



集算器

创新大数据计算引擎

解决BIRT特殊布局的若干示例

润乾软件出品





目录

Contents

1

横向分栏

2

错行分栏

3

宽表横向打印

4

复制行

5

用条件控制分组表格式

6

将子表动态插入主表

7

横向拼接列表

8

交叉表列间计算

9

行列转置



横向分栏

一些特殊的布局版面，很难通过报表工具本身提供的功能直接实现，但如果准备出合适的数据库，就能大大降低报表设计的难度！

BIRT等报表工具只支持纵向分栏，很难实现记录横向摆放并分栏的布局，如下报表：

			报表格式			源数据表					
EId	Name	Dept	EId	Name	Dept	EId	Name	Dept	EID	NAME	DEPT
4	Emily	HR	5	Ashley	R&D	6	Matthew	Sales	4	Emily	HR
7	Alexis	Sales	8	Megan	Marketing	9	Joseph	Production	5	Ashley	R&D
10	Ryan	R&D	11	Jacob	Sales	12	Jessica	Sales	6	Matthew	Sales
13	Daniel	Finance	14	Alyssa	Sales	15	Alexis	Sales	7	Alexis	Sales
16	Christopher	Production	17	Hannah	Marketing	18	Jonathan	Administration	8	Megan	Marketing
19	Samantha	Production	20	Alexis	Administration				9	Victoria	HR
									10	Ryan	R&D
									11	Jacob	Sales
									12	Jessica	Sales
									13	Daniel	Finance
									14	Alyssa	Sales
									15	Alexis	Sales
									16	Christopher	Production
									17	Hannah	Marketing
									18	Jonathan	Administration
									19	Samantha	Production
									20	Alexis	Administration



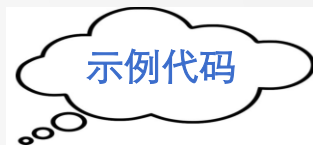
横向分栏 - 示例

用集算器将原来的3字段数据转为9字段，就可以用报表工具实现横向分栏了，代码示例如下：

Index	EID	NAME	DEPT
1	4	Emily	HR
2	7	Alexis	Sales
3	10	Ryan	R&D
4	13	Daniel	Finance
5	16	Christopher	Production
6	19	Samantha	Production

Index	EID	NAME	DEPT
1	5	Ashley	R&D
2	8	Megan	Marketing
3	11	Jacob	Sales
4	14	Alyssa	Sales
5	17	Hannah	Marketing
6	20	Alexis	Administration

Index	EID	NAME	DEPT
1	6	Matthew	Sales
2	9	Victoria	HR
3	12	Jessica	Sales
4	15	Alexis	Sales
5	18	Jonathan	Administration



A2代表：每隔3条记录从A1取出第1条，组成新的二维表，B2、C2以此类推。

```

1  =myDB.query("select EId,Name,Dept from emp where EId>=? and EId<=? order by EId ",begin,end)
2  =A1.step(3,1)
3  =A2.derive(B2(#).EID:EID2,B2(#).NAME:NAME2,B2(#).DEPT:DEPT2,C2(#).EID:EID3,C2(#).NAME:NAME3,C2(#).DEPT:DEPT3)
4  return A3

```

将数据按序号分成3部分，存在A2、B2、C2，再将B2、C2中的字段依次加入A2，如右图：

Index	EID	NAME	DEPT	EID2	NAME2	DEPT2	EID3	NAME3	DEPT3
1	4	Emily	HR	5	Ashley	R&D	6	Matthew	Sales
2	7	Alexis	Sales	8	Megan	Marketing	9	Victoria	HR
3	10	Ryan	R&D	11	Jacob	Sales	12	Jessica	Sales
4	13	Daniel	Finance	14	Alyssa	Sales	15	Alexis	Sales
5	16	Christopher	Production	17	Hannah	Marketing	18	Jonathan	Administr...
6	19	Samantha	Production	20	Alexis	Administr...	(null)	(null)	(null)

错行分栏



将源数据表横向分为两栏，每行的第2栏和下一行的第1栏相同，报表布局如下：

报表格式					
EID	NAME	DEPT	EID2	NAME2	DEPT2
4	Emily	HR	5	Ashley	R&D
5	Ashley	R&D	6	Matthew	Sales
6	Matthew	Sales	7	Alexis	Sales
7	Alexis	Sales	8	Megan	Marketing
8	Megan	Marketing	9	Victoria	HR
9	Victoria	HR	10	Ryan	R&D
10	Ryan	R&D	11	Jacob	Sales
11	Jacob	Sales	12	Jessica	Sales
12	Jessica	Sales	13	Daniel	Finance
13	Daniel	Finance	14	Alyssa	Sales
14	Alyssa	Sales	15	Alexis	Sales
15	Alexis	Sales	16	Christopher	Production
16	Christopher	Production	17	Hannah	Marketing
17	Hannah	Marketing	18	Jonathan	Administration
18	Jonathan	Administration	19	Samantha	Production
19	Samantha	Production	20	Alexis	Administration



源数据表		
EID	NAME	DEPT
4	Emily	HR
5	Ashley	R&D
6	Matthew	Sales
7	Alexis	Sales
8	Megan	Marketing
9	Victoria	HR
10	Ryan	R&D
11	Jacob	Sales
12	Jessica	Sales
13	Daniel	Finance
14	Alyssa	Sales
15	Alexis	Sales
16	Christopher	Production
17	Hannah	Marketing
18	Jonathan	Administration
19	Samantha	Production
20	Alexis	Administration



错行分栏 - 示例

A2: 错位拼接, 将上一条记录和当前记录依次拼接起来, 从第3行开始取拼接结果, 如右图:

Index	EID	NAME	DEPT
1	4	Emily	HR
2	5	Ashley	R&D
3	5	Ashley	R&D
4	6	Matthew	Sales
5	6	Matthew	Sales
6	7	Alexis	Sales
7	7	Alexis	Sales
8	8	Megan	Marketing
9	8	Megan	Marketing
10	9	Victoria	HR
11	9	Victoria	HR
12	10	Ryan	R&D
13	10	Ryan	R&D
14	11	Jacob	Sales
15	11	Jacob	Sales

	A	B
1	<code>=myDB.query("select EId,Name,Dept from emp where EId>=? and EId<=? order by EId ",begin,end)</code>	
2	<code>=A1.conj([~[-1],~]).to(3,)</code>	
3	<code>=A2.step(2,1)</code>	<code>=A2.step(2,2) [null]</code>
4	<code>=A3.derive(B3(#).EID:EID2,B3(#).NAME:NAME2,B3(#).DEPT:DEPT2)</code>	

EID	NAME	DEPT
4	Emily	HR
5	Ashley	R&D
6	Matthew	Sales
7	Alexis	Sales
8	Megan	Marketing
9	Victoria	HR
10	Ryan	R&D
11	Jacob	Sales
12	Jessica	Sales
13	Daniel	Finance

EID	NAME	DEPT
5	Ashley	R&D
6	Matthew	Sales
7	Alexis	Sales
8	Megan	Marketing
9	Victoria	HR
10	Ryan	R&D
11	Jacob	Sales
12	Jessica	Sales
13	Daniel	Finance
14	Alyssa	Sales

宽表横向打印



给定任意数据库的宽表，一张纸打印不下，报表要求每张纸打印列头和列号，在第1张纸打印前1到N列，第2张纸打印N+1到2N列，以此类推，示意图：

报表格式

Diagram illustrating the layout of a wide table across four pages (page1, page2, page3, page4). Each page shows a table with columns and row numbers. The first page (page1) shows columns ORDERID, CLIENT, AMOUNT, ORDERDATE. The second page (page2) shows columns SELLERID, POSTALCODE, DELIVERYDATE, SALAY. The third page (page3) shows columns ORDERID, CLIENT, AMOUNT, ORDERDATE. The fourth page (page4) shows columns SELLERID, POSTALCODE, DELIVERYDATE, SALAY. A blue arrow points from the source data table to the right.

ORDERID	CLIENT	AMOUNT	ORDERDATE
10248	VINET	428.0	2012-07-04
10249	TOMSP	1842.0	2012-07-05
10250	HANAR	1523.49998...	2012-07-08
10251	VICTE	624.949999...	2012-07-08
10252	SUPRD	3559.49999...	2012-07-09
10253	HANAR	1428.0	2012-07-10
10254	CHOPS	545.399997...	2012-07-11
10255	RICSU	2450.0	2012-07-12
10256	WELLI	510.0	2012-07-15
10257	HILAA	1109.0	2012-07-16

SELLERID	POSTALCODE	DELIVERYDATE	SALAY
3	111080	2012-07-16	32.38
1	440876	2012-07-10	11.61
2	754546	2012-07-12	65.83
1	690047	2012-07-15	41.34
2	567889	2012-07-11	51.30000000...
2	545486	2012-07-16	58.17
2	301256	2012-07-23	22.98
3	120477	2012-07-15	148.33
2	873763	2012-07-17	13.97
3	502234	2012-07-22	81.91

ORDERID	CLIENT	AMOUNT	ORDERDATE
10258	ERNSH	1603.99999...	2012-07-17
10259	CENTC	100.0	2012-07-18
10260	OTTIK	1461.75	2012-07-19
10261	QUEDE	440.0	2012-07-19
10262	RATTC	583.199999...	2012-07-22
10263	ERNSH	1785.0	2012-07-23
10264	FOLKO	673.749998...	2012-08-20
10265	BLONP	1170.0	2012-07-25
10266	WARTH	341.999999...	2012-07-26
10267	FRANK	3496.49998...	2012-07-29

SELLERID	POSTALCODE	DELIVERYDATE	SALAY
1	801009	2012-07-23	140.51
3	705022	2012-07-19	3.25
1	140739	2012-07-29	55.09
2	238967	2012-07-30	3.050000000...
3	871610	2012-07-25	48.29
3	101043	2012-07-31	146.06
3	144567	2012-08-23	3.67
1	670005	2012-08-12	55.28
3	101103	2012-07-31	25.73
1	380805	2012-08-06	208.58

源数据表

ORDERID	CLIENT	AMOUNT	ORDERDA...	SELLERID	POSTALC...	DELIVERYDATE	SALAY
10248	VINET	428.0	2012-07...	3	111080	2012-07-16	32.38
10249	TOMSP	1842.0	2012-07...	1	440876	2012-07-10	11.61
10250	HANAR	1523.499...	2012-07...	2	754546	2012-07-12	65.83
10251	VICTE	624.9499...	2012-07...	1	690047	2012-07-15	41.34
10252	SUPRD	3559.499...	2012-07...	2	567889	2012-07-11	51.30000...
10253	HANAR	1428.0	2012-07...	2	545486	2012-07-16	58.17
10254	CHOPS	545.3999...	2012-07...	2	301256	2012-07-23	22.98
10255	RICSU	2450.0	2012-07...	3	120477	2012-07-15	148.33
10256	WELLI	510.0	2012-07...	2	873763	2012-07-17	13.97
10257	HILAA	1109.0	2012-07...	3	502234	2012-07-22	81.91
10258	ERNSH	1603.999...	2012-07...	1	801009	2012-07-23	140.51
10259	CENTC	100.0	2012-07...	3	705022	2012-07-19	3.25
10260	OTTIK	1461.75	2012-07...	1	140739	2012-07-29	55.09
10261	QUEDE	440.0	2012-07...	2	238967	2012-07-30	3.050000...
10262	RATTC	583.1999...	2012-07...	3	871610	2012-07-25	48.29
10263	ERNSH	1785.0	2012-07...	3	101043	2012-07-31	146.06
10264	FOLKO	673.7499...	2012-08...	3	144567	2012-08-23	3.67
10265	BLONP	1170.0	2012-07...	1	670005	2012-08-12	55.28
10266	WARTH	341.9999...	2012-07...	3	101103	2012-07-31	25.73
10267	FRANK	3496.499...	2012-07...	1	380805	2012-08-06	208.58



宽表横向打印-示例

传入参数: 数据库表名

传入参数: 每页显示列

传入参数: 每页显示行

Title	Value
argSource	ORDERS
argPageCol	4
argPageRow	10

Buttons: OK, Cancel

	A	
1	=myDB.query("select * from "+argSource)	/argSource为传入参数数据库任意表名
2	=create(\${argPageCol}.concat("Col",~)).string()})	/动态生成列数为argPageCol的空二维表
3	=A1.group((#-1)\argPageRow)	/将A1每隔argPageRow行分一组
4	=(fn=A1.fno()).step(argPageCol,1).(to(~,if((t=~+argPageCol-1)>fn,fn,t)).(A1.fname(~)))	/将A1中的字段名每argPageCol个分为一组
5	=A4.("["+~.string@q()+"] ~.conj(["+~.string()+"])").string(" ")	/拼字符串,在A6中可动态执行
6	=A3.run(A2.record(\${A5}))	/循环A3每组数据,依次插入A2每页的字段名、字段值
7	return A2	/将A2返回给报表工具

Index	Member
1	[[10248,VINET,428.0,...],[10249,TOMSP,1842.0,...],[10250,HANAR,1523.4999898076057,...]]
2	[[10258,ERNSH,1603.9999940246344,...],[10259,CENTC,100.0,...],[10260,OTTIK,1461.75,...]]
3	[[10268,GROSR,1098.0,...],[10269,WHITC,626.9999995082617,...],[10270,WARTH,1350.0,...]]
4	[[10278,BERGS,1480.0,...],[10279,LEHMS,348.75,...],[10280,BERGS,596.0,...]]
5	[[10288,REGGC,71.99999988079071,...],[10289,BSBEV,474.0,...],[10290,COMMI,2165.0,...]]
6	[[10298,BLONP,2625.0,...],[10299,RICAR,345.0,...],[10300,MAGAA,590.0,...]]

Index	Member
1	[ORDERID,CLIENT,AMOUNT,...]
2	[SELLERID,NAME,STATE,...]

Index	Member
1	ORDERID
2	CLIENT
3	AMOUNT
4	ORDERDATE

Index	Member
1	SELLERID
2	NAME
3	STATE
4	SALARY

Index	ORDERID	CLIENT	AMOUNT	ORDERDA...	SELLERID	POSTALCODE	DELIVERYDATE	SALARY
1	10248	VINET	428.0	2012-07...	3	111080	2012-07-16	32.38
2	10249	TOMSP	1842.0	2012-07...	1	440876	2012-07-10	11.61
3	10250	HANAR	1523.499...	2012-07...	2	754546	2012-07-12	65.83
4	10251	VICTE	624.9499...	2012-07...	1	690047	2012-07-15	41.34
5	10252	SUPRD	3559.499...	2012-07...	2	567889	2012-07-11	51.300000...
6	10253	HANAR	1428.0	2012-07...	2	545486	2012-07-16	58.17
7	10254	CHOPS	545.3999...	2012-07...	2	301256	2012-07-23	22.98
8	10255	RICSU	2450.0	2012-07...	3	120477	2012-07-15	148.33
9	10256	WELLI	510.0	2012-07...	2	873763	2012-07-17	13.97
10	10257	HILAA	1109.0	2012-07...	3	502234	2012-07-22	81.91

Index	Col1	Col2	Col3	Col4
1	ORDERID	CLIENT	AMOUNT	ORDERDATE
2	10248	VINET	428.0	2012-07-04
3	10249	TOMSP	1842.0	2012-07-05
4	10250	HANAR	1523.499989...	2012-07-08
5	10251	VICTE	624.9499997...	2012-07-08
6	10252	SUPRD	3559.499998...	2012-07-09
7	10253	HANAR	1428.0	2012-07-10
8	10254	CHOPS	545.3999973...	2012-07-11
9	10255	RICSU	2450.0	2012-07-12
10	10256	WELLI	510.0	2012-07-15
11	10257	HILAA	1109.0	2012-07-16
12	SELLERID	POSTALCODE	DELIVERYDATE	SALARY
13	3	111080	2012-07-16	32.38
14	1	440876	2012-07-10	11.61
15	2	754546	2012-07-12	65.83
16	1	690047	2012-07-15	41.34
17	2	567889	2012-07-11	51.30000000...
18	2	545486	2012-07-16	58.17
19	2	301256	2012-07-23	22.98
20	3	120477	2012-07-15	148.33
21	2	873763	2012-07-17	13.97
22	3	502234	2012-07-22	81.91

Page 1 (rows 1-11), Page 2 (rows 12-22)

复制行 - 示例



按次序将记录复制3份，并用报表展现，示意图：

报表格式

Index	ORDERID	CLIENT	AMOUNT	ORDERDATE	SELLERID	POSTALCODE	DELIVERYDATE	SALAY
1	10248	VINET	428.0	2012-07-04	3	111080	2012-07-16	32.38
2	10248	VINET	428.0	2012-07-04	3	111080	2012-07-16	32.38
3	10248	VINET	428.0	2012-07-04	3	111080	2012-07-16	32.38
4	10249	TOMSP	1842.0	2012-07-05	1	440876	2012-07-10	11.61
5	10249	TOMSP	1842.0	2012-07-05	1	440876	2012-07-10	11.61
6	10249	TOMSP	1842.0	2012-07-05	1	440876	2012-07-10	11.61
7	10250	HANAR	1523.4999...	2012-07-08	2	754546	2012-07-12	65.83
8	10250	HANAR	1523.4999...	2012-07-08	2	754546	2012-07-12	65.83
9	10250	HANAR	1523.4999...	2012-07-08	2	754546	2012-07-12	65.83
10	10251	VICTE	624.94999...	2012-07-08	1	690047	2012-07-15	41.34
11	10251	VICTE	624.94999...	2012-07-08	1	690047	2012-07-15	41.34
12	10251	VICTE	624.94999...	2012-07-08	1	690047	2012-07-15	41.34
13	10252	SUPRD	3559.4999...	2012-07-09	2	567889	2012-07-11	51.300000...
14	10252	SUPRD	3559.4999...	2012-07-09	2	567889	2012-07-11	51.300000...
15	10252	SUPRD	3559.4999...	2012-07-09	2	567889	2012-07-11	51.300000...
16	10253	HANAR	1428.0	2012-07-10	2	545486	2012-07-16	58.17
17	10253	HANAR	1428.0	2012-07-10	2	545486	2012-07-16	58.17
18	10253	HANAR	1428.0	2012-07-10	2	545486	2012-07-16	58.17

源数据表

Index	ORDERID	CLIENT	AMOUNT	ORDERDATE	SELLERID	POSTALCODE	DELIVERYDATE	SALAY
1	10248	VINET	428.0	2012-07-04	3	111080	2012-07-16	32.38
2	10249	TOMSP	1842.0	2012-07-05	1	440876	2012-07-10	11.61
3	10250	HANAR	1523.4999...	2012-07-08	2	754546	2012-07-12	65.83
4	10251	VICTE	624.94999...	2012-07-08	1	690047	2012-07-15	41.34
5	10252	SUPRD	3559.4999...	2012-07-09	2	567889	2012-07-11	51.300000...
6	10253	HANAR	1428.0	2012-07-10	2	545486	2012-07-16	58.17
7	10254	CHOPS	545.39999...	2012-07-11	2	301256	2012-07-23	22.98
8	10255	RICSU	2450.0	2012-07-12	3	120477	2012-07-15	148.33
9	10256	WELLI	510.0	2012-07-15	2	873763	2012-07-17	13.97
10	10257	HILAA	1109.0	2012-07-16	3	502234	2012-07-22	81.91
11	10258	ERNSH	1603.9999...	2012-07-17	1	801009	2012-07-23	140.51
12	10259	CENTC	100.0	2012-07-18	3	705022	2012-07-19	3.25
13	10260	OTTIK	1461.75	2012-07-19	1	140739	2012-07-29	55.09
14	10261	QUEDE	440.0	2012-07-19	2	238967	2012-07-30	3.0500000...
15	10262	RATTC	583.19999...	2012-07-22	3	871610	2012-07-25	48.29

	A
1	=myDB.query("select * from orders")
2	=A1.conj([~]*3)

[]表示序列（有序集合），[~]表示将A1当前记录作为单成员序列，[~]*3可将当前记录复制3份，函数conj对A1每个记录执行计算，最后进行合并。



用条件控制分组表的格式

展现一张分组表，分组字段SellerId，明细字段Client和Amount。报表最终格式要求如下：

- 1、每组明细中，从第2条直到结束需要显示“+”号，第1条不显示。
- 2、如果每组明细多于1条，则在该组最后显示对Amount的汇总求和，明细只有1条时不显示汇总。

Index	item	value
1	Florida	16000
2	+Pennsylvania	12000
3	Administration SUBTOTAL:	28000
4	New York	11000
5	+Texas	11000
6	Finance SUBTOTAL:	22000
7	California	12000
8	Illinois	12000
9	+New York	25000
10	+Texas	12000
11	+New Jersey	12000
12	+Nevada	12000
13	+Pennsylvania	12000
14	Production SUBTOTAL:	85000
15	Texas	32000
16	+Pennsylvania	24000
17	+New York	24000
18	R&D SUBTOTAL:	80000
19	California	62000
20	+Texas	36000

组内汇总

只有一条不显示汇总

Index	SELLERID	CLIENT	AMOUNT
1	Finance	New York	11000
2	R&D	Texas	32000
3	Sales	California	62000
4	R&D	Pennsylvania	24000
5	Sales	Texas	36000
6	Administration	Florida	16000
7	Finance	Texas	11000
8	Production	Illinois	12000
9	Administration	Pennsylvania	12000
10	Technology	Pennsylvania	13000
11	Sales	Pennsylvania	12000
12	Production	New York	25000
13	Production	Texas	12000
14	Sales	Alabama	12000
15	Sales	Illinois	12000
16	Sales	Kansas	12000
17	HR	California	12000
18	Sales	Michigan	12000
19	R&D	New York	24000
20	Sales	New York	12000



用条件控制分组表的格式 - 示例

查询数据库，按照SellerId分组，并循环访问每组数据。循环中向空序表A2追加当前组的明细，如果序号#大于1，则在Client之前加“+”，如果当前组记录数大于1，则向A2追加subtotal。

	A	B	C
1	=myDB.query("SELECT SELLERID,CLIENT,AMOUNT FROM ORDER WHERE AMOUNT>?",arg)		
2	=create(item,value)		
3	for A1.group(SELLERID)	>A2.insert(0:A3,if(>1,"")+CLIENT,AMOUNT)	
4		if A3.len()>1	>A2.insert(0,A3.SELLERID+" SUBTOTAL:",A3.sum(AMOUNT))
5	return A2		

A2: 创建空序表

Index	item	value
-------	------	-------

A3: 按sellerid分组

Index	SELLERID	CLIENT	AMOUNT
1	<u>Administration</u>	<u>Florida</u>	16000
2	<u>Administration</u>	<u>Pennsylvania</u>	12000

B3: 按要求追加明细到A2

Index	item	value
1	<u>Florida</u>	16000
2	<u>+Pennsylvania</u>	12000

B4、C4: 按要求追加subtotal

Index	item	value
1	<u>Florida</u>	16000
2	<u>+Pennsylvania</u>	12000
3	<u>Administration SUBTOTAL:</u>	28000



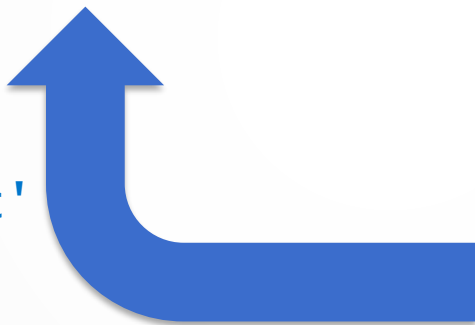
将子表动态插入主表

报表需要根据ApplicationName查询主表并以列表的形式展现数据。主表每条记录对应的status字段值有多个，但不超过5个，需要横向插入主表的Phone、Decline字段之间，依次命名为QuestionNo1、QuestionNo2...QuestionNo5。如果某列数据都为空，则这一列不显示。表样如下：

报表格式

Index	Applicatio...	User	Phone	QuestionNo1	QuestionNo2	QuestionNo3	QuestionNo4	QuestionNo5	Decline
1	mfc	Bill	+ 700000...	yes	yes	no			1
2	mfc	John	+ 187612...	yes					2
3	mfc	Tim	+ 008613...	no	no				4

过滤条件: `ApplicationName='mfc'`



主表

Index	tID	ApplicationName	User	Phone	Decline
1	A01	mfc	Bill	+ 70000000	1
2	A02	mfc	John	+ 18761221	2
3	A03	java	Jack	+ 8014001231	6
4	A04	mfc	Tim	+ 008613133...	4
5	A05	db	John	+ 18761221	8

外键 1:N

子表

Index	qID	tID	status
1	1	A01	yes
2	2	A01	no
3	3	A01	yes
4	4	A02	yes
5	5	A03	no
6	6	A04	no
7	7	A04	no
8	8	A05	yes



将子表动态插入主表 - 示例

A1: 执行SQL, 取出主子表关联数据。arg1是来自报表参数。假如arg1="mfc", 则A1的计算结果如右图所示:

Index	tID	ApplicationName	User	Phone	Decline	qID	status
1	A01	mfc	Bill	+ 70000000	1	1	yes
2	A01	mfc	Bill	+ 70000000	1	3	yes
3	A01	mfc	Bill	+ 70000000	1	2	no
4	A02	mfc	John	+ 18761221	2	4	yes
5	A04	mfc	Tim	+ 00861313...	4	6	no
6	A04	mfc	Tim	+ 00861313...	4	7	no

	A	B
1	<code>=myDB.query@x("select * from dColThread t,dColQuestion q where t.tID=q.tID and t.ApplicationName=?",arg1)</code>	
2	<code>=A2.group(tID)</code>	
3	<code>=create(ApplicationName,User,Phone,QuestionNo1,QuestionNo2,QuestionNo3,QuestionNo4,QuestionNo5,Decline)</code>	
4	<code>for A2</code>	<code>=A4.(status) ["" , "" , "" , "" , ""]</code>
5		<code>=A3.record(A4.ApplicationName A4.User A4.Phone B4.to(5) A4.Decline)</code>
6	<code>return A3</code>	

Index	Member
1	<code>[[A01,mfc,Bill, ...],[A01,mfc,Bill, ...],[A01,mfc,Bill, ...]</code>
2	<code>[[A02,mfc,John, ...]]</code>
3	<code>[[A04,mfc,Tim, ...],[A04,mfc,Tim, ...]]</code>

Index	tID	Applicatio...	User	Phone	Decline	qID	status
1	A01	mfc	Bill	+ 70000...	1	1	yes
2	A01	mfc	Bill	+ 70000...	1	3	yes
3	A01	mfc	Bill	+ 70000...	1	2	no

Index	tID	Applicatio...	User	Phone	Decline	qID	status
1	A02	mfc	John	+ 18761...	2	4	yes

Index	tID	Applicatio...	User	Phone	Decline	qID	status
1	A04	mfc	Tim	+ 00861...	4	6	no
2	A04	mfc	Tim	+ 00861...	4	7	no

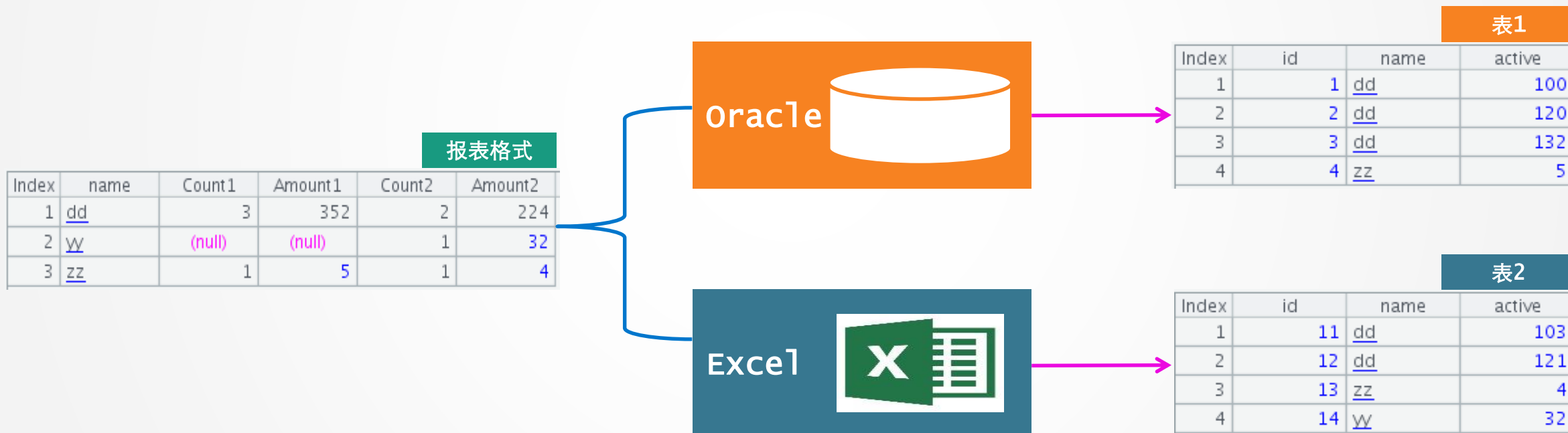
A2: 按照tID分组, 每组是一条主表记录及其对应的子表记录, 如右图:

每次循环A2向空序表A3插入一条记录, 主表字段直接插入, 子表字段列变行后再插入, 并补足至少5个字段。A3结果即表样



横向拼接列表

表1来自于Oracle数据库，表2来自于Excel文件，两者结构相同；需要将表1、表2分别按name分组并对各组计数对active字段求和，最后在报表中并排展示。理想表样如下：





横向拼接列表 - 示例

思路：分别从数据库和excel文件取数，将两者进行全连接，将需要的字段拼合到一个数据集中。A5存储合并的结果，示例如下：

Index	name	Count	Amount
1	<u>dd</u>	3	352
2	<u>zz</u>	1	5

Index	name	Count	Amount
1	<u>dd</u>	2	224
2	<u>yy</u>	1	32
3	<u>zz</u>	1	4

```
A
1 =myDB.query@x("select name,count(*) Count,sum(active) Amount from table1 group by name")
2 =file("D:\\table2.xlsx").importxls@t()
3 =A2.groups(name;count(~):Count,sum(active):Amount)
4 =join@f(A1,name;A3,name)
5 =A4.new(ifn(_1,_2).name:name,_1.Count:Count1,_1.Amount:Amount1,_2.Count:Count2,_2.Amount:Amount2)
```

Index	_1	_2
1	<u>dd</u>	<u>dd</u>
2	(null)	<u>yy</u>
3	<u>zz</u>	<u>zz</u>

name	Count	Amount
<u>dd</u>	3	352

name	Count	Amount
<u>dd</u>	2	224

Index	name	Count1	Amount1	Count2	Amount2
1	<u>dd</u>	3	352	2	224
2	<u>yy</u>	(null)	(null)	1	32
3	<u>zz</u>	1	5	1	4



交叉表列间计算

数据库表store存储着多种产品在2014、2015年的销售量，需要用交叉表呈现每种产品每年的销售量，并计算出各产品的年增长率。理想表样与部分源数据如下：

报表格式

	2014	2015	Growth Rate
Book	35	67	0.914285714
Pencil	56	50	-0.10714285



源数据表

Index	year	item	quantity
1	2014	<u>Book</u>	35
2	2015	<u>Pencil</u>	50
3	2014	<u>Pencil</u>	56
4	2015	<u>Book</u>	67



交叉表列间计算 - 示例

交叉表的列是动态生成的，进行列间计算时需要二次动态引用，用报表脚本实现难度较大，此时可以用集算器将列间计算的结果事先追加到源数据中，之后只需设计简单的交叉表就能实现需求。

取数排序

Index	year	item	quantity
1	2014	<u>Book</u>	35
2	2015	<u>Book</u>	67
3	2014	<u>Pencil</u>	56
4	2015	<u>Pencil</u>	50

```
A
1 =myDB.query@x("select * from store order by item,year")
2 =A1.group(item).run(A1.record(["Growth Rate",item,~(2).quantity/~(1).quantity-1]))
```

A1最终计算结果如下图：

Index	Member
1	[[2014,Book,35],[2015,Book,67]]
2	[[2014,Pencil,56],[2015,Pencil,50]]

Index	year	item	quantity
1	2014	<u>Book</u>	35
2	2015	<u>Book</u>	67

Index	year	item	quantity
1	2014	<u>Pencil</u>	56
2	2015	<u>Pencil</u>	50

Index	year	item	quantity
1	2014	<u>Book</u>	35
2	2015	<u>Book</u>	67
3	2014	<u>Pencil</u>	56
4	2015	<u>Pencil</u>	50
5	<u>Growth Rate</u>	<u>Book</u>	0.9142857142...
6	<u>Growth Rate</u>	<u>Pencil</u>	-0.107142857...

行列转置



数据库表SALES存储着订单数据，需按照月份横向扩展，按照聚合值纵向扩展，最终呈现为交叉表或分组表，此类需求一般都需要行列转置处理。理想表样与部分源数据如下：

报表格式

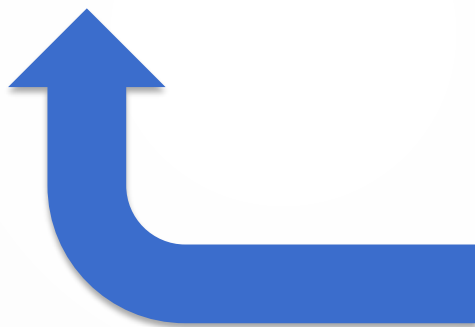
Index	SUBTOTAL	1	2	3	4	5	6	7	8	9	10	11	12
1	<u>OSUM</u>	61258.06...	38483.63...	38547.21...	53032.95...	53781.28...	36362.80...	51020.85...	47287.66...	55629.24...	66749.22...	43533.80...	71398.42...
2	<u>OMAX</u>	11188.4	4924.134...	10495.6	9921.299...	10191.7	2944.399...	6475.400...	5510.592...	5256.5	10164.8	4529.8	6635.274...
3	<u>OMIN</u>	49.8	174.9	147.0	136.8	110.0	155.0	23.79999...	55.79999...	45.0	93.5	52.34999...	12.5
4	<u>OCOUNT</u>	33	29	30	31	32	30	33	33	37	38	34	48

明细数据

Index	ORDERID	CLIENT	SELLERID	AMOUNT	ORDERDATE
1	10248	<u>VINET</u>	3	428.0	2012-07-04
2	10249	<u>TOMSP</u>	1	1842.0	2012-07-05
3	10250	<u>HANAR</u>	2	1523.499...	2012-07-08
4	10251	<u>VICTE</u>	1	624.9499...	2012-07-08
5	10252	<u>SUPRD</u>	2	3559.499...	2012-07-09
6	10253	<u>HANAR</u>	2	1428.0	2012-07-10
7	10254	<u>CHOPS</u>	2	545.3999...	2012-07-11
8	10255	<u>RICSU</u>	3	2450.0	2012-07-12
9	10256	<u>WELLI</u>	2	510.0	2012-07-15
10	10257	<u>HILAA</u>	3	1109.0	2012-07-16
11	10258	<u>ERNSH</u>	1	1603.999...	2012-07-17
12	10259	<u>CENTC</u>	3	100.0	2012-07-18
13	10260	<u>OTTIK</u>	1	1461.75	2012-07-19
14	10261	<u>QUEDE</u>	2	440.0	2012-07-19
15	10262	<u>RATTC</u>	3	583.1999...	2012-07-22

横向扩展：按照1-12月份

纵向扩展：按照SUM、MAX、MIN、COUNT



行列转置 - 示例



先计算出指定年份每个月订单的总金额、最大订单金额、最小订单金额，以及总订单数，并将数据转置成13列4行，即：四种算法是第一列，列名为subtotal，每个月占一列，列名分别是1、2、3、4...

```

A
1 =myDB.query("select month(ORDERDATE) as MONTH,sum(AMOUNT) as OSUM,max(AMOUNT) as OMAX, min(AMOUNT) as OMIN ,count(ORDERID) as OCOUNT from sales where year(ORDERDATE)=? group by MONTH order by MONTH",argYear)
2 =["OSUM","OMAX","OMIN","OCOUNT"].new(~:SUBTOTAL,${to(A1.len()).string()})
3 =A1.run(A2.field(#+1,OSUM|OMAX|OMIN|OCOUNT))
4 return A2
    
```

Index	MONTH	OSUM	OMAX	OMIN	OCOUNT
1	1	61258.0699...	11188.4	49.8	33
2	2	38483.6349...	4924.13496...	174.9	29
3	3	38547.2199...	10495.6	147.0	30
4	4	53032.9524...	9921.29997...	136.8	31
5	5	53781.2899...	10191.7	110.0	32
6	6	36362.8024...	2944.39998...	155.0	30
7	7	51020.8574...	6475.40000...	23.7999998...	33
8	8	47287.6699...	5510.59246...	55.7999999...	33
9	9	55629.2424...	5256.5	45.0	37
10	10	66749.2259...	10164.8	93.5	38
11	11	43533.8089...	4529.8	52.3499999...	34
12	12	71398.4284...	6635.27499...	12.5	48

Index	SUBTOTAL	1	2	3	4	5	6	7	8	9	10	11	12
1	<u>OSUM</u>	61258.06...	38483.63...	38547.21...	53032.95...	53781.28...	36362.80...	51020.85...	47287.66...	55629.24...	66749.22...	43533.80...	71398.42...
2	<u>OMAX</u>	11188.4	4924.134...	10495.6	9921.299...	10191.7	2944.399...	6475.400...	5510.592...	5256.5	10164.8	4529.8	6635.274...
3	<u>OMIN</u>	49.8	174.9	147.0	136.8	110.0	155.0	23.79999...	55.79999...	45.0	93.5	52.34999...	12.5
4	<u>OCOUNT</u>	33	29	30	31	32	30	33	33	37	38	34	48

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