Matrix Balancing Scenarios

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Introduction

Everybody knows that Nature development increases Entropy, but not all of us are aware that in Economy we see the same [1] [2] [3] [4]. We will show how to use Entropy for data analysis in economical systems. Analysis of data requires the presentation of the data for human observation in the 2-dimentional tables by row and column categories as in example by Areas and Industries, Regions and Products, Types and Companies, Grants and Institutions, etc. and the sums by row categories and sums by column categories. Balancing the given matrix to given sums by rows and sums by columns using the number of iterations that described as proportional matrix rows adjustments to required sums and then proportional columns adjustments to required sums (RAS algorithm) [5], resulted in matrix that maximized the entropy function of "usefulness", and this process get us the final balancing coefficients to multiply rows of starting matrix and to multiply columns of starting matrix to receive the values of balancing matrix. Balancing matrix algorithm shows what most probable evolution of starting matrix will be for the given restrictions for sums by rows and sums by columns, and the balance is maximizing the entropy function [3][6]. Balancing matrix shows the values for cells that supposed to be reached as macro economical point of balance for target sums of rows and sums of columns. This algorithm can be used to predict the natural way of macroeconomics development for future planning, and in reverse to analysis of current situation and why it has not reached the balancing point. It calculates the balancing coefficients as well that represent the comparison weights for the row categories and the comparison weights for the column ones. There are eleven scenarios of the balancing mechanism supported by http://OUReports.com . Scenarios of balancing matrix to the sums by rows and sums by columns or by multiple data columns differ by the way of getting the starting matrix from the original data and by the way of getting the target sums by rows and sums by columns. Scenarios 1a, 1b, 2a, 2b, 2c, 3a, 3b, 3c, 4a, 4b, 4c presented in the Table of Scenarios below. Each scenario requests some of parameters for getting initial matrix and target sums:

Prg - the group field for matrix row categories

Pcg - the group field for matrix column categories

Fld1 – the data field

- Agf1 the aggregation function for field1 values
- Msr manually entered sums by rows
- Msc manually entered sums by columns
- Fld2 the data field
- Agf2 the aggregation function for field2 values
- Sfld2 the starting value of field2
- Tfld2 the target value of field2
- Mcs multiple data columns
- AgMc the aggregation function for multiple matrix columns values

Table of Scenarios

Iterations and balancing	Mat	rix structure (rows, columns	, items):
Iterations and balancing Balancing of sums by rows and sums by columns or by sums of multiple columns: Balance to sums by rows	Mat Rows defined by values in group row field. Columns defined by values in group column field. Starting matrix item is the aggregated field1 value for row/column group. Scenario 1a	rix structure (rows, columns Rows defined by values in group row field. Columns selected from the list of data columns. Starting matrix item is the value of the row/column item.	, items): Multidimensional balancing. Columns selected from the list of data columns to balance by. Starting matrix item is the aggregated field1 value for values in selected columns. Scenario 4c
and sums by columns or sums by multiple columns entered manually.	Params: Prg, Pcg, Fld1, Agf1, Msr, Msc	Params: Prg, Mcs, Msr, Msc	Multidimensional Params: Mcs, Fld1, Agf1
Balance to sums by rows and sums by columns or sums by multiple columns of the target matrix. <i>Target</i> <i>matrix item is aggregated</i> <i>field2 value for row/column</i> <i>or multi columns group</i> .	Scenario 2a Params: Prg, Pcg, Fld1, Agf1, Fld2, Agf2		Scenario 4a Multidimensional Params: Mcs, Fld1, Agf1, Fld2, Agf2
Multiple 2a scenarios to get balancing coefficients for each selected field from the list of columns. Balance to sums by rows and sums by columns for target matrices. <i>Target matrix item is</i> <i>aggregated selected field</i> <i>value for row/column group</i> .	Scenario 3a Params: Prg, Pcg, Fld1, Agf1, Mcs, AgMc		
Field2 starting and target values used as condition on data to get starting and target matrices. Balance to sums by rows and sums by columns or sums by multiple columns for target matrix.	Scenario 2b Params: Prg, Pcg, Fld1, Agf1, Fld2, Sfld2, Tfld2	Scenario 3b Params: Prg, Mcs, Fld2, Sfld2, Tfld2	Scenario 4b Multidimensional Params: Mcs, Fld1, Agf1, Fld2, Sfld2, Tfld2
Multiple scenarios of the scenarios (2b or 3b) to get balancing coefficients (2c or 3c). All values between starting and target values of field2.	Scenario 2c Params: Prg, Pcg, Fld1, Agf1, Fld2, Sfld2, Tfld2	<u>Scenario 3c</u> Params: Prg, Mcs, Fld2, Sfld2, Tfld2	

1a: Starting Matrix of aggregated field1 values to balance by manually entered sums by rows and sums by columns.

Scenario Parameters: Prg, Pcg, Fld1, Agf1, Msr, Msc - both group fields (for rows and columns), the field1, aggregation function for field1, and manually entered sums by rows and by columns.

Starting matrix cell defined by value of the row group field and value of the column group field, and value in the cell defined by field1 values aggregated for all records where row field value and column field value are defined by this cell.

Sample: data has field "Area" and field "Industry", field1 has values of grant applications in dollars, the aggregation function is "Sum". Macro economical desirable values for Areas and Industries entered. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries.

See more details in <u>1a Scenario</u> for the report "Sample Sales Records by year".

1b: Starting Matrix of rows and selected columns to balance by manually entered sums by rows and sums by columns.

Parameters: Prg, Mcs, Msc, Msr - the group field for rows, multiple matrix columns, and manually entered sums by rows and by columns.

Starting matrix cell defined by value of the row group field value and the column name, and value in the cell defined by value of the column in the row.

Sample: data has field "Area" and separate fields for each Industry, cell has values of grant applications in dollars for Area and Industry. Macro economical desirable values for Areas and Industries entered. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries.

See more details in <u>1b Scenario</u> for the report "Sample Sales Records by year".

2a: Starting Matrix of the aggregated field1 to balance for sums of rows and columns of the Target Matrix of the aggregated field2.

Parameters: Prg, Pcg, Fld1, Agf1, Fld2, Agf2 - both group fields for rows and columns, field1, aggregation function for field1, field2, aggregation function for field2.

Starting and target matrix cell defined by value of the row group field and value of the column group field. The value in the cell of starting matrix defined by field1 values aggregated for all records where row field value and column field value are defined by this cell. The value in the cell of target matrix defined by field2 values aggregated for all records where row field value and column field value are defined by this cell.

Sample: data has field "Area" and field "Industry", field1 has values of Gross Domestic Product in dollars in 2010, the aggregation function is "Sum", field2 has values of Gross Domestic Product in dollars in 2020, the aggregation function is "Sum". Desirable sums for Areas and Industries calculated based on target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on 2020. Comparison of starting, target, and especially to the balancing matrix gives to analytics the information where process developed out of natural economical point of balance.

See more details in <u>2a Scenario</u> for the report "Sample Sales Records by year".

2b: The starting value of field2 to get the Starting matrix of field1 values and target value of field2 to get the Target matrix of field1 values. Balance starting matrix to sums of rows and columns of the target matrix.

Parameters: Prg, Pcg, Fld1, Agf1, Fld2, Sfld2, Tfld2 - both group fields for rows and columns, field1, aggregation function for field1, and field2 with starting and target values.

Sample: data has field "Area" and field "Industry", field1 has values of Gross Domestic Product in dollars, the aggregation function is "Sum", field2 has years from 2010 to 2020. Starting field2 value 2010 used as restriction to get the aggregated field1 values for starting matrix and target value 2020 of field2 used to get the aggregated field1 values for target matrix. Desirable sums for Areas and Industries calculated based on target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on 2020. Comparison of starting, target, and especially to the balancing matrix gives to analytics the information where process developed out of natural economical point of balance.

See more details in <u>2b Scenario</u> for the report "Sample Sales Records by year".

2c: Get balancing coefficients for Starting Matrix of field1 for all iterations between starting and target values of the field2. Multiple 2b scenarios.

Parameters: Prg, Pcg, Fld1, Agf1, Fld2, Sfld2, Tfld2 - both group fields for rows and columns, field1, aggregation function for field1, and field2 with starting and target values.

Sample: data has field "Area" and field "Industry", field1 has values of Gross Domestic Product in dollars, the aggregation function is "Sum", field2 has years from 2010 to 2020. Starting field2 value 2010 used as restriction to get the aggregated field1 values for starting matrix. The scenario 2b repeated for each value of the field2 up to 2020 which used to get the aggregated field1 values for each target matrix. Desirable sums for Areas and Industries calculated based on target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on sums of rows and sums of columns in target matrix. Balancing coefficients shows weights of Areas and Industries in each iteration by year. The link in the starting matrix cell opens the chart of balancing matrix values by years.

See more details in <u>2c Scenario</u> for the report "Sample Sales Records by year".

3a: Get balancing coefficients for Starting Matrix of aggregated values of field1 and multiple Target Matrices of aggregated selected fields values. Multiple 2a scenarios. Parameters: Prg, Pcg, Fld1, Agf1, Mcs, AgMc - both group fields for rows and columns, field1, aggregation function for field1, and multiple matrix columns, aggregation function for selected matrix columns.

Starting matrix of aggregated field1 values, and target matrices of each aggregated selected field values for the same groups.

Sample: data has field "Area" and field "Industry", field1 has values of Gross Domestic Product in dollars, the aggregation function is "Sum" for year 2010 (used for calculating the starting matrix), and separate fields have values of Gross Domestic Product in dollars for each year up to 2020 (used for calculating each target matrix for each year with aggregation function "Sum"). The scenario 2a repeated for each value of the fields up to 2020 which used to get the values for each target matrix. Desirable sums for Areas and Industries calculated based on target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on sums of rows and sums of columns in target matrix. Balancing coefficients shows weights of Areas and Industries in each iteration by year. The link in the starting matrix cell opens the chart of balancing matrix values by years.

See more details in <u>3a Scenario</u> for the report "Sample Sales Records by year".

3b: Starting Matrix rows and selected multiple columns to balance from starting to target values of the field2.

Parameters: Prg, Mcs, Fld2, Sfld2, Tfld2 - group field for rows, selected multiple fields for columns of the matrix, and field2 with starting and target values.

Sample: data has field "Area" and separate fields for each Industry, field2 has years from 2010 to 2020, each cell has values of Gross Domestic Product in dollars for Area and Industry in the particular year. Starting field2 value 2010 used as restriction to get the values for starting matrix and target value 2020 of field2 used to get the values for target matrix. Desirable sums for Areas and Industries calculated based on target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on 2020. Comparison of starting, target, and especially to the balancing matrix gives to analytics the information where process developed out of natural economical point of balance.

See more details in <u>3b Scenario</u> for the report "Sample Sales Records by year".

3c: Get balancing coefficients for Starting Matrix rows and selected multiple columns for all iterations between starting and target of the field2 values. Multiple 3b scenarios. Parameters: Prg, Mcs, Fld2, Sfld2, Tfld2 - group field for rows, selected multiple fields for columns of the matrix, and field2 with starting and target values. Sample: data has field "Area" and separate fields for each Industry, field2 has years from 2010 to 2020, each cell has values of Gross Domestic Product in dollars for Area and Industry in the particular year. Starting field2 value 2010 used as restriction to get the values for starting matrix and each value of the field2 up to 2020 used to get the values for each target matrix. The scenario 3b repeated for each value of the field2 up to 2020 which used to get the values for each target matrix. Desirable sums for Areas and Industries calculated based on each target matrix. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Areas and Industries based on sums of rows and sums of columns in target matrix. Balancing coefficients shows weights of Areas and Industries in each iteration by year. The link in the starting matrix cell opens the chart of balancing matrix values by years.

See more details in <u>3c Scenario</u> for the report "Sample Sales Records by year".

Sample reports can be open from <u>http://OUReports.com</u> by clicking the button "Try It! Play in our Sandbox" or the button "Try It! Play with our Analytics".

Multidimensional balancing

4a: Starting Matrix of the aggregated field1 to balance for sums by multiple selected columns of the Target Matrix of the aggregated field2.

Parameters: Mcs, Fld1, Agf1, Fld2, Agf2 - group fields for selected columns, field1, aggregation function for field1, field2, aggregation function for field2.

Starting and target matrix cell defined by value of each selected field. The value in the cell of starting matrix defined by field1 values aggregated for all records where values of the selected are defined by this cell. The value in the cell of target matrix defined by field2 values aggregated for all records where values of the selected are defined by this cell.

Sample: data has selected fields "OrderYear", "Region", "ItemType", "SalesChannel", "OrderPriority", field1 has values of TotalCost in dollars, the aggregation function is "Sum", field2 has values TotalProfit in, the aggregation function is "Sum". Desirable sums for each of selected fields calculated based on target matrix. Balancing matrix cell shows amount for each of selected fields that is the macro economical point of balance satisfying macro economical requirements for selected fields. Comparison of starting, target, and especially to the balancing matrix gives to analytics the information where process developed out of natural economical point of balance.

