SAS® GLOBAL FORUM 2017

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#SASGF

USERS PROGRAM

Presenter

Marie-Lise Theys, Analytical Consultant, Exploring Discovering Insights (EDI)

Marie-Lise is an analytical consultant at EDI. Her company specialized in data management, data analytics and data visualization. She is passionate on optimizing the use of analytics to identify insights and maximize returns for her clients. She has used SAS® for more than 20 years for data management, credit risk and marketing analytics as well as reporting.

Using What If scenarios in SAS Visual Analytics

What will be covered in this workshop?

- Definition of a “What If” scenario?
- What If scenario usage
- How do I build a What If scenario in SAS VA (hands on demonstration)
  - What will the report look like?
  - How the data should look like?
  - Report development
- Conclusion

Definition of a “What If” scenario

- A What If scenario enable the user to change business outcomes based on a selection of a number of parameters.
- For example, the user will be able to get different profit outcomes based on a selection of costs and revenues.
- The advantage of using SAS Visual Analytics (SAS VA) to display What If scenarios is that the business outcomes are calculated “live” based on the parameter selection. The user is free to see the outcomes without the dependence of another person to do the new calculation. It is a self serve approach.

What If scenario usage

- SAS VA supports complex calculation enabling complex What If scenarios to be delivered to the business user across all industries.
- Examples of usage include:
  - The prediction of stress testing outcomes where based on movement in economic indicators, the losses of a financial institution are predicted.
  - The prediction of a marketing campaign based on different response rate and conversion rate.
  - The prediction of profitability based on different cost and revenue amounts.
  - The prediction of final sales target based on different product sales.

How to build a What If scenario in SAS VA

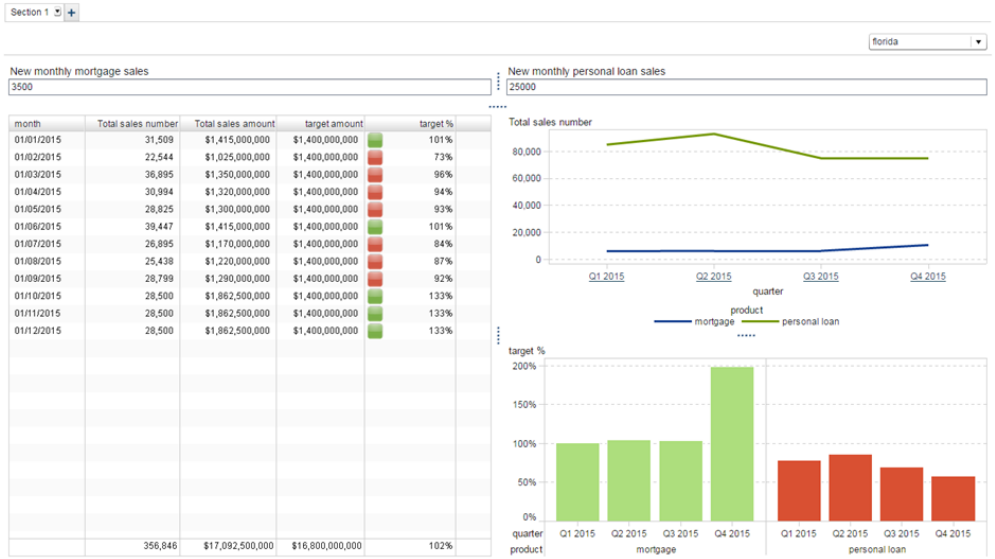
What will the report look like?

- The first thing to think about is the design of the report:
  - What is the purpose of the report?
  - What type of objects do we want to show? Graphs, tables etc.
  - What do we want the user to focus on?
  - What is the overall message
- My advice is to start by creating the report on paper and play with the display before starting the build

How to build a What If scenario in SAS VA

What will the report look like?

- Problem: we want to know what sales we need to have in Mortgages and Personal Loans to meet our yearly target by State. We have three months left: October, November and December.



month	Total sales number	Total sales amount	target amount	target %
01/01/2015	31,509	$1,415,000,000	$1,400,000,000	101%
01/02/2015	22,544	$1,025,000,000	$1,400,000,000	73%
01/03/2015	36,895	$1,350,000,000	$1,400,000,000	96%
01/04/2015	30,994	$1,320,000,000	$1,400,000,000	94%
01/05/2015	28,825	$1,300,000,000	$1,400,000,000	93%
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01/07/2015	26,895	$1,170,000,000	$1,400,000,000	84%
01/08/2015	25,438	$1,220,000,000	$1,400,000,000	87%
01/09/2015	28,799	$1,290,000,000	$1,400,000,000	92%
01/10/2015	28,500	$1,862,500,000	$1,400,000,000	133%
01/11/2015	28,500	$1,862,500,000	$1,400,000,000	133%
01/12/2015	28,500	$1,862,500,000	$1,400,000,000	133%
	356,846	$17,092,500,000	$16,800,000,000	102%

How to build a What If scenario in SAS VA

How the data should look like?

