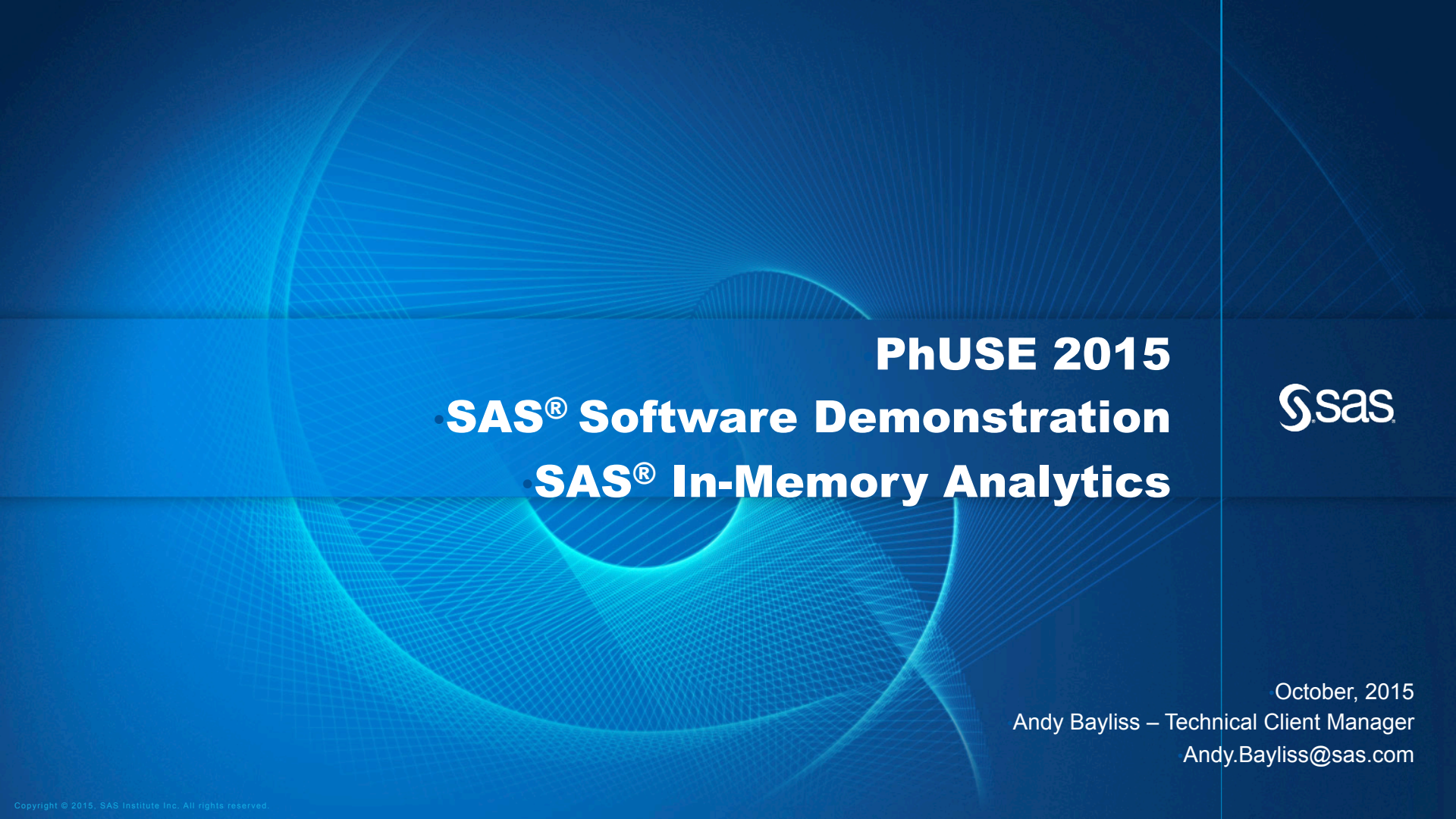




PhUSE 2015

- **SAS® Software Demonstration**
- **SAS® In-Memory Analytics**



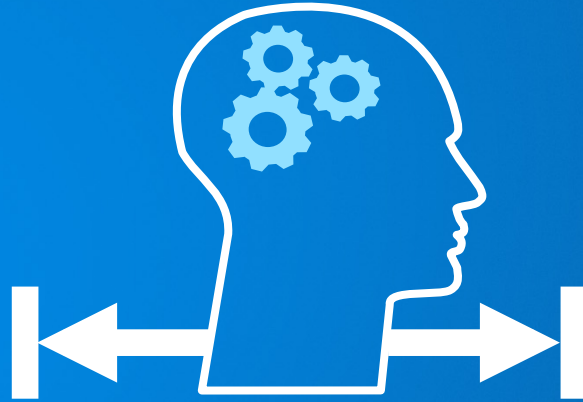
October, 2015
Andy Bayliss – Technical Client Manager
Andy.Bayliss@sas.com