See more details in <u>4a Scenario</u> for the report "Sample Sales Records by year".

4b: The starting value of field2 to get the Starting matrix of field1 values and target value of field2 to get the Target matrix of field1 values. Balance starting matrix to sums of multiple selected fields for the target matrix.

Parameters: Mcs, Fld1, Agf1, Fld2, Sfld2, Tfld2 - group fields for multiple selected columns, field1, aggregation function for field1, and field2 with starting and target values.

Sample: data has selected fields "OrderYear", "Region", "ItemType", "OrderPriority", field1 has values of TotalCost in dollars, the aggregation function is "Sum", field2 has values of SalesChannel. Starting field2 value "Offline" used as restriction to get the aggregated field1 values for starting matrix and target value of field2 "Online" used to get the aggregated field1 values for target matrix. Desirable sums for each of selected fields calculated based on target matrix sums for each selected fields. Balancing matrix cell shows amount for each of selected fields that is the macro economical point of balance satisfying macro economical requirements for selected fields. Comparison of starting, target, and especially to the balancing matrix gives to analytics the information where process developed out of natural economical point of balance.

See more details in <u>4b Scenario</u> for the report "Sample Sales Records by year".

4c: Starting Matrix of aggregated field1 values to balance by manually entered sums by multiple selected columns.

Scenario Parameters: Mcs, Fld1, Agf1 – multiple selected fields, the field1, aggregation function for field1, and manually entered sums by selected fields.

Starting matrix cell defined by values of the selected fields, and value in the cell defined by field1 values aggregated for all records where values of the selected fields are defined by this cell.

Sample: data has field "Area" and field "Industry", field1 has values of grant applications in dollars, the aggregation function is "Sum". Macro economical desirable values for Years, Areas, and Industries entered. Balancing matrix cell shows amount for each Area and Industry that is the macro economical point of balance satisfying macro economical requirements for Years, Areas, and Industries (3-dimensional balancing).

See more details in <u>4c Scenario</u> for the report "Sample Sales Records by year".

Report: "Sample Sales Records by year" in the Analytics from http://OUReports.com Data:

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	2016	Asia	Sri Lanka	Cosmetics	Offline	M	0			00 12/18/201		437.2	263.33	3039410	1830670	1208740	17
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	2014	Europe	Norway	Baby Food	Online	L	0			00 6/28/2014		255.28		1901840	1187680		21
	2015	Europe	Portugal	Baby Food	Online	H	0			00 9/3/2015		255.28	159.42	324971			22
	2016	Central America and the Caribbea		Snacks	Online	L	0			00 7/26/2016			97.44	339490	216804		23
	2014	Australia and Oceania	New Zealand	Fruits	Online	н	0			00 10/4/2014		9.33	6.92	20404.7	15134		24
	2016	Europe	Moldova	Personal Care		L	0			00 5/10/2016		81.73	56.67	414371			25
	2017	Europe Australia and Oceania	France Kiribati	Cosmetics Fruits	Online	H	0			00 6/5/2017		437.2 9.33	263.33	793518 50363 3	477944		26
	2014	Sub-Saharan Africa	Mali	Fruits	Online	M	0			00 5/10/2010		9.33	6.92	54319.3			28
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1a Scenario:

Parameters with manually entered target proportional values:

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Export Data to CSV	Matrix items	by field1: TotalProfit	✓ agg	regation function: Sum	~						
 Export Data to Delimited File 	Enter sums b	y rows: 11,22,33,4	44,11,22,	33,44,55,66,77,88							
 Export Data to XML 	Enter sums b	y columns: 11,22,33,	44,55,66,	,77							
 Show Report 											
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 Show Report Graphs 											
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Show Analytics											
 See Data Overall Statistics 	Balancing coe	fficients Export	to Excel				Balancing N	fatrix Export to E	xcel		
See Groups Statistics											
 Export Statistics to Excel 											
See Fields Correlation											
 Matrix Balancing 											

Starting, Target sums adjusted to starting overall total, and Balancing Matrix:

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									Care Snacks	6721246.36							
									Care	6721246.36 7681424.41					-		
									Care Snacks Vegetables	6721246.36 7681424.41 Sum of							
									Care Snacks Vegetables Total:	6721246.36 7681424.41 Sum of Sum of	435.37 31548	70.74 47323	06.11 6309	741.48 788	87176.85 94	464612.22	11042
				1					Care Snacks Vegetables Total:	6721246.36 7681424.41 Sum of Sum of 6 TotalProfit	435.37 31548	70.74 47323	06.11 6309	741.48 788	87176.85 94	464612.22	11042
									Care Snacks Vegetables Total:	6721246.36 7681424.41 Sum of Sum of	435.37 31548	70.74 47323	06.11 6309	741.48 788	87176.85 94	464612.22	11042
									Care Snacks Vegetables Total:	6721246.36 7681424.41 Sum of Sum of 6 TotalProfit	435.37 31548	70.74 47323	06.11 6309	741.48 788	87176.85 94	464612.22	11042
lancing coel									Care Snacks Vegetables Total: 44168190.3	6721246.36 7681424.41 Sum of 6 TotalProfit by Region: Matrix of Sum				741.48 788	87176.85 94	464612.22	11042
eps ki1	ki2 ki3 ki4 ki5 k		ki8 ki9	ki10 ki11 ki1		, kj3 kj4 kj5 k			Care Snacks Vegetables Total: 44168190.3	6721246.36 7681424.41 Sum of Sum of TotalProfit by Region: Matrix of Sum	f TotalProf	t Expert t	o Excel		87176.85 94		
eps ki1 0.24705	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.73389 0.06596 1	5.93719 0.3886	6.28996 0.8096	4.71978 8.93849 6.0	6834 0.29085 0.774	9 1.41821 1.47511 4.20536 5	00894 0	47404 34028964.95509	Care Snacks Vegetables Total: 44168190.3 Balancing	6721246.36 7681424.41 Sum of Sum of 6 TotalProfit by Region: Matrix of Sum Sum of Sum of	f TotalProf Austr	t Export t	o Excel al	Mid	ddle st and Ne	lorth	Sub-
Pps ki1 0.24705 1.04048	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.73389 0.06596 1 1.13367 0.8546 0.68927 0.51943 1	5.93719 0.3886 1517 0.7010	6.28996 0.8096 7 1.5613 1.1023	6.0 6 0.5481 1.59213 2.2	6834 0.29085 0.774 3539 0.81564 0.783	79 1.41821 1.47511 4.20536 5 37 0.99284 1.11691 1.25429 1	00894 0. 71129 0.	47404 34028964 95509 69121 12386804 83441	Care Snacks Vegetables Total: 44168190.3	6721246.36 7681424.41 Sum of Sum of TotalProfit by Region: Matrix of Sum	f TotalProf Austr	t Export 1 alia Centr Amer and ti	o Excel al ica Euro	pe Mid Eas	ddle st and Ne	lorth	Sub- Sahar
ps ki1 0.24705 1.04048 0.94418	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.73389 0.06596 1 1.13367 0.8546 0.68927 0.51943 1 1.09803 0.95222 0.89442 0.85776 1	5.93719 0.3886 1517 0.7010 01982 0.7340	6.28996 0.8096 7 1.5613 1.1023 12 1.32759 0.9751	4.71978 8.93849 6.0 5 0.5481 1.59213 2.2 0.6837 1.24637 1.3	6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824	79 1.41821 1.47511 4.20536 5 37 0.99284 1.11691 1.25429 1 14 0.94759 1.05935 1.06761 1	00894 0. 71129 0. 43265 0.	47404 34028964 95509 69121 12386804 83441 81211 7422397.11365	Care Snacks Vegetables Total: 44168190.3 Balancing	6721246.36 7681424.41 Sum of Sum of 6 TotalProfit by Region: Matrix of Sum Sum of Sum of	f TotalProf Austr	t Export t	o Excel al ica Euro	Mid Eas	ddle st and Ne	lorth	Sub-
Pps ki1 0.24705 1.04048 0.94418 0.96632	ki2 ki3 ki4 ki5 k 2.16245 1.26653 0.73389 0.06596 1 1.13367 0.8546 0.68927 0.51943 1 1.09803 0.95222 0.89442 0.85776 1 1.06743 0.99871 0.97234 0.95291 1	5.93719 0.3886 1517 0.7010 01982 0.7340 02742 0.7800	6 6 28996 0.8096 17 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900	4.71978 8.93849 6.0 0.5481 1.59213 2.2 0.6837 1.24637 1.3 7 0.74759 1.14433 1.2	6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.861	79 1.41821 1.47511 4.20536 5 37 0 99284 1.11691 1.25429 1 44 0 94759 1.05935 1.06761 1 78 0 94805 1.02162 1.01088 1	00894 0. 71129 0. 43265 0. 32049 0.	47404 34028964 95509 69121 12386804 83441 81211 7422397.11365 87391 5030933.80362	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType	6721246.36 7681424.41 Sum of Sum of 6 TotalProfit by Region:	f TotalProf Austr and Ocean	t Export 1 alia Centr Amer and ti	al ica bean Euro	pe Mid Eas	ddle st and Ne rth Ar rica	lorth merica	Sub- Sahar
ps ki1 0.24705 1.04048 0.94418 0.96632 0.99063	ki2 ki3 ki4 ki5 k 2.16245 1.26653 0.73389 0.06596 1 1.13367 0.8546 0.68927 0.51943 1 1.09803 0.95222 0.89442 0.85776 1 1.05437 0.99871 0.97234 0.95291 1 1.05437 1.01946 1.00477 0.93591	5.93719 0.3886 1517 0.7010 01982 0.7340 02742 0.7800 03455 0.8090	6.28996 0.8096 77 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900 14 1.15551 1.0071	5 4.71978 8.93849 6.0 5 0.5481 1.59213 2.2 0.6837 1.24637 1.3 7 0.74759 1.14433 1.2 7 0.78731 1.09823 1.1	6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.861 2683 0.93036 0.890	79 1.41821 1.47511 4.20536 5 37 0.99284 1.11691 1.25429 1 14 0.94759 1.05935 1.06761 1 78 0.94805 1.02162 1.01088 1 74 0.95398 0.99987 0.98709 1	00894 0. 71129 0. 43265 0. 32049 0. 25945 0.	47404 34028964 95509 69121 12386804.83441 81211 7422397.11365 87391 5030933.80362 90848 3899429.95035	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType	6721246.36 7681424.41 Sum of Sum of 6 fotalProfit by Region: Matrix of Sum Matrix of Sum Sum of TotalProfit Asia by Item Type 960178.03 dB15	f TotalProf Austr and Ocean	t Export 1 alia Centr Amer and ti	al ica bean 8891	pe Mid Eas Nor Afri 19.59 0	ddle st and rth fica	lorth merica 827.69	Sub- Sahar Africa
eps ki1 0.24705 1.04048 0.94418 0.96632 0.99063 1.00684	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.73389.0.65961 1.13367 0.8546 0.68927.0.519431 1.13367 0.8542 0.59222 0.8442.0.857761 1.06743 0.99871 0.97234.0.95291 1.05437 0.99871 0.97234.0.95291 1.04270.993591 1.04261 1.04271 0.93591	5.93719 0 3886 1517 0.7010 01982 0.7340 02742 0.7800 03455 0.8090 03809 0.8294	6.28996 0.8096 17 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900 14 1.15551 1.0071 14 1.11593 1.0183	5 4.71978/8.93849 6.0 5 0.5481 1.59213 2.2 0.6837 1.24637 1.3 7 0.74759 1.14433 1.2 7 0.78731 1.09823 1.1 5 0.81413 1.07308 1.0	6634 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.861 2683 0.93036 0.890 897 0.94341 0.912	79 1.41821 1.47511 4.20536 5 70 99284 1.11691 1.25429 1 140 94759 1.05935 1.06761 1 78 94805 1.02162 1.01888 1 40 95398 0.99987 0.98709 1 32 95942 0.8759 0.97581 1	00894 0. 71129 0. 43265 0. 32049 0. 25945 0. 2211 0.	47404 34028964 95509 69121 12386804 83441 81211 7422397.11365 87391 5030933.80362 90848 3899429.95035 92923 3427478.1445	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType Baby Food	6721246.36 7681424.41 Sum of Sum of 6 fotalProfit by Region: Matrix of Sum Matrix of Sum Sum of TotalProfit Asia by Item Type 960178.03 dB15	f TotalProf Austr and Ocean	t Export 1 alia Centr Amer and ti Carib 0 7.22 50173	al ica bean 8891	pe Mid Nor Afri 19.59 0 73.06 0.02	ddle st and rth fica	lorth merica 827.69 5592.99	Sub- Sahar Africa 23040
Pps ki1 0.24705 1.04048 0.94418 0.96632 0.99063 1.00684 1.01662	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.73389 0.65596 1.13367 0.85646 0.68927 0.519431 1.09803 0.55222 0.89442 0.857761 1.05743 0.99917 0.97244 0.952911 1.05474 0.91461 0.04277 0.93591 1.04546 1.02021 1.012021 1.02021 1.04616 1.02513 1.027681 0.923591	5.93719 0.3886 1517 0.7010 0.1982 0.7340 0.2742 0.7800 0.3455 0.8090 0.3809 0.8294 0.3935 0.8445	6 6.28996 0.8096 17 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900 14 1.15551 1.0071 14 1.1593 1.0183 17 1.0899 1.0248	i 4.71978 8.93849 6.0 i 0.5481 1.59213 2.2 0.6837 1.3 i 0.6837 1.24637 1.3 0.7 0.74759 1.14433 1.2 i 0.78731 1.09823 1.1 1.3 0.7 0.7431 1.09823 1.1 i 0.83333 1.05806 1.0 1.0 1.0 1.0	6634 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.861 2683 0.93036 0.890 897 0.94341 0.928 6894 0.95184 0.928	79 1.41821 1.47511 4.20536 5 70 99284 1.11691 1.25429 1 44 0.94759 1.05935 1.05761 1 78 9.4805 1.02162 1.01081 1.25429 74 9.53980 99987 9.98709 1.07091 20 95424 0.987590 9.97581 1 15 9.63680 980660 9.07031 1	00894 0. 71129 0. 43265 0. 32049 0. 25945 0. 2211 0. 19491 0.	47404 34028964 95509 69121 12386804 83441 81211 7422397.11365 87391 5030933.80362 90848 3899429.95035 92923 3427478.1445 94237 3087639.59836	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType Baby Food Beverages	6721246.36 7681424.41 Sum of Sum of Sum of 6 TotalProfit by Region: 1571 Sum of TotalProfit Asia 960178.03 dB11 1920356.08 0	f TotalProf Austri and Ocean 0.24 0 30242 21826	t Expert 1 alia Centr Amer and ti Carib 0 7.22 50173 05 34258	D Excel al be bean Euro 8891 7.14 9009 1.68 0	pe Mid Eas Nor Afri 19.59 0 73.06 0.02 216	ddle st and rth rica 18 12 2	lorth merica 827.69 5592.99 984.96	Sub- Sahar Africa 23040 18962
Pps ki1 0.24705 1.04048 0.94418 0.96632 0.99063 1.00684 1.01662 1.02228	ki2 ki3 ki4 ki5 k 2.16245 1.25653 0.733890 065961 1.13670 0.8546 0.68927 0.519431 1.09003 0.95222 0.89442 0.857761 1.06743 0.99071 0.97243 0.52911 1.0547 0.1946 1.00477 0.993591 1.04616 1.02780 1.022761 0.13477 1.04161 0.0354 1.027801 1.028761 1.04544 1.03547 1.03544 1.03547	5.93719 0.3886 1517 0.7010 01982 0.7340 02742 0.7800 03455 0.8090 03809 0.8294 03935 0.8445 03931 0.8561	6 28996 0.8096 17 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900 14 1.16551 1.0071 14 1.1593 1.0183 17 0.8999 1.0248 17 1.0233 1.0283	i 4,71978 8,93849 6,0 i 0,5481 1,59213 2,2 0,6837 1,34637 1,3 i 0,76759 1,14433 1,2 1,1 1,0 1,1 1,1 1,1 1,1 1,1 1,1 1,0 1,1 1,0 1,1 1,0 1,1 1,0 1,0 1,1 1,0	6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.861 2683 0.93036 0.890 887 0.94341 0.912 6894 0.95184 0.923 5633 0.95751 0.939	19 141821 147511 420536 5 70 99284 11691 125429 1 140 94759 1.05935 1.06761 1 140 94759 1.05935 1.06761 1 140 94759 1.05935 1.06761 1 140 943980 99987 98709 1 120 953942 98759 97031 1 150 93680 990606 97033 1 150 96666 0.97678 0.96784 1	00894 0 71129 0 43265 0 32049 0 25945 0 2211 0 19491 0 17599 0	47404 34028964.95509 69121 12386804.83441 81211 7422397.11365 87391 5030933.80362 90848 3899429.95035 92923 3427478.1445 94237 3087639.59836 95105 2832867.31236	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType Baby Food Beverages Cereal	6721246.36 7681424.41 Sum of Sum of Sum of Sum of Sum of Sum of Sum of Sum of Sum of S	f TotalProf Austr and Ocean 0.24 0 30242 21826 7.97 10934	t Export 1 alia Centr Amer and ti Carib 0 7.22 50173 05 34258 3.07 23170	al European bean 8891 7.14 9009 1.68 0 6.22 7433	pe Mid Eas Nor Afri 19.59 0 73.06 0.02 216	ddle st and rth ica 18 2 22 5 5021.41 85 59731.53 37	lorth merica 827.69 5592.99 984.96 738.65	Sub- Sahar Africa 23040 18962 34512
ps ki1 0.24705 1.04048 0.94418 0.96632 0.99063 1.00684 1.01662 1.02228 1.02544	ki2 ki3 ki4 ki5 k 2 16245 1 25653 0.7338891.055961 0.519431 1.0800 0.55222 0.594421 0.57761 1.0900 0.5222 0.594421 0.57761 1.05743 0.98021 0.57244 0.55761 1.05473 0.9104 1.00274 0.93591 1.05474 0.9104 1.00274 0.93591 1.04516 0.20361 1.02261 0.13477 1.04516 1.02364 1.033767 1.02861 1.03646 1.03376 1.03376 1.03376	5.93719 0.3886 1517 0.7010 01982 0.7340 02742 0.7800 03455 0.8090 03809 0.8294 03935 0.8445 03931 0.8561	6 28996 0.8096 17 1.5613 1.1023 12 1.32759 0.9751 16 1.21847 0.9900 14 1.15551 1.0071 14 1.1553 1.0183 7 1.0899 1.0248 7 1.0723 1.0283 17 1.06015 1.0300	6 4.71978 8.93849 6.0 5 0.5481 1.59213 2.2 0.6337 1.24637 1.3 7 0.78751 1.4433 1.2 1.4433 1.2 1.4433 1.2 6 0.81413 1.07308 1.0 <td< td=""><td>6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.851 2683 0.93036 0.890 887 0.94341 0.912 6894 0.9518 0.928 6533 0.95751 0.939 4819 0.96149 0.948</td><td>9 1 41821 1 47511 4 205365 70 99284 1 1691 25429 70 99284 1 1691 25429 70 99284 1 1691 25429 70 99284 1 1691 25429 70 95420 1 1691 1 70 95420 1 21082 1 1 74 95396 99967 98759 97581 1 75 95420 98759 97581 1 1 1 59430 98760 97581 1 1 1 99676 96778 97678 1</td><td>00894 0 71129 0 43265 0 32049 0 25945 0 2211 0 19491 0 17599 0 16179 0</td><td>47404 34028964.95509 69121 12386804.83441 81211 7422397.11365 93791 5030933.80362 90848 3899429.95035 92923 3427478.1445 94237 3087639.59836 95105 2832867.31236 9515 263693.68511</td><td>Care Snacks Vegetables Total: 44168190.3 Balancing ItemType Baby Food Beverages Cereal Clothes</td><td>6721246.36 7681424.41 Sum of Sum of Sum of Sum of 6 TotalProfit by Region: 1577 Sum of Sum of Sum of</td><td>f TotalProf Austr and Ocean 0.24 0 30242 21826 7.97 10934 89 15674</td><td>t Export 1 alia Centr Amer and ti Carib 0 7.22 50173 05 34258 3.07 23170</td><td>al European bean 8891 7.14 9009 1.68 0 6.22 7433</td><td>Pe Mid Eas Nor Afri 19 59 0 73 06 0 73 06 0 216 98.87 256 80.05 637</td><td>ddle st and rth ica 18 2 22 5 5021.41 85 59731.53 37</td><td>lorth merica 827 69 5592 99 984 96 738 65 32 26</td><td>Sub- Sahar Africa 23040 18962 34512 10314 11169</td></td<>	6834 0.29085 0.774 3539 0.81564 0.783 9132 0.87615 0.824 0192 0.90953 0.851 2683 0.93036 0.890 887 0.94341 0.912 6894 0.9518 0.928 6533 0.95751 0.939 4819 0.96149 0.948	9 1 41821 1 47511 4 205365 70 99284 1 1691 25429 70 99284 1 1691 25429 70 99284 1 1691 25429 70 99284 1 1691 25429 70 95420 1 1691 1 70 95420 1 21082 1 1 74 95396 99967 98759 97581 1 75 95420 98759 97581 1 1 1 59430 98760 97581 1 1 1 99676 96778 97678 1	00894 0 71129 0 43265 0 32049 0 25945 0 2211 0 19491 0 17599 0 16179 0	47404 34028964.95509 69121 12386804.83441 81211 7422397.11365 93791 5030933.80362 90848 3899429.95035 92923 3427478.1445 94237 3087639.59836 95105 2832867.31236 9515 263693.68511	Care Snacks Vegetables Total: 44168190.3 Balancing ItemType Baby Food Beverages Cereal Clothes	6721246.36 7681424.41 Sum of Sum of Sum of Sum of 6 TotalProfit by Region: 1577 Sum of Sum of Sum of	f TotalProf Austr and Ocean 0.24 0 30242 21826 7.97 10934 89 15674	t Export 1 alia Centr Amer and ti Carib 0 7.22 50173 05 34258 3.07 23170	al European bean 8891 7.14 9009 1.68 0 6.22 7433	Pe Mid Eas Nor Afri 19 59 0 73 06 0 73 06 0 216 98.87 256 80.05 637	ddle st and rth ica 18 2 22 5 5021.41 85 59731.53 37	lorth merica 827 69 5592 99 984 96 738 65 32 26	Sub- Sahar Africa 23040 18962 34512 10314 11169
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ps k1 0.24705 1.04048 0.94632 0.99063 1.00684 1.01662 1.02228 1.02742 1.02751 1.02814 1.02753 1.02753 1.02753 1.02753	NZ NA NA<	5 93719 0 3886 5 93719 0 3886 1517 0 700 01982 0 7340 02742 0 7800 03455 0 8090 03809 8294 03935 0 8444 03935 0 8652 03742 0 8725 03653 0 8653 03653 0 8653 03454 0 8726 03455 0 8874 03456 0 8874 03458 0 8874 03454 0 8903 03144 0 8903 02966 0 8962 02966 0 8962	i 2.8996 0.8096 0.8096 i 2.8996 0.8096 0.9751 i 1.1023 1.1023 1.1023 i 1.15551 1.0071 1.0139 i 1.15551 1.0071 1.0139 i 1.1553 1.0133 1.0238 i 1.0173 1.0248 1.0304 i 1.0551 1.0307 1.0304 i 0.4561 1.03077 1.0003 i 0.5461 1.03277 1.0238 i 0.4502 1.02347 1.0244 i 0.3328 1.0289 1.0244 i 0.3328 1.0284 1.03265 i 0.3176 1.0244 1.0245	1 719748 93345 6. 0 6637 12437 13 0 6637 12437 13 0 7637 142437 13 0 7673 16622 11 0 7673 16622 11 0 7673 16622 11 0 8433 10708 10 0 8437 10260 10 0 84351 10728 10 0 84531 10226 1 0 84531 10226 10 0 85851 10227 10 0 86835 10293 10 0 86437 10226 10 0 86437 10226 10 0 84341 10227 10 0 84347 10222 10 0 84331 10226 10 0 84331 10227	6834 0.29065/074 5350 0.81546/0783 9152 0.87615/0.824 9152 0.87615/0.824 9182 0.87615/0.824 9182 0.87615/0.824 9182 0.87615/0.824 9192 0.8963/0.814 9182 0.87616/0.824 9191 0.94341/0.914 9192 0.95710/0.936 9191 0.94341/0.914 9191 0.95710/0.936 9192 0.95710/0.936 9191 0.96420/0.946 9191 0.96420/0.946 9191 0.95710/0.956 9192 0.97740/0.966 9193 0.977180/0.966 9284 0.977180/0.967 92824 0.977210/0.973/0.971	$\begin{array}{c} 99 \\ (416311 (47511 (47511 (425536) \\ 79 62264 (1166) (1125429) \\ 40 (9479) (05935 (106761) (125429) \\ 40 (9479) (05935 (106761) \\ 70 (94056) (01271 (10680) \\ 70 (94056) (01271 (10680) \\ 70 (94056) (01270 (94761) \\ 70 (9456) (01270 (94761) \\ 70 (9456) (01270 (94761) \\ 70 (9476) (01270 (94761) \\ 70 (9476) (01270 (94761) \\ 70 (9476) (01270 (94761) \\ 70 (94761) \\ 70 (94761) (01270 (94761) \\ 70 (94761)$	00894 0 71129 0 43265 0 32049 0 25945 0 32049 0 25945 0 19491 0 17599 0 15081 0 14212 0 123511 0 12465 0 12069 0 11206 0	47404 34029564 95509 60721 1238604 83441 81211 7422397.11365 67391 503033.80249 95635 92923 3427478.1445 95105 2832667.31236 95105 2832667.31236 9512 2832667.31236 9612 2480582.2372 96628 2168621 6214 96654 2253170.12037 96628 2168621 6214 96654 2253170.12037 96628 2168621 6214	Care Snacks Vegetables	672146.36 6716142.41 Sum of 6 TotalProfit by Region: 1577 15	f TotalProf Austrandi add 224 30242 21826 7.97 99 16743 24805 50.79 10590 0 0 0 0 0 0 0 0 0 0 0 0	t Expert 1 alia Centr and ti and ti Carib 0 7.22 50173 05 34256 0.75 0.02 0.57 10568 0.75 0.02 0.57 10568 0.75 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.57 0.02 0.0	0 Excel al ica bean 8891 7.14 9009 1.68 0 6.22 7433 1.8 2792 0.04 0.44 2908 0.58 11.76 0.04 5882	Pe Ess Nor Afri 19.59 0 73.06 0.02 73.06 0.02 73.06 0.02 130 0 0.12 683.66 121 0 0.13 683.66 121 0 0.13	ddle st and rth 2 25021 41 85 5021 41 85 5021 41 85 5021 41 85 22 25 2 16 17094 23 71 57 3 16 6 23	lorth merica 827.69 5592.99 984.96 738.65 62159.78 880533.06 82563.94 135.33 761067.3 93598.18 37178.08	Sub- Saha Afric 2304 1896 3451 1031 11169 2881 0.12 11777 3463 0.22 2881 5675