- It is important to think about the data layout and the content of the data
- Calculation which are not dynamic are best done outside of SAS VA to improve report performance
- In our example, we would need:
  - The month and quarter of the sales
  - The product and state
  - The sales number and sales amount
  - The target amount

How to build a What If scenario in SAS VA

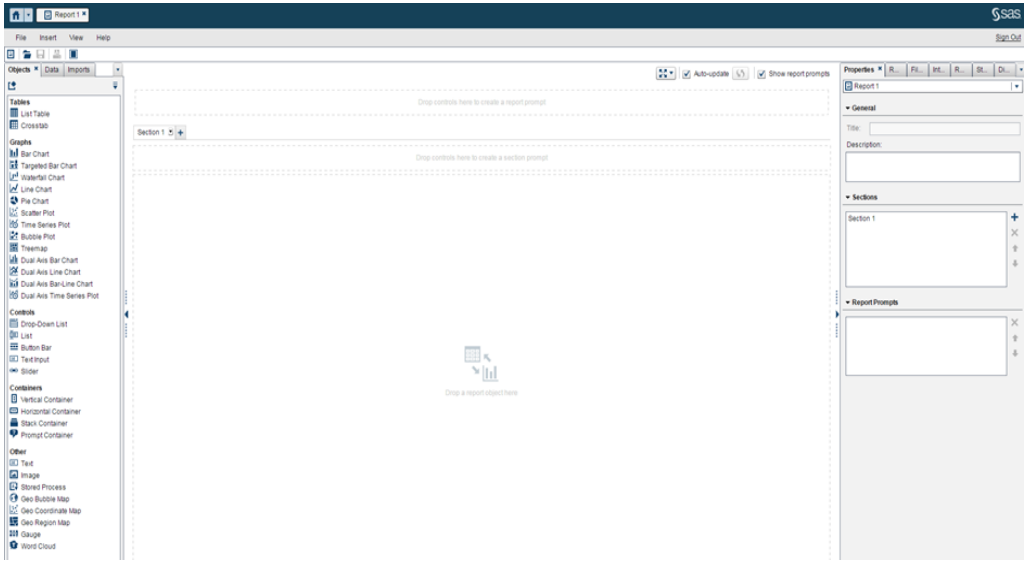
How the data should look like?

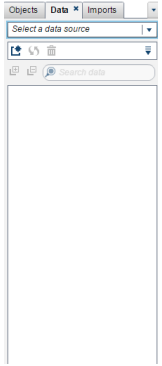
month	quarter	product	state	sales number	sales amount	target amount	cum sales	cum target
1/01/2015	Q1 2015	mortgage	massachussetts	1129	480000000	400000000	9400000	8000000
1/02/2015	Q1 2015	mortgage	massachussetts	824	350000000	400000000	12900000	12000000
1/03/2015	Q1 2015	mortgage	massachussetts	847	360000000	400000000	16500000	16000000
1/04/2015	Q2 2015	mortgage	massachussetts	518	220000000	400000000	18700000	20000000
1/05/2015	Q2 2015	mortgage	massachussetts	471	200000000	400000000	20700000	24000000
1/06/2015	Q2 2015	mortgage	massachussetts	847	360000000	400000000	24300000	28000000
1/07/2015	Q3 2015	mortgage	massachussetts	824	350000000	400000000	27800000	32000000
1/08/2015	Q3 2015	mortgage	massachussetts	918	390000000	400000000	31700000	36000000
1/09/2015	Q3 2015	mortgage	massachussetts	682	290000000	400000000	34600000	40000000
1/10/2015	Q4 2015	mortgage	massachussetts	0	0	400000000	34600000	440000000
1/11/2015	Q4 2015	mortgage	massachussetts	0	0	400000000	34600000	840000000
1/12/2015	Q4 2015	mortgage	massachussetts	0	0	400000000	34600000	1240000000
1/01/2015	Q1 2015	mortgage	new york	1280	384000000	350000000	7520000	7000000
1/02/2015	Q1 2015	mortgage	new york	933	280000000	350000000	10320000	10500000
1/03/2015	Q1 2015	mortgage	new york	960	288000000	350000000	13200000	14000000
1/04/2015	Q2 2015	mortgage	new york	587	176000000	350000000	14960000	17500000
1/05/2015	Q2 2015	mortgage	new york	533	160000000	350000000	16560000	21000000
1/06/2015	Q2 2015	mortgage	new york	960	288000000	350000000	19440000	24500000
1/07/2015	Q3 2015	mortgage	new york	933	280000000	350000000	22240000	28000000
1/08/2015	Q3 2015	mortgage	new york	1040	312000000	350000000	25360000	31500000
1/09/2015	Q3 2015	mortgage	new york	773	232000000	350000000	27680000	35000000
1/10/2015	Q4 2015	mortgage	new york	0	0	350000000	27680000	385000000
1/11/2015	Q4 2015	mortgage	new york	0	0	350000000	27680000	735000000
1/12/2015	Q4 2015	mortgage	new york	0	0	350000000	27680000	1085000000