BUSINESS INTELLIGENCE AND ANALYTICS

KEY BENEFITS



MANAGED SELF-SERVICE



END-TO-END PLATFORM



DEEPER INSIGHTS



ENTERPRISE/DEPARTMENTAL AND SELF SERVICE

- In-memory analytics
- Scalable with any size data
- Many deployment options



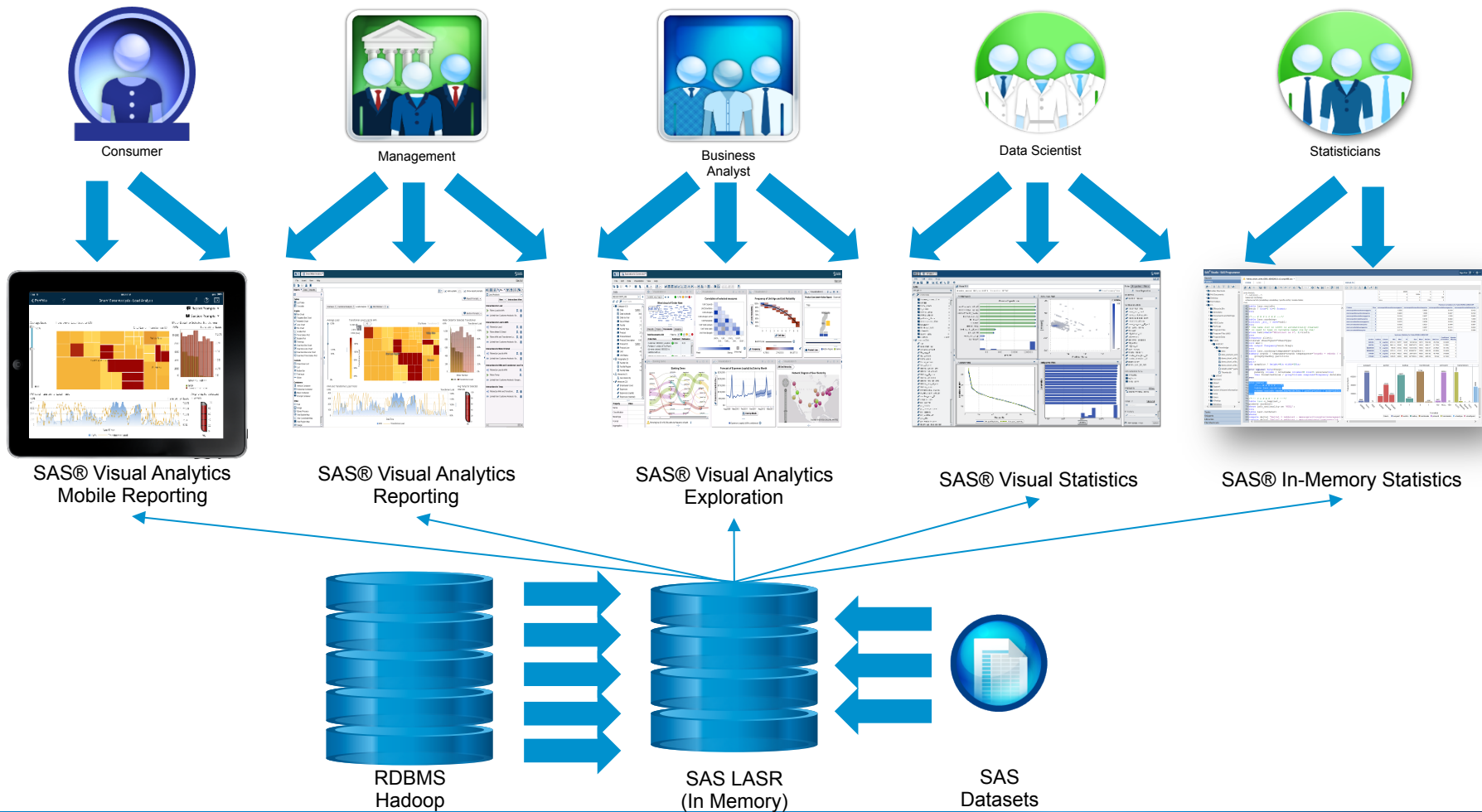
VISUALIZATION POWERED BY SAS ANALYTICS

- BI/Reporting -to- analytics
- Analytics for everyone
- Text sentiment analysis



REPORTING, MOBILE COLLABORATION

- Create once, schedule, distribute
- Native mobile BI apps
- Integration with MS Office



COLLABORATION AND INFORMATION SHARING



MOBILE



DESKTOP
APPLICATIONS



COLLABORATION
APPLICATIONS



WEB

REPORT

VISUALIZE

EXPLORE

INFORM

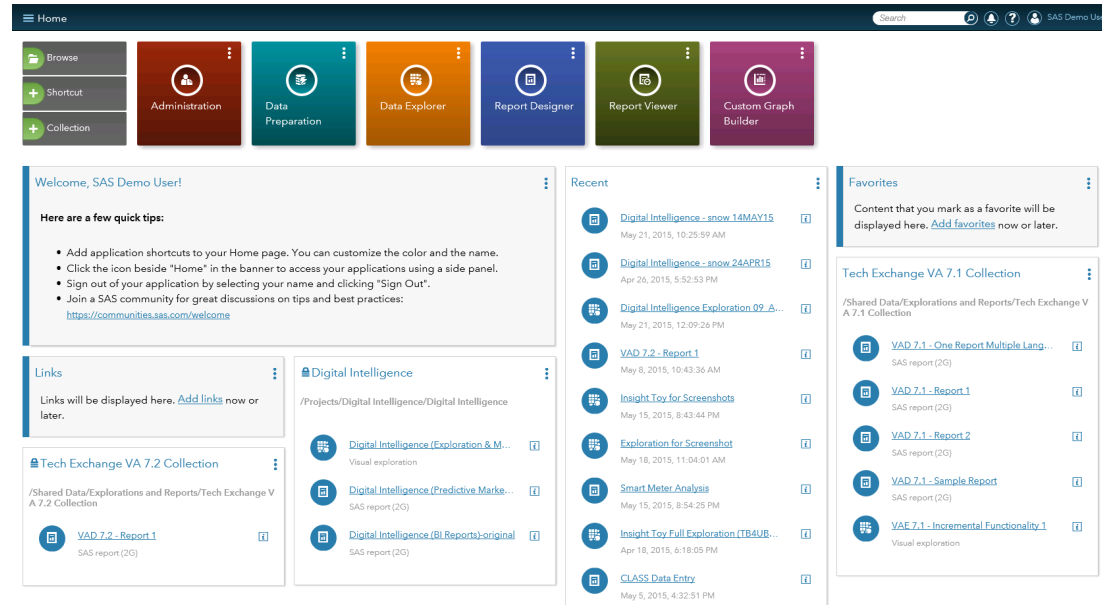
SHARE

SAS® IN-MEMOERY ANALYTICS

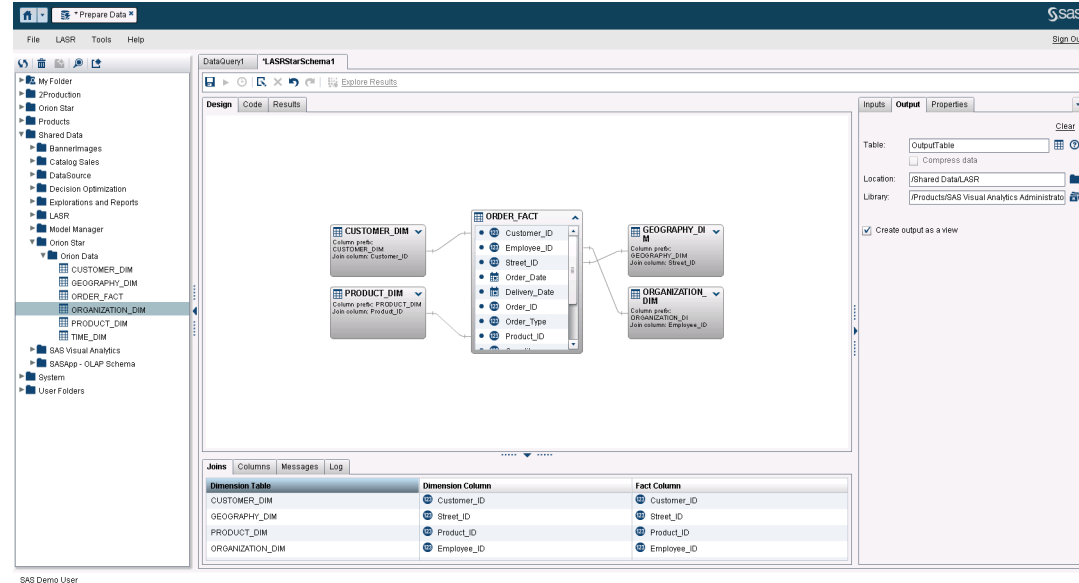
EXAMPLE VISUALISATION'S



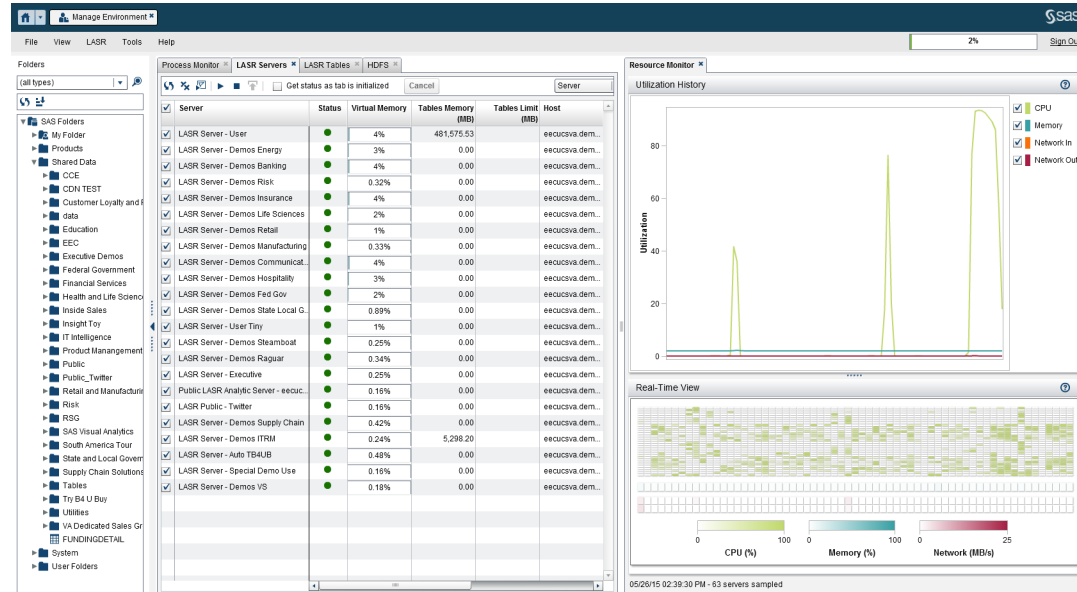
- Home page for all users with guest access
- Role based views
- Navigation to varied end user actions
 - Ad-Hoc Data Exploration
 - Report Creation
 - Report Viewing
 - Other SAS Solutions as add-ons
- Administration tasks
 - Data Preparation
 - System Administration and Monitoring
 - Theme Design
- User content management
 - Recent, favorites, collections
 - Search
- Collaboration via commenting
- Both HTML5 and Flash interfaces



- Search for tables
- Join and append tables
- Quick access to Twitter feeds, Google Analytics, Facebook, Salesforce, Hadoop, and most popular databases. The list grows on each new release
- Import Information Maps
- Create computed columns (full expression builder)
- Filter columns and rows (aggregated data or not)
- Load table, spreadsheet, csv (including zipped), or star schema in memory
- Compress tables
- Allow pre and post-processing steps
- Schedule query execution

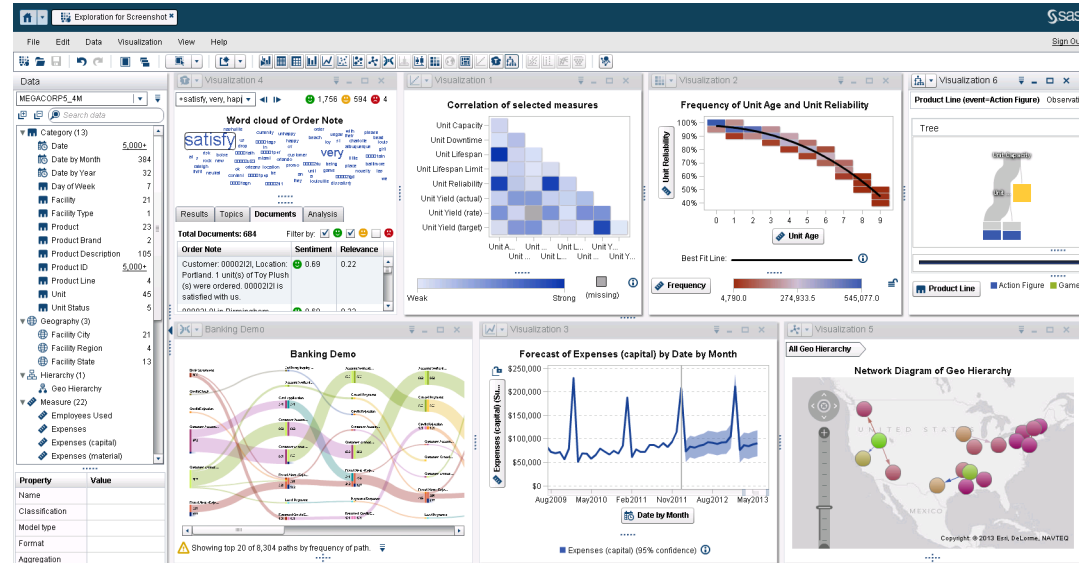


- Monitor Environment
 - Resources (CPU, I/O, Memory)
 - Processes (user session focused)
 - Mobile device logging history
 - Usage reports
- Manage Server and Data
 - Start/stop in-memory servers
 - Load/unload tables to/from memory and data storage
 - Register tables in metadata
 - Control memory usage (over capacity)
- Manage Security
 - Table and row level security
 - Mobile device blacklisting and whitelisting
- Manage Alerts



SAS® VISUAL ANALYTICS EXPLORER

- Visual data exploration and discovery to find relationships, trends, discrepancies etc.
- Use multiple data sources in a single exploration
- Auto-charting, visual filtering, etc.
- Various Visuals: Crosstabs, Bar Charts, Line Charts, Scatter Plots, Bubble Plots, Geo Maps, Box Plots, Heat Maps, Network Diagrams, Word Clouds, Sankey Diagrams, and others
- Consumable Analytics: Correlation (relationships), Regression (linear, quadratic, cubic, p-spline, best fit), Forecasting (multiple algorithms), Scenario Analysis, Goal Seeking, Decision Tree, Text Analytics with Sentiment Analysis, Path Analysis, Summary statistics
- 17 aggregation types/functions
- Comments in the exploration and visualization levels
- Self-service Hierarchies: Drill down, up, and across siblings
- Selection and brushing modes for discovering relationships
- Quickly derive relative time calculations and create new calculated columns via expression builder
- Save and share as exploration, report, PDF, email
- Self-service data import from most popular data sources
- Export data to CSV document format
- UI merged with SAS Visual Statistics



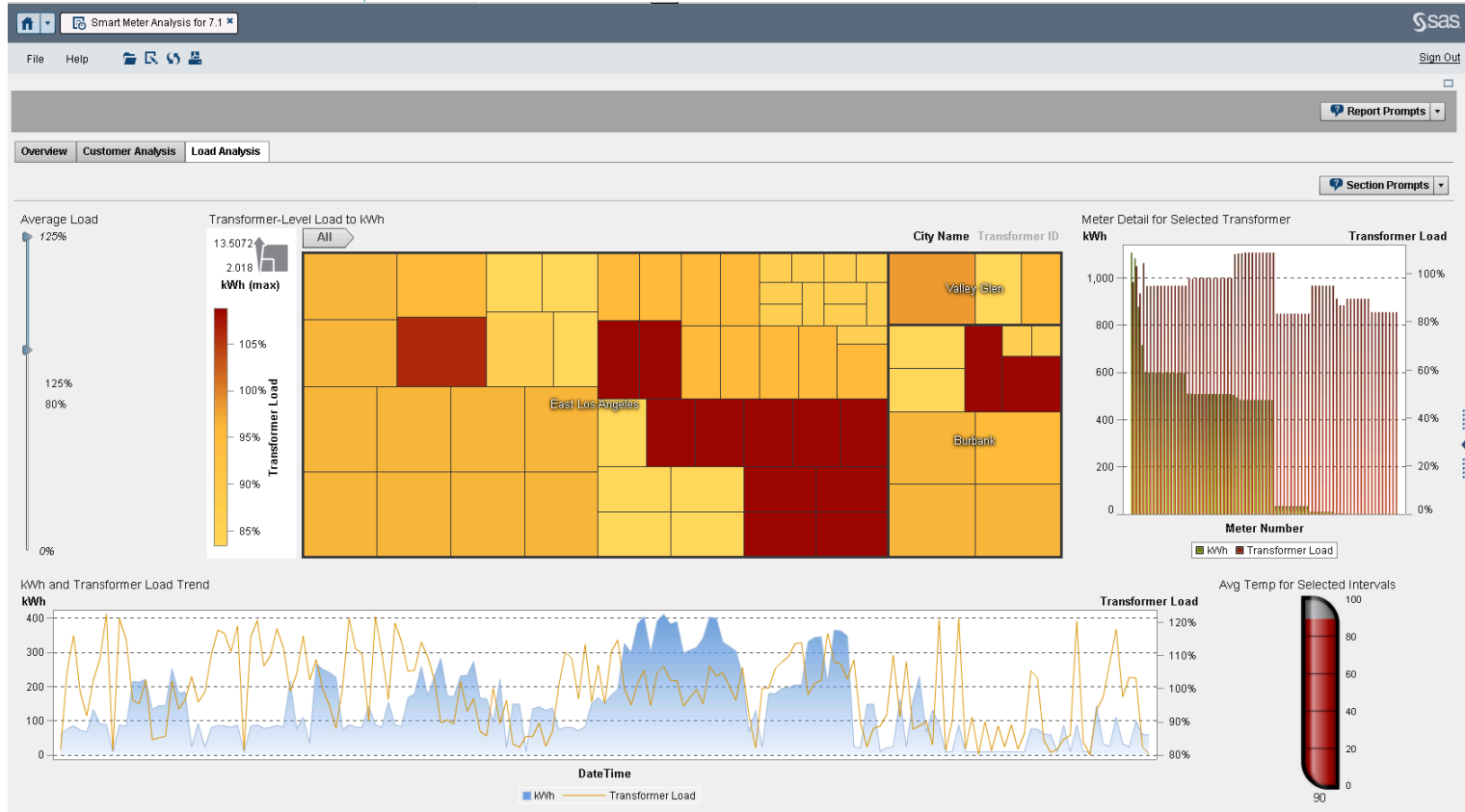
SAS® VISUAL ANALYTICS DESIGNER

- Interface for designing reports and dashboards
- Leverage existing reports and data to create reports
- Self-service data import from most popular data sources, including Twitter, Salesforce, Google Analytics, and Facebook
- Use multiple data sources in a single report
- Large number of visualization options with ability to create custom graphs
- WYSIWYG designer with integrated report viewer
- Precision and tiled layout
- Report object interactions, linking to sections, reports, stored processes, or external content
- Prompts at the report, section, and report object levels
- Comments in the report and object (charts and tables) levels
- Self-service Hierarchies: Drill down, up, and across siblings
- Quickly derive relative time calculations and create new calculated columns via expression builder
- Parameterize calculations, filters, display rules, and ranks
- Print report, section, object, share report via email, schedule reports to be distributed, setup and receive alerts via email or SMS
- Export data to Excel and CSV/TSV document formats
- “Adaptive presentation” - build once, access on computer browser, mobile device, MS Office suite and SharePoint



- Native apps for iPad, iPhone and selected Android tablets and smartphones
- Access reports previously created
- Highly visual and interactive: drill-down in hierarchies, filtering, highlighting, zooming, prompting, etc.
- Collaboration via commenting
- Subscribe to alerts
- Share via email with annotation
- Offline capabilities
- Leverage existing SAS security and allow guest access
- Additional security focused on support for device encryption, remote wipe, blacklisting, whitelisting, SSL connections, mobile tethering, application passcode, server side expiration, etc.
- Support for MDM solutions via integration with Good Technologies and Mocana

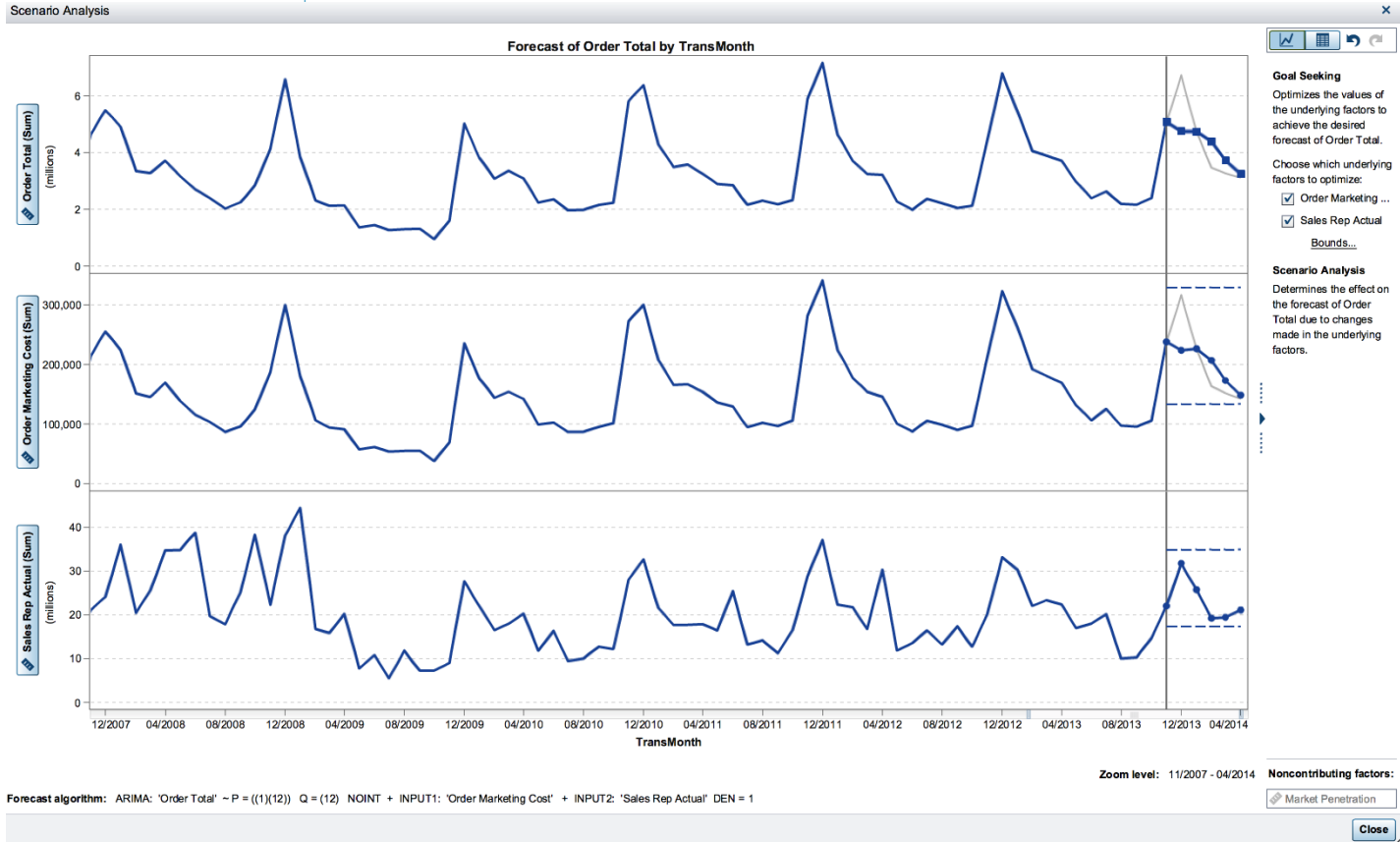


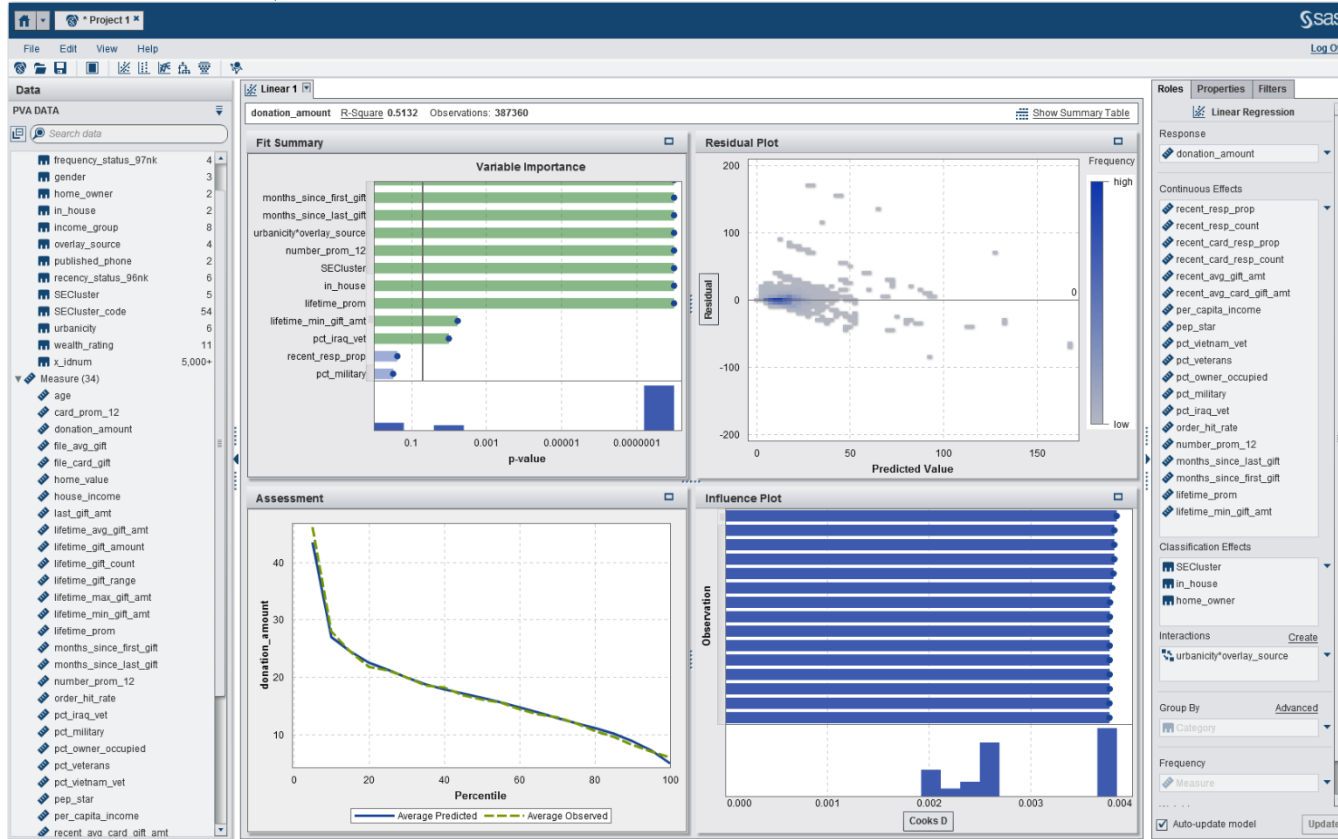


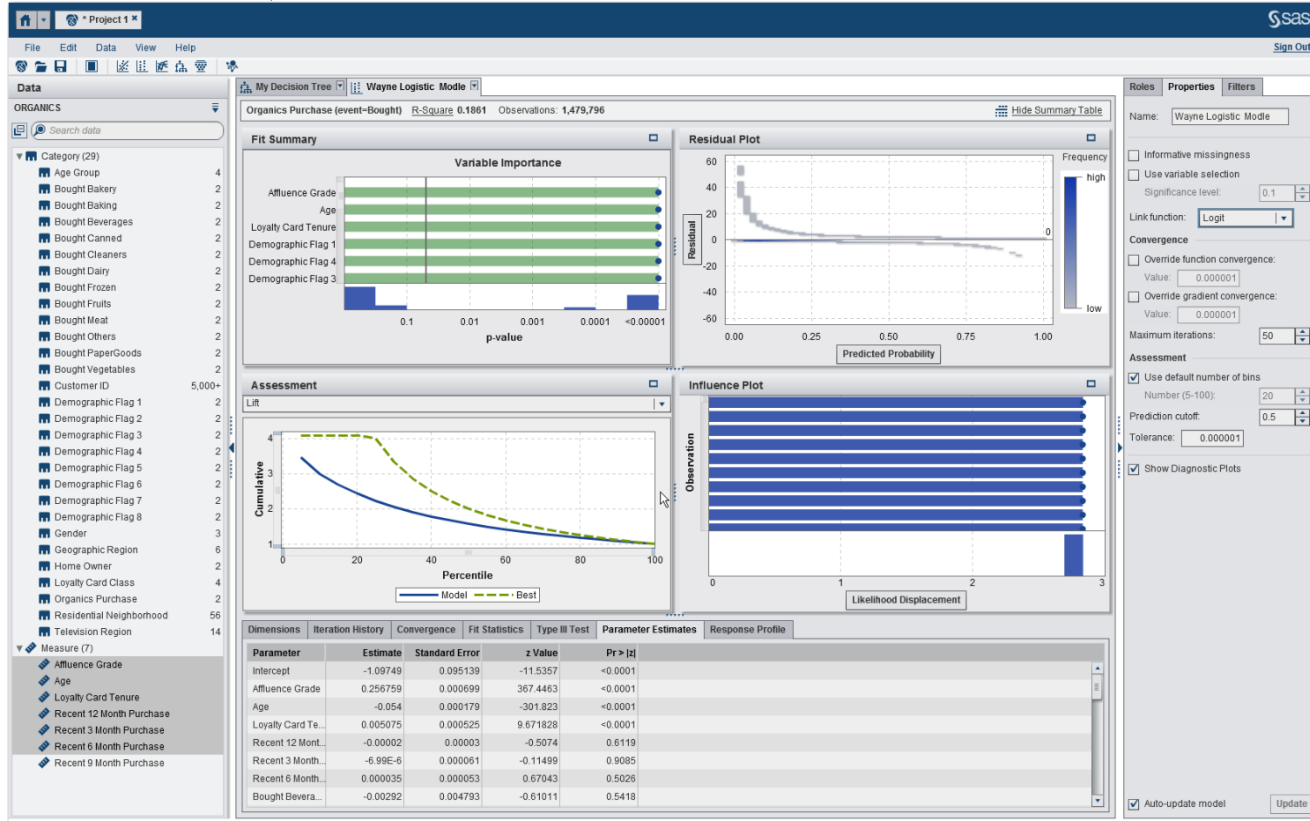


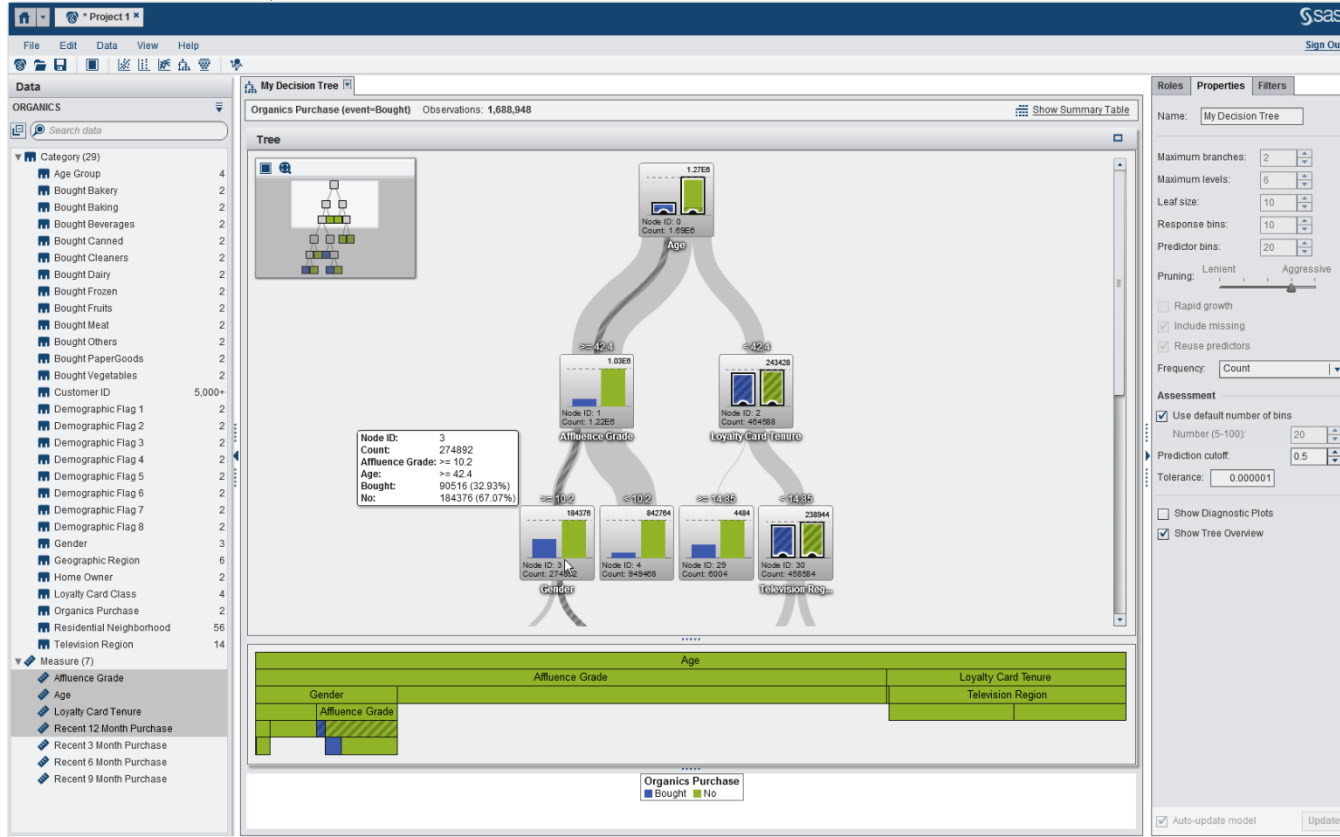


