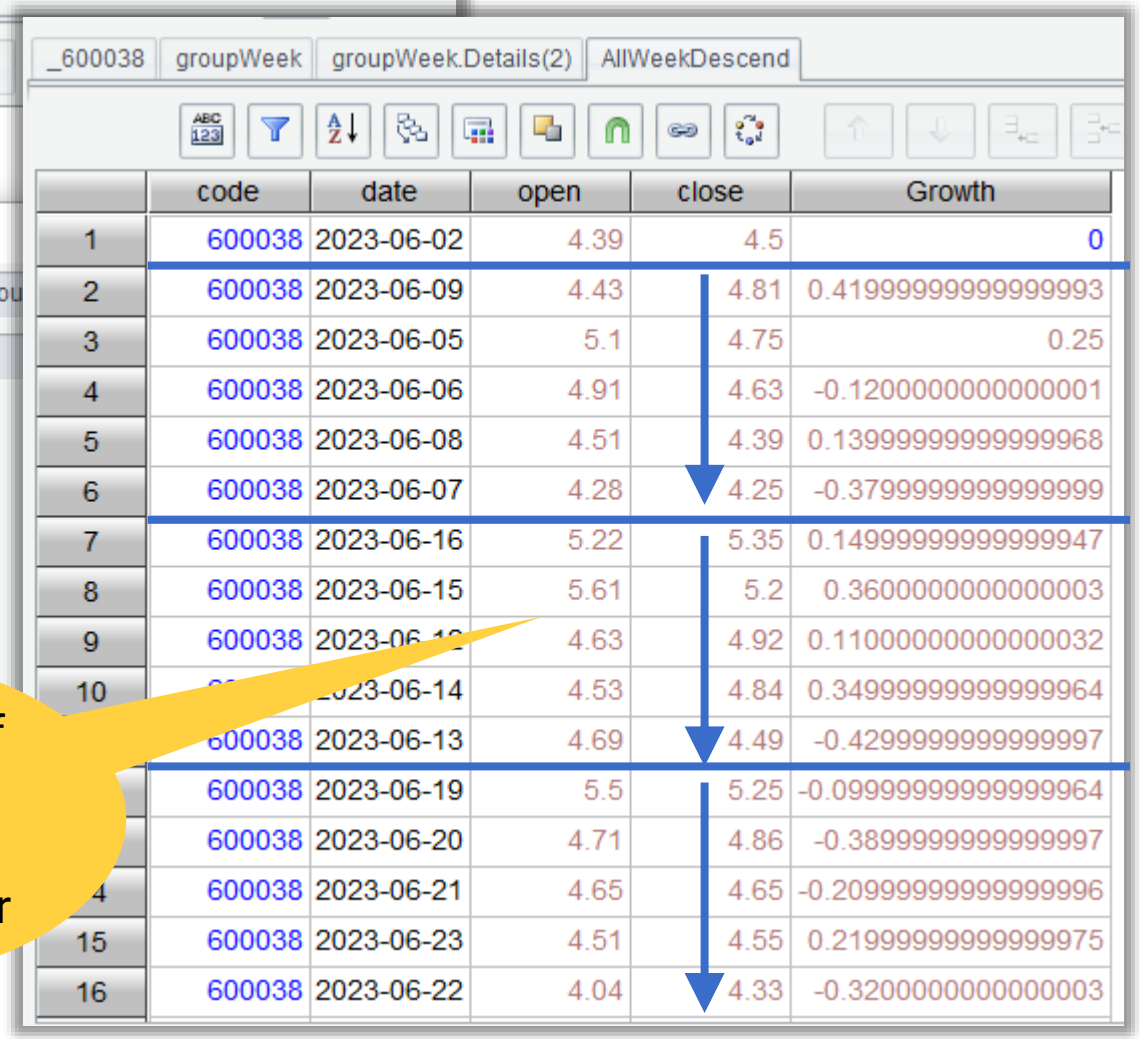
Tips: Computations on one details table via the toolbar icons are also valid on all the other details table

3.2 Intragroup sorting on a grouped table

Concatenate all details records in GroupWeek table as a table sequence:

Below is the result set:





	code	date	open	close	Growth
1	600038	2023-06-02	4.39	4.5	0
2	600038	2023-06-09	4.43	4.81	0.41999999999999993
3	600038	2023-06-05	5.1	4.75	0.25
4	600038	2023-06-06	4.91	4.63	-0.1200000000000001
5	600038	2023-06-08	4.51	4.39	0.13999999999999968
6	600038	2023-06-07	4.28	4.25	-0.3799999999999999
7	600038	2023-06-16	5.22	5.35	0.14999999999999947
8	600038	2023-06-15	5.61	5.2	0.3600000000000003
9	600038	2023-06-12	4.63	4.92	0.11000000000000032
10		2023-06-14	4.53	4.84	0.34999999999999964
	600038	2023-06-13	4.69	4.49	-0.4299999999999997
	600038	2023-06-19	5.5	5.25	-0.09999999999999964
	600038	2023-06-20	4.71	4.86	-0.3899999999999997
4	600038	2023-06-21	4.65	4.65	-0.20999999999999996
15	600038	2023-06-23	4.51	4.55	0.21999999999999975
16	600038	2023-06-22	4.04	4.33	-0.3200000000000003

Closing prices of each week are sorted in descending order

CONTENTS

Intragroup filtering on a grouped table

3.3 Intragroup filtering on a grouped table

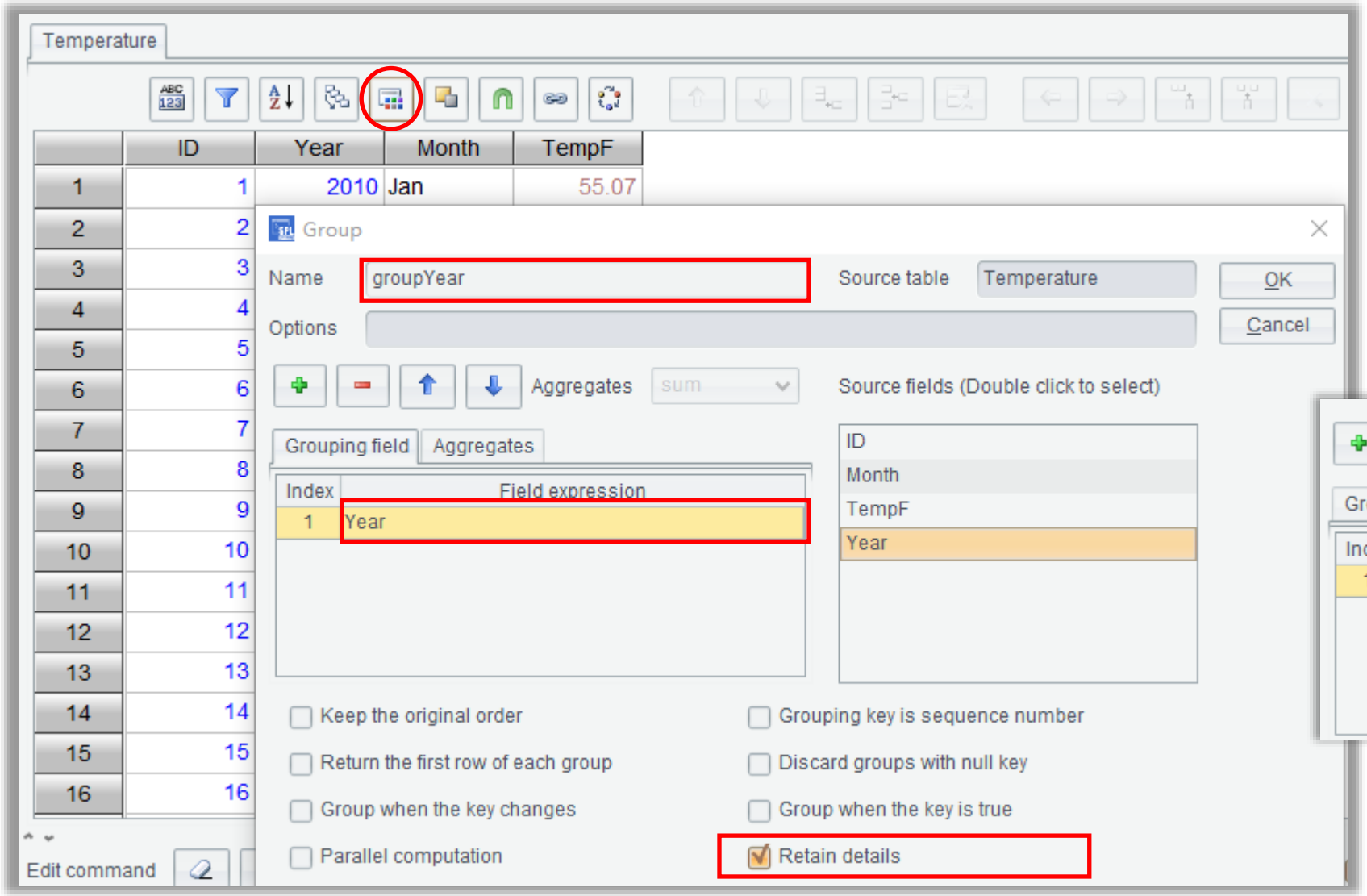
Below is table Temperature.3.3.xlsx that stores records of a region's average temperature in each month. The task is to group rows by year and select each year's months whose average temperatures are greater than the year's average.

Temperature

	ID	Year	Month	TempF
1	1	2010	Jan	55.07
2	2	2010	Feb	53.88
3	3	2010	Mar	62.89
4	4	2010	Apr	67.86
5	5	2010	May	72.81
6	6	2010	Jun	81.53
7	7	2010	Jul	84.44
8	8	2010	Aug	82.29
9	9	2010	Sep	81.97
10	10	2010	Oct	68.94
11	11	2010	Nov	61.26
12	12	2010	Dec	53.49
13	13	2011	Jan	50.72
14	14	2011	Feb	54.67
15	15	2011	Mar	61.88

3.3 Intragroup filtering on a grouped table

Group rows by Year and retain detailed data:



Set average temperature aggregate value:

3.3 Intragroup filtering on a grouped table

Result set of grouping operation:

Temperature | groupYear

	Year	avgTempF	Details
1	2010	68.8691666666666	[[1,2010,Jan, ...],[2,2010,Feb,
2	2011	68.1125	[[13,2011,Jan,
3	2012	68.90416666666665	[[25,2012,Jan,
4	2013	68.86416666666666	[[37,2013,Jan,
5	2014	68.2825	[[49,2014,Jan,
6	2015	67.88416666666667	[[61,2015,Jan,

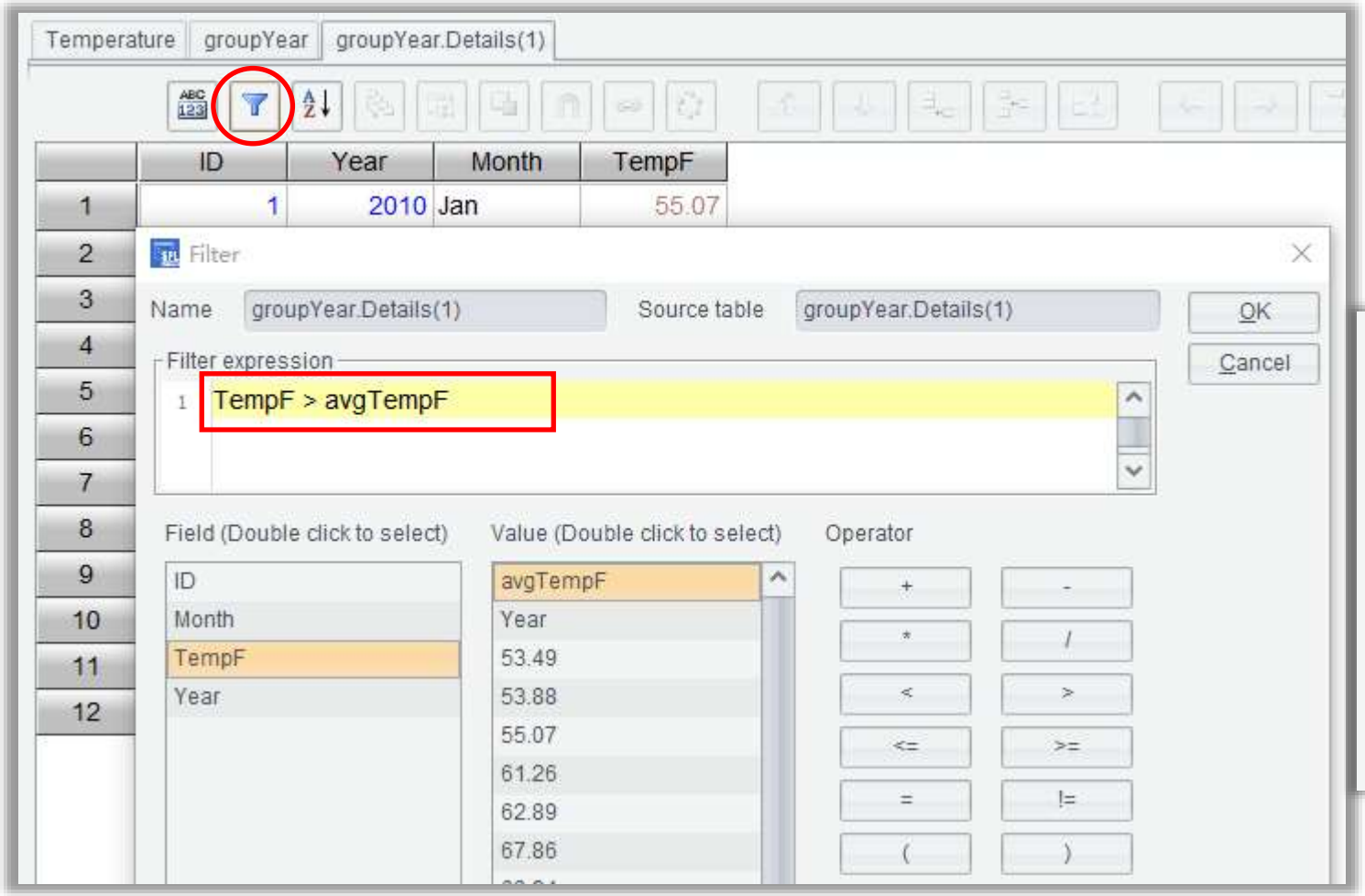
Open details table of the year 2010:

Temperature | groupYear | groupYear.Details(1)

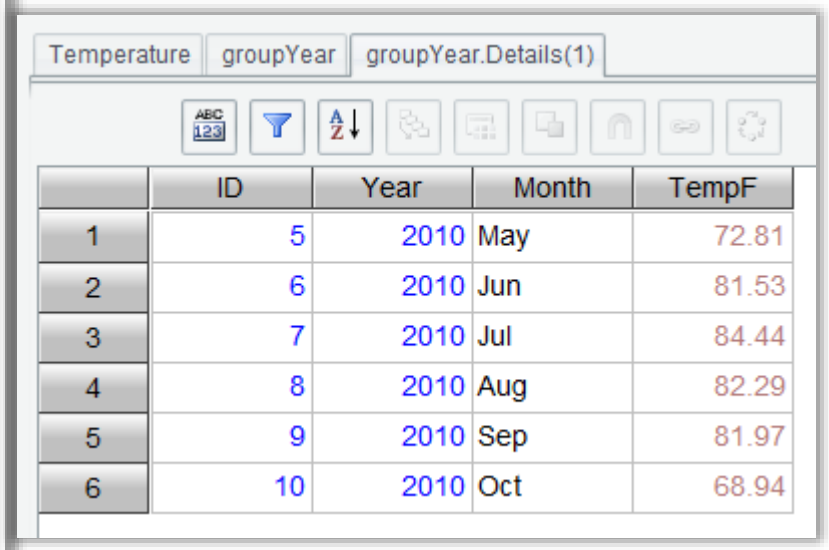
	ID	Year	Month	TempF
1	1	2010	Jan	55.07
2	2	2010	Feb	53.88
3	3	2010	Mar	62.89
4	4	2010	Apr	67.86
5	5	2010	May	72.81
6	6	2010	Jun	81.53
7	7	2010	Jul	84.44
8	8	2010	Aug	82.29
9	9	2010	Sep	81.97
10	10	2010	Oct	68.94
11	11	2010	Nov	61.26
12	12	2010	Dec	53.49

3.3 Intragroup filtering on a grouped table

Set the filtering condition:



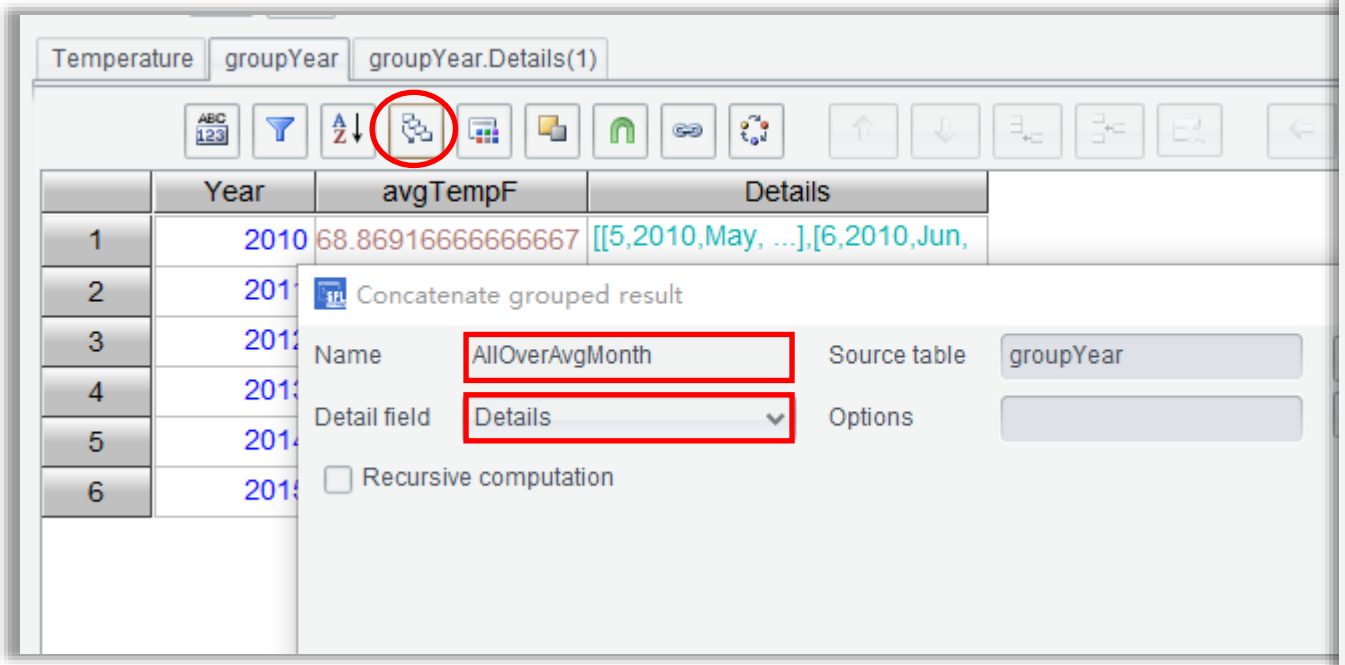
Result set of filtering a details table:



	ID	Year	Month	TempF
1	5	2010	May	72.81
2	6	2010	Jun	81.53
3	7	2010	Jul	84.44
4	8	2010	Aug	82.29
5	9	2010	Sep	81.97
6	10	2010	Oct	68.94

3.3 Intragroup filtering on a grouped table

Concatenate all detailed records in groupYear table:



The final filtering result set:

Temperature | groupYear | groupYear.Details(1) | AllOverAvgMonth

	ID	Year	Month	TempF
1	5	2010	May	72.81
2	6	2010	Jun	81.53
3	7	2010	Jul	84.44
4	8	2010	Aug	82.29
5	9	2010	Sep	81.97
6	10	2010	Oct	68.94
7	17	2011	May	71.71
8	18	2011	Jun	79.33
9	19	2011	Jul	85.37
10	20	2011	Aug	84.57
11	21	2011	Sep	76.79
12	22	2011	Oct	73.17
13	29	2012	May	72.25
14	30	2012	Jun	78.84
15	31	2012	Jul	78.21

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3.4 Retain the first row of each group