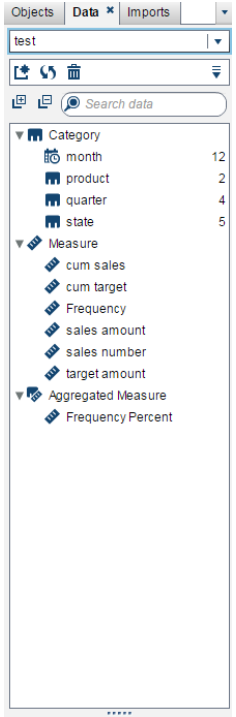
How to build a What If scenario in SAS VA

Report development

- Import Data



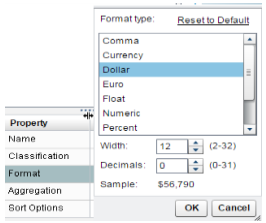




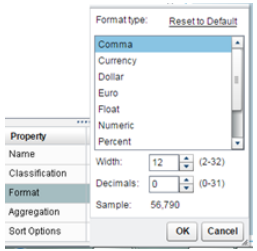
How to build a What If scenario in SAS VA

Report development

- Change the format of the information
- Change target amount and sales amount to a dollar format



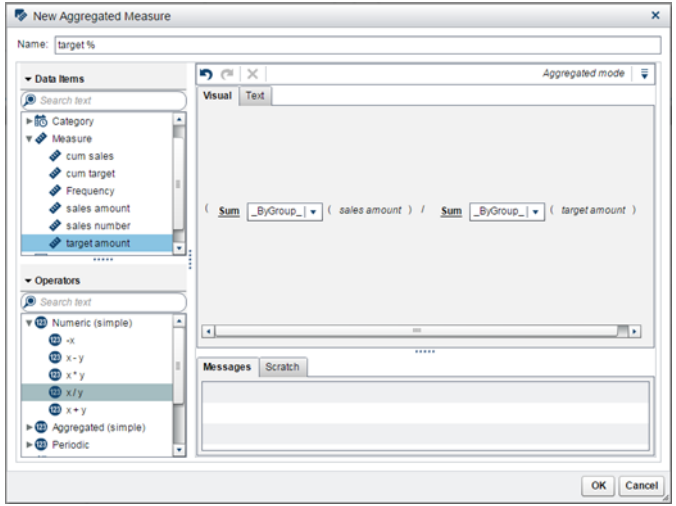
- Change sales number to a comma format

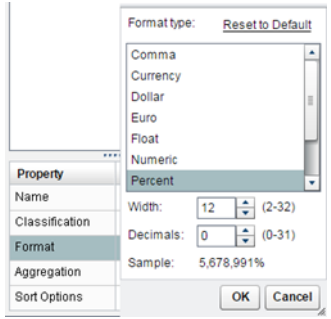


How to build a What If scenario in SAS VA

Report development

- Create a new aggregate measure: target %

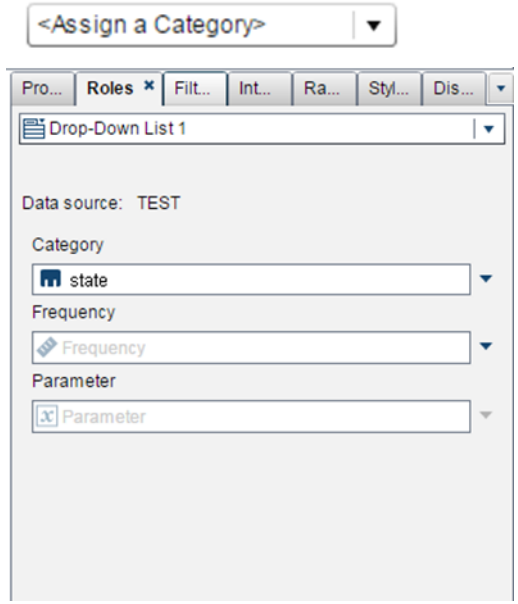