1b Scenario:

Parameters and Starting Matrix with manually entered target proportional values:

→ C [®] oure	orts.net/OUReports/AdvancedAnalytics.aspx		🖻 🖈 🖪 🚺 Paused
Small Business Ban 🧯	i CHASE Bank - Credi 🤣 Login TRICACHE 🔞 SQL 🛐 MySQL : MySQL 8 🧾 Google Calendar 🚱 Online User Reporti 🧏 HelpDesk at RunRe 💊 Google Earth 🏚 S	ettings - Passwords 🛛 😽 HTML Tutorial 🔒 Analytics Realtime 🗯	Help Desk 📃 🚺 Other boo
-	Sample Sales Records by year - Advanced Analytics - Matrix Balancing		
	Select Scenario: 1b. Starting Matrix of rows by matrix group field and selected multiple columns to balance by manually entered sums by rows and sums by columns 🛩 Steps:	100 Precision: 1 Partial rows/columns: 0.0 🗸 adj	ust by start matrix
Data Definition	1b: Starting Matrix of rows by group field for rows and selected columns from the multiple fields to balance by manuality entered sums by rows and sums by columns		
Format Definition			
e Report Data	Matrix rows by: ItemType 🖌		
t Data to Excel	Enter sums by rows: 11,22,33,44,11,22,33,44,55,66,77,88		
rt Data to CSV	Enter sums by columns: 11,22,33,44,55,66		
t Data to Delimited File	Multiple fields: 📕 select all fields 📕 unselect all fields		
et Data to XML	UnitsSold, UnitPrice, UnitCost, TotalRevenue, TotalCost, TotalPr 🗢		
Report	(1b) Balancing matrix of rows and multiple columns for given above sums by rows and by columns		
Generic Report			
	Salancing for sum of rows and columns of the starting matrix of rows and multiple selected columns:		
t Report to Excel	Balanced, precision: 0.42503, steps: 8		
t Report to Word	Starting Matrix Export to Excel	Target Matrix Export to Excel	
Report to PDF	ItemType Sum of row ItemType Units Sold UnitPrice UnitCost TotalRevenue TotalCost TotalProfit Baby Food 2844175.7 5559 255 28 159 42 1419100 886216 532886	ItemType Sum by ItemType UnitsSold UnitPrice UnitCost	TotalRevenue TotalCost TotalP
rystal Report	Cereal 357005381 8656 2057 1171 1780540 101370 766835	Baby Food 672645.3	
nalytics	Office Supplies 2635388.17 2021 651.21 524.96 1316100 1060940 255151	Cereal 1345290.61	
ata Overall Statistics	Fruits 123225.45 6267 9.33 6.92 58471.1 43367.6 15103.5 Household 7179740.81 5367 668.27 502.54 3586600 2697130 889473	Office 2017935.91	
troups Statistics et Statistics to Excel	Household 7179740.81 5367 668 27 502 54 3586600 2697130 889473 Vegetables 459287.99 1485 154 06 90.93 228779 135031 93748	Fruits 2690581.22	
elds Correlation	Personal Care 948579.4 5767 81.73 56.67 471337 326816 144521	Household 672645.3	
Balancing	Clothes 195114.32 888 109.28 35.84 97040.6 31825.9 65214.7	Vegetables 1345290.61 Personal 2017/025.04	
e Dastacing	Cosmetics 6925110.53 7910 437.2 263.33 3458250 2082940 1375310 Beverages 782239.24 8156 47.45 31.79 387002 259279 127723	Care 2017935.91	
	Developes rozzrsze 0180 +1/40 31.75 30/002 20217 12/23 Meat 402785.58 4767 421.89 364.69 201150 1738400 27257	Clothes 2690581.22	
	Snacks 1250913.02 4085 152.58 97.44 623289 398042 225247	Cosmetics 3363226.52 Beverages 4035871.83	
	Total: 30941684.02 Sum by columns: 60928 3193.98 2251.64 15437658.7 10673767.5 4763884.2	Meat 4708517.13	
		Snacks 5381162.44	
		Total: Sum by 30941684.01 columns: 1473413.52 2946827.05 4420240.5	7 5893654.1 7367067.62 884048
		30341004.01 COlumns.	
	Balancing coefficients Export to Excel	Balancing Matrix Export to Excel	
	Steps ki1 ki2 ki3 ki4 ki5 ki6 ki7 ki8 ki9 ki10 ki11 ki12 ki1 kj2 kj3 kj4 kj5 kj6 Precision	Sum of	
	1 0.2365 0.37683 0.76571 21.83462 0.09369 2.92908 2.12732 13.78977 0.48566 5.15938 1.16899 4.30179 6.10376 634 87215 1636 8311 0.38404 0.72035 1.72685 24625606 8		TotalRevenue TotalCost TotalPr
	2 1.11077 1.14669 0.87983 0.9109 1.17013 0.7620 1 1.12145 0.63706 1.16186 1.13715 1.18836 1.0456 1.03169 1.11851 1.05001 0.96569 0.94639 1.00669 1253523.90 3 1.00528 1.00875 0.9878 0.99845 1.008 0.9802 1.00526 0.96969 1.00917 1.00883 1.00832 1.00052 0.9994 1.00695 1.00339 0.99794 0.99696 1.000370971 3305	011 Debu Fred 670046 34 0207 42 40 60 700 40 700 40 700	138721.44 159082.63 244715
	3 1 0022 1 0005 0 9989 1 0052 1 0002 0 9980 1 0005 1 0005 1 0005 1 0005 1 0005 0 9996 1 0000 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 9996 0 996	Cereal 1345290.61 23748.7 64184.15 88109.56	287376.17 300442.28 581429
	5 1.000011.00003 0.99991 1.00012 1.00010 0.9999 1.0002 0.99987 1.0003 1.0005 1 0.9999 0.99993 1.0004 1.0002 0.99990 9.9999 1 429.79853	Office 2017935.95 8450.86 309689.5 601959.34	323742.57 479241.4 294852
	6 1 1 0.999991.00002 1 0.99999 1 0.99999 1 1.00001 1 1 0.99999 1 1.00001 1 1 1 1 1 1 45.64029		429968.24 585616.2 521757
	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Household 672645.31 3731.97 52848.14 95826.13	146712.2 202599.21 170927
	Result 0.264160.436150.66471 19.871440.11055 2.1846 2.40158.50109 0.56977 5.921761.40113 4.50065 6.29052 715.41081 1725.01550.370050.67954 1.738440.42503	Vegetables 1345290.63 20407.21 240778.7 342665.9	184948.08 200456.32 356034
		Personal 2017935.91 87123.54 140422.9 234771.39	418883.7 533356.79 603377
		Care 2017555.51 0/125.54 140422.5 234771.35	410003.1 333330.13 003311

Target values adjusted to grand total of starting matrix, and Balancing Coefficients and balancing Matrix:

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all Business Ban	🕽 CHASE Bank - Credi 🤣 Login TRYCACHE 🔗 SQL 🛐 MySQL : MySQL 8 🗾 Google Calendar 🚱 Online User Reporti 🧏 HelpDesk at RunRe 🍯 Google Earth 🌼 Settin	ngs - Passwords 🛛 🛪 HTML Tutorial 🚚 Analytics Realtime 🧯 Help Desk 🛛 👘 📃 Other box
Data to CSV	Enter sums by columns: 11,22,33,44,65,66	
Data to Delimited File	Multiple fields: 🔲 select all fields 🔲 unselect all fields	
Data to XML	UnitsSold, UnitPrice, UnitCost, TotalRevenue, TotalCost, TotalPr/ 🕶	
rport	(1b) Balancing matrix of rows and multiple columns for given above sums by rows and by columns	
Jeneric Report	Balancing for sum of rows and columns of the starting matrix of rows and multiple selected columns:	
Report Graphs Report to Excel	Balanced, precision: 0.42503, steps: 8	
Report to Excel	Starting Matrix Export to Excel	Target Matrix Export to Excel
Report to PDF	ItemType Sum of row ItemType UnitsSold/UnitPrice/UnitCostTotalRevenue/TotalCost TotalProfit	ItemType Sum by UnitsSold UnitPrice UnitCost TotalRevenueTotalCost TotalPr
utal Report	Baby Food 2844175.7 5559 255.28 159.42 1419100 886216 532886	Baby Food 672645.3
alytics	Cereal 3570053.81 8656 205 7 117 11 1780540 1013700 766835 Office Supplies 2635388.17 2021 651 21 524 96 1316100 1060940 255151	Cereal 1345290.61
ta Overall Statistics	Fruits 123225.45 6267 9.33 6.92 58471.1 43367.6 15103.5	Office Supplies 2017935.91
oups Statistics Statistics to Excel	Household 7179740.81 5367 668 27 502 54 3586600 2697130 889473 Vegetables 459287.99 1485 154 06 90 93 228779 135031 93748	Fruits 2690581.22
Statistics to Excel dds Correlation	Personal Care 948579.4 5767 81.73 56.67 471337 326816 144521	Household 672645.3
Balancing	Clothes 195114.32 888 19928 35.84 97040.6 31825.9 65214.7	Vegetables 1345290.61 Personal 2047035.04
	Cosmetics 6925110.53 7910 437.2 263.33 3458250 2082940 1375310 Beverages 782239.24 8156 47.45 31.79 387002 259279 127723	Care 2017955.91
	Meat 4027855.58 4767 421.89 364.69 2011150 1738480 272672	Clothes 2690581.22 Cosmetics 3363226.52
	Snacks 1250913.02 4085 152 58 97 44 623289 398042 225247 Total: 30941684.02 Sum by columns: 60928 3193.98 2251.64 15437658.7 10673767.54763884.2	Beverages 4035871.83
		Meat 4708517.13 Snacks 5381162.44
		Total: Sum by 4173443 533046937 05 4439346 57 5993654 4 73679677 63 894049
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2a Scenario:

Parameters, Starting, and Target matrix:

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2b Scenario:

Parameters, Starting, and Target matrix:

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2c Scenario:

Parameters, Starting Matrix, and Balancing Coefficients:

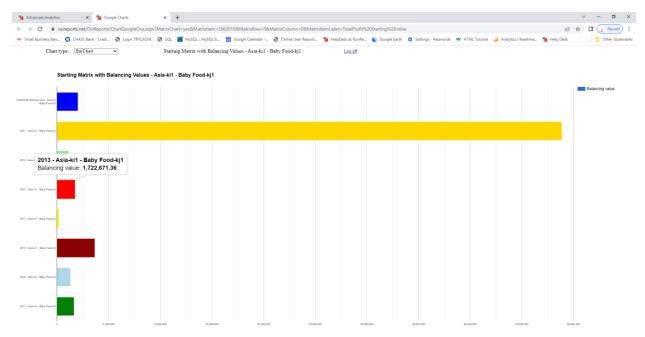
It balanced by 10000 steps with Precision equal 203 for 2016 and 248 for 2017:

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It balanced by 100000 steps with Precision = 1:

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eport to PDF	Region		Baby Food Beverag	es Cereal Clothe	Cosmetics	Fruits Hous	sehold Meat	Office Supplies	Personal Ca	re Snacks	/egetables		
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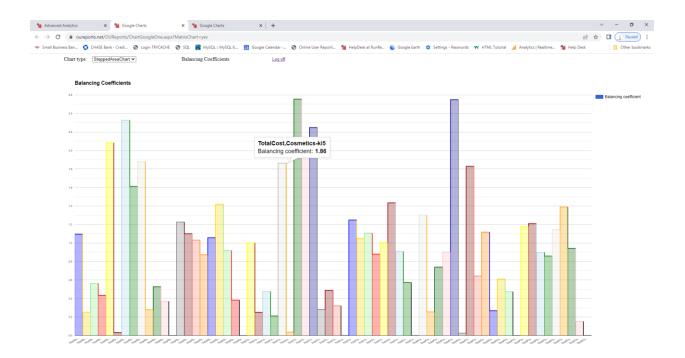
Clicking on the link in the starting matrix cell for Asia & Baby Food, we open the chart showing the profit of Baby Food sales in Asia by year:

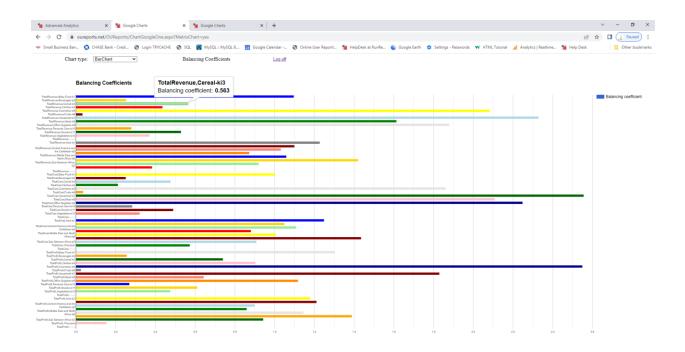


3a Scenario:

Parameters, Starting Matrix and Balancing Coefficients:

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3b Scenario:

Parameters:

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 Export Report to PDF See Crystal Report Show Analytics See Data Overall Statistics 	
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Starting, Target, and Balancing Matrices:

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Snacks	0	0	0 0	0	0	0									Cosmetics			437.2	263.33	793518	477944	315574
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	10002013.1/		651.21 524 0 0	0	0 435034	0									Beverages		0	0	0	0	0	0
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Vegetables Baby Food	0 5077639.7			42 2533650	0 158224	951410																
Vegetables	•	9925													Supplies	0	0	-	0	0	0	0
Vegetables Baby Food Fruits	5077639.7	9925 5822	255.28 159 9.33 6.92	54319.3		14031	38								Vegetables		0	0	0	0	0	0
Vegetables Baby Food Fruits	5077639.7 114476.75	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables Baby Food		0	0	0	0	0	0
Vegetables Baby Food Fruits	5077639.7 114476.75	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables		0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0
Vegetables Baby Food Fruits	5077639.7 114476.75	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables Baby Food Fruits	0 0 Sum by	0 0 0 42817	0 0 0 2076.6	0 0 0 5 1437.62	0 0 0 12849615	0 0 0 8920863	0 0 0 392874
Vegetables Baby Food Fruits	5077639.7 114476.75	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables Baby Food Fruits Total:	0 0 Sum by	0 0 0 42817	0 0 2076.6	0 0 0 5 1437.62	0 0 0 2 12849615	0 0 0 8920863	0 0 0 392874
Vegetables Baby Food Fruits Total: 29431796.0	5077639.7 114476.75 06 Sum by columns:	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables Baby Food Fruits Total:	0 0 Sum by	0 0 0 42817	0 0 0 2076.6	0 0 0 5 1437.62	0 0 0 2 12849615	0 0 0 8920863	0 0 0 392874
Vegetables Baby Food Fruits	5077639.7 114476.75 06 Sum by columns:	9925 5822	255.28 159 9.33 6.92	54319.3	40288.2	14031	38								Vegetables Baby Food Fruits Total: 25745552.1	0 0 Sum by			0 0 0 5 1437.62	0 0 0 12849615	0 0 0 8920863	0 0 0 392874
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Vegetables Baby Food Fruits Total: 29431796.0 Balancing coeffi Steps ki1 ki 1 1.544452 2 0.839290.	5077639.7 114476.75 06 Sum by columns:	9925 5822 42163 376.66756 11 376.66756 10 3.0	5 ki6 5 ki	54319.3 1.68 1469293 7212.21395 3	40288 / 37.6 102152 ki7 660202253.64/ 1.67633	14031 16.1 4477727. ki8 k 4 1.14318 (1) 1.67633 (2)	ki9)).78814	1.14318 0 1.67633 0.80	0 664 0.83534	0.02576 0	0.00126 0.0008 0.59705 0.5969	1.34144 1.2	25751 0.95239 99926 0.86763	11654594.36552 1456023.59686	Vegetables Baby Food Fruits Total: 25745552.1 Balancing ItemType Clothes	0 0 Sum by 7 columns: Matrix E Sum of row ItemType 1814370	Units Solo	1	UnitCost 0	TotalRevenue 1079354.71	TotalCost 314577.61	TotalPr 420331
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Vegetables Baby Food Fruits Total: 29431796.0 Babay Food Fruits Total: 29431796.0 Steps ki1 ki 1 1.54445 2 0.83929 2 0.83929 3 1.000420 6 1 0.00020 6 1 1 7 1 1	S0775337 114476.75 114476.75 0.00010 05 Sum by columns: 0.000110 42 143 144 676210 2624 427450 96510 96921 10.0022 96510 96921 10.0022 969210 996970 996970 90990 1 1 1 1	9925 5822 42163 376.66756 2 0.0 3 0.0 3 0.0 1 1 1	5 ki6 5 ki6 5 ki6 25994 76742 80553 1.676 999943 1.000 99997 1.019 1 1000	54319 3 1469293 1469293 7212 21395 3 2 8 4	ki7 680202253.64 1.00088 1.0004 1 1	14031 36.1 4477727. 14477727. 14477727. 1.014318 1.676332 1.00088 1.00088 1.00088 1.00046 1.	ki9)).78814) 98269).99915).99996 1	1.14318 0 1.67633 0.80 1.01942 0.99 1.00088 0.99 1.0004 0.99 1.01004 0.99 1.01004 1.99 1.01004 0.99 1.01004 0.99 1.00004 0.99 1.000000000000000000000000000000000000	0 664 0.83534 123 0.98609 961 0.99932 998 0.99997 1 1 1	0.02576 0 0.60064 0 0.9811 0 0.99913 0 7 0.99996 0 1 1	0.00126 0.0008 0.59705 0.5969 0.98097 0.9809 0.99912 0.9991 0.99996 0.9999 1 1 1 1	1.34144 1.2 1.05214 0.9 1.00216 1.0 1.0001 1.0 1 1 1 1 1 1 1 1 1	25751 0.95239 99926 0.86763 00038 0.99239 00002 0.99964 0.99998 1 1	11654594 36552 1456023.59686 70943.65579 3347.19573 157.1289 7.36862 0.34547	Vegetables Baby Fool Fruits Total: 25/4552.1 Balancing RemType Clothes Household Cosmetics Snacks Personal Care Meat Care Meat Care Swpplies Office Supplies Vegetables Baby Food	0 0 3 Sum by 7 columns: Matrix E Sum of rowns: 12004253.41 159955.45 2243481.01 495984.52 4027855.56 3570053.79 0 0 0 0 0 0 0 0 0 0 0 0 0	Units Solo 105.89 3 106.28 22.07 9699.06 36.26 17413.31	UnitPrice 0 0 473 04 0 849 28 752 75 0 0 0 0 0 0 0	UnitCost 0 0 327 55 0 588.07 521 23 0 0 0 0 0 0	TotalRevenue 1079354.71 6624853.68 900224.94 904722.7 276469.98 1624302.75 1439686.23 0 0	TotalCost 314577.61 4427238.56 481846.02 803993.15 170355.47 1443456.91 1279395.19 0 0 0 0 0 0 0	TotalPr 420331 952054 207458 524265 49122.8 941245 834264 0 0 0 0 0 0

3c Scenario:

Parameters:

Advanced Analytics	× 🧏 Advanced Analytics × +	- 0
← → C 🔒 oureports	.net/OUReports/AdvancedAnalytics.aspx	Paused
≽ Small Business Ban 🏮 CF	IASE Bank - Credi 🤡 Login TRYCACHE 🤡 SQL 📓 MySQL :: MySQL 8 🔯 Google Calendar 🤡 Online User Reporti 猪 HelpDesk at RunRe 🔉	. Other bookma
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 Log Off List of Reports 	Recalculate Analytics Correlation Data and Statistics Report and Charts List of User Dashboards Analytics Matrix Balancing Help Help Log off	OUReports
Report Definition Report Data Definition Report Format Definition Explore Report Data Export Data to Excel	Sample Sales Records by year - Advanced Analytics - Matrix Balancing Select Scenario: 3c: Balancing coefficients for matrix of rows and multiple cols for iterations between start and target of field2 values 100 Precision: 1 Partial rows/columns: 0.0 ✓ adjust by start matrix 3c: Get balancing coefficients for Starting Matrix as rows by matrix group field for rows and columns from selected multiple fields, for all iterations between starting field2 values	 Steps: and target of the
Export Data to CSV Export Data to Delimited Fil Export Data to XML Show Report Show Generic Report Show Report Graphs Export Report to Excel Export Report to Word Export Report to PDF	Enter: Matrix rows by: ItemType Iterations by the field2: OrderYear Starting value: 2010 and target value: 2017 Multiple fields: Select all fields UnitsSold.UnitPrice,UnitCost,TotalRevenue,TotalCost,TotalPr (3b) Balancing matrix of rows and multiple columns for iterations of starting and target values of the field2 (3c) Balancing coefficients for matrix of rows and multiple cols for iterations between start and target of field2 values	
Export Data to CSV Export Data to Delimited Fil Export Data to XML Show Report Show Generic Report Show Report Graphs Export Report to Excel Export Report to Word	Matrix rows by: ItemType Iterations by the field2: OrderYear Starting value: 2010 and target value: 2017 Multiple field3: Select all fields UnitsSold,UnitPrice,UnitCost,TotalRevenue,TotalCost,TotalPr (3b) Balancing matrix of rows and multiple columns for iterations of starting and target values of the field2	

Starting Matrix and Balancing Coefficients by year:

line User Reporting	
Log Off List of Reports	Recalculate Analytics Convention Data and Statistics Report and Charlis List of User Databoards Analytics Mathy Balancing Help OUReports Help Log of Sample Sales Records by Year - Advanced Analytics - Matrix Balancing
Report Definition	Select Scenario: 3c: Balancing coefficients for matrix of rows and multiple cols for iterations between start and target of field2 values 🗸 Steps: 100 Precision: 1 Partial rows/columns: 0.0 🖷 adjust by start
Report Data Definition	matrix D:: Get balancing coefficients for Starting Matrix as rows by matrix group field for rows and columns from selected multiple fields, for all iterations between starting and target of the field2 values
leport Format Definition	3. Or community controlents for starting matrix as rows by matrix group new on rows and continues now services manage news, for an interaction of content and and an end of the starting and angle or the news matrix as rows. Enter:
Explore Report Data	Matrix rows by: ItemType 🗸
Export Data to Excel	Iterations by the field2: OrderYear 🗸 starting value: 2010 🗸 and target value: 2017 🗸
Export Data to CSV	Multiple fields: 🖩 select all fields 🖉 unselect all fields
Export Data to Delimited File	UnitsSold UnitPrice UnitCost, TotalRevenue, TotalCost, Tota 🕶
Export Data to XML	
Show Report	(3b) Balancing matrix of rows and multiple columns for iterations of starting and target values of the field2
Show Generic Report	(3c) Balancing coefficients for matrix of rows and multiple cols for iterations between start and target of feld2 values
Show Report Graphs	(ac) controller su unance a unance a una controller controlle
Export Report to Excel	
Export Report to Word	Donel
Export Report to PDF	Starting Matrix of Item Type and UnitSold, UnitPrice, UnitCost, TotalRevenue, TotalProfit for Order Year = 2010 Export to Excel
ihow Analytics	ItemType Sum of row ItemType[UnitsSold]UnitPrice[UnitCost]TotalRevenue[TotalCost] TotalProfit
See Data Overall Statistics	Clothes 1342973.12 6116 109.22 35.84 668356 219197 449159
See Groups Statistics	Household 5123946.01 3239 668.27 502.54 255670 1927730 5347/6 Cosmetei 6925710.53 73910 437.2 12533 31458230 2022494 1375310
Export Statistics to Excel	Cosmences 052110-35 /2010 93/12 20233 293002 200039 1013210 Snacks 0 0 0 0 0 0 0 0 0
See Fields Correlation	Personal Care 45035.98 273 81.73 56.67 22312.3 15470.9 5641.38
Matrix Balancing	Meat 0 0 0 0 0 0 0
	Cereal 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Berverages 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Vegetables 0 0 0 0 0 0 0 0 0
	Baby Food 5077639.7 9925 255.28 159.42 2533650 1582240 951410
	Fruits 114476.75 5822 9.33 6.92 5439.3 40282.2 14031
	Total: 29431796.06j Sum by columns: 42163 2212.3 1549.68 14692937.6 10215206.1,4477727.38
	Balancing coefficients Ohnt Expert to Excel
	Steps ki1 ki2 ki3 ki6 ki7 ki8 ki9 ki10 ki11 ki12 ki1 kj2 kj3 kj6 kj6 Precision
	2011 0/2459/1769/50 7/0226442/276160 3.3732 43974346.44712 (0.7216/487111015.0022) [1.83277] 0/02560.00131 (0.013] (1.670/6) (0.971/6) (
	2012 1017211030440 01079 108022 10555513779111030137 241005395 11013 109822 0 1056050 010395 022230 0056050 01395 022230 10120 00120 00120 00120 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 01000 010000 01000 01000000
	2014 1 22132 1 8324 0 92648 2 03937 18 25464 2 03937 924273454 76548 306071813 82851 0 21626 2 03937 0 56886 0 98327 0 04765 0 00217 0 0015 1 12288 1 05783 0 97059 0 91473
	2015 1 66771 2 96602 0 49685 2 59525 2 9 23889 2 59525 2 59525 2 59525 2 59525 2 59525 0 17718 0 16621 0 1814 0 0 1369 0 00965 1 02146 1 01402 0 98654 0 09914
	2016 2 22921 0 199816 559517797 86339 45 23401 4 92638 326004393 60144 366993054 27606 0 27579 377104573 60766 0 0 0.04393 0.002011 17146 1.08607 0 96891 0.46786

4a Scenario:

Balanced sums by each of 5 columns:

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Report Definition									1.1 X			10								
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Explore Report Data • Export Data to Excel	Balan	cing by: Ord	lerYear, Reg	ion,ItemType,	SalesChar	nel,OrderPr	iority 💌													
Export Data to CSV		lems by field1;	TetelOast		pation function	0														
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Show Report		(4a) Ba	lancing mat	tk of field1 for	the sums by	selected col	umns of the matri	x of field2												
Show Generic Report Show Report Graphs																	d2 'TotalProfit			
 Export Report to Excel 												<pre>cted fields: 19. = 29253365.2</pre>		53.77, 85.19	, 130.75 , 1	naximum di	fference of cel	ls in balancin	g and target s	ums = 5.14
Export Report to Word		Sums of Tot				sums = 292	.53365.52, ma	kimum differe	nce of cells if	starting and		Sums of Tota			de room	to Dural				
Export Report to PDF		Europe hur				Sume by	1	Sume by	1	Sume by		Sume hu	-	Sums by	1		1	Sume by	1	Sume h
Show Analytics See Data Overall Statistics	OrderYea	OrderYear	Region	Region	ItemType	Sums by ItemType	SalesChannel	SalesChanne	OrderPriority	OrderPriority	OrderY	ear OrderYear		Region	ItemType		SalesChanne		OrderPriority	
 See Groups Statistics 	2010	12556452.1	Asia Australia	15233250.9	Household	22477106	Offline	54174080.6	L	25769399.76	2010	6629565.38	Asia Australia	6113838.62	Household	7412606.9	Offline	24920715.4	L	10858726.3
 Export Statistics to Excel 	2011	8388166.1	and	9372101.2	Baby Food	6463678	Online	39006490.8	н	31857940.3	2011	2741008.86	and	4722159.27	Baby Food	3886644	Online	19247474.86	н	16891585.0
See Fields Correlation	2012	22685624.54	Oceania	22285989.2	Clothes	2553957.2			C	12106729.8	2012	9213011.12	Oceania	11082939.88	Clothes	52333327			C	6748334.6
Matrix Balancing		EE0030E4.34	Middle	LLEUJJUJL	oroures	2333331.2				12100123.0		2213011.12	Middle	11002000.00	Chourda	3233332.1				0140334.0
	2013	13615035.5	East and North	8291512.7	Cosmetics	22045472			м	23446501.54	2013	6715416.6	East and North	5761191.39	Cosmetics	14556046			м	9669544.3
			Africa										Africa							
	2014	10750754	Sub- Saharan	27488833.4	Office	24655795					2014	5879463.47	Sub- Saharan	12183209.1	Office	5929580				
			Africa		Supplies								Africa		Supplies					
			Central America		Personal								Central America		Personal					
	2015	8431445.16	and the		Care	2760283.9					2015	3996536.73	and the Caribbear	2846906	Care	1220621.78				
			Caribbean North				-						North							
	2016	7469033	America		Fruits	345986					2016	4903835.2	America	1457946	Fruits	120495.26				
	2017	9284061			Vegetables Beverages	1823237.3					2017	4089352.9			Vegetables Beverages	1265819.32				
					Snacks	1328789										751944				
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4b Scenario:

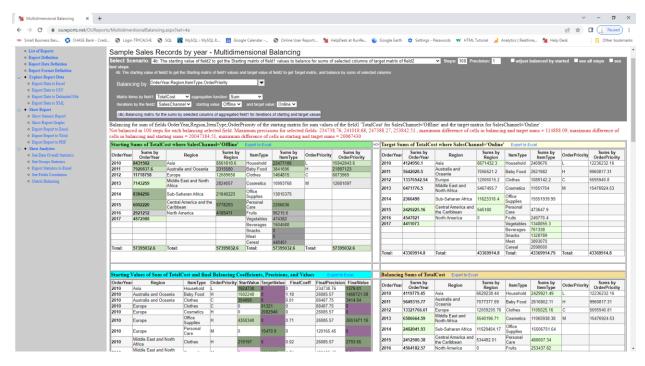
Balanced sums by each of 3 columns:

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ort Definition	Select \$	Scenario: 4b: The	starting value	e of field2 to ge	t the Starting	matrix of fiel	ld1 values to b	alance for sums	of selected columns	of target matri	x of field2	✓ Steps: 100 Precision: 1	adjust bak	nced by sta	rted see all steps
ort Data Definition		e starting value of field2													
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w Report	(1b) E	Balancing matrix for the	sums by color	ted selumns of a	paragalad field	1 far iloration	s of classing and	target uplues							
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port Report to PDF	Starting	g Sums of TotalCo	st where Sa	lesChannel='	Offline' E	Export to Exce				=> Target !	Sums of TotalCos	t where SalesChannel='Online'	Export to Excel		
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e Data Overall Statistics	2010	10514442	Asia			4349.6	L	17784132.1		2010	8475290.1	Asia	10817392.3	L	20206172.16
e Groups Statistics	2011	7952663.6		and Oceania		2904	С	9333714		2011	7746168.6	Australia and Oceania	7434866.2	С	6508680.81
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e Fields Correlation	2013	9751922.5 10359176	Sub-Saha	st and North Afr		4057	М	14865903		2013 2014	9208995.5 5648189	Middle East and North Africa Sub-Saharan Africa	5467455.71 23725318.5	М	19861764.35
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	2010	Middle East and N	lorth Africa	M	0	1904930	4.08	0.72	0.01	2017	4411073		-		
	2010	Sub-Saharan Afric	a	L	0	40288.2	0.51	0.77	0	Total:	69832252.6	Total:	69832252.6	Total:	69832252.61
	2011	Asia		C	339351	0	1.27	0.44	427226.78						
	2011	Asia		н	0	11275.3	0.8	0.44	0						
	2011	Asia		L	43367.6	0	0.93	0.44	41880.49						
	2011	Central America a		ean C	259279	0	0	0.04	0						
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	2012	Asia		L	0	3521430	1.77	0.44	0						
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Balanced sums by each of 4 columns:

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4c Scenario:

Parameters with manually entered target proportional values for balanced sums by each of 4 columns:

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Partial Matrix Balancing

If the goal is to balance the matrix to partially given sums by rows and columns for example to balance top left corner of matrix and low right corner, then resulting balancing coefficients can be applied to the rest of the matrix, because balancing coefficients for top left matrix and balancing coefficients for low right matrix are two complementary sets of balancing coefficients.

Open the site <u>http://oureports.com/</u>:

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	csvdemo43_3_22_2021_11_57AM	Covid Daily Vaccination	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_7_7_2021_10_59AM	Covid Data	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_3_22_2021_12_59PM	Covid latest	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_3_15_2021_10_47AM	Covid Vaccination by Country	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_3_30_2021_10_42AM	Covid Vaccination by State in US	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_7_24_2021_1_29PM	Gross Domestic Product GDP byArea	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_8_13_2020_1_12PM	Import sample	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_7_24_2021_9_12AM	Macro Economics	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43 7 28 2021 9 00AM	Nasdao	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvdemo43_7_24_2021_12_23PM	Personal Income By Area	edit	сору	delete	2028-09-29 10:49:00	map	analytics	
	csvuser17_3_28_2020_6_32PM	States Population and Areas	edit	сору	delete	2028-09-29	map	analytics	
	csvdemo43_5_15_2020_11_06AM	States Population and Areas with colors	edit	сору	delete	10:49:00 2028-09-29	map	analytics	
	csvuser17_3_16_2020_2_12PM	Storms 1950 paths	edit	сору	delete	10:49:00 2028-09-29	map	analytics	
	csvdemo43_5_11_2020_5_47PM	Storms 1950 paths - Maps	edit	сору	delete	10:49:00 2028-09-29	map	analytics	
		erenne rece benne runha				10:49:00 2028-09-29	map		

Click on the link for report "Gross Domestic Product GDP by Area". It will open the report:

eporting																
	oss Domestic Pro					Searc		Schedule	report							
Gra				♥ aggregate Count		Dashboard Statistic										
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žies -	hide duplicate records		Records returns	sdi 152												
	Gross	: Domesti	c Produ	ict GDP byA	rea											
nited File	01000	Donnoba	e r road	<u>, , , , , , , , , , , , , , , , , , , </u>	100											
	GeoElas	GeoName	LineCode	Description	col2010Q1	col2010Q2	col2010Q3	col2010Q4	col2011Q1	col2011Q2	col2011Q3	col2011Q4	col2012Q1	col2012Q2	col2012Q3	col2012Q4
		New England	AND ASSORD	3 Agriculture,	0	S CONTRACTOR O	SOMELIESS.	0	Source of the second se	0	D.	Societ Contraction of the Contra	0	CONCERNENCE O	0	STORE LAND
				forestry, fishing and hunting												
	91000	New England		6 Mining, quarrying, and oil and gas extraction	0	0	0	0	0	0	0	0	0	0	0	c
		New England		10 Utilities	13726.9	14476.1	14137	13778.6	12923.4	14077.3	13805.9	13935.5	14012.8	13973.2	13521.8	13669.5
erel .		New England		11 Construction	25456.4	25936	25795	25424.7	24915.4	25752.5	25942.1	27015.7	27410.2	27343.8	27385.8	27567.7
		New England		12 Manufacturing	91090.6	93490.1	96404.9	94579.7	91836.7	96324.2	91600.9	95373.2	93850.4	96243.1	96057.8	96220.2
		New England		34 Wholesale trade	45803.7	46872.7	48120.3	47623	47397.3	48419.9	48403.5	49779.4	49820.6	60927.9	60844.2	50723 5
		New England		35 Retail trade	43570.8	44053.5	43877.8	44144.1	43774.2	43825.8	44059.3	44942.5	44893.6	44931	46197.9	46462.2
	91000	New England		36 Transportation and warehousing	13022.4	13437.2	13674.3	13818.1	13849.5	14236.1	14209.1	14354.9	14317.2	14352.9	14419.6	14531
	91000	New England		45 Information	39913.4	41215.6	42537.8	42415.5	41382.4	42590.7	41265.9	41559.1	39959.3	40621.5	40687.3	40932.4
	91000	New England		51 Finance and Insurance	83245.4	80103.6	76347	77046.9	72682.8	76040	79796.2	80824.8	84089.3	88601.6	90377.8	90296
	91000	New England		56 Real estate and	122224	124048	125018	126763	126302	129231	130264	132881	130830	131408	132101	130360
		-		rental and leasing 60 Professional.	70412.1	72083.8	74210.3	75061.6	74096.4	75656.8	76135.9	76966.2	79872.6	80871	81049.1	79188.1
	91000	New England		scientific, and technical services									79072.0	60671	01049.1	
	91000	New England		64 Management of companies and entectrines	16162.2	16510.7	17474.2	17775.7	17193.9	21360.5	17679.9	18187.6	19441.1	19150.4	20148	22237.2
	91000	New England		65 Administrative and support and waste management and	21163	21726.2	22076.7	22250.8	22281	22364.8	22564.3	22729.7	23675.9	23546.6	23616.2	23610.6
				remediation services												
	91000	New England		69 Educational services	22268	22829.6	23110.4	23193	23326.6	23546.5	23751	23922.2	24092.3	24514.5	24470.4	24536.5
	91000	New England		70 Health care and social assistance	75289	76828.6	79031.2	77461.8	78914.3	78959.7	78847.9	80382.9	82259.9	82500.5	82672.6	83489.5
	91000	New England		Social assistance 76 Arts.	7894.2	8206.2	8337.7	8177.4	8040.9	8548.9	8554.6	8433.6	8835.7	9010.6	9008.8	9124.6
		ton Englishe		entertainment, and recreation												
	91000	New England		79 Accommodation	20791.6	21300.4	21631.9	21718.4	21577.9	22056.9	22514.2	22777.5	23517.7	23839.4	24014	24343.5
				and food services	16149.1	16425.8	16696.1	16663.6	16344	16515.6	*****	16895.7	16874.4	(7120	17313.4	17381.5
	91000	New England		82 Other services (except government and government enterprises)	16149.1	16425.8	10030.1	16663.6	16344	16515.6	16629.7	16895.7	16874.4	17129	17313.4	17381.5
	92000	Mideast		3 Agriculture, forestry, fishing and hunting	0	0	0	0	0	0	0	0	0	0	0	c
	92000	Wideast		6 Mining, quarrying, and oil and gas extraction	0	0	0	0	0	0	D	D	0	0	0	c
	92000	Wideast		10 USRies	51878.9	50185.1	49990	49895.4	49813.5	51541.8	50708.5	51360.6	47638	47743.8	48540.5	49742.2
	92000	Mideast		11 Construction	85028.1	87251.2	87120.3	86268	84642.8	86885.2	87837.5	90785.4	92662.4	91289.4	91316.3	92811.5
	92000	Wideast		12 Manufacturing	216778	213912	214443	212512	207106	207804	204843	207468	206625	204965	205829	201513
	92000			34 Wholesale trade	148498	152214	155850	155153	156466	158309	156408	160464	163429	164655	168225	168521
	92000			35 Retail trade 36 Transportation and	134755 63340.1	137415 65632.4	138018 67581.4	138455 68372.8	139441 68631.2	141254 69313.9	141182	143990 70345.1	144053 70229	144228	145435 70782.1	146895 70071.£

Report: Gross Domestic Product GDP by Area in our Analytics from http://OUReports.com

Click on the link Matrix Balancing in the bottom of the left menu and select scenario 2a and assign the Partial rows/columns to 5,3.

Balance top left corner matrix (5 rows and 3 columns) and low right corner matrix (14 rows and 5 columns) and applying coefficients to the rest of starting matrix to get partially balanced matrix:

← → C e oureports.net/OUReports/AdvancedAnalytics.aspx									e	☆ 🔲	A Paus	sed)
Small Business Ban (3) CHASE Bank - Credi (3) Login TRYCACHE	501 🔯 Mis01 - Mis018 📅 Ger	nle Calendar - 🙆 Online I	Iser Reporti	HeleDes	k at RunRe 💦 💼 Gooole Fa	urth 🏦 Settinins - Passwords 💌	HTMI Tutorial	ltime 🤒 H	eln Deck		Other b	bookm
			A TAPATAN		Constanting Consta	• • • • • • • • • • • • •	Court Constant	and the second s	op b con		- outers	Perendi
ross Domestic Product GDP byArea - Advan												
Select Scenario: 2 <u>A</u> Satisfy Mattic of pyrpand field to Balancek 25 Storing Marco of gargapate field to balance for some of co- cor- Marc rows by: Description ⊂ columns by: Ceckhame ⊂ Marcs men by: Mattic (CeckHold ⊂) ⊂ gargation function: <u>Sum</u> (2a) Balanceg matrix of field to the same by rows and by colum	Aurons of the Target Matrix of the aggregate		12		Steps: 100 Precision	: 1 Partial rows/columns:	6,3 ■ adjust by start m	atro				
lancing for sum of rows and columns of the starting matrix for sum	values of the field1 'col2010Q1' and t	he target matrix for sum v	alues of the f	field2 'col20	2101':				_	_	_	
op Left Corner: yes, balanced, precision: 0.27529, steps: 4 , Low Rig						and target matrixs = 16267.25,	maximum difference of cells	in selected par	rts of balar	ncing and	starting m	aatrix
alancing and target matrixs = 170874.50, maximum difference of cel	lls in balancing and starting matrixs =	308809.24										
Starting Matrix of Sum of col2010Q1							Target Matrix of S	um of col202	1Q1			
Description	Sum of Sum of col2010Q1 by De	scription Far West Great L	akes Mideast	New Engla	and Plains Rocky Moun	tain Southeast Southwest		Sum of Sum		10.00		
Accommodation and food services	393920.6	83594.6 48265.6	62126.1	20791.6	21784.2 13781.3	96639.5 46937.7	Description	of col2021Q1	Far West	Great	Mideast	Ne
Administrative and support and waste management and remediation se	ervices 425658.2	77880.4 60167.1	73365.1	21163	23142.8 13486.7	101836 54617.1		Description		Lakes	10.2020.0	En
Agriculture, forestry, fishing and hunting	125368.6	37148.3 17212.7	0	0	26525.9 6631	23508 14342.7	Accommodation and	d				-
Arts, entertainment, and recreation	148177.1	35965.7 19291.5	31456	7894.2	7899.2 4819.9	31070.1 9780.5	food services	573458	134008	65607.8	77137.4	31
Construction	519400.7	92271.7 65211.2	85028 1	25456.4	34363.7 21225.3	122508 73336.3	Administrative and					
Educational services	194983.1	28731.4 25972.2		22268	10531 4803	34580.4 13787.4	support and waste	711421	137605	94079.7	112283	34
Finance and insurance	1015194.8	127733 146002	307906	83245.4	77724.7 26440.2	165646 80497.5	management and remediation service					
Health care and social assistance	1091469.2	172523 168506	213203	75289	77306.9 31564.3	240584 112493	Agriculture, forestry	000000000	Lange and	PORO FOCUL		-
Information	734241.1	187310 67527.8	178960	39913.4	39056.6 25907.7	133426 62139.6	fishing and hunting	201737.6	55762.3	31735.8	0	0
Management of companies and enterprises	257676.5	36866.6 44202.5	61847.4	16162.2	23778.8 7464	51847.3 15507.7	Arts, entertainment,	157836.9	37515	19837.2	28509.8	73
Manufacturing	1754075.2	309500 346152	216778	91090.6	128137 46812.6	408165 207440	and recreation	0.00000000		1. S. C. S.	1.	
Mining, quarrying, and oil and gas extraction	297077.2	38996.4 8714.6	0	0	7976.8 32466.4	46801 162122	Construction	940417.6	186129	115290	138263	42
Other services (except government and government enterprises)	322777.3	56648 46912.1	60764	16149.1	21047.5 11400.2	75241.4 34615	Educational service	s 254031.8	38011	29957.6	72500.6	29
Professional, scientific, and technical services	1035285.4	208050 124005	235759	70412.1	47887 35340.3	208153 105679	Finance and insurance	1805440.6	224625	264921	515889	12
Real estate and rental and leasing	1908211.6	424083 242630	383197	122224	103861 64313.6	399323 168580	Health care and		10000000	1.1.100.1.00		-
Retail trade	838375.3	157244 117772	134755	43570.8	55704.1 30275.4	200915 98139	social assistance	1640165.1	286645	239092	311068	10
Fransportation and warehousing	414488.7	71990.5 62400.6	63340.1	13022.4	33460.6 15934	99400.7 54939.8	Information	1227194.4	452972	85344.7	275228	59
Utilities	275006.2	40463.6 40387.3	51878.9	13726.9	18542.6 8775.1	66080.7 35151.1	Management of					
Wholesale trade	862539.1	140882 132034	148498	45803.7	64464.8 25776.6	191066 114014	companies and	421661.8	70307.8	66757.2	82919.2	26
Total: 12613925.9	Sum of Sum of col2010Q1 by Ge	oName: 2327882.2 1783366	2 2363171	.4 728182.8	823195.2 427217.6	2696791.1 1464119.4	enterprises	2442056.2	440000	405705	258666	-
							Manufacturing Mining, guarrying,	2443956.2	446992	496785	250666	11
							and oil and gas	241122.1	19918.7	15811.5	0	0
							extraction					
							Other services (except government and government enterprises)	427486.7	73380.2	59724	79997.2	20
							Professional,		374099	190428	360337	
							scientific, and technical services	1712500.1	374099	190428	360337	12
								3000468	758952	344409	544388	12

Target matrix:

																				_
Small Business Ban	🟮 CHASE Bank - Credi 😵 Login TRYCACHE	🕑 SQL	MySQL = N	/lySQL 8	🔢 Google C	alendar	Online Use	r Reporti 📍	😸 HelpDesk at RunRe	e 🔘 Goo	gle Earth 🛛 🏮 Setting:	s - Passwords	N' HTML T	utorial 🔒	Analytics	Realtime	🐮 Help D	lesk	- I 🖪 🤇	Other bool
	values of the field1 'col2010Q1' and the targe																			
	at Corner: yes, balanced, precision: 0.98605, s in balancing and starting matrixs = 308809		naximum di	fference o	f cells in sele	ected parts	of balancing :	and target m	atrixs = 16267.25,	maximum	difference of cells in	a selected part	s of balan	cing and s	tarting ma	strixs = 225	\$10.37, n	aximum	difference	of cells i
num airrerence of cells	s in balancing and starting matrixs = 508809	.24									Farget Matrix of St		01							
	Sum of Sum of col2010Q1 by Description	- Fer Meet	Creat Lake	Mideant	New Engles	Dialas	Deeku Meunt	ain Southoas	t Couthwest		larget Matrix of St	Sum of Sum	ŲI		1					_
	393920.6		48265.6	62126.1		21784.2			46937.7		Description	of col2021Q1	ForWest	Great	Mideast	New	Plains	Rocky	Southeas	e
nt and remediation sen			60167.1	73365.1		23142.8		101836	54617.1		Description	by Description	rai west	Lakes	Milleast	England	Plains	Mountain	soumeas	Southw
	125368.6	37148.3	17212.7	0	0	26525.9	6631	23508	14342.7		Accommodation and									-
	148177.1	35965.7	19291.5	31456	7894.2	7899.2	4819.9	31070.1	9780.5		food services	573458	134008	65607.8	77137.4	31440.9	30009.5	23384.2	139972	71898.2
	519400.7	92271.7	65211.2	85028.1	25456.4	34363.7	21225.3	122508	73336.3		Administrative and									
	194983.1	28731.4	25972.2	54309.7	22268	10531			13787.4		support and waste	711421	137605	94079.7	112283	34789.1	36713.3	25188	173556	97206.9
	1015194.8	127733	146002	307906	83245.4	77724.7		165646	80497.5		management and remediation services									
	1091469.2	172523	168506	213203	75289	77306.9			112493			201737.6	55762.3	31735.8	0		52594.7	11344.7	35836	14464.1
	734241.1	187310	67527.8	178960	39913.4	39056.6		133426	62139.6		inshing and nunung	201/3/.6	55/62.3	31/35.8	0	U	52594.7	11344.7	35836	14464.1
	257676.5	36866.6	44202.5 346152	61847.4 216778	16162.2 91090.6	23778.8		51847.3 408165	15507.7		Arts, entertainment, and recreation	157836.9	37515	19837.2	28509.8	7366.6	8524.3	7038.4	35756.5	13289.
	1754075.2	309500 38996.4	346152	216//8	91090.6	128137	46812.6	408165	207440		Construction	940417.6	186129	115290	138263	42040.1	55597.2	50820.3	220772	131506
nt enterprises)	322777.3	56648	46912.1	60764	16149.1	21047.5			34615		Educational services			29957.6		29307.2		7859.6		19869.
at enterprises)	1035285.4	208050	124005	235759	70412.1	47887			105679		Einance and									
	1908211.6	424083	242630	383197	122224	103861		399323	168580		insurance	1805440.6	224625	264921	515889	125912	135903	52444.6	315740	170006
	838375.3	157244	117772	134755	43570.8	55704.1		200915	98139		Health care and	1640165.1	286645	239092	311068	105594	116928	51652.1	354523	174663
	414488.7	71990.5	62400.6	63340.1	13022.4	33460.6			54939.8		social assistance									
	275006.2	40463.6	40387.3	51878.9	13726.9	18542.6			35151.1		Information Management of	1227194.4	452972	85344.7	275228	59535.8	44466.8	41239.2	176141	92266.9
	862539.1	140882	132034	148498	45803.7	64464.8	25776.6	191066	114014		companies and	421661.8	70307.8	66757.2	82919.2	26247.2	36065.1	13611.6	90981.9	34771.8
	Sum of Sum of col2010Q1 by GeoName:	2327882.	2 1783366.2	2363171.	728182.8	823195.2	427217.6	2696791.1	1 1464119.4		enterprises									
											Manufacturing	2443956.2	446992	496785	258666	115181	187223	67401.2	565942	305766
											Mining, quarrying, and oil and gas extraction	241122.1	19918.7	15811.5	0	0	11910	22563.4	27767.5	143151
											Other services (except government and government enterprises)	427486.7	73380.2	59724	79997.2	20559.3	27292.2	16901	100348	49284.8
											Professional, scientific, and technical services	1712500.1	374099	190428	360337	121080	78275.6	64557.5	338156	185567
											Real estate and rental and leasing	3000468	758952	344409	544388	165669	151441	115977	630143	289489
											Retail trade	1314921.6	274690	175431	191878	61426.6	82819.6	52670.4	315782	160224
										- 11	Transportation and warehousing	620272		87739.7	88931.5	18677.4		27428.9	145052	87246.
											Utilities	368495	60827.1	53089.5	61788.8	18785.5	25515.3	11798.4	90065.4	46625
											Wholesale trade		229296	192406			91701	44542	299301	180412
											Total: 19358324.1	Sum of Sum of col2021Q1 by GeoName:								

Balancing coefficients for partial balancing:

																											1 40		0.1		_
	coefficients		1																				1			Balancing Mat		of col2021	QI		-
0.9	2962 1.06015 9827 1.00661 9995 1.00021	1.0488 0.645 0.95067 1.003 0.99817 1.000	22 1.00568 16 1.0002		ki7	ki8	ki9	ki10	ki11	ki12	ki13	ki14	ki15	ki16	ki17	ki18 I	ki19	1.08325 1.00247 1.00009	1.00032	0.90564 0.99592 0.99986	kj4 i	kj5	kj6	kj7	4 j8	Description	Sum of Sum of col2021Q1 by Description		Great Lakes	Mideast	Nev Enç
1 Isult: 0.90		0.99994 1.000 0.99517 0.647	39 1.18834		1.20235	0.97438	0.89712	1.14512	0.91757	0.5367	0.88161	1.09788	8 1.02695	1.02304	0.97171	0.88294	0.99719	1 1.08602			0.91172	0.96087	1.08826	0.99072	1.06433	Accommodation and food services	566473.14	130218.22	68159.12	80360.59	271
sult: al: 0.9	2797 1.0674	0.99517 0.647		1.00047 1.00002 0.87529	1.0003 1.00001 1.2151	1.00011 1 0.97791	1.00004 1 0.89718	1.00041 1.00001 1.15752	0.99997 1 0.91688	0.9982 0.99994 0.51003	0.99998 1 0.88	1 1 1.09812	2 1.00238 1.00011 1 2 1.02951 2 1.02951	0.99994 1 1.02037	0.9998 0.99999 0.96457	0.99989	0.99988 1 0.9942	1.08602	0.98454		0.99992 1 0.90938	0.99995 1 0.95949	1.00004 1 1.08958	0.99007	1.0001 1.06734	and remediation services	701592.44	139545.08	97732.31	109156.95	5 311
																										Agriculture, forestry, fishing and hunting Arts,	197738.4	62058.15	26067.63	0	0
																										entertainment, and recreation		39085.64	19005.86	28386.23	
																										E dans dans d			117927.41		-
																										services	257449.24 1857772.2			66262.11	2
																										Health care and social					t
																										assistance Information	1014716.41	282097.5	92196.92	223805.87	7 5
																										Management of companies and enterprises	452410.44	71634.18	77862.72	99789.73	2
																										Manufacturing	2486811.26	476356.22	482984.92	277053.48	3 1
																										Mining, quarrying, and oil and gas extraction	247016.33	33387.12	6763.9	0	0
																										Other services (except government and government enterprises)	436962.82	83680.82	62823.45	74535.8	19
																										Professional, scientific, and technical services	1744892.31	383509.57	207225.52	360872.67	1
																										Real estate and rental and leasing	3025345.6	732892.24	380127.51	549906.16	5 1
																											1321619.92	269333.55	182874.84	191663.09) 6
																										warehousing	618885.39				
																											371635.6	59762.25 235119.12		63625.38	

Partially balancing matrix:

								ics.asp:																					- A		
 Small Bu 	usiness Bar	- C	CHASE	Bank -	Credi	🕲 Lo	gin TRYCA	VCHE	🚱 SQL	🛐 MyS	iQL = MyS	QL 8	22 Googl	e Calenda	r Ø	Online	User Repo	orti 🦹	HelpDe	sk at RunR	e 🍯 G	ioogle Earth 🔅 S	-			. Analyt	ics Realtime.	🎦 Help	Desk		Other book
6 ki7	ki8	ki	9 F	10	ki11	ki12	ki13	ki14	ki15	ki16	ki17	ki18	ki19	61	kj2	ki3	kia	kj5	ki6	kj7 k	iß	Dataticing	Sum of	01 0012021	¥1	1	1		1		-
5 KI7	KIO					NT2	kits	KIIS	NITS .	kito	KIT	KITO	KITO -	1.08325 1.00247 1.00009	0.98421 1.00032 1.00001	0.90564 0.99592 0.99986		elo.	KJO	nj <i>i</i> n		Description	Sum of col2021Q1 by Description		Great Lakes	Mideast	New England	Plains	Rocky Mountain	Southeast	Southwe
		100 0													1 0.98454							Accommodation and food			68159.12	80360.59	27119.9	29980.36	21537.94	137238.31	71858.71
1641 1.0 10047 1.0 10002 1.0 17529 1.2	1029 1.00 003 1.00	351 1.0 011 1.0 1 791 0.0	00002 1 00004 1 1 89718 1	01041 00041 00001 15752	0.99928 0.99997 1 0.91688	0.9520 0.9982 0.9999 0.5100	0.9982 0.99994 4 1 3 0.88	1.000 3 1 1 1.098	1.0023 1.0023 1.0001 1 1212 1.0295 121.0295	8 0.9974 1 0.9999 1 1 1 1.0203	0.9928 0.9998 0.9999 7 0.9645	6 0.9966 0.99989 9 1 7 0.87984	0.99713 0.99988 1 0.9942	1.08602	0.98454		0.99752 0.99992 1 0.90938	0.99862 0.99995 1 0.95949	1.00118 1.00004 1 1.08958	0.99072 1 0.99937 1 0.99998 1 1 1 1 0.99007 1 0.99007 1	.00273 .0001 .06734	Administrative and support and waste management and remediation services	701592.44	139545.08	97732.31	109156.95	31751.97	36635.69	24244.48	166347.12	96178.83
																						Agriculture, forestry, fishing and hunting	197738.4	62058.15	26067.63	0	0	39149.73	11113.64	35801.38	23547.88
																						Arts, entertainment, and recreation	147728.57	39085.64	19005.86	28386.23	7183.57	7584.21	5255.14	30781.9	10446.0
																						Construction	954960.41	184063.79	117927.41	140843.83	42521.05	60562.24	42479.03	222788.07	143775
																						Educational services	257449.24	42215.06	34595.13	66262.11	27396.66	13670.53	7080.22	46320.07	19909.46
																						Finance and insurance Health care and	1857772.2	260539.65	269975.94	521514.14	142179.25	140066.48	54107.61	308020.55	161368.5
																						social assistance	1633716.25	283207.39	250765.9	290621.75	103488.83	112119.04	51984.73	360040.57	181488.0
																						Information	1014716.41	282097.5	92196.92	223805.87	50334.09	51968.13	39146.24	183192.09	91975.58
																						Management of companies and enterprises	452410.44	71634.18	77862.72	99789.73	26296.19	40820.79	14550.62	91841.98	29614.22
																						Manufacturing	2486811.26	476356.22	482984.92	277053.48	117395.18	174241.03	72286.49	572710.63	313783.2
																						Mining, quarrying, and oil and gas extraction	247016.33	33387.12	6763.9	0	0	6033.75	27887.61	36528.97	136414.9
																						Other services (except government and government enterprises)	436962.82	83680.82	62823.45	74535.8	19975.47	27469.36	16895.81	101327.75	50254.36
																						Professional, scientific, and technical services	1744892.31	383509.57	207225.52	360872.67	108683.11	77988.68	65358.59	349800.33	191453.8
																						Real estate and rental and leasing				549906.16		158579.59		629133.37	
																						Retail trade Transportation and	1321619.92 618885.39				62490.81 17655.93	84296 47866.57		313729.81 146727.55	
																						warehousing Utilities	274025.0	50703.35	54075 70	63636.38	10070.10	24195.66	13002.82	80074.4	51023.14
																							371635.6	00/62.25	154075.78	03025.38	169/6.19	24195.66	13002.82		

Balancing algorithm for the whole matrix ignoring corners resulted in

Small Business Ban 🧿 CHASE Bank - Credi 🚱 Login TRYCACHE 🔗 SQL 🛐 MySQL :: MySQL 8 🧾 Google Calendar 🚱 Online User Reporti 🎦 HelpDesk at RunRe 👟	Google Earth 🔅 Set	ttings - Password	s 😽 HTN	/L Tutorial	Analytics	Realtime	🧏 Help I	Desk		Other book
	Balancing of W	hole Matrix				-				
ki7 ki8 ki9 ki10 ki11 ki12 ki13 ki14 ki15 ki16 ki17 ki18 ki19 ki1 kj2 kj3 kj4 kj5 kj6 kj7 kj8	-	Sum of Sum	1	1	-	1				-
28417764215027116713816364 13933 0.8116513244 16541315724 156642149548(133995150224 11128 0.96000)955280.918320,960321104850.99256105664 0x310.209611058 0.94464 1014560 997510 94961 00031 100686 997340 99602 099521 00295 100252 100954 00012 1009510 0x310.00531 0001 10001 00031905960 99740 99861 000951 00005 00005 0997569796 09950 99971 000950 99961 000710001	Description	of col2021Q by Description	Far West	Great Lakes	Mideast	New England	Plains	Rocky Mountain	Southeast	Southwe
0002 1 00002 1 1 00001 0 09999 0 99992 1 1 1 1 0 99999 1 1 1 1 1 1 1 1 1 1 1 1	Accommodation and food services	573458	134279.44	66861.39	81897.17	27504.81	30451.84	22040.75	138559.71	71862.89
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Administrative and support and waste management and remediation		144313.11	96148.63	111565.68	32295.67	37319.36	24882.16	168434.06	96462.34
	services Agriculture, forestry, fishing an hunting	d 201737.61	64420.9	25742.06	0	0	40031.2	11449.11	36387.69	23706.65
	Arts, entertainment, and recreation	157836.9	42475.57	19648.22	30487.21	7678	8118.48	5667.53	32752.49	11009.39
	Construction	940417.61	184806.63	112636.1	139757.46	41988.99	59894.86	42326.04	219010.25	139997.2
	Educational services	254031.79	42436.18	33082.22	65829.47	27086.33	13535.98	7063.12	45589.04	19409.4
	Finance and insurance	1805440.56	258122.47	254441.48	510627.67	138539.11	136685.48	53197.63	298782.13	155044
	Health care and social assistance	1640165.09	290079.36	5 244338.33	294189.15	104253.54	113117.22	52840.97	361066.79	180279.
	Information	1227194.39	346503.4	107729.72	271685.22	60807.16	62875.52	47717.78	220311.91	109563
	Management of companies and enterprises	421661.79	68110.17	70425.85	93769.98	24590.58	38230.45	13729.52	85498.01	27307.2
	Manufacturing	2443956.22	478404.58	461432.23	274987.77	115957.19	172365.31	72044.74	563146.53	305617
	Mining, quarrying, and oil and gas extraction	241122.13	33334.64	6424.29	0	0	5933.91	27631.87	35708.98	132088
	Other services (except government and government enterprises)	427486.7	83478.44	59618.5	73485.15	19598.71	26991.74	16726.58	98968.63	48618.9
	Professional, scientific, and technical services	1712500.09	383169.79	9 196955.97	356332.4	106797.3	76750.6	64803.52	342182.02	185508.
	Real estate and rental and leasing	3000467.98	739801.35	365018.76	548592.51	175594.22	157673.03	111704.82	621784.05	280299.
	Retail trade	1314921.61	273217.06	176474.59	192150.76	62347.45	84228.98	52375.53	311599.72	162527.
	Transportation and warehousing	620272.01		89110.86	86075.14		48218.07			86710.9
	Utilities Wholesale trade	368495 1295737.61			63637.17 203668.57	16897.35				50078.0
	Total: 19358324.08	Sum of Sum of col2021Q by GeoName:								

The difference between partially and whole balancing is color coded and not significant.

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- 3. Entropy in Urban and Regional Modelling Alan Wilson Google Books at https://books.google.com/books/about/Entropy in Urban and Regional Modelling.html?id=OHT Kq7GHZ4UC - First published in 1970, this groundbreaking investigation into Entropy in Urban and Regional Modelling provides an extensive and detailed insight into the entropy maximizing method in the development of a whole class of urban and regional models. The book has its origins in work being carried out by the author in 1966, when he realized that the well-known gravity model could be derived on the basis of an analogy with statistical, rather than Newtonian, mechanics.
- 4. Entropy in Urban and Regional Modelling: Retrospect and Prospect at https://onlinelibrary.wiley.com/doi/10.1111/j.1538-4632.2010.00799.x - Entropy in Urban and Regional Modelling introduced a new framework for constructing spatial interaction and associated location models. These ideas are reviewed briefly and then set in the wider context of the application of entropy in a range of disciplines. Related developments since 1970 are examined with particular reference to extensions of the core model, links to mathematical programming, the relationship to economics, and the introduction of a dynamic spatial structure hypothesis.
- 5. <u>Matrix balancing: Update matrix cells to match row and column sums The DO Loop (sas.com)</u> *Matrix balancing* is an interesting problem that has a long history. Matrix balancing refers to adjusting the cells of a frequency table to match known values of the row and column sums. One of the early algorithms for matrix balancing is known as the RAS algorithm, but it is also called the *raking* algorithm in some fields. The presentation in this article is inspired by a paper by <u>Carol Alderman (1992)</u>
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- 8. Irina Yaroshevskaya, 1988 Dissertation (Moscow, Russia УДК 519.688:65.012.2), Chapter 3 and references there to [3] and her articles.