3.4 Retain the first row of each group

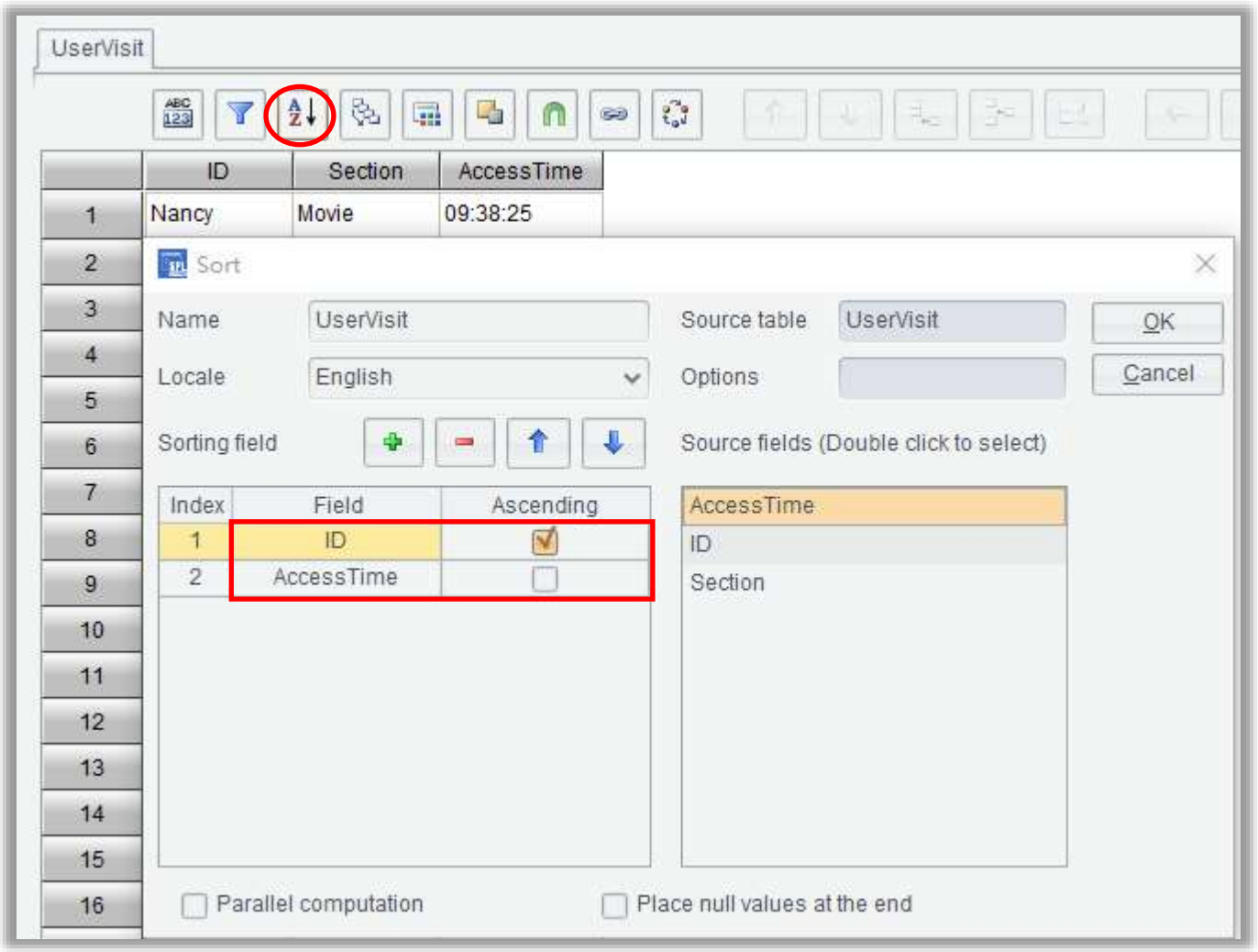
Below are records of users' accesses to a website sections. We need to find record of each user's last access to the website. Open UserVisit.3.4.xlsx as follows:

UserVisit

	ID	Section	AccessTime
1	Nancy	Movie	09:38:25
2	Judy	Movie	10:59:27
3	Margaret	Movie	10:59:50
4	Paul	Movie	12:03:32
5	Nancy	Movie	12:23:00
6	Paul	Movie	17:58:59
7	Margaret	Movie	18:35:40
8	Nancy	Music	12:02:33
9	Judy	Music	12:02:34
10	Margaret	Music	12:55:55
11	Margaret	Music	13:30:00
12	Judy	Music	13:44:28
13	Nancy	Music	14:55:08
14	Nancy	Music	16:00:55
15	Paul	Admin	07:23:55

3.4 Retain the first row of each group

Sort UserVisit:



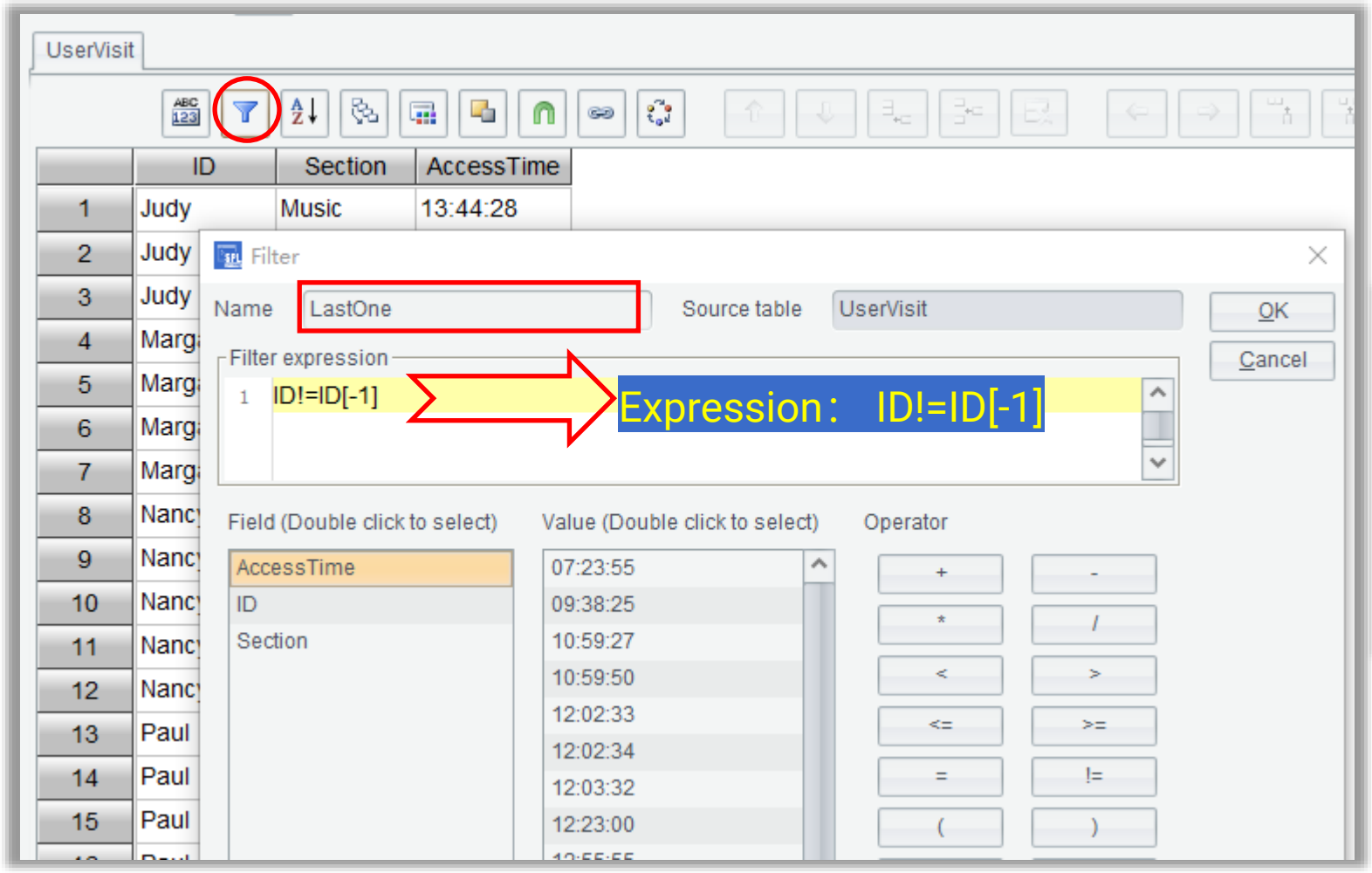
And get the following result:

UserVisit

	ID	Section	AccessTime
1	Judy	Music	13:44:28
2	Judy	Music	12:02:34
3	Judy	Movie	10:59:27
4	Margaret	Movie	18:35:40
5	Margaret	Music	13:30:00
6	Margaret	Music	12:55:55
7	Margaret	Movie	10:59:50
8	Nancy	Music	16:00:55
9	Nancy	Music	14:55:08
10	Nancy	Movie	12:23:00
11	Nancy	Music	12:02:33
12	Nancy	Movie	09:38:25
13	Paul	Admin	18:00:35
14	Paul	Movie	17:58:59
15	Paul	Admin	13:00:06

3.4 Retain the first row of each group

Perform the following filtering on UserVisit:



	ID	Section	AccessTime
1	Judy	Music	13:44:28
2	Judy		
3	Judy		
4	Marg		
5	Marg		
6	Marg		
7	Marg		
8	Nanc		
9	Nanc		
10	Nanc		
11	Nanc		
12	Nanc		
13	Paul		
14	Paul		
15	Paul		

And get the last access record:

UserVisit | LastOne

	ID	Section	AccessTime
1	Judy	Music	13:44:28
2	Margaret	Movie	18:35:40
3	Nancy	Music	16:00:55
4	Paul	Admin	18:00:35

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3.5 Grouping & aggregation after filtering

3.5 Grouping & aggregation after filtering

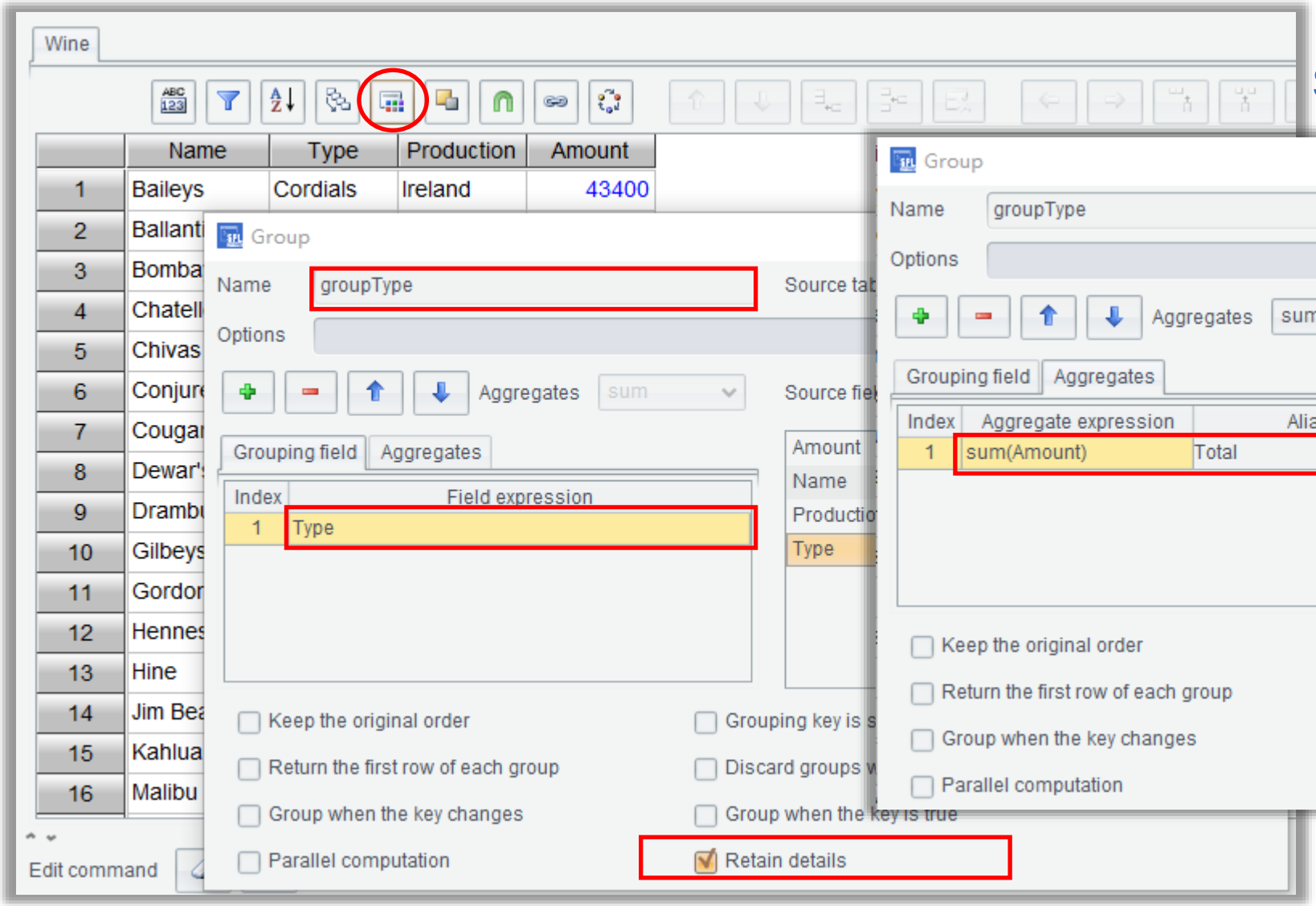
We have sales records of various wines, and we want to find the two locations of production having the largest sales for the two most popular types of wine. Open Wine.3.5.xlsx as follows:

Wine

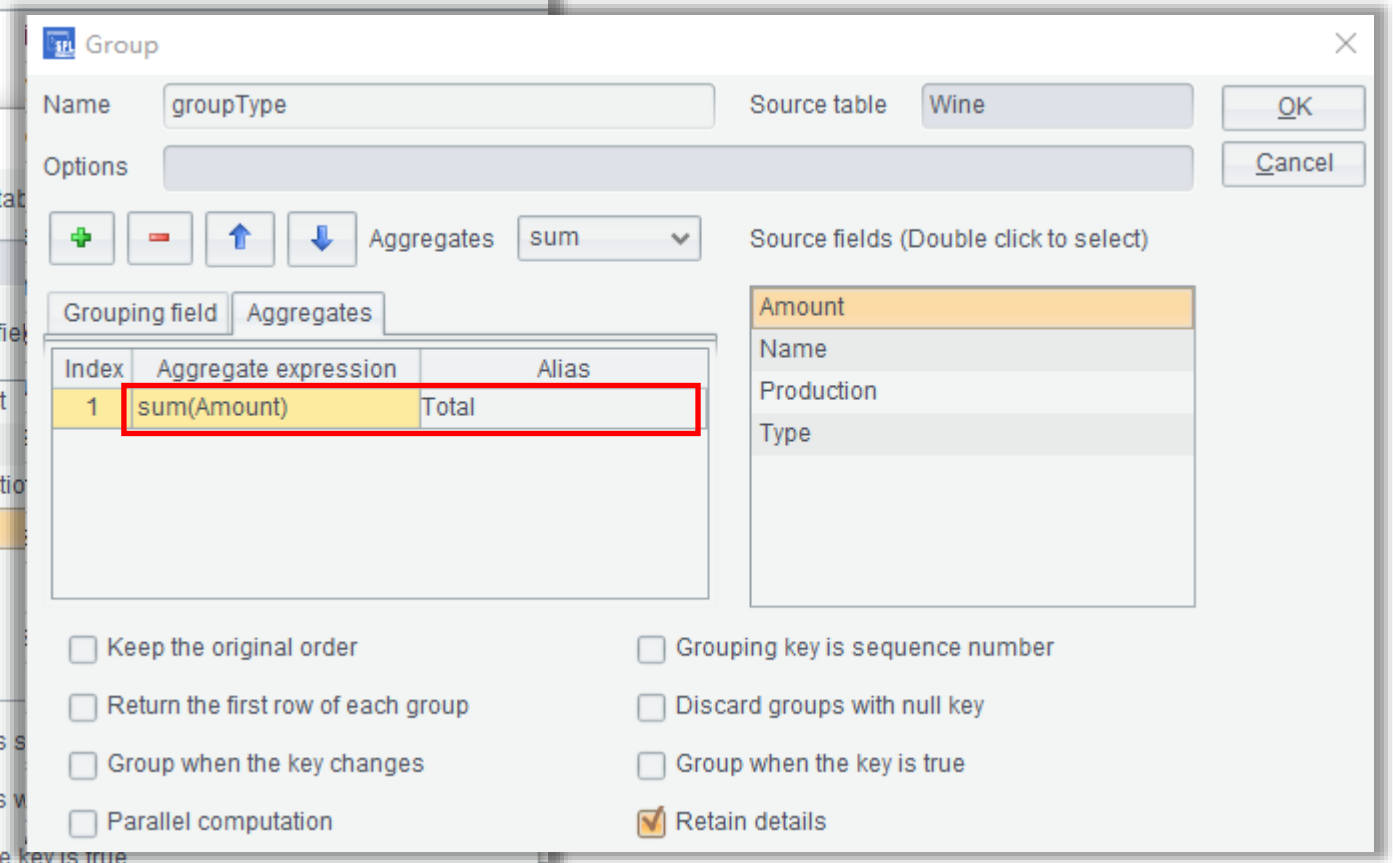
	Name	Type	Production	Amount
1	Baileys	Cordials	Ireland	43400
2	Ballantines	Whisky	Scotland	23700
3	Bombay	Gin	England	6080
4	Chatelle	Brandy	France	6650
5	Chivas	Whisky	Scotland	43000
6	Conjure	Brandy	France	5830
7	Cougar	Whisky	Australia	2770
8	Dewar's	Whisky	Scotland	2150
9	Drambuie	Cordials	Scotland	8400
10	Gilbeys	Gin	England	2780
11	Gordons	Gin	England	28700
12	Hennessy	Brandy	France	7830
13	Hine	Brandy	France	6870
14	Jim Beam	Whisky	American	6690

3.5 Grouping & aggregation after filtering

Group the Wine table by Type and retain detailed data:



Set aggregate expression:



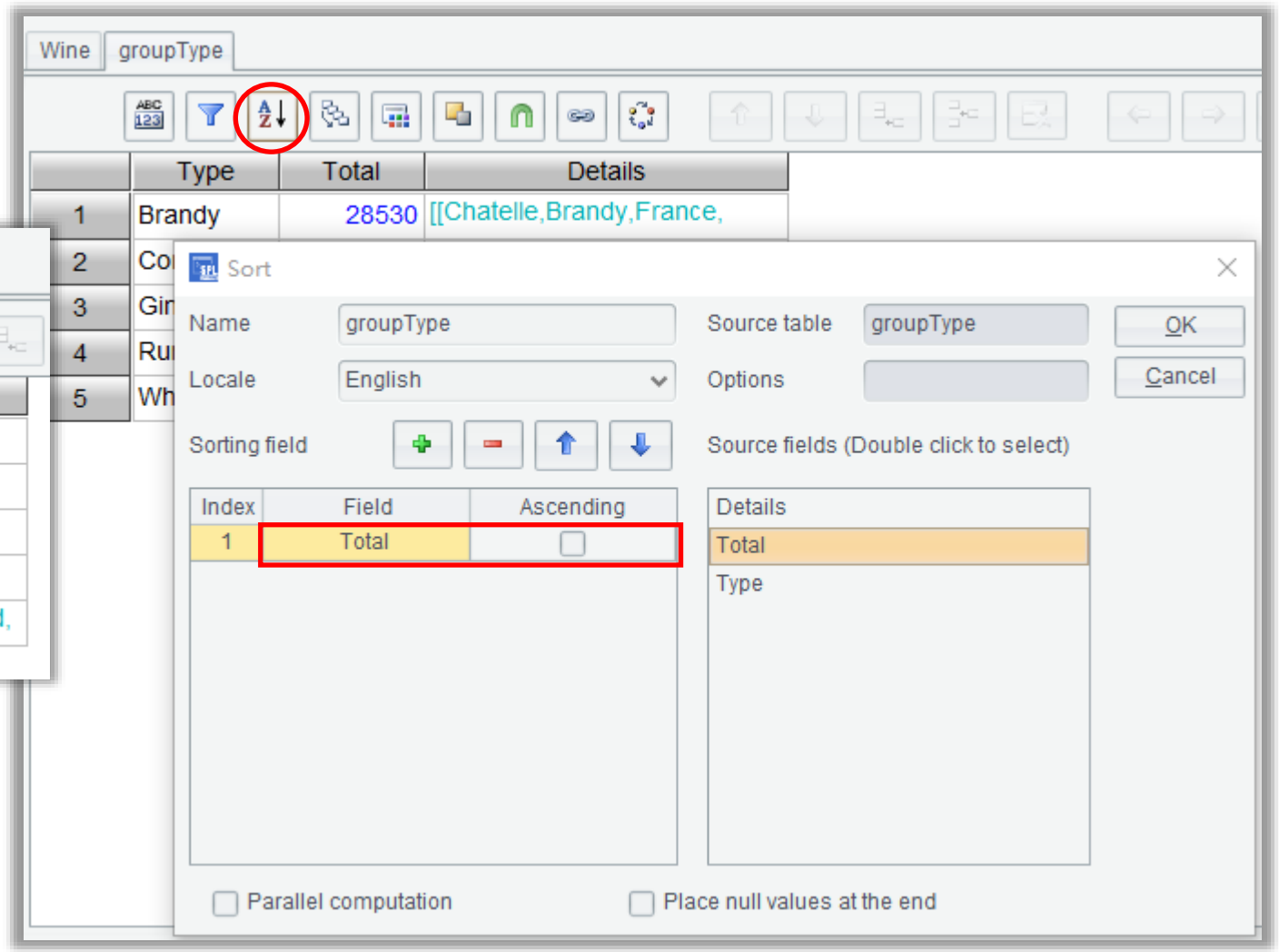
3.5 Grouping & aggregation after filtering