How to build a What If scenario in SAS VA

Report development

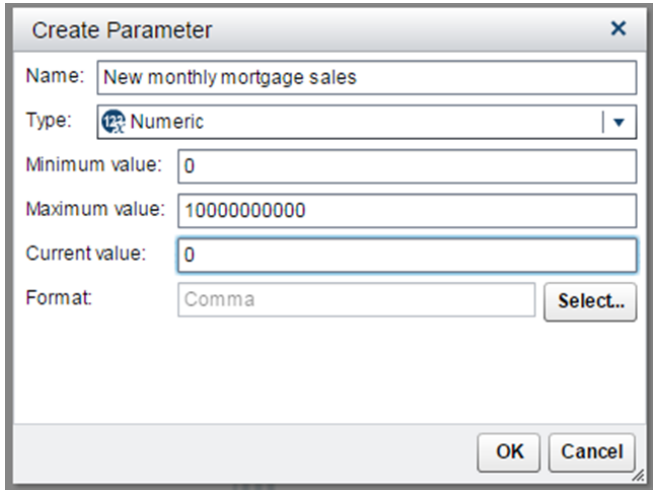
- Create the drop down selection for the state (this will be a section selection)

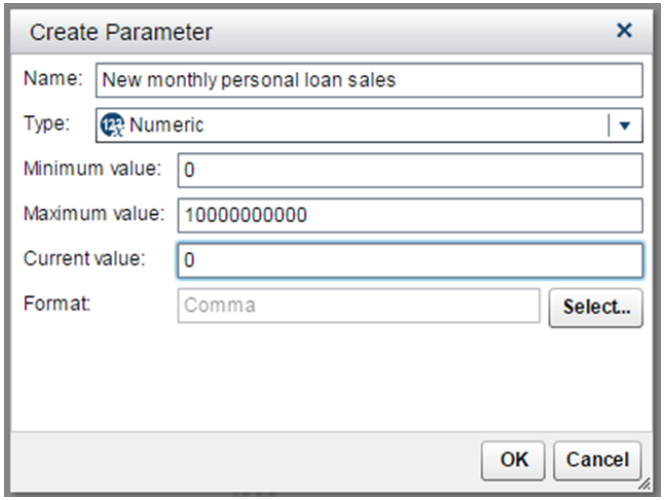


How to build a What If scenario in SAS VA

Report development

- Create two new parameters: one for mortgage sales and one for personal loan sales

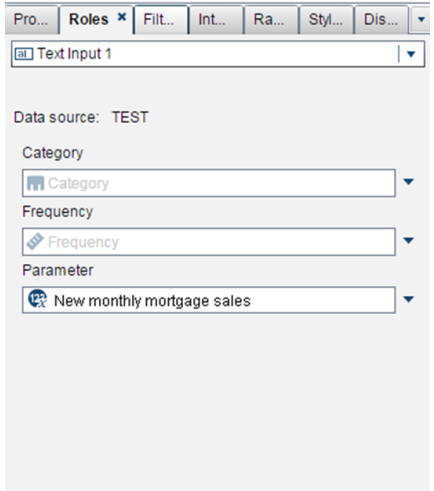




How to build a What If scenario in SAS VA

Report development

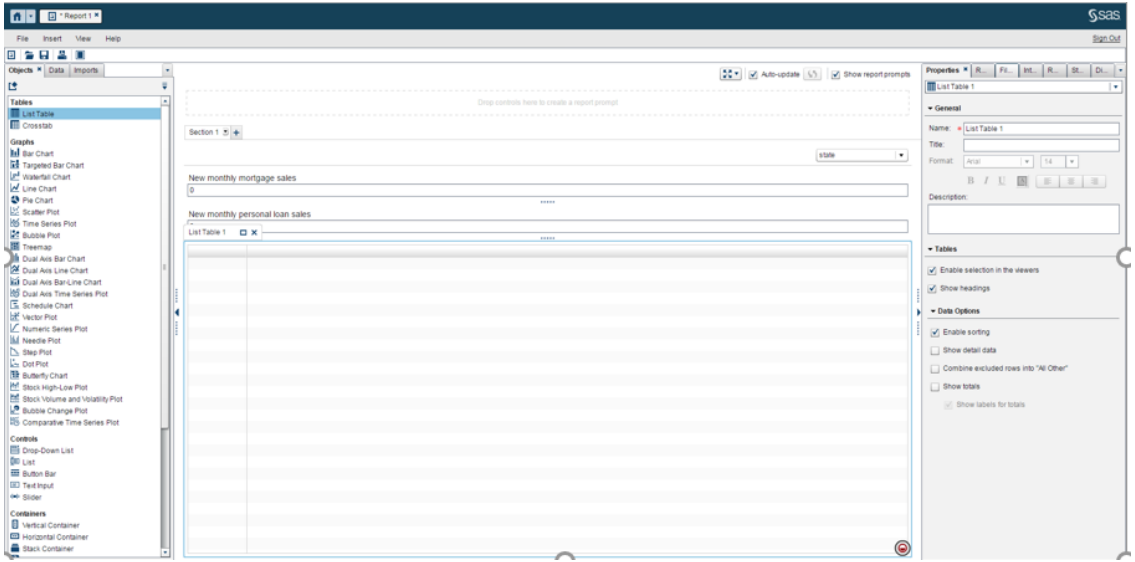
- Add the text inputs to the report to enter the number of sales of mortgages and personal loans

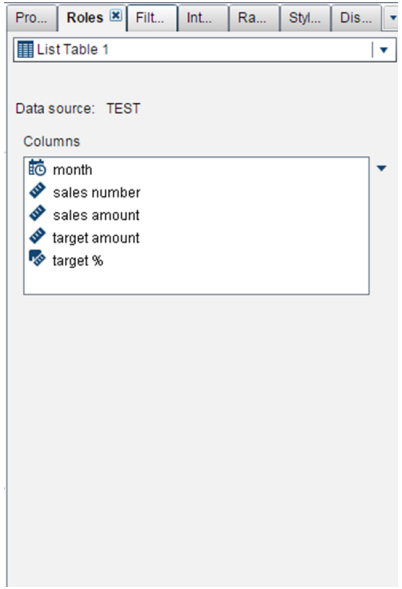


How to build a What If scenario in SAS VA

Report development

- Create the table

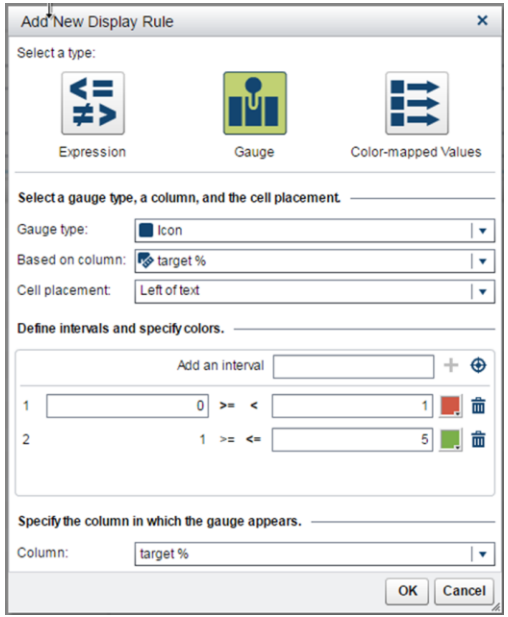




How to build a What If scenario in SAS VA

Report development

- Add display rules



How to build a What If scenario in SAS VA

Report development

Section 1

state

New monthly mortgage sales

0

New monthly personal loan sales

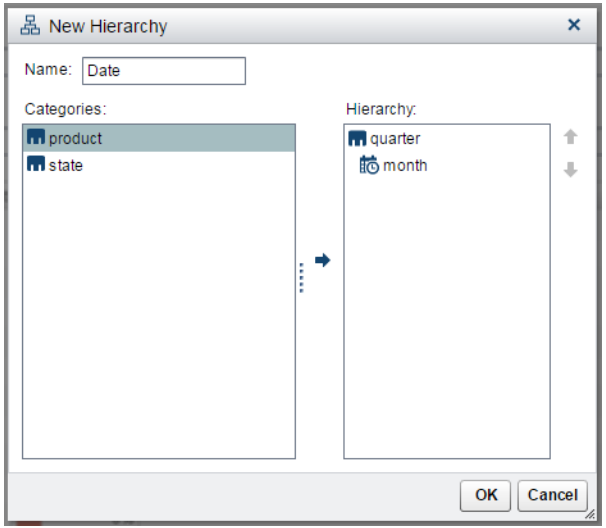
0

month	sales number	sales amount	target amount	target %
01/01/2015	72,213	$3,671,300,000	$3,620,000,000	101%
01/02/2015	86,914	$3,419,000,000	$3,620,000,000	94%
01/03/2015	101,129	$3,771,600,000	$3,620,000,000	104%
01/04/2015	89,142	$3,208,200,000	$3,620,000,000	89%
01/05/2015	96,254	$3,329,500,000	$3,620,000,000	92%
01/06/2015	86,393	$3,461,600,000	$3,620,000,000	96%
01/07/2015	70,834	$3,123,000,000	$3,620,000,000	86%
01/08/2015	75,567	$3,421,400,000	$3,620,000,000	95%
01/09/2015	85,344	$3,342,900,000	$3,620,000,000	92%
01/10/2015	0	$0	$3,620,000,000	0%
01/11/2015	0	$0	$3,620,000,000	0%
01/12/2015	0	$0	$3,620,000,000	0%
	763,790	$30,748,500,0...	$43,440,000,000	71%

How to build a What If scenario in SAS VA

Report development

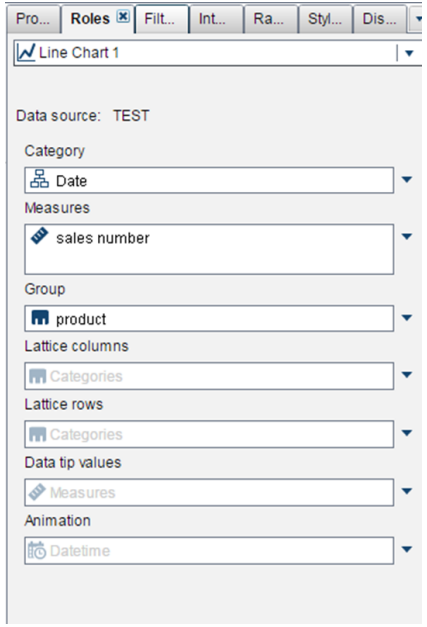
- Create a data hierarchy for month and quarter

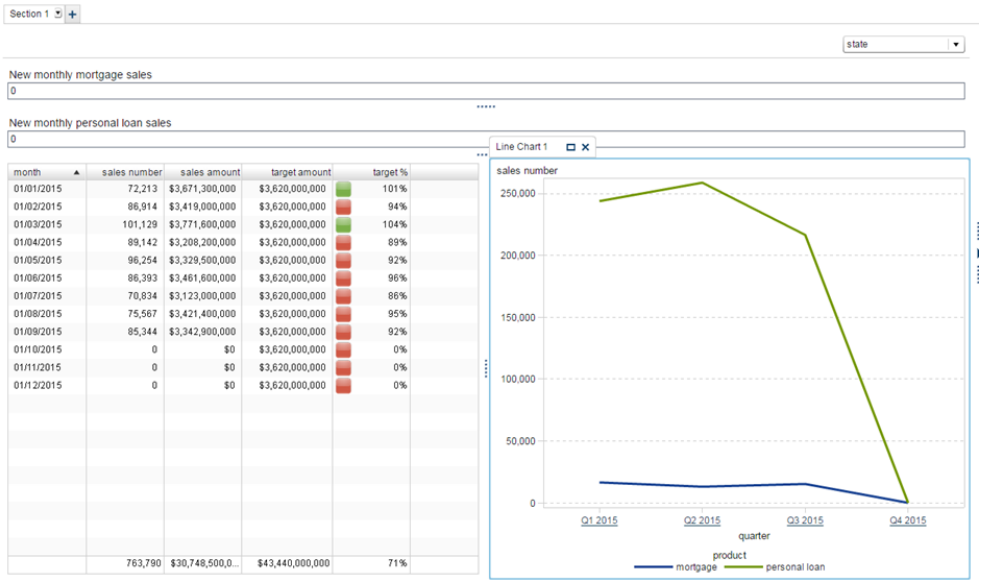


How to build a What If scenario in SAS VA

Report development

- Create a line chart





month	sales number	sales amount	target amount	target %
01/01/2015	72,213	$3,671,300,000	$3,620,000,000	101%
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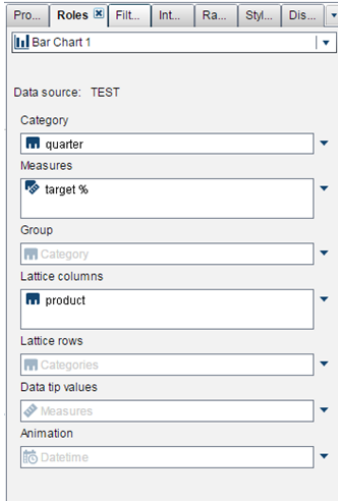
01/10/2015	0	$0	$3,620,000,000	0%
01/11/2015	0	$0	$3,620,000,000	0%
01/12/2015	0	$0	$3,620,000,000	0%
	763,790	$30,748,500,0...	$43,440,000,000	71%

How to build a What If scenario in SAS VA

Report development

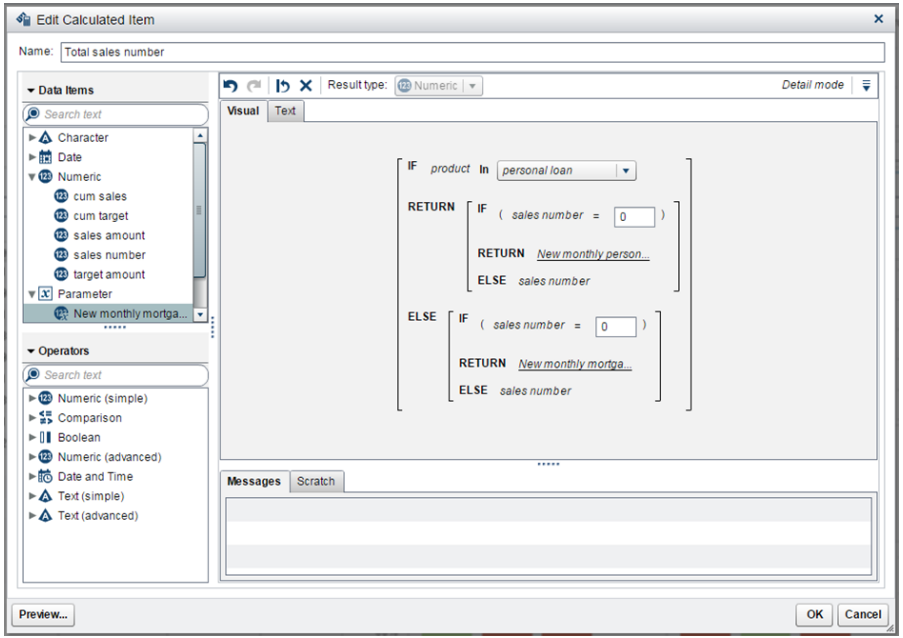
- Create a bar chart and move objects around

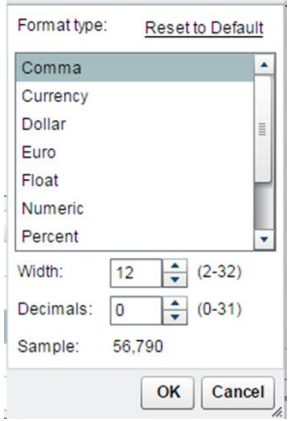


How to build a What If scenario in SAS VA

Report development

- Create total sales number (dynamic sales number based on parameter selection)

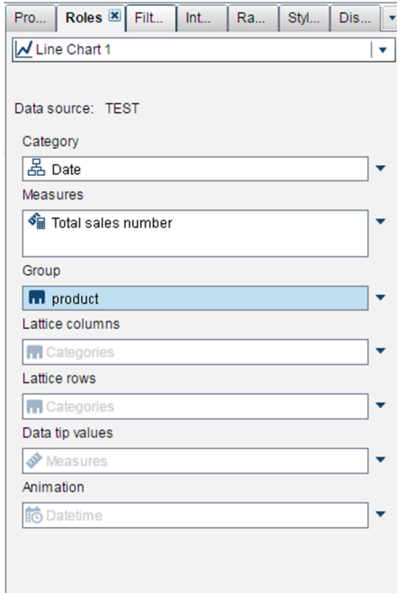




How to build a What If scenario in SAS VA

Report development

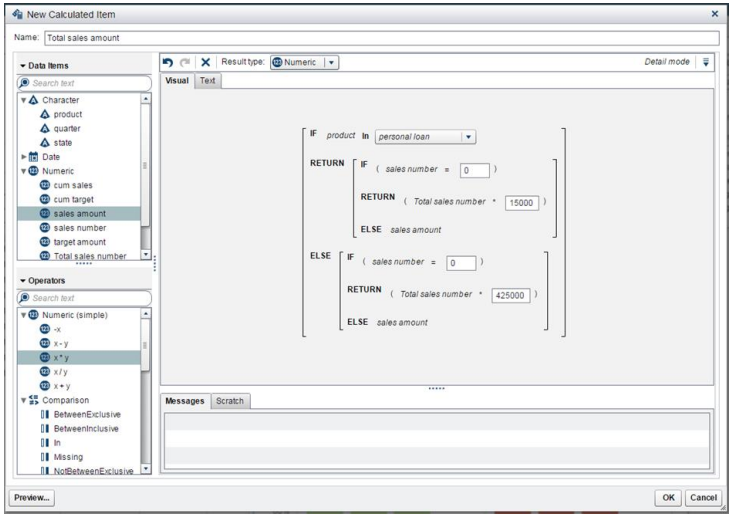
- Replace sales number by total sales number in the line graph

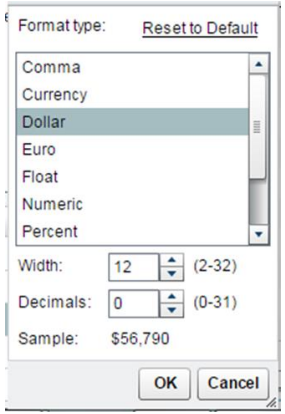


How to build a What If scenario in SAS VA

Report development

- Create total sales amount

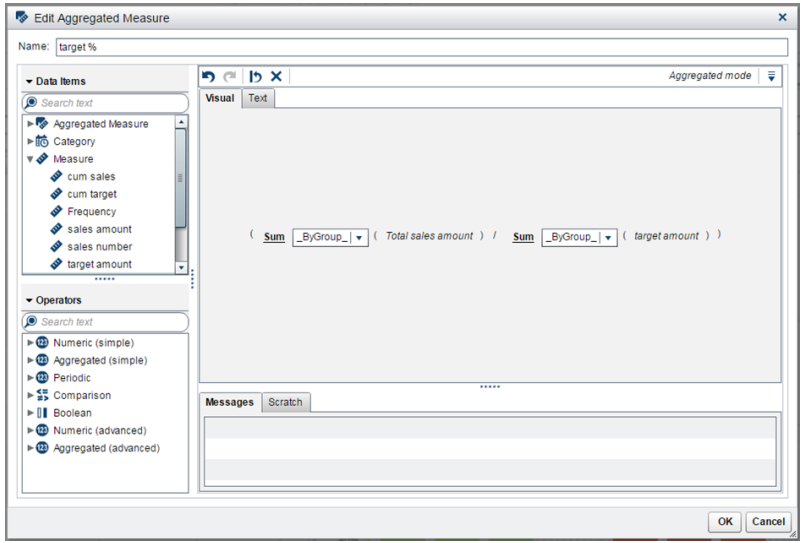




How to build a What If scenario in SAS VA

Report development

- Adjust the target % calculation (to use total sales amount)



How to build a What If scenario in SAS VA

Report development

- Final report

Section 1

florida

New monthly mortgage sales
3500

New monthly personal loan sales
25000

month	Total sales number	Total sales amount	target amount	target %
01/01/2015	31,509	$1,415,000,000	$1,400,000,000	101%
01/02/2015	22,544	$1,025,000,000	$1,400,000,000	73%
01/03/2015	36,895	$1,350,000,000	$1,400,000,000	96%
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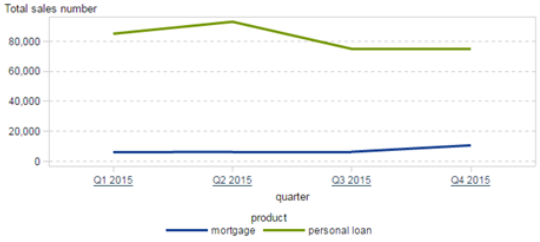
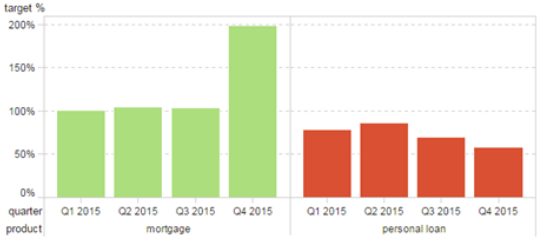
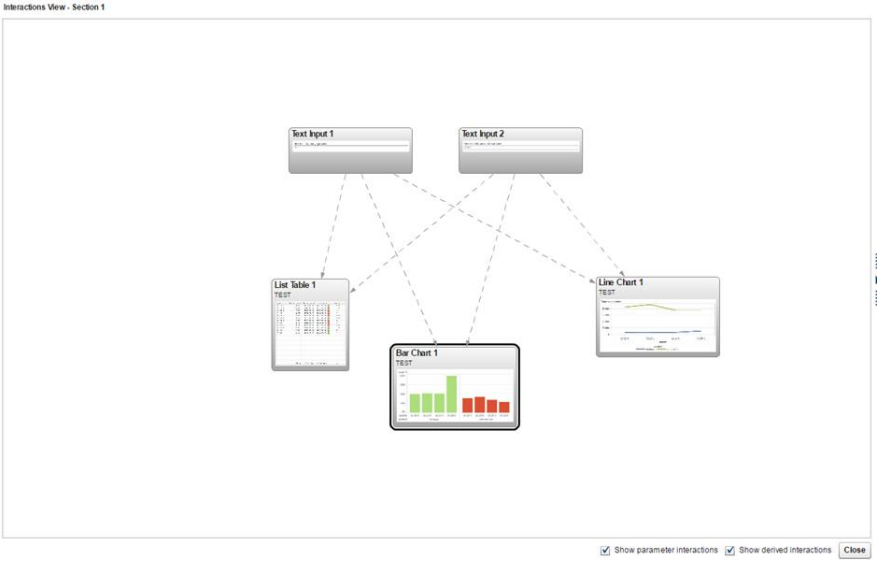




How to build a What If scenario in SAS VA

Report development

- Check interaction view



Conclusion

- Parameters can be used to add flexibility to SAS VA and enable the use of what if scenarios.
- Remember of the following steps:
  - First: think about the report layout
  - Second: think about the data required
  - Third: develop the report
- Questions?

Feel free to contact me: edi_mlt@Hotmail.com

Don't Forget to Provide Feedback!

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4. Complete the survey and click Finish.