Get grouping result as follows:

Wine | groupType

	Type	Total	Details
1	Brandy	28530	[[Chatelle,Brandy,France,
2	Cordials	73800	[[Baileys,Cordials,Ireland,
3	Gin	62060	[[Bombay,Gin,England,
4	Rum	3060	[[Malibu,Rum,England, ...]]
5	Whisky	105730	[[Ballantines,Whisky,Scotland,

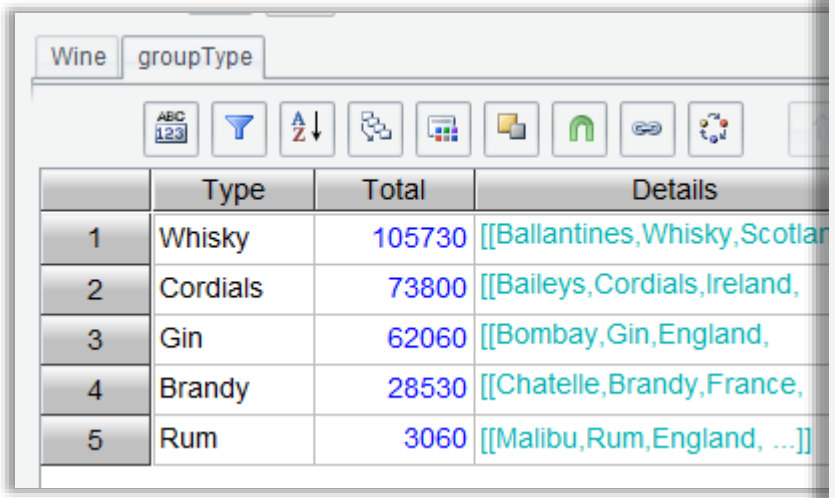
Then sort rows by Total:



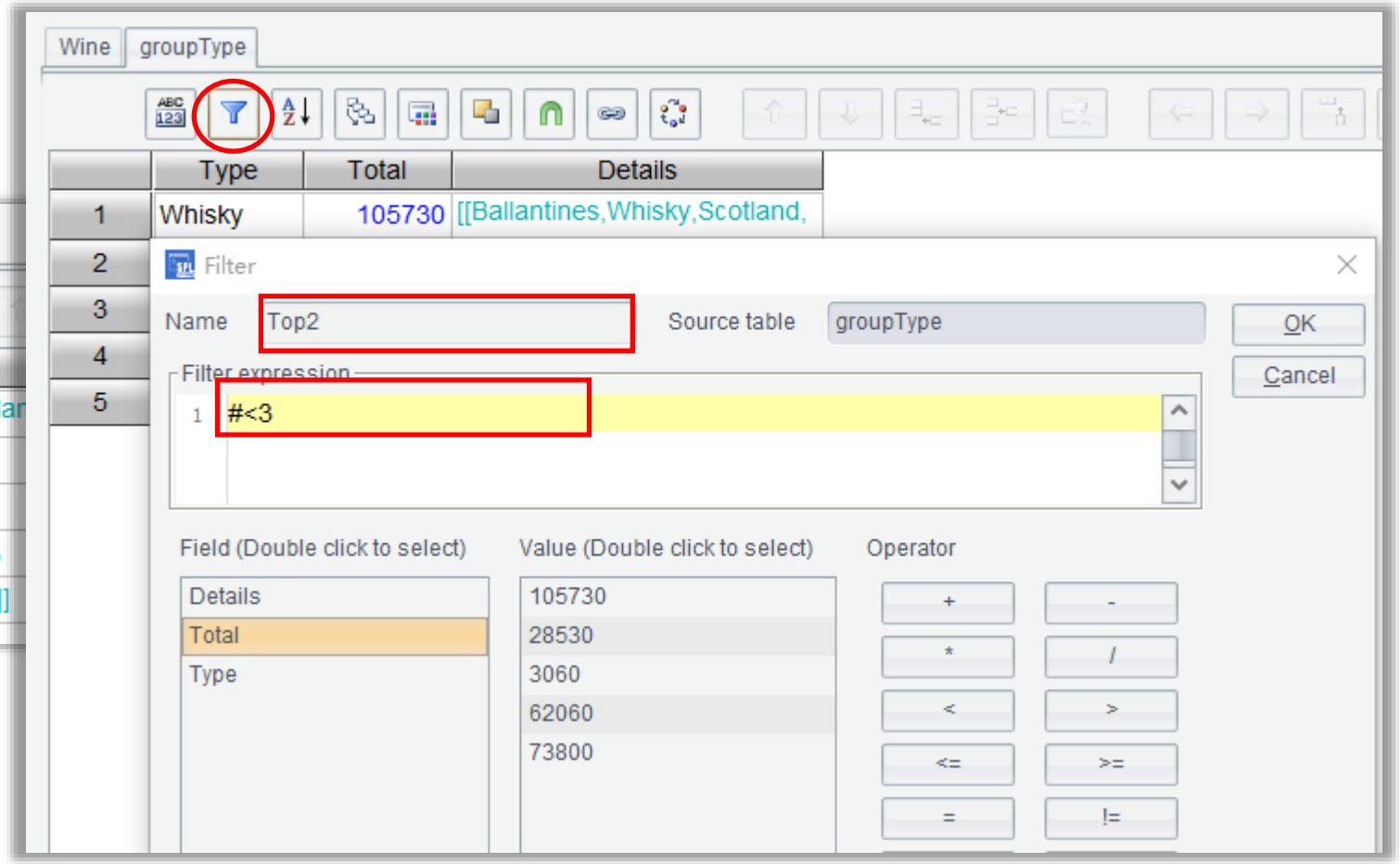
3.5 Grouping & aggregation after filtering

Get the top 2 rows in terms of total sales amount:

Sorting result set:

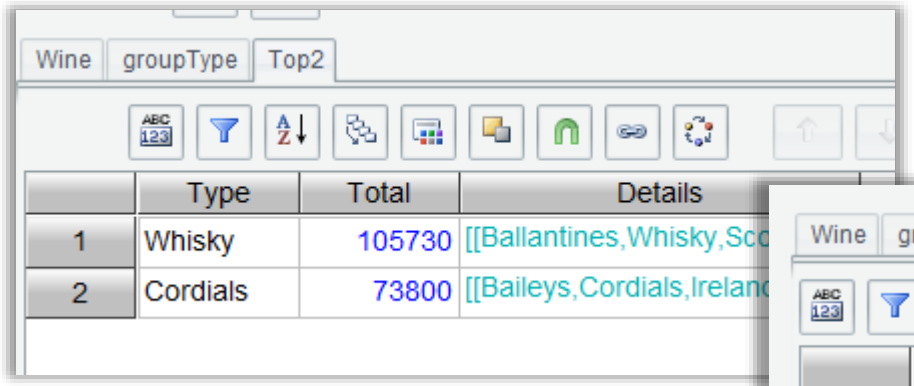


	Type	Total	Details
1	Whisky	105730	[[Ballantines,Whisky,Scotlar
2	Cordials	73800	[[Baileys,Cordials,Ireland,
3	Gin	62060	[[Bombay,Gin,England,
4	Brandy	28530	[[Chatelle,Brandy,France,
5	Rum	3060	[[Malibu,Rum,England, ...]]

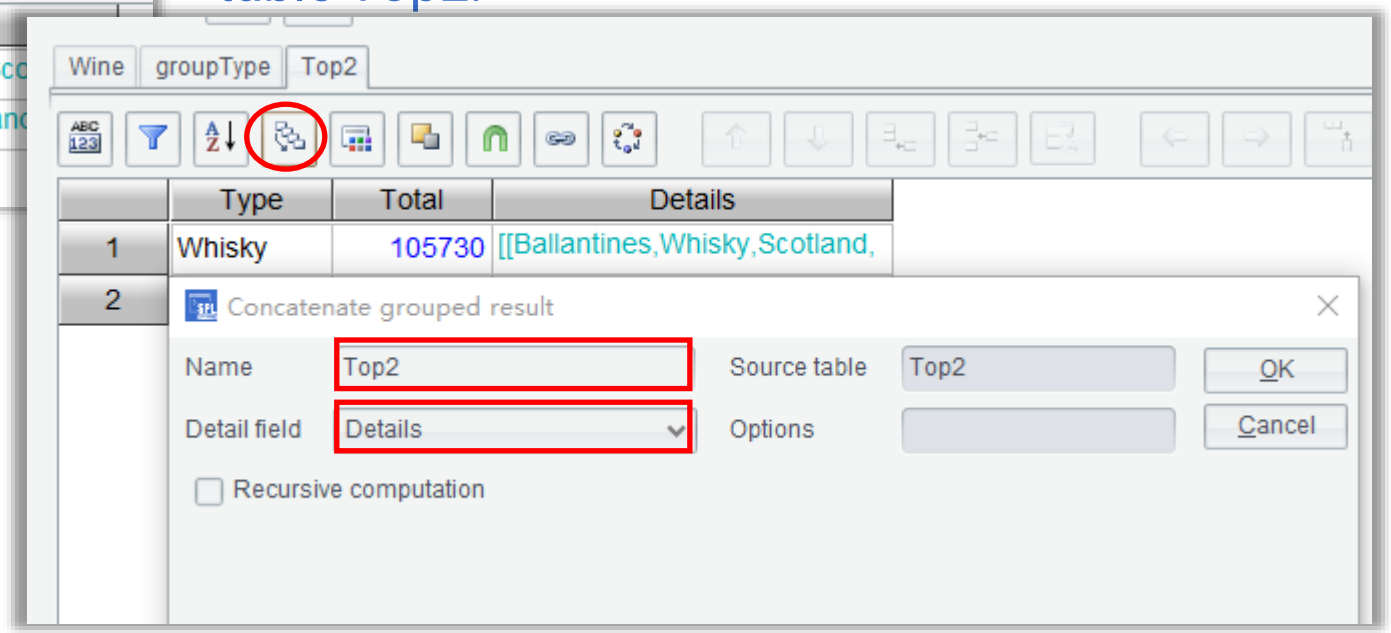


3.5 Grouping & aggregation after filtering

Filtering result:



Concatenate detailed data and name the new table Top2:



3.5 Grouping & aggregation after filtering

Concatenation result Top2:

Wine | groupType | Top2

	Name	Type	Production	Amoun
1	Ballantines	Whisky	Scotland	237
2	Chivas	Whisky	Scotland	430
3	Cougar	Whisky	Australia	27
4	Dewar's	Whisky	Scotland	21
5	Jim Beam	Whisky	American	66
6	McKenna	Whisky	American	76
7	Teachers	Whisky	Scotland	143
8	Glenlivet	Whisky	Scotland	55
9	Baileys	Cordials	Ireland	434
10	Drambuie	Cordials	Scotland	84
11	Kahlua	Cordials	Mexico	220

Group Top2 table by Production:

Wine | groupType | Top2

	Name	Type	Production	Amount
1	Ballantines	Whisky	Scotland	23700

Group

Name: groupProduction

Source table: Top2

OK

Cancel

Options

Aggregates: sum

Source fields (Double click to select)

Grouping field | Aggregates

Index	Field expression
1	Production

Grouping field | Aggregates

Index	Aggregate expression	Alias
1	sum(Amount)	Total

- [ ] Keep the original order
- [ ] Grouping key is sequence number
- [ ] Return the first row of each group
- [ ] Discard groups with null key
- [ ] Group when the key changes
- [ ] Group when the key is true
- [ ] Parallel computation
- [x] Retain details

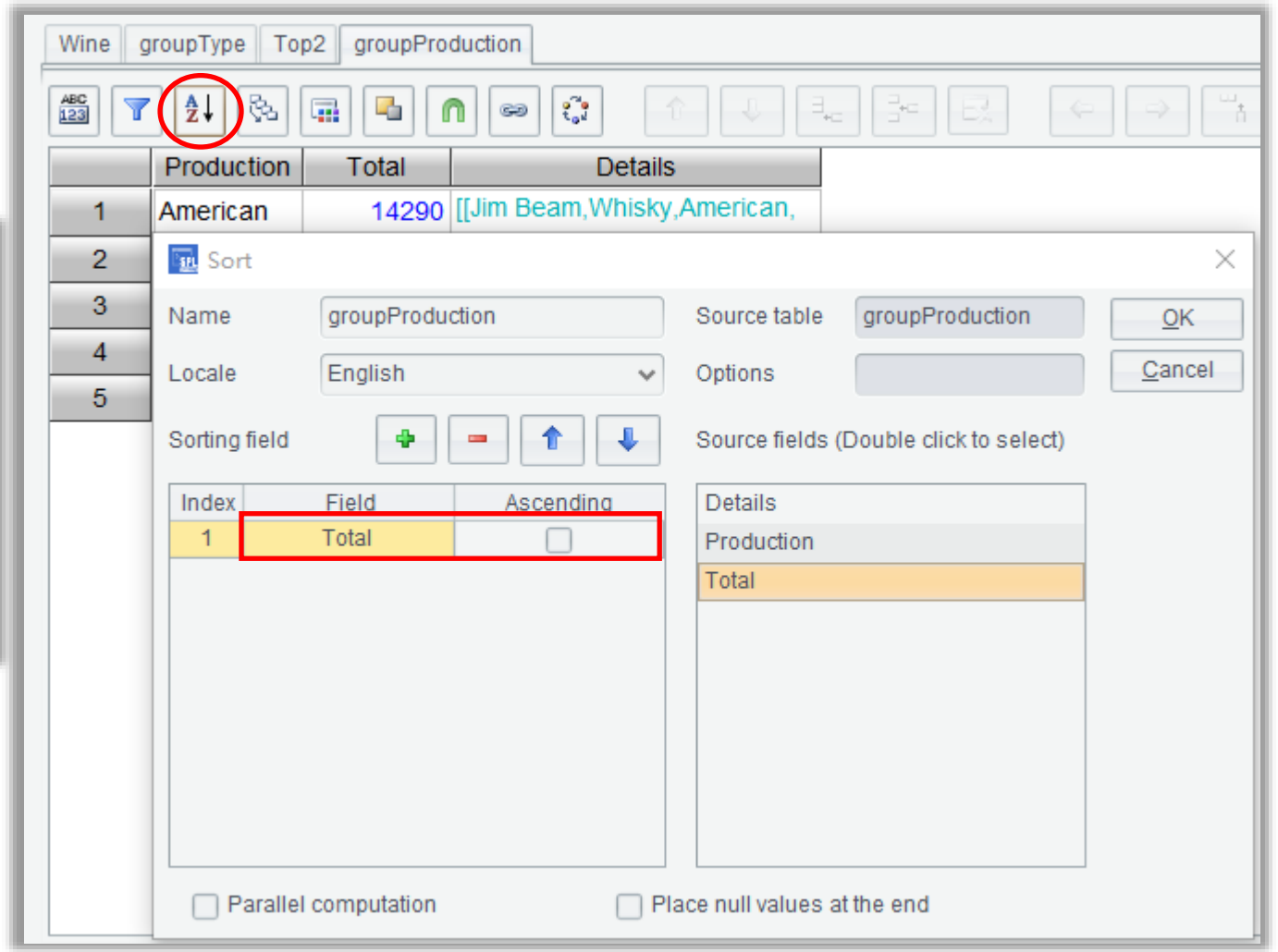
3.5 Grouping & aggregation after filtering

Grouping result set:

Wine | groupType | Top2 | groupProduction

	Production	Total	Details
1	American	14290	[[Jim Beam,Whisky,American,
2	Australia	2770	[[Cougar,Whisky,Australia, ...]]
3	Mexico	22000	[[Kahlua,Cordials,Mexico, ...]]
4	Scotland	97070	[[Ballantines,Whisky,Scotland,
5	Ireland	43400	[[Baileys,Cordials,Ireland, ...]]

Then sort rows by Total:



3.5 Grouping & aggregation after filtering

And get the Top2 in terms of Production:

Wine | groupType | Top2 | groupProduction

	Production	Total	Details
1	Scotland	97070	[[Ballantines,Whisky,Scotland,
2	Ireland	43400	[[Baileys,Cordials,Ireland, ...]]
3	Mexico	22000	[[Kahlua,Cordials,Mexico, ...]]
4	American	14290	[[Jim Beam,Whisky,American,
5	Australia	2770	[[Cougar,Whisky,Australia, ...]]

CONTENTS

3.3 Compute link relative in a multilayer-structure table

3.6 Compute link relative in a multilayer-structure table

The table below stores population data, and we want to find the three states having the highest population growth rates in the year 2010. Below is data in Populations.3.6.xlsx :

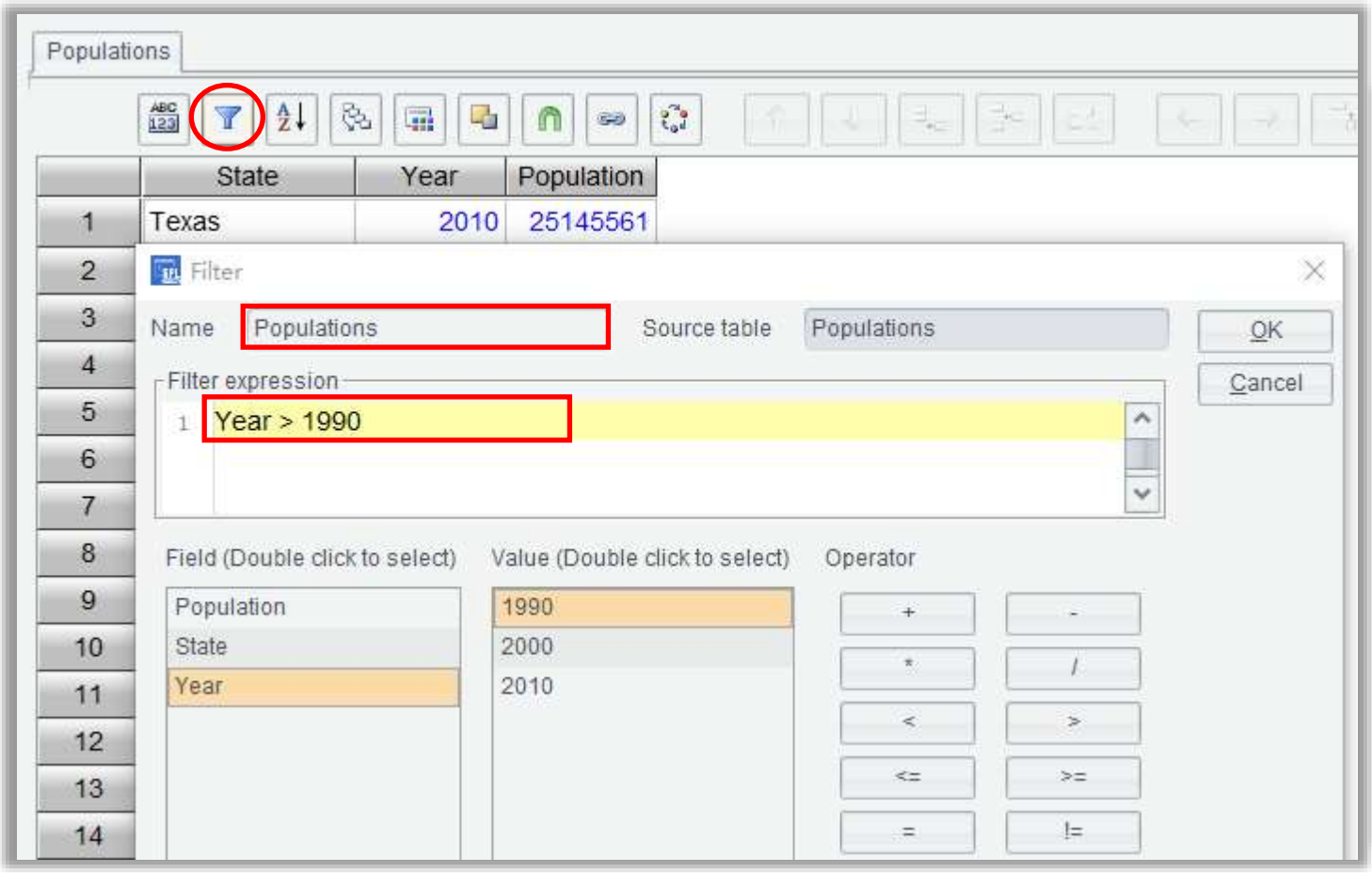
The population data is collected every one decade, and there are three years of data

Populations

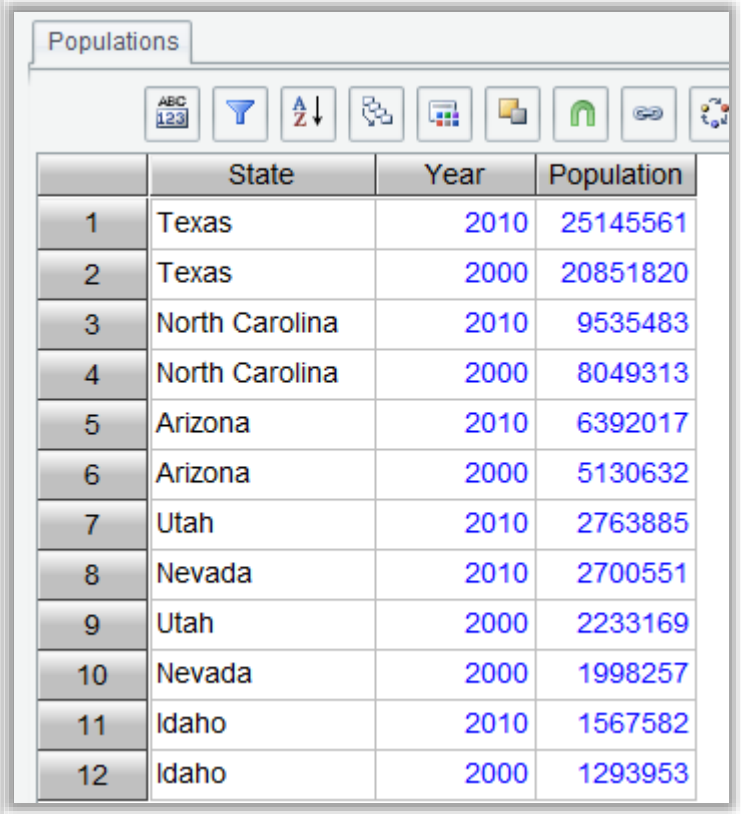
	State	Year	Population
1	Texas	2010	25145561
2	Texas	2000	20851820
3	Texas	1990	16987000
4	North Carolina	2010	9535483
5	North Carolina	2000	8049313
6	North Carolina	1990	6629000
7	Arizona	2010	6392017
8	Arizona	2000	5130632
9	Arizona	1990	3685000
10	Utah	2010	2763885
11	Nevada	2010	2700551
12	Utah	2000	2233169
13	Nevada	2000	1998257
14	Utah	1990	1723000

3.6 Compute link relative in a multilayer-structure table

To compute growth rate of 2010 only, filter away population data of 1990:



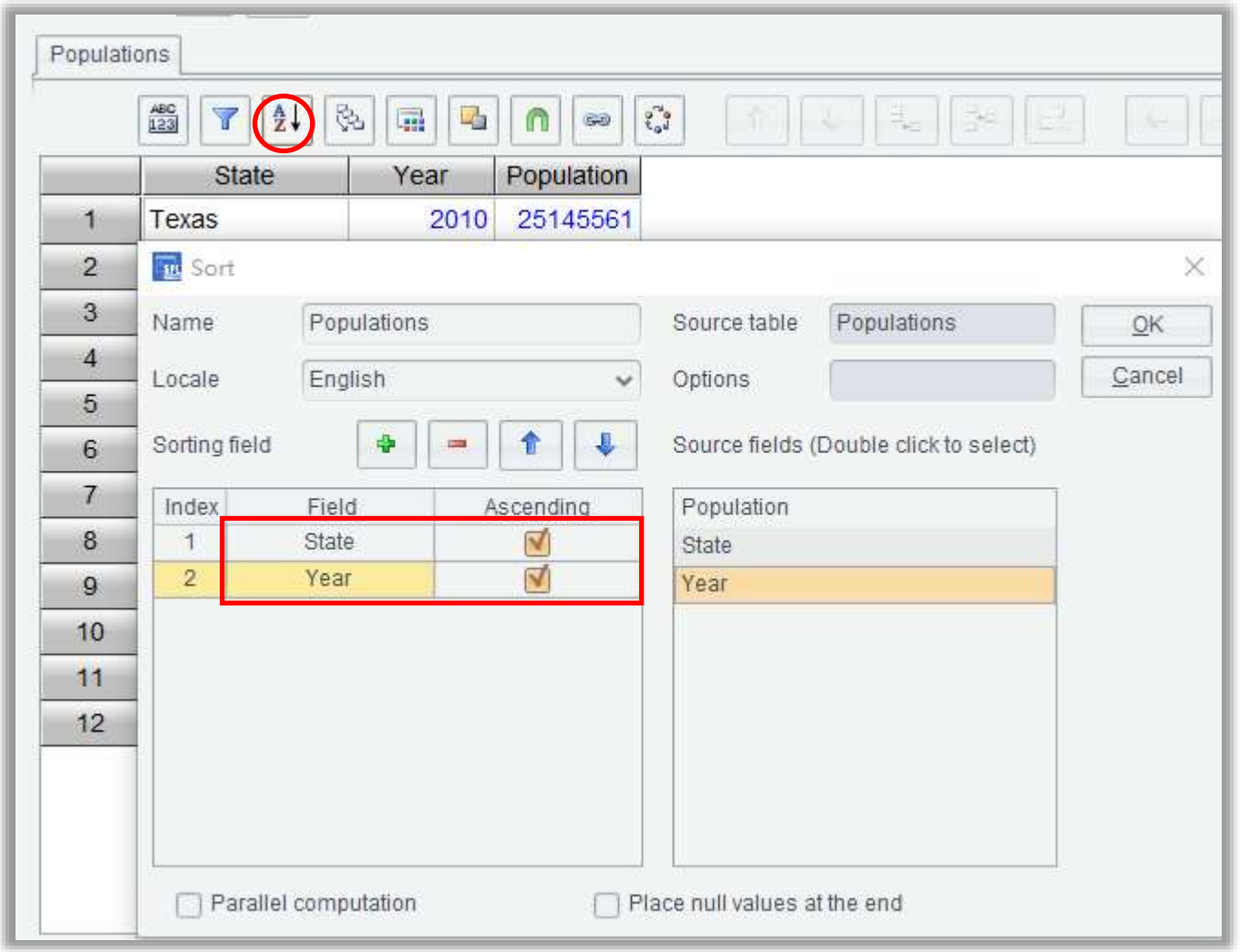
Filtering result set:



	State	Year	Population
1	Texas	2010	25145561
2	Texas	2000	20851820
3	North Carolina	2010	9535483
4	North Carolina	2000	8049313
5	Arizona	2010	6392017
6	Arizona	2000	5130632
7	Utah	2010	2763885
8	Nevada	2010	2700551
9	Utah	2000	2233169
10	Nevada	2000	1998257
11	Idaho	2010	1567582
12	Idaho	2000	1293953

3.6 Compute link relative in a multilayer-structure table

Sort rows by State and Year in ascending order:



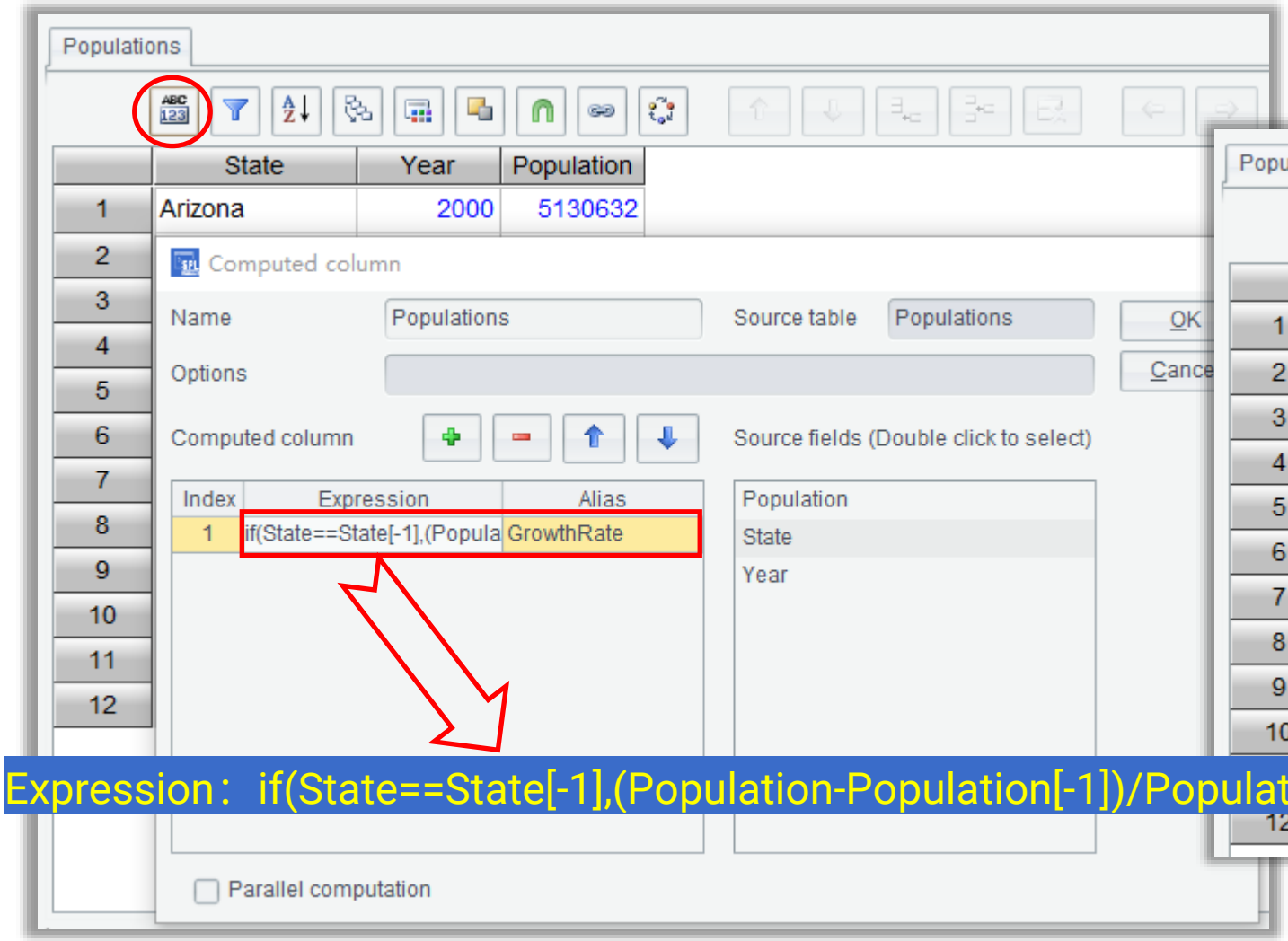
Sorting result set:

Populations

	State	Year	Population
1	Arizona	2000	5130632
2	Arizona	2010	6392017
3	Idaho	2000	1293953
4	Idaho	2010	1567582
5	Nevada	2000	1998257
6	Nevada	2010	2700551
7	North Carolina	2000	8049313
8	North Carolina	2010	9535483
9	Texas	2000	20851820
10	Texas	2010	25145561
11	Utah	2000	2233169
12	Utah	2010	2763885

3.6 Compute link relative in a multilayer-structure table

Compute population growth rate:



Expression： if(State==State[-1],(Population-Population[-1])/Population[-1],null)

And get this result set:

Populations

	State	Year	Population	GrowthRate
1	Arizona	2000	5130632	(null)
2	Arizona	2010	6392017	0.24585372718214832
3	Idaho	2000	1293953	(null)
4	Idaho	2010	1567582	0.2114674953417937
5	Nevada	2000	1998257	(null)
6	Nevada	2010	2700551	0.35145329154358024
7	North Carolina	2000	8049313	(null)
8	North Carolina	2010	9535483	0.18463314819538015
9	Texas	2000	20851820	(null)
10	Texas	2010	25145561	0.2059168456278636
11	Utah	2000	2233169	(null)
12	Utah	2010	2763885	0.23765151674593368

3.6 Compute link relative in a multilayer-structure table

Sort Populations table by GrowthRate:

Populations

	State	Year	Population	GrowthRate
1	Arizona	2000	5130632	(null)

Sort

Name: Populations | Source table: Populations | OK

Locale: English | Options | Cancel

Sorting field | Source fields (Double click to select)

Index	Field	Ascending
1	GrowthRate	☐

Source fields: GrowthRate, Population, State, Year

The three states having the highest growth rates

Sorting result set:

Populations

	State	Year	Population	GrowthRate
1	Nevada	2010	2700551	0.35145329154358024
2	Arizona	2010	6392017	0.24585372718214832
3	Utah	2010	2763885	0.23765151674593368
4	Idaho	2010	1567582	0.2114674953417937
5	Texas	2010	25145561	0.20591684562786366
6	North Carolina	2010	9535483	0.18463314819538015
7	Arizona	2000	5130632	(null)
8	Idaho	2000	1293953	(null)
9	Nevada	2000	1998257	(null)
10	North Carolina	2000	8049313	(null)
11	Texas	2000	20851820	(null)
12	Utah	2000	2233169	(null)

CONTENTS

3.7 Comparison between multiple tables

3.7 Comparison between multiple tables

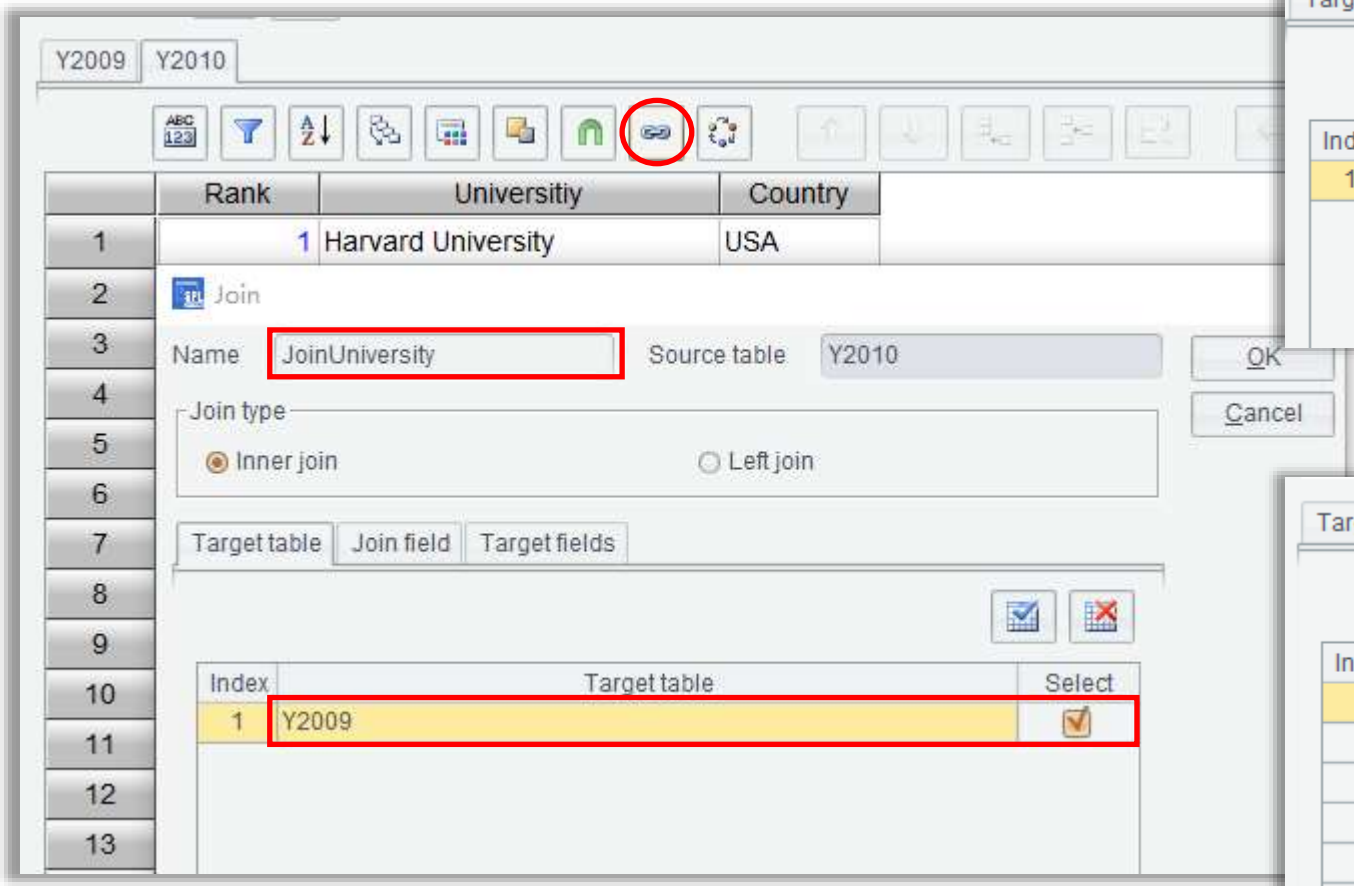
Here are top 15 universities released by ARWU in 2010 and 2009. We want to find how many places each university has risen in the 2010 list compared to the previous year. Below are two sheet of data in ARWU.3.7.xlsx :

Y2009 | Y2010

	Rank	Universitiy	Country
1	1	Harvard University	USA
2	2	University of	USA
3	3	Stanford University	USA
4	4	Massachusetts Institute of	USA
5	5	University of Cambridge	GBR
6	6	California Institute of	USA
7	7	Princeton University	USA
8	8	Columbia University	USA
9	9	University of Chicago	USA
10	10	University of Oxford	GBR
11	11	Yale University	USA
12	12	Cornell University	USA
13	13	University of California, Los	USA
14	14	University of California, San	USA

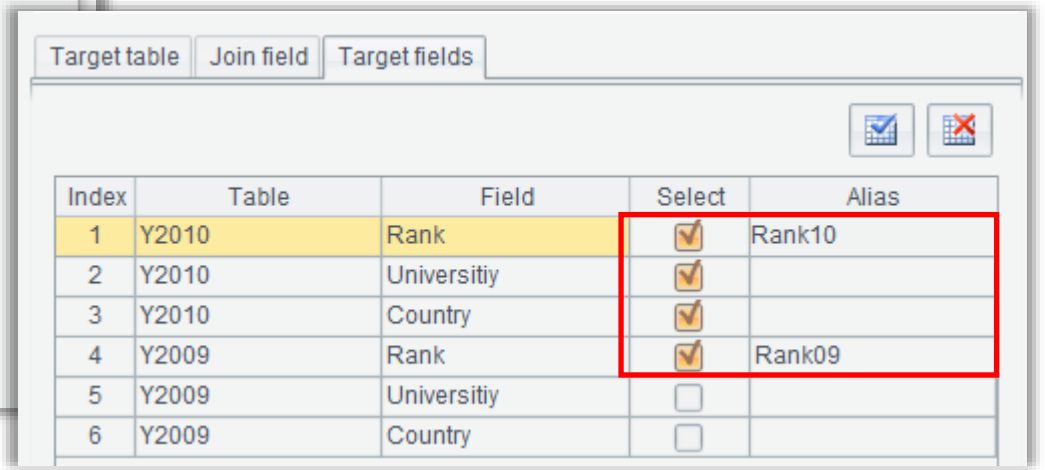
3.7 Comparison between multiple tables

Join Y2010 and Y2009 as a wide table:



Set the join field:

Set to-be-selected fields:



3.7 Comparison between multiple tables

Joining result set:

Y2009 | Y2010 | JoinUniversity

	Rank10	Universitiy	Cou
1	2	University of	USA
2	3	Stanford University	USA
3	4	Massachusetts Institute of	USA
4	12	Cornell University	USA
5	6	California Institute of	USA
6	8	Columbia University	USA
7	11	Yale University	USA
8	1	Harvard University	USA
9	9	University of Chicago	USA
10	14	University of California, San	USA
11	10	University of Oxford	GBR
12	5	University of Cambridge	GBR
13	7	Princeton University	USA
14	13	University of California, Los	USA
15	15	University of Pennsylvania	USA

Sort rows by Rank10 in ascending order:

Y2009 | Y2010 | JoinUniversity

	Rank10	Universitiy	Country	Rank09
1	2	University of	USA	3

Sort

Name: JoinUniversity | Source table: JoinUniversity | OK

Locale: English | Options | Cancel

Sorting field | Source fields (Double click to select)

Index	Field	Ascending
1	Rank10	☑

Source fields: Country, Rank09, Rank10, Universitiy

Parallel computation | Place null values at the end

3.7 Comparison between multiple tables

Sorting result set:

Y2009 | Y2010 | JoinUniversity

	Rank10	Universitiy	Country	Rank09
1	1	Harvard University	USA	1
2	2	University of	USA	3
3	3	Stanford University	USA	2
4	4	Massachusetts Institute of	USA	5
5	5	University of Cambridge	GBR	4
6	6	California Institute of	USA	6
7	7	Princeton University	USA	8
8	8	Columbia University	USA	7
9	9	University of Chicago	USA	9
10	10	University of Oxford	GBR	10
11	11	Yale University	USA	11
12	12	Cornell University	USA	12
13	13	University of California, Los	USA	13
14	14	University of California, San	USA	14
15	15	University of Pennsylvania	USA	15

Count how many places each university has risen in 2010:

Y2009 | Y2010 | JoinUniversity

	Rank10	Universitiy	Country	Rank09
1	1	Harvard University	USA	1

Computed column

Name: JoinUniversity Source table: JoinUniversity OK Cancel

Options:

Computed column Source fields (Double click to select)

Index	Expression	Alias
1	Rank09-Rank10	Increase

Source fields: Country, Rank09, Rank10, Universitiy

Parallel computation

3.7 Comparison between multiple tables

Ranking changes result:

Y2009 | Y2010 | JoinUniversity

	Rank10	Universitiy	Country	Rank09	Increase
1	1	Harvard University	USA	1	0
2	2	University of	USA	3	1
3	3	Stanford University	USA	2	-1
4	4	Massachusetts Institute of	USA	5	1
5	5	University of Cambridge	GBR	4	-1
6	6	California Institute of	USA	6	0
7	7	Princeton University	USA	8	1
8	8	Columbia University	USA	7	-1
9	9	University of Chicago	USA	9	0
10	10	University of Oxford	GBR	10	0
11	11	Yale University	USA	11	0
12	12	Cornell University	USA	12	0
13	13	University of California, Los	USA	13	0
14	14	University of California, San	USA	14	0
15	15	University of Pennsylvania	USA	15	0

SPL WIN Course

Chapter 4

Comprehensive use cases

CONTENTS

CONTENTS

Get stock transaction records meeting the specified condition

4.1 Get stock transaction records meeting the specified condition

Get stock transaction records where closing prices rise for at least 5 trading dates consecutively. Open Stock.4.1.xlsx and there are the following records:

Stock

	code	date	open	close
1	600038	2023-06-02	4.39	4.5
2	603818	2023-06-02	215.93	235
3	301500	2023-06-02	71	67.8
4	320688	2023-06-02	33	32
5	600788	2023-06-02	105.62	102.5
6	350880	2023-06-02	79.14	80
7	600038	2023-06-05	5.1	4.75
8	603818	2023-06-05	253.08	244.84
9	301500	2023-06-05	79.35	72.61
10	320688	2023-06-05	28.37	30.23
11	600788	2023-06-05	123.17	112.32
12	350880	2023-06-05	85.9	80.75
13	600038	2023-06-06	4.91	4.63
14	603818	2023-06-06	247.67	230.96
15	301500	2023-06-06	75.8	77.65

4.1 Get stock transaction records meeting the specified condition

Sort rows by stock code and date:

Stock

	code	date	open	close
1	600038	2023-06-02	4.39	4.5

Sort

Name: Stock | Source table: Stock | OK

Locale: English | Options: | Cancel

Sorting field | Source fields (Double click to select)

Index	Field	Ascending
1	code	☑
2	date	☑

Source fields: close, code, date, open

Parallel computation | Place null values at the end

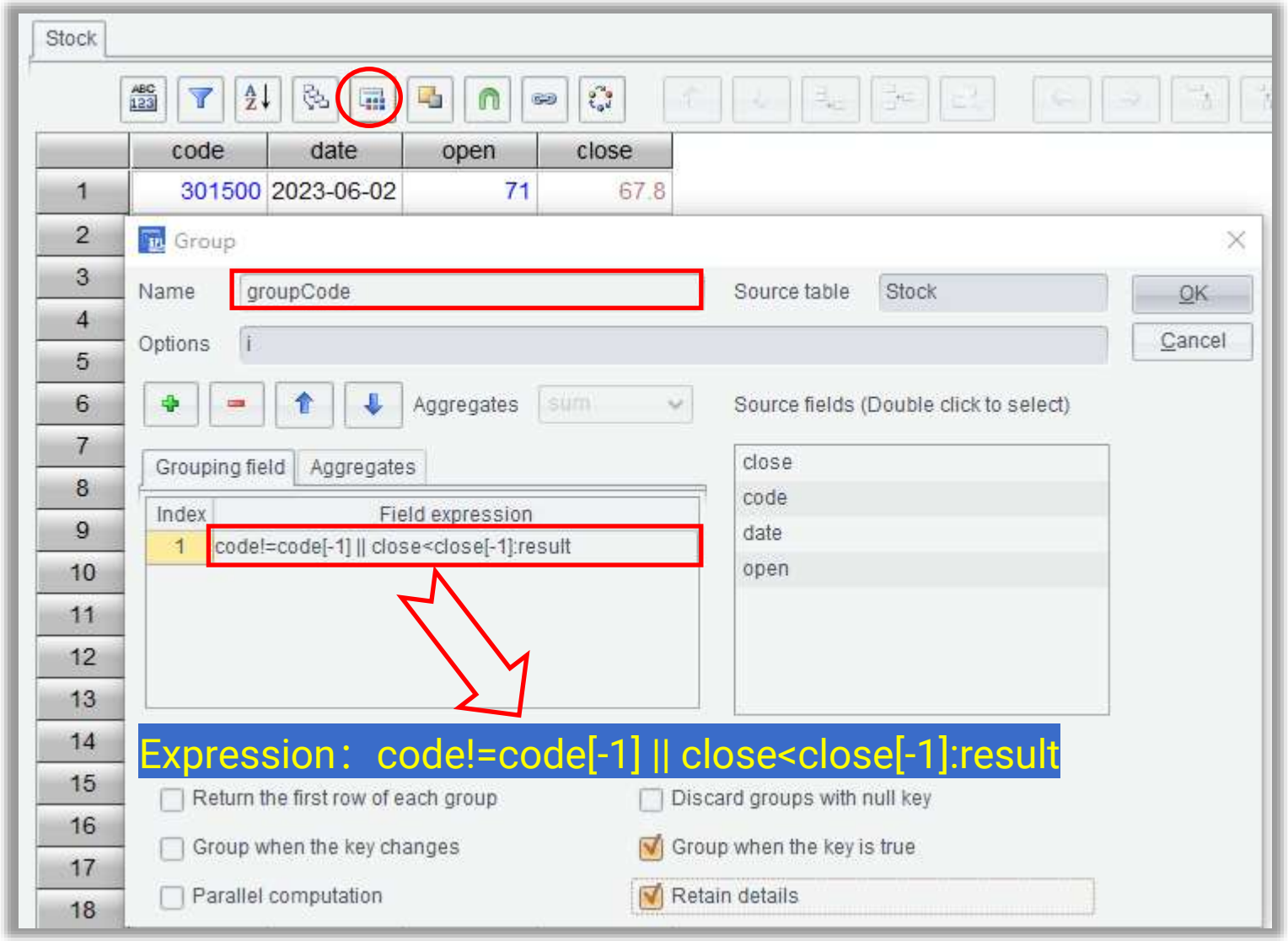
Sorting result set:

Stock

	code	date	open	close
1	301500	2023-06-02	71	67.8
2	301500	2023-06-05	79.35	72.61
3	301500	2023-06-06	75.8	77.65
4	301500	2023-06-07	74.63	72.55
5	301500	2023-06-08	76.1	74.97
6	301500	2023-06-09	65.23	68.22
7	301500	2023-06-12	70.4	75
8	301500	2023-06-13	82.69	81.22
9	301500	2023-06-14	76.52	80.28
10	301500	2023-06-15	82.13	79.78
11	301500	2023-06-16	88.32	85.75
12	301500	2023-06-19	98.36	91.05
13	301500	2023-06-20	86.87	82.27
14	301500	2023-06-21	81.17	85.11
15	301500	2023-06-22	88.65	93.45
16	301500	2023-06-23	83.48	84.77

4.1 Get stock transaction records meeting the specified condition

Perform order-based grouping by stock code:



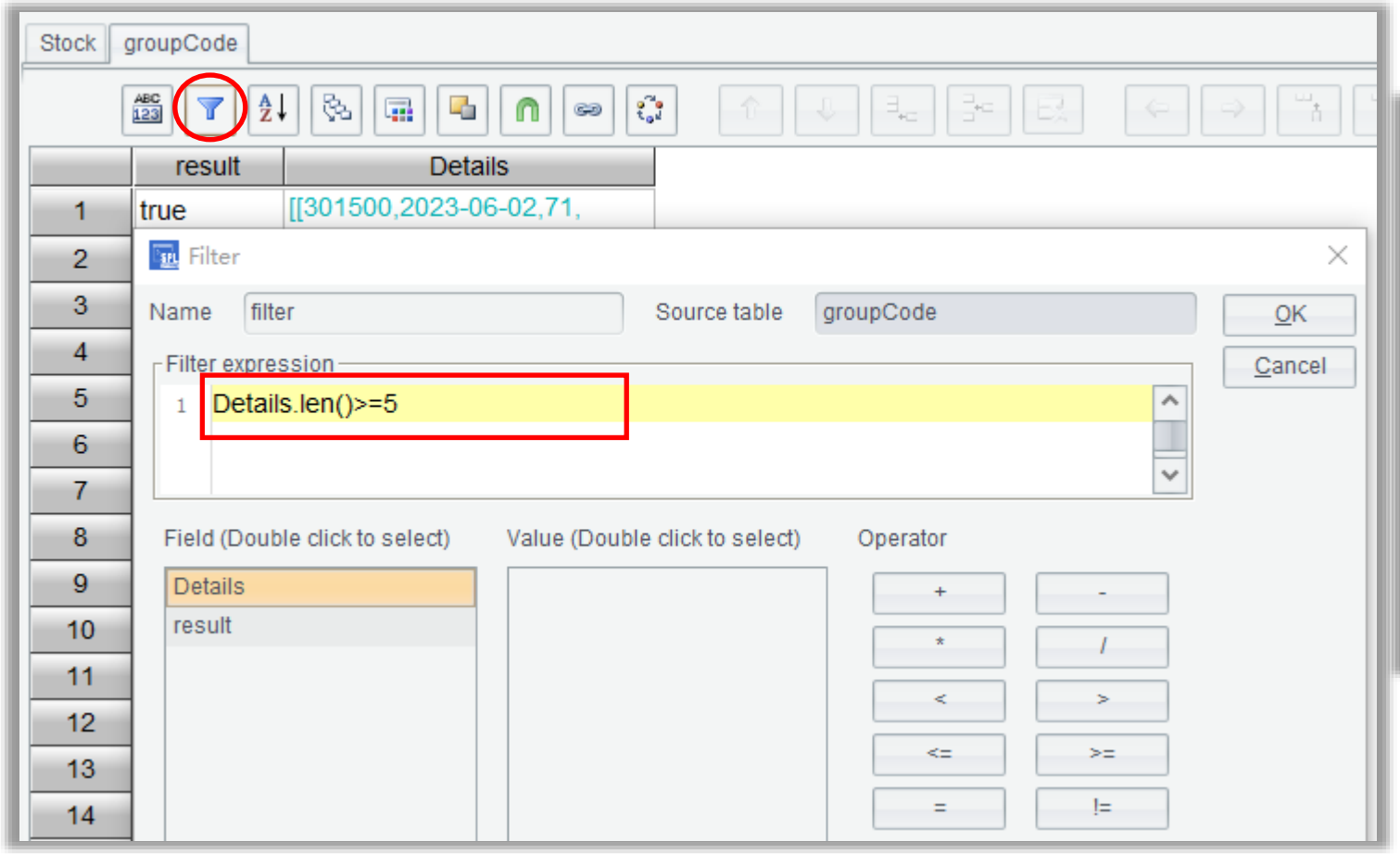
Grouping result set:

Stock | groupCode

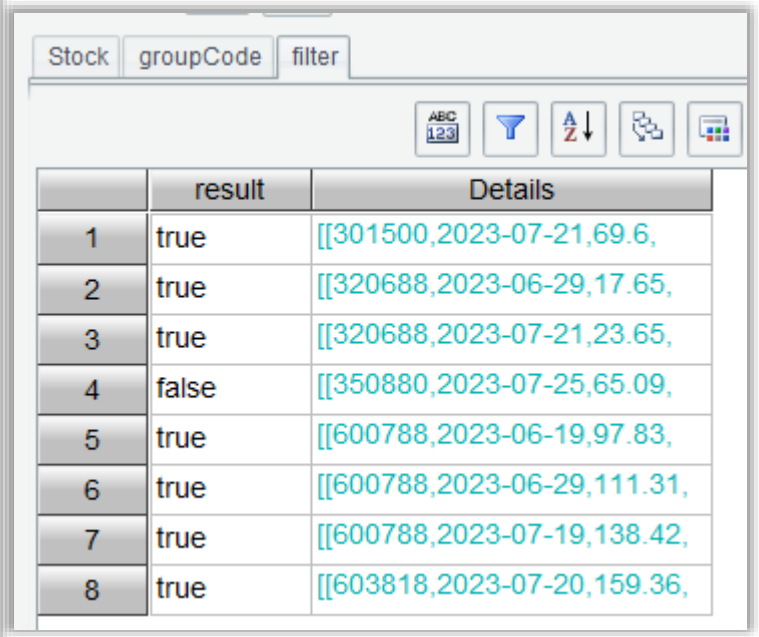
	result	Details
1	true	[[301500,2023-06-02,71,
2	false	[[301500,2023-06-07,74.63,
3	true	[[301500,2023-06-09,65.23,
4	false	[[301500,2023-06-14,76.52,
5	true	[[301500,2023-06-15,82.13,
6	false	[[301500,2023-06-20,86.87,
7	false	[[301500,2023-06-23,83.48,
8	false	[[301500,2023-06-28,91.01,
9	true	[[301500,2023-06-29,85.02,
10	true	[[301500,2023-06-30,82.69,
11	true	[[301500,2023-07-03,77.52,
12	false	[[301500,2023-07-05,78, ...]]
13	true	[[301500,2023-07-06,75.12,
14	true	[[301500,2023-07-07,70.11,
15	false	[[301500,2023-07-11,77.93,

4.1 Get stock transaction records meeting the specified condition

Perform filtering to get groups where the stock rises for consecutive 5 trading dates:



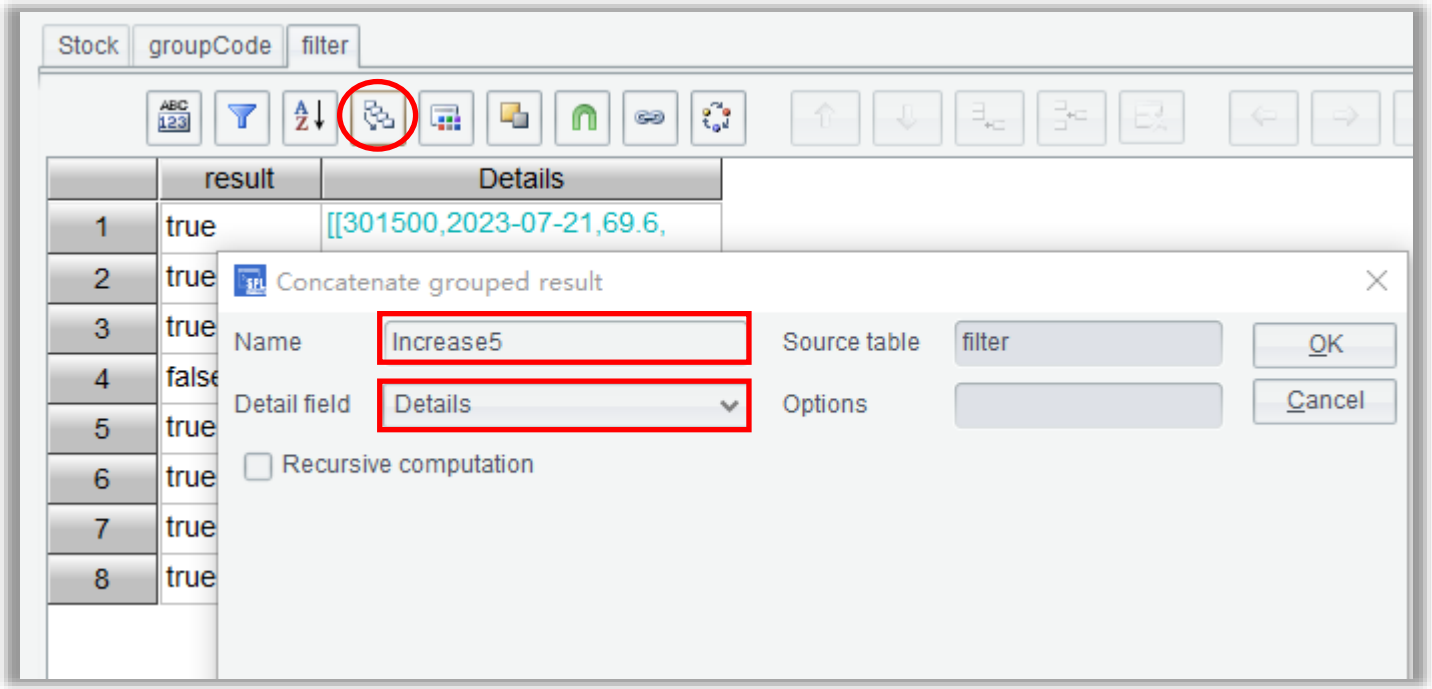
Filtering result set:



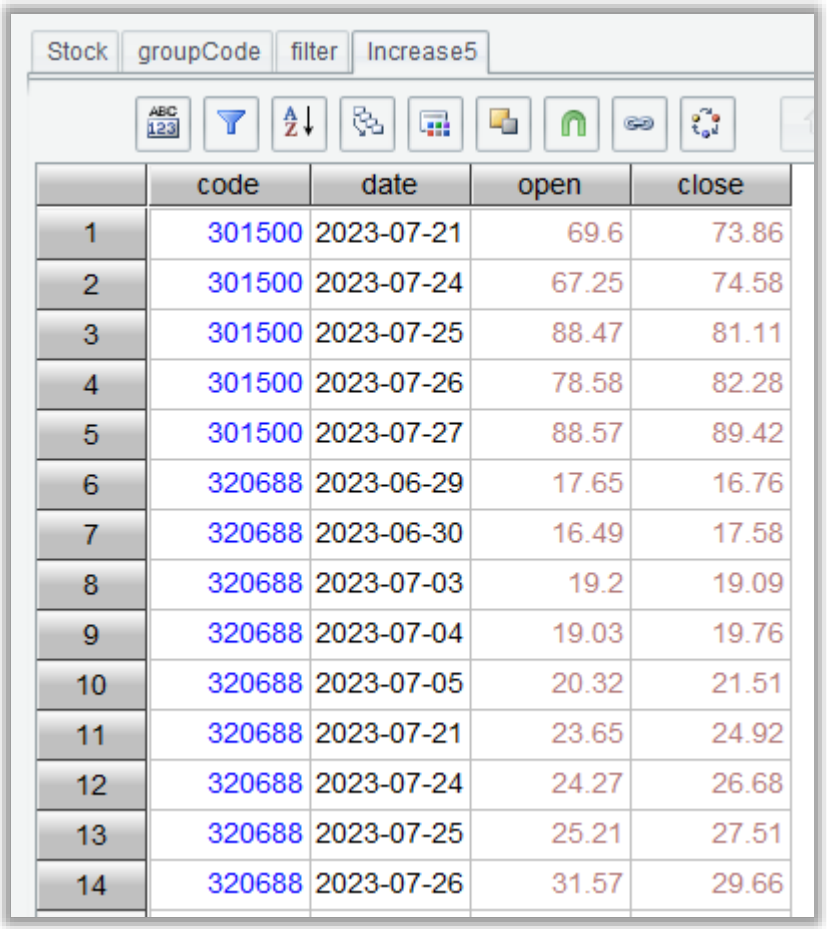
	result	Details
1	true	[[301500,2023-07-21,69.6,
2	true	[[320688,2023-06-29,17.65,
3	true	[[320688,2023-07-21,23.65,
4	false	[[350880,2023-07-25,65.09,
5	true	[[600788,2023-06-19,97.83,
6	true	[[600788,2023-06-29,111.31,
7	true	[[600788,2023-07-19,138.42,
8	true	[[603818,2023-07-20,159.36,

4.1 Get stock transaction records meeting the specified condition

Concatenate Details as a table sequence:



Final result set:



	code	date	open	close
1	301500	2023-07-21	69.6	73.86
2	301500	2023-07-24	67.25	74.58
3	301500	2023-07-25	88.47	81.11
4	301500	2023-07-26	78.58	82.28
5	301500	2023-07-27	88.57	89.42
6	320688	2023-06-29	17.65	16.76
7	320688	2023-06-30	16.49	17.58
8	320688	2023-07-03	19.2	19.09
9	320688	2023-07-04	19.03	19.76
10	320688	2023-07-05	20.32	21.51
11	320688	2023-07-21	23.65	24.92
12	320688	2023-07-24	24.27	26.68
13	320688	2023-07-25	25.21	27.51
14	320688	2023-07-26	31.57	29.66

CONTENTS

Compute LRR and YOY based on car sales table

4.2 Compute LRR and YOY based on car sales table

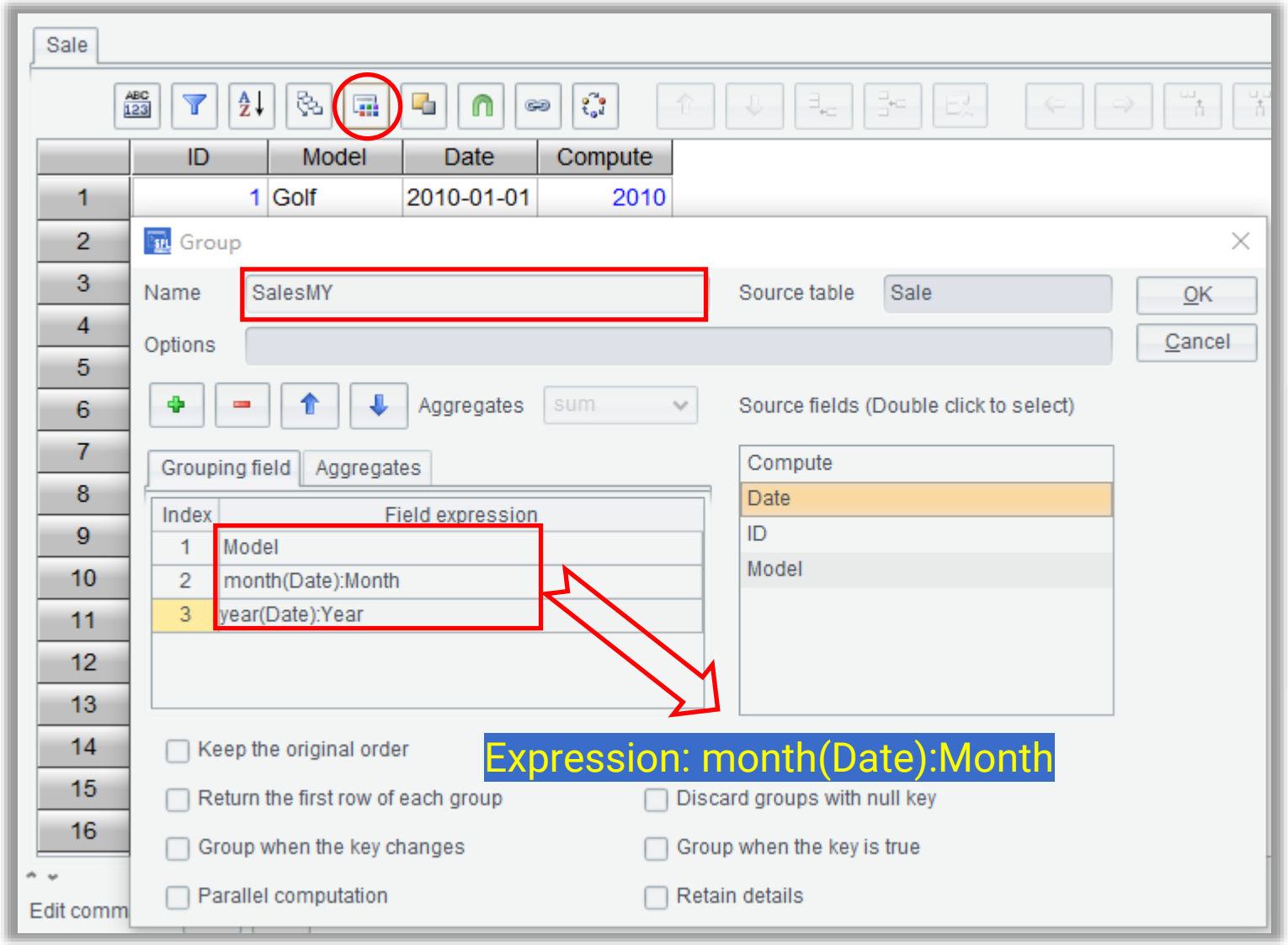
Create a grouped report according to car sales table to display each model's LRR and YOY in every month in three years. Below is data in Sale.4.2.xlsx:

Sale

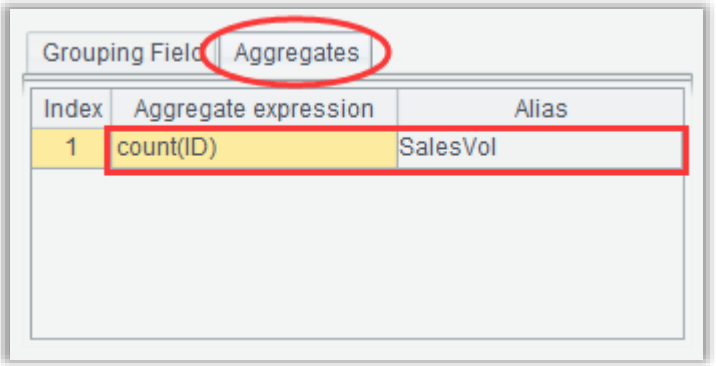
	ID	Model	Date
1	1	Golf	2010-01-01
2	2	CC	2010-01-01
3	3	CC	2010-01-02
4	4	Touareg	2010-01-02
5	5	Touareg	2010-01-02
6	6	CC	2010-01-02
7	7	Jetta	2010-01-02
8	8	CC	2010-01-02
9	9	Golf	2010-01-02
10	10	Golf	2010-01-04
11	11	Jetta	2010-01-04
12	12	Touareg	2010-01-04
13	13	Touareg	2010-01-04
14	14	CC	2010-01-04

4.2 Compute LRR and YOY based on car sales table

Group Sale table by model, month and year:



Set aggregate expression:



4.2 Compute LRR and YOY based on car sales table

Grouping result set:

Sale | SalesMY

	Model	Month	Year	SalesVol
1	CC	1	2010	26
2	CC	1	2011	26
3	CC	1	2012	31
4	CC	2	2010	22
5	CC	2	2011	29
6	CC	2	2012	39
7	CC	3	2010	29
8	CC	3	2011	27
9	CC	3	2012	31
10	CC	4	2010	33
11	CC	4	2011	33
12	CC			
13	CC			
14	CC	5	2011	33
15	CC	5	2012	28

Compute YOY:

Sale | SalesMY

	Model	Month	Year	SalesVol
1	CC	1	2010	26

Computed column

Name: SalesMY Source table: SalesMY OK Cancel

Options

Computed column

Source fields (Double click to select)

Index	Expression	Alias
1	if(Model==Model[-1] && Montl	YOY

Model
Month
SalesVol
Year

Parallel computation

Expression:if(Model==Model[-1] && Month==Month[-1],SalesVol/SalesVol[-1],null)

4.2 Compute LRR and YOY based on car sales table

Result set:

Sale | SalesMY

	Model	Month	Year	SalesVol	YOY
1	CC	1	2010	26	(null)
2	CC	1	2011	26	1.0
3	CC	1	2012	31	1.1923076923076923
4	CC	2	2010	22	(null)
5	CC	2	2011	29	1.3181818181818181
6	CC	2	2012	39	1.3448275862068966
7	CC	3	2010	29	(null)
8	CC	3	2011	27	0.9310344827586207
9	CC	3	2012	31	1.1481481481481481
10	CC	4	2010	33	(null)
11	CC	4	2011	33	1.0
12	CC	4	2012	40	1.2121212121212122
13	CC	5	2010	21	(null)
14	CC	5	2011	33	1.5714285714285714
15	CC	5	2012	28	0.8484848484848485
16	CC	6	2010	20	(null)

4.2 Compute LRR and YOY based on car sales table

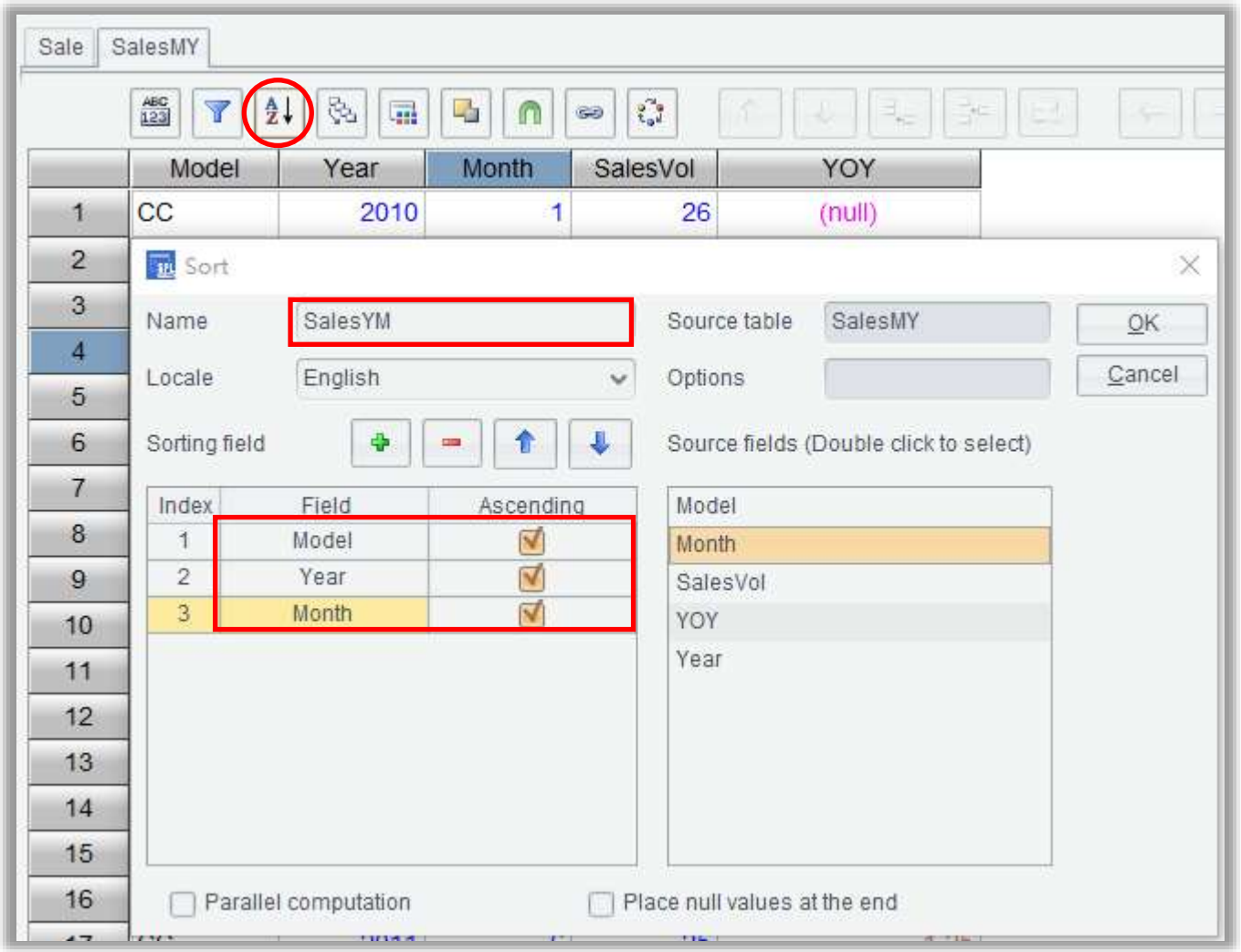
First, select Year field and shift it leftward to the front of Month field:

Sale | SalesMY

	Model	Month	Year	SalesVol	YOY
1	CC	1	2010	26	(null)
2	CC	1	2011	26	1.0
3	CC	1	2012	31	1.1923076923076923
4	CC	2	2010	22	(null)
5	CC	2	2011	29	1.3181818181818181
6	CC	2	2012	39	1.3448275862068966
7	CC	3	2010	29	(null)
8	CC	3	2011	27	0.9310344827586207
9	CC	3	2012	31	1.1481481481481481
10	CC	4	2010	33	(null)
11	CC	4	2011	33	1.0
12	CC	4	2012	40	1.2121212121212122
13	CC	5	2010	21	(null)
14	CC	5	2011	33	1.5714285714285714

4.2 Compute LRR and YOY based on car sales table

Then sort rows by Model, Year and Month, and change table name to SalesYM:



4.2 Compute LRR and YOY based on car sales table

Sorting result set:

Sale | SalesMY | SalesYM

	Model	Year	Month	SalesVol	YOY
1	CC	2010	1	26	(null)
2	CC	2010	2	22	(null)
3	CC	2010	3	29	(null)
4	CC	2010	4	33	(null)
5	CC	2010	5	21	(null)
6	CC	2010	6	20	(null)
7	CC	2010	7	21	(null)
8	CC	2010	8	36	(null)
9	CC	2010	9	21	(null)
10	CC	2010	10	43	(null)
11	CC	2010	11	23	(null)
12	CC	2010	12	15	(null)
13	CC	2011	1	26	
14	CC	2011	2	29	1.31818181818
15	CC	2011	3	27	0.931034482758

Compute LRR:

Sale | SalesMY | SalesYM

	Model	Year	Month	SalesVol	YOY
1	CC	2010	1	26	(null)

Computed column

Name: SalesYM | Source table: SalesYM | OK | Cancel

Options

Computed column

Index	Expression	Alias
1	if(Model==Model[-1],Sales...	LRR

Source fields (Double click to select): Model, Month, SalesVol, YOY, Year

Parallel computation

Expression:if(Model==Model[-1],SalesVol/SalesVol[-1],null)

4.2 Compute LRR and YOY based on car sales table

Final result:

Sale | SalesMY | SalesYM

	Model	Year	Month	SalesVol	YOY	LRR
1	CC	2010	1	26	(null)	(null)
2	CC	2010	2	22	(null)	0.8461538461538461
3	CC	2010	3	29	(null)	1.3181818181818181
4	CC	2010	4	33	(null)	1.1379310344827587
5	CC	2010	5	21	(null)	0.6363636363636364
6	CC	2010	6	20	(null)	0.9523809523809523
7	CC	2010	7	21	(null)	1.05
8	CC	2010	8	36	(null)	1.7142857142857142
9	CC	2010	9	21	(null)	0.5833333333333334
10	CC	2010	10	43	(null)	2.0476190476190474
11	CC	2010	11	23	(null)	0.5348837209302325
12	CC	2010	12	15	(null)	0.6521739130434783
13	CC	2011	1	26	1.0	1.7333333333333334
14	CC	2011	2	29	1.3181818181818181	1.1153846153846154
15	CC	2011	3	27	0.9310344827586207	0.9310344827586207
16	CC	2011	4	33	1.0	1.2222222222222223
17	CC	2011	5	33	1.5714285714285714	1.0
18	CC	2011	6	25	1.25	0.7575757575757576

CONTENTS

Associate worksheets and compute salaries

4.3 Associate worksheets and compute salaries

Task: Combine performance table and absent table with standard table, and compute the actual salary. Below are the three worksheets in Employee.4.3.xlsx:

standard | absent | performance

	EID	Name	StandardWages
1	1	Rebecca Moore	2000
2	2	Ashley wilson	2200
3	3	Rachel Johnson	1800
4	4	Emily Smith	1200
5	5	Ashley scott	2000
6	6	Matthew Jones	1600
7	7	Alexis Smith	1300
8	8	Megan wilson	3000
9	9	Victoria Green	2300
10	10	Ryan Jackson	2600
11	11	Jacob Moore	1250
12	12	Jessica Davis	2000
13	13	Daniel Davis	2800
14	14	Alyssa Wilson	1800

standard | absent | performance

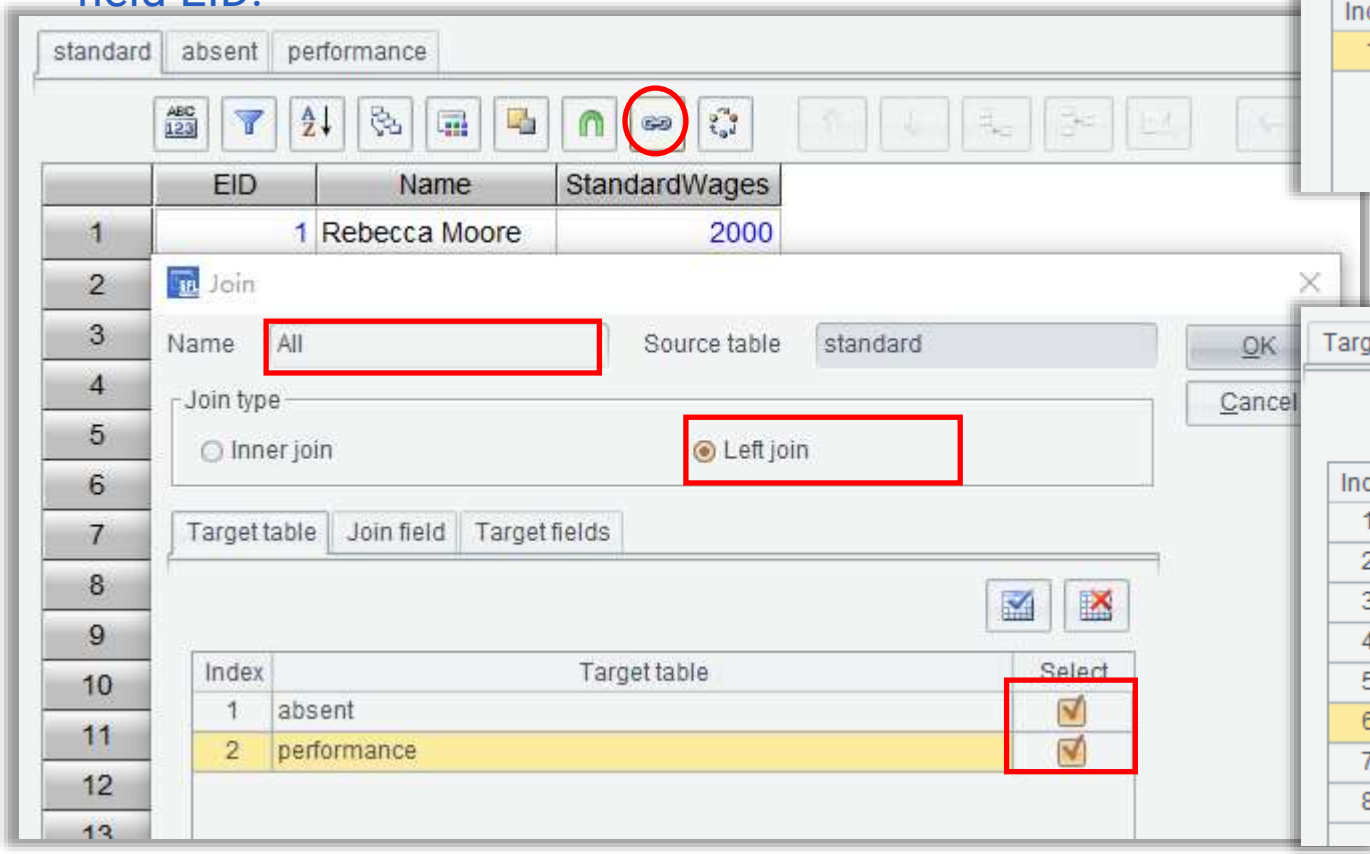
	EID	Absence
1	2	8
2	11	15
3	13	20
4	17	4
5	19	12

standard | absent | performance

	EID	Evaluation	Bonus
1	2	0	800
2	3	0	500
3	5	0	200
4	7	0.2	1500
5	11	-0.15	0
6	13	0	300
7	17	0.05	500
8	19	0.3	800

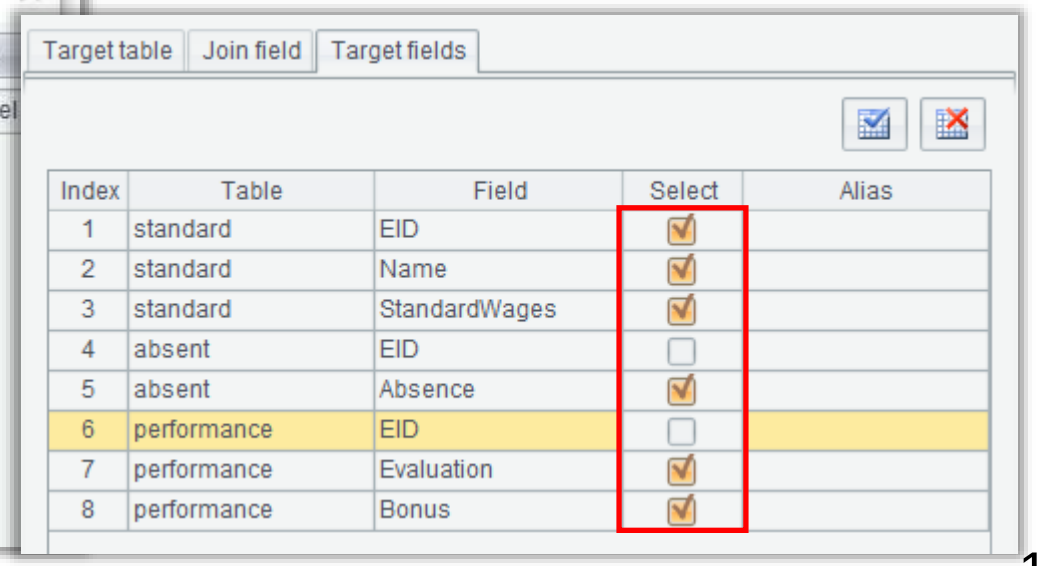
4.3 Associate worksheets and compute salaries

Perform left join to associate absent table and performance table with standard table through join field EID:



Set join field:

Check field to be selected:



4.3 Associate worksheets and compute salaries

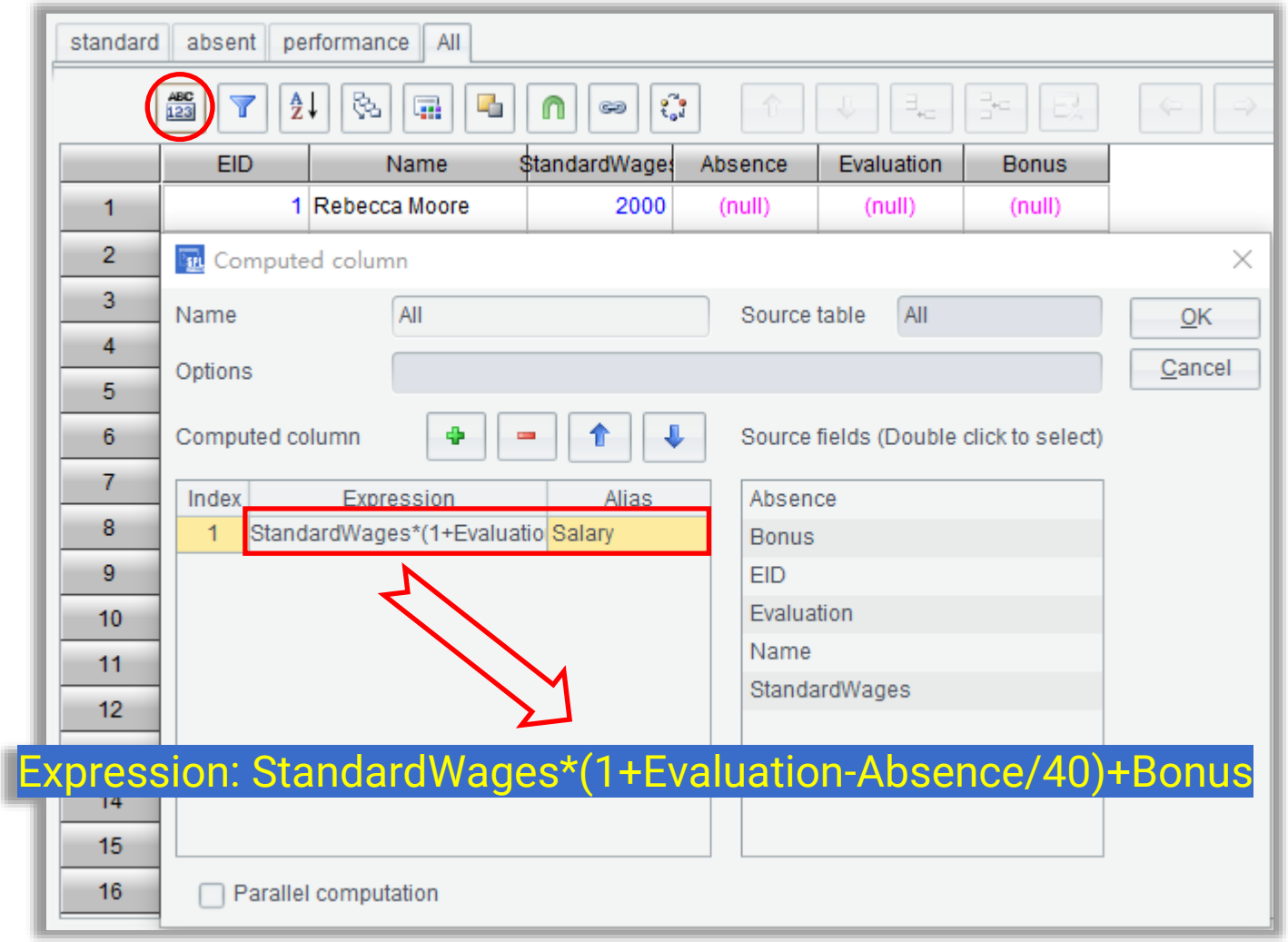
Association result set:

standard | absent | performance | All

	EID	Name	StandardWage	Absence	Evaluation	Bonus
1	1	Rebecca Moore	2000	(null)	(null)	(null)
2	2	Ashley wilson	2200	8	0	800
3	3	Rachel Johnson	1800	(null)	0	500
4	4	Emily Smith	1200	(null)	(null)	(null)
5	5	Ashley scott	2000	(null)	0	200
6	6	Matthew Jones	1600	(null)	(null)	(null)
7	7	Alexis Smith	1300	(null)	0.2	1500
8	8	Megan wilson	3000	(null)	(null)	(null)
9	9	Victoria Green	2300	(null)	(null)	(null)
10	10	Ryan Jackson	2600	(null)	(null)	(null)
11	11	Jacob Moore	1250	15	-0.15	0
12	12	Jessica Davis	2000	(null)	(null)	(null)
13	13	Daniel Davis	2800	20	0	300
14	14	Alyssa Wilson	1800	(null)	(null)	(null)
15	15	Alexis Sullivan	2400	(null)	(null)	(null)

4.3 Associate worksheets and compute salaries

Add a computed column to ALL table, and compute salaries, whose field alias is Salary:



4.3 Associate worksheets and compute salaries

Compute Salary field values:

standard | absent | performance | All

	EID	Name	StandardWage	Absence	Evaluation	Bonus	Salary
1	1	Rebecca Moore	2000	(null)	(null)	(null)	2000
2	2	Ashley wilson	2200	8	0	800	2560.0
3	3	Rachel Johnson	1800	(null)	0	500	2300
4	4	Emily Smith	1200	(null)	(null)	(null)	1200
5	5	Ashley scott	2000	(null)	0	200	2200
6	6	Matthew Jones	1600	(null)	(null)	(null)	1600
7	7	Alexis Smith	1300	(null)	0.2	1500	3060.0
8	8	Megan wilson	3000	(null)	(null)	(null)	3000
9	9	Victoria Green	2300	(null)	(null)	(null)	2300
10	10	Ryan Jackson	2600	(null)	(null)	(null)	2600
11	11	Jacob Moore	1250	15	-0.15	0	593.75
12	12	Jessica Davis	2000	(null)	(null)	(null)	2000
13	13	Daniel Davis	2800	20	0	300	1700.0
14	14	Alyssa Wilson	1800	(null)	(null)	(null)	1800
15	15	Alexis Sullivan	2400	(null)	(null)	(null)	2400

CONTENTS

Find salespeople who rank top5 every month

4.4 Find salespeople who rank top5 every month

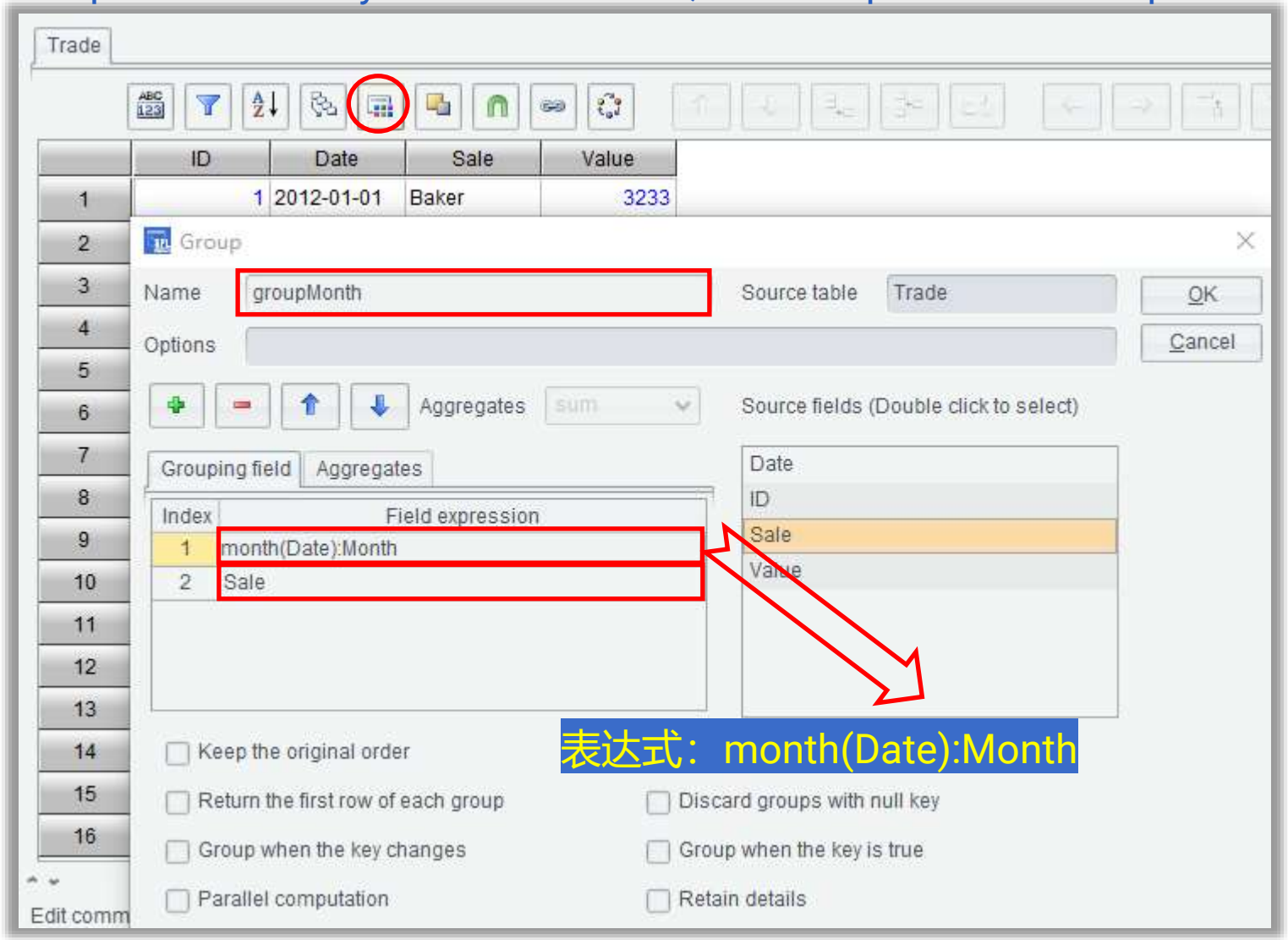
According to the daily trading records, find star salespeople who make it to top 5 every month in terms of sales volume. Open data table Trade.4.4.xlsx as follows:

Trade

	ID	Date	Sale	Value
1	1	2012-01-01	Baker	3233
2	2	2012-01-01	Marry	6750
3	3	2012-01-01	Jenny	2998
4	4	2012-01-01	Steven	8059
5	5	2012-01-01	Bill	6933
6	6	2012-01-01	Tom	4828
7	7	2012-01-01	Joancy	9232
8	8	2012-01-01	Larren	2733
9	9	2012-01-01	Harry	5197
10	10	2012-01-01	Johnson	2878
11	11	2012-01-02	Harry	8940
12	12	2012-01-02	Joancy	5707
13	13	2012-01-03	Marry	2687
14	14	2012-01-03	Jenny	7503
15	15	2012-01-03	Joancy	166

4.4 Find salespeople who rank top5 every month

Group Trade table by Month and Sales, and compute each salesperson's sales volume in each month:



Set aggregation expression:

4.4 Find salespeople who rank top5 every month

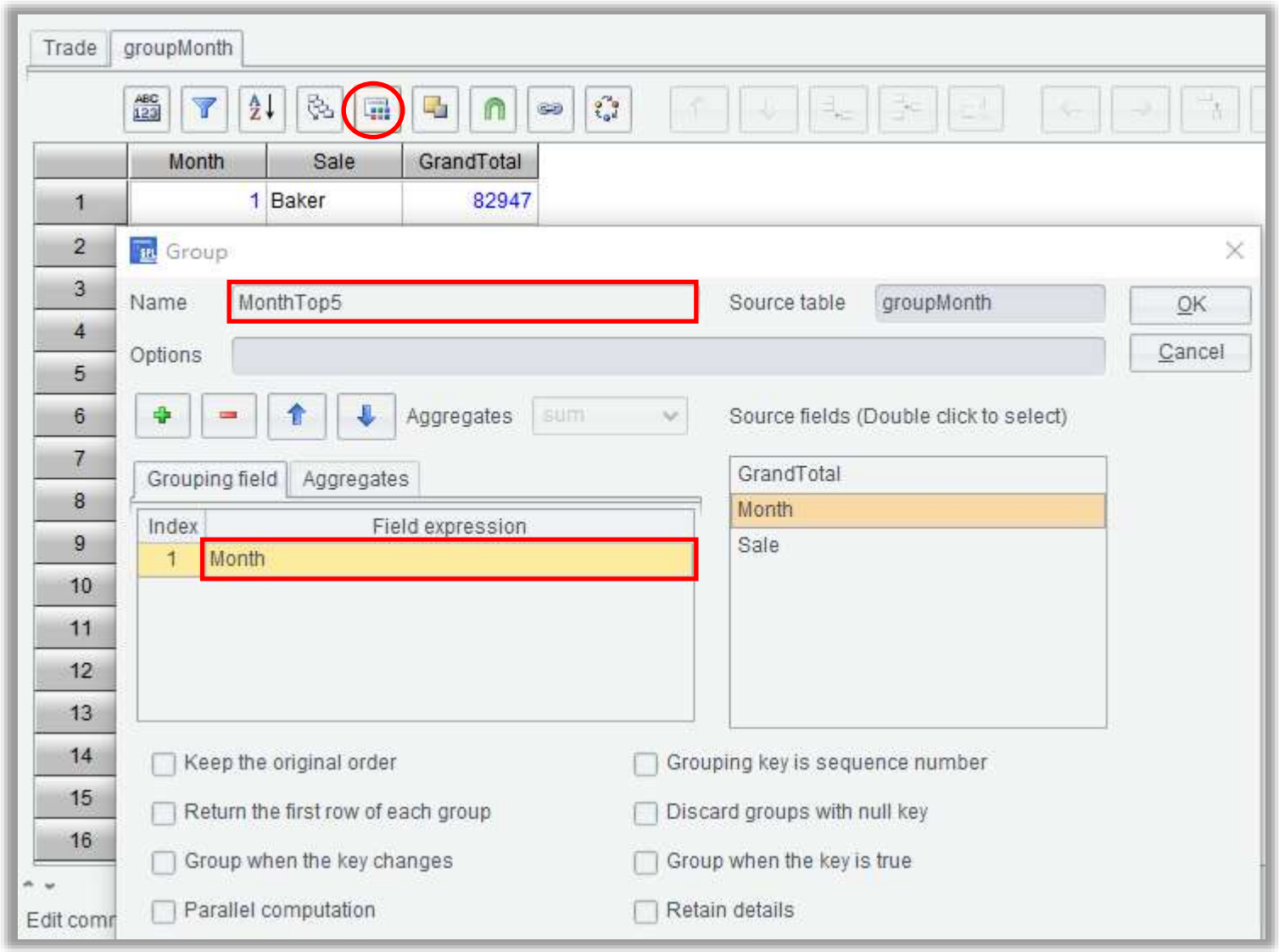
Grouping result set:

Trade | groupMonth

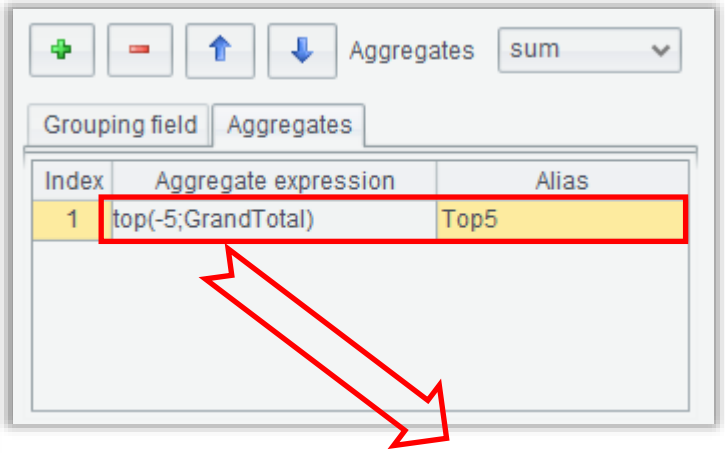
	Month	Sale	GrandTotal
1	1	Baker	82947
2	1	Bill	106036
3	1	Dow	100529
4	1	Harry	79994
5	1	Jenny	108439
6	1	Joancy	61735
7	1	Johnson	60501
8	1	Larren	95658
9	1	Marry	60315
10	1	Steven	95644
11	1	Tom	80613
12	2	Baker	89837
13	2	Bill	99535
14	2	Dow	98712
15	2	Harry	59620

4.4 Find salespeople who rank top5 every month

Then group groupMonth table by Month, and name result set MonthTop5:



Set aggregation expression:



Expression: top(-5;GrandTotal)

4.4 Find salespeople who rank top5 every month

Grouping result set:

Trade | groupMonth | MonthTop5

	Month	Top5
1	1	[[1,Jenny],[1,Bill],[1,Dow], ...]
2	2	[[2,Johnson],[2,Bill],[2,Dow], ...]
3	3	[[3,Tom],[3,Baker],[3,Bill], ...]
4	4	[[4,Bill],[4,Johnson],[4,Larren], ...]
5	5	[[5,Tom],[5,Dow],[5,Bill], ...]
6	6	[[6,Johnson],[6,Larren],
7	7	[[7,Dow],[7,Bill],[7,Baker], ...]
8	8	[[8,Larren],[8,Bill],[8,Tom], ...]
9	9	[[9,Johnson],[9,Larren],[9,Harry], ...]
10	10	[[10,Steven],[10,Tom],[10,Dow], ...]
11	11	[[11,Bill],[11,Baker],[11,Jenny], ...]
12	12	[[12,Tom],[12,Marry],[12,Bill], ...]

Top5 salespeople in each month

4.4 Find salespeople who rank top5 every month

Compute intersection of all top5s:

Trade | groupMonth | MonthTop5

	Month	Top5
1	1	[[1,Jenny],[1,Bill],[1,Dow], ...]
2	2	[[2,Johnson],[2,Bill],[2,Dow], ...]
3	3	[[3,Tom],[3,Baker],[3,Bill], ...]
4	4	[[4,Bill],[4,Johnson],[4,Larren],
5	5	[[5,Tom],[5,Dow],[5,Bill], ...]
6	6	[[6,Johnson],[6,Larren],[6,Harry
7	7	[[7,Dow],[7,Bill],[7,Baker], ...]
8	8	[[8,Larren],[8,Bill],[8,Tom], ...]
9	9	[[9,Johnson],[9,Larren],[9,Harry
10	10	[[10,Steven],[10,Tom],[10,Dow]
11	11	[[11,Bill],[11,Baker],[11,Jenny],
12	12	[12,Tom],[12,Marry],[12,Bill],

Expression:

MonthTop5.(Top5.(Sale)).isect()

Edit command

MonthTop5.(Top5.(Sale)).isect()

Enter the expression at command line and execute it

The best salesperson:

Trade | groupMonth | MonthTop5

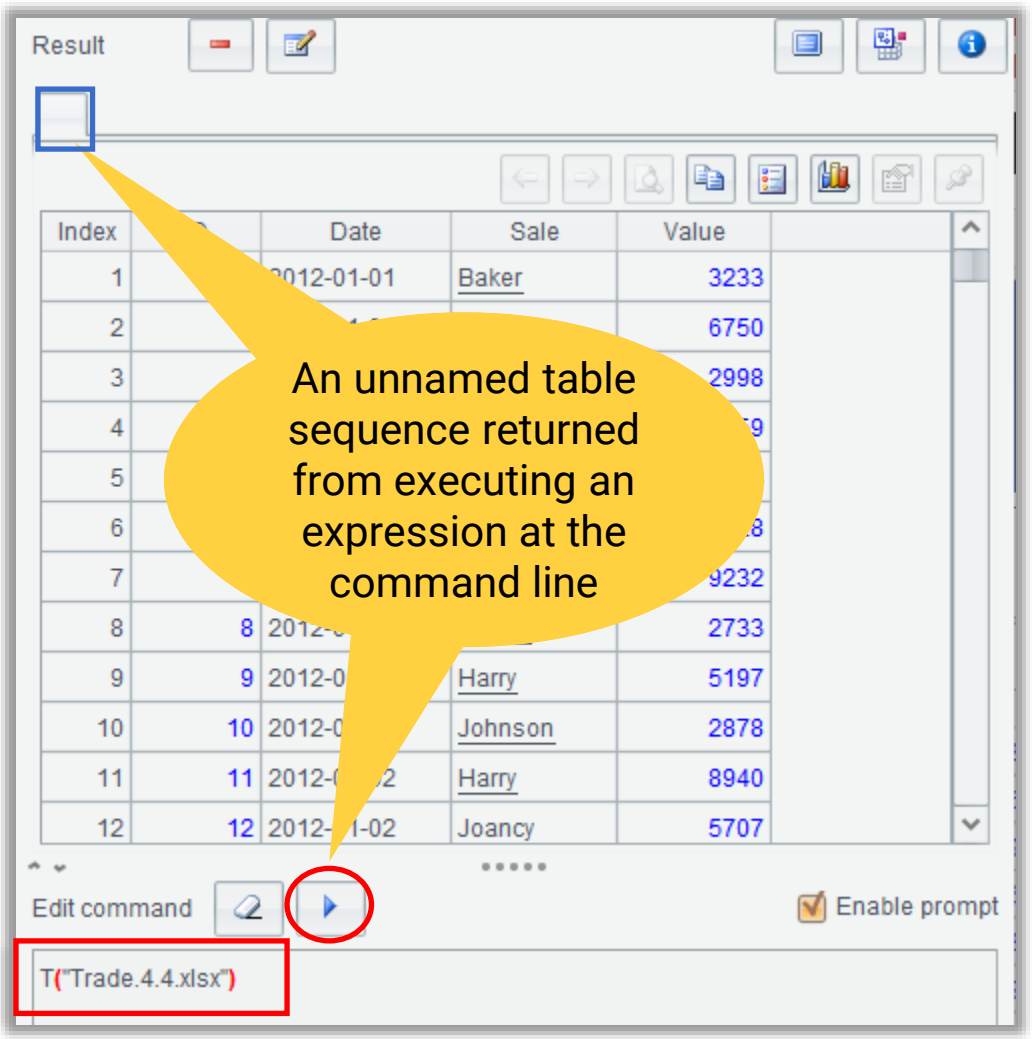
Index	Member
1	Bill

SPL WIN Course

Chapter 5
Editing result set

Editing result set

A result set meeting the following conditions is view-only and cannot be edited:



Editing result set

A result set meeting the following conditions is view-only and cannot be edited :

result | Trade | group

	Month	Details
1	1	[[1,2012-01-01,Baker,
2	2	[[186,2012-02-01,Steven,
3	3	[[356,2012-03-01,Larren,
4	4	[[532,2012-04-01,Baker,
5	5	[[737,2012-05-01,Jenny,
6	6	[[890,2012-06-01,Johnson,
7	7	[[1087,2012-07-01,Harry,
8	8	[[1311,2012-08-01,Harry,
9	9	[[1506,2012-09-01,Jenny,
10	10	[[1683,2012-10-01,Larren,
11	11	[[1846,2012-11-01,Larren,

A field whose values are sequences or table sequences cannot be edited

Trade

	ID	Date		
1	1	2012-01-01	E	
2	2	2012-01-01	Ma	
3	3	2012-01-01	Jenny	
4	4	2012-01-01	Steven	
5	5	2012-01-01	Bill	6933
6	6	2012-01-01	Tom	4828
7	7	2012-01-01	Joancy	9232
8	8	2012-01-01	Larren	2733
9	9	2012-01-01	Harry	5197
10	10	2012-01-01	Johnson	2878
11	11	2012-01-02	Harry	8940

When a data table is stored as a cursor, all its fields cannot be edited

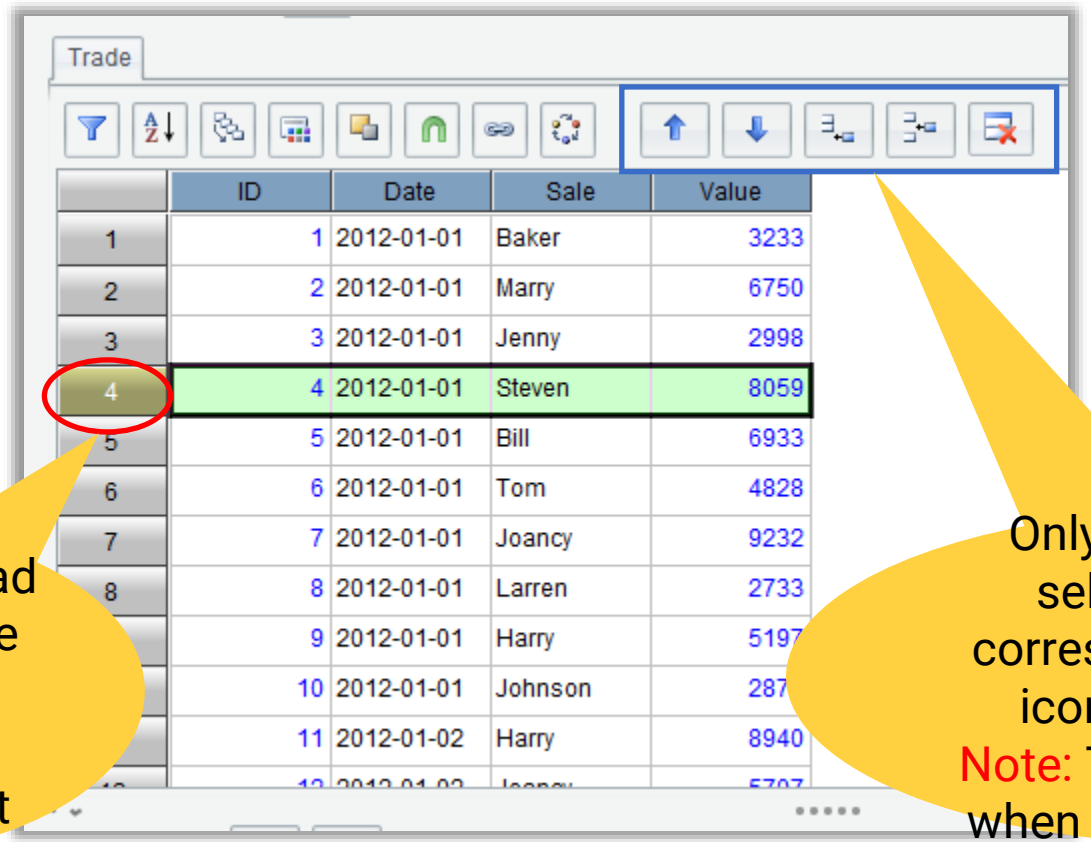
CONTENTS

CONTENTS

5.1 Data rows

5.1 Data rows

We can move data rows, or add or delete one:



Click a row's head cell to select the row for performing operations on it

Only when a row is selected will the corresponding toolbar icons are enabled

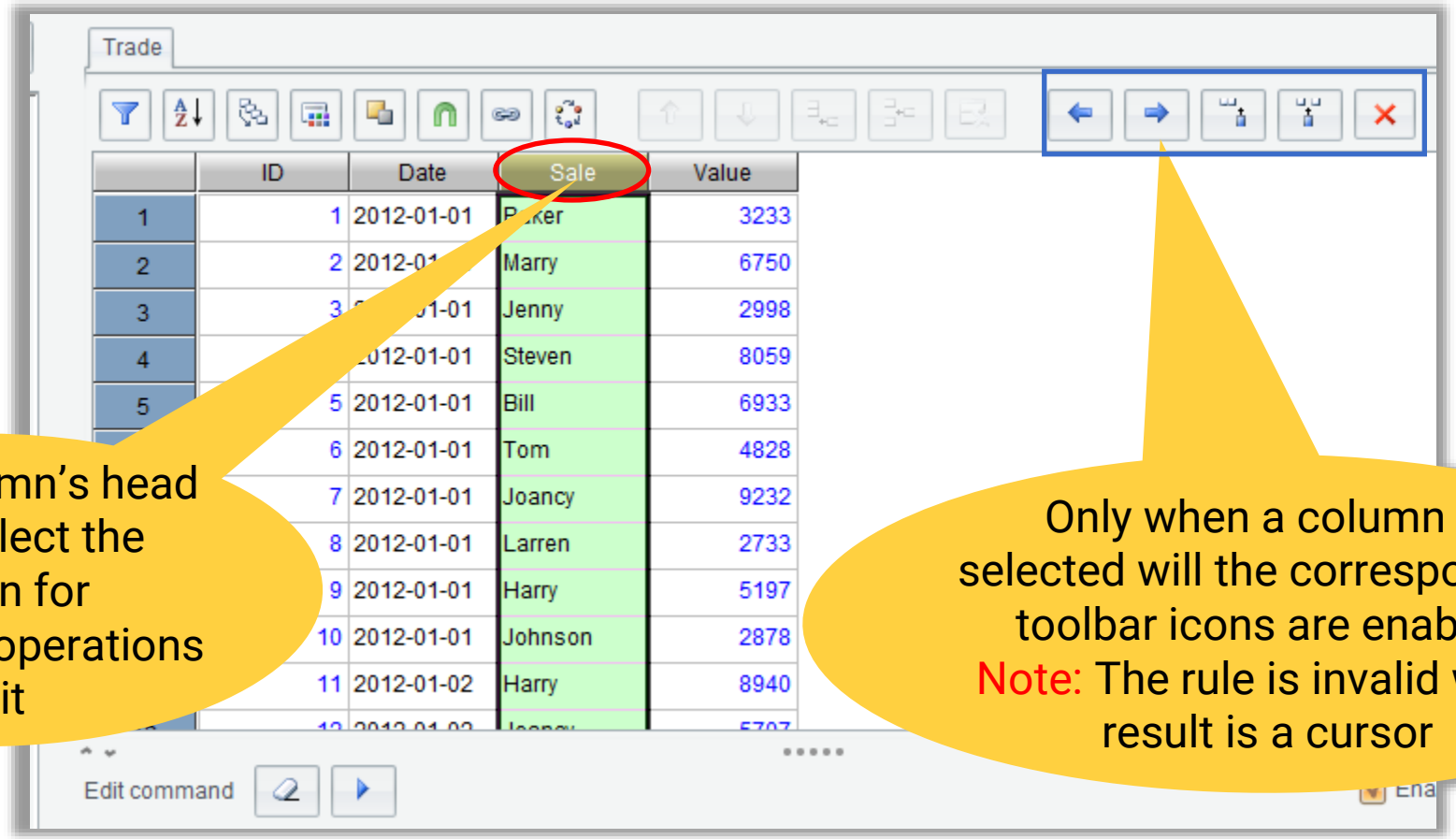
Note: The rule is invalid when result is a cursor

CONTENTS

5.2 Data columns

5.2 Data columns

We can move data columns, or add or delete one:

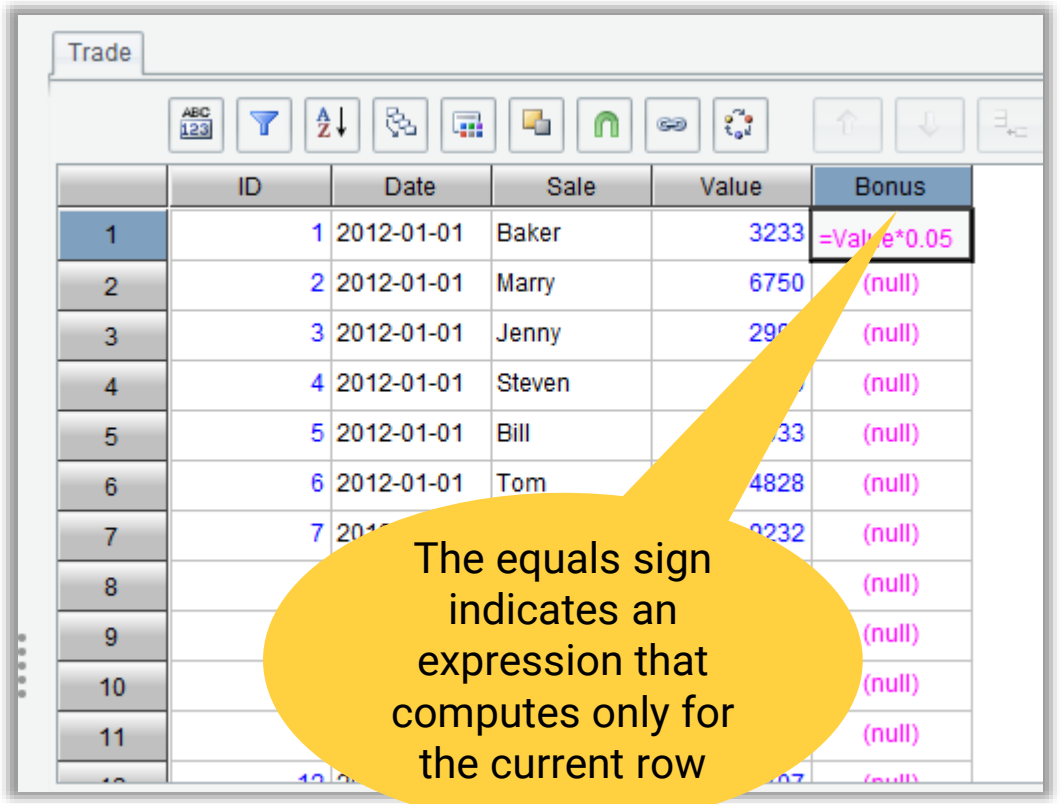


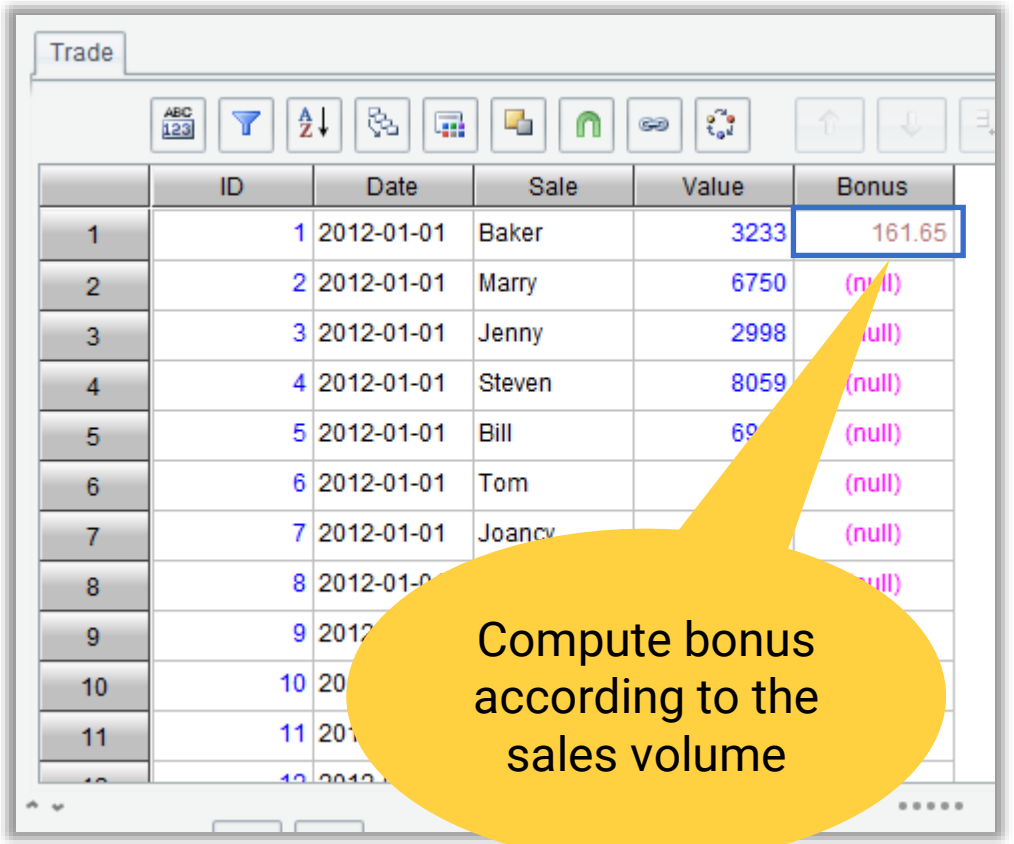
CONTENTS

5.3 Cell value expression

5.3 Cell value expression

We can directly assign value to a cell, or compute its value through an expression beginning with the equals sign (the latter becomes disabled when result is a cursor):





5.3 Cell value expression

We can also use an expression beginning with the double equals sign to compute (this is disabled when result is a cursor):

Trade

	ID	Date	Sale	Value	Bonus
1	1	2012-01-01	Baker	3233	==Value*0.05
2	2	2012-01-01	Marry	6750	(null)
3	3	2012-01-01	Jenny	2998	(null)
4	4	2012-01-01	Steven	80	(null)
5	5	2012-01-01	Bill	3	(null)
6	6	2012-01-01	Tom	828	(null)
7	7	2012-01-01		9232	(null)
8				2733	(null)
9					(null)
10					(null)
11					(null)

The double equals sign indicates an expression that computes value for the whole column

Trade

	ID	Date	Sale	Value	Bonus
1	1	2012-01-01	Baker	3233	161.65
2	2	2012-01-01	Marry	6750	337.5
3	3	2012-01-01	Jenny	2998	149.9
4	4	2012-01-01	Steven	8059	402.950000000
5	5	2012-01-01	Bill	6933	346.650000000
6	6	2012-01-01	Tom	828	241.4
7	7	2012-01-01	Joancy	9232	461.6
8				2733	136.65
9				5197	259.85
10				2878	143.9
11				8940	447.0

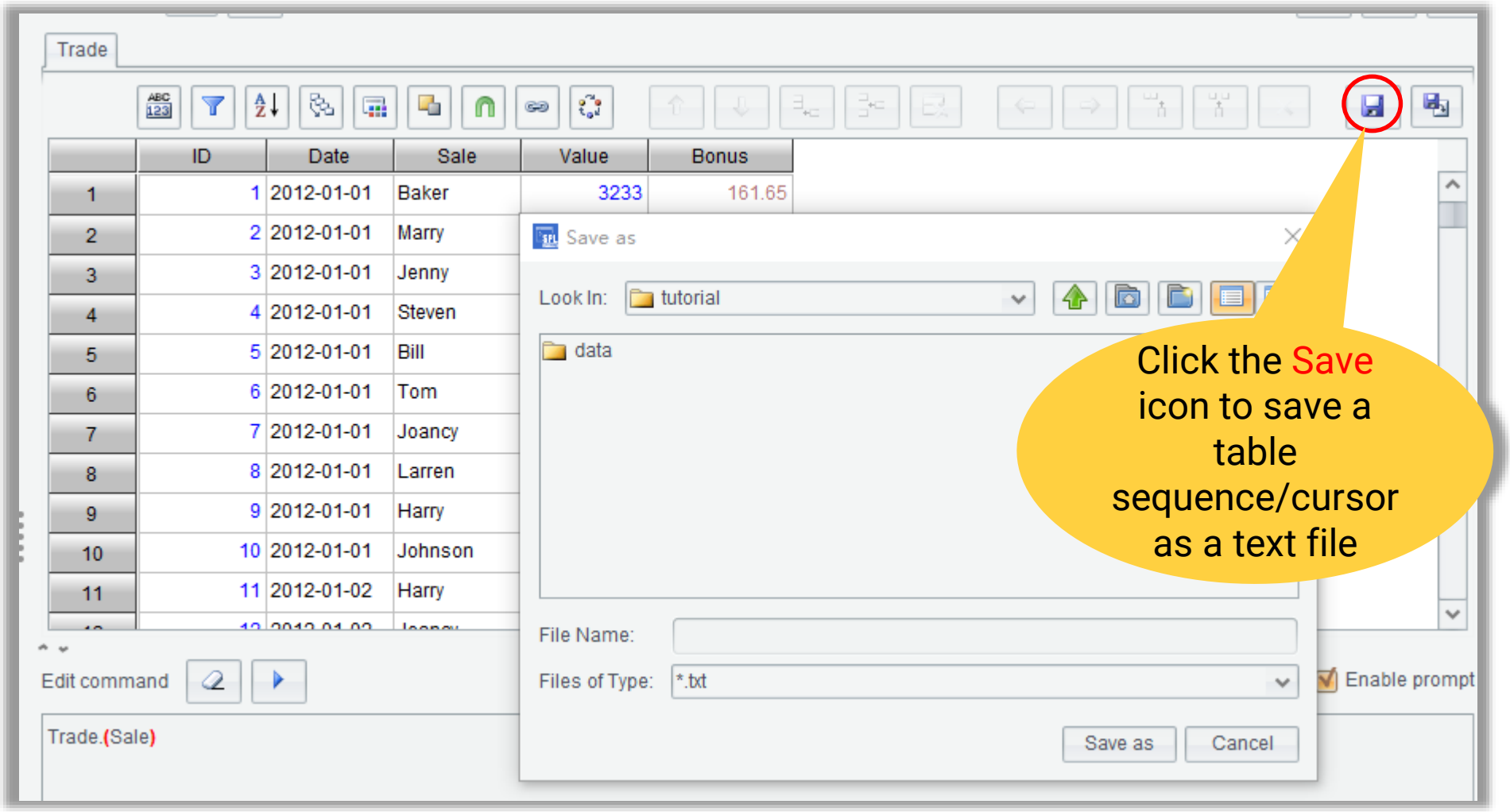
Compute bonuses for all salespeople according sales volumes

CONTENTS

5.4 Save and export

5.4 Save and export

A table sequence or a cursor obtained from the computation can be directly saved as a text file:



5.4 Save and export

They can also be exported as a file of anther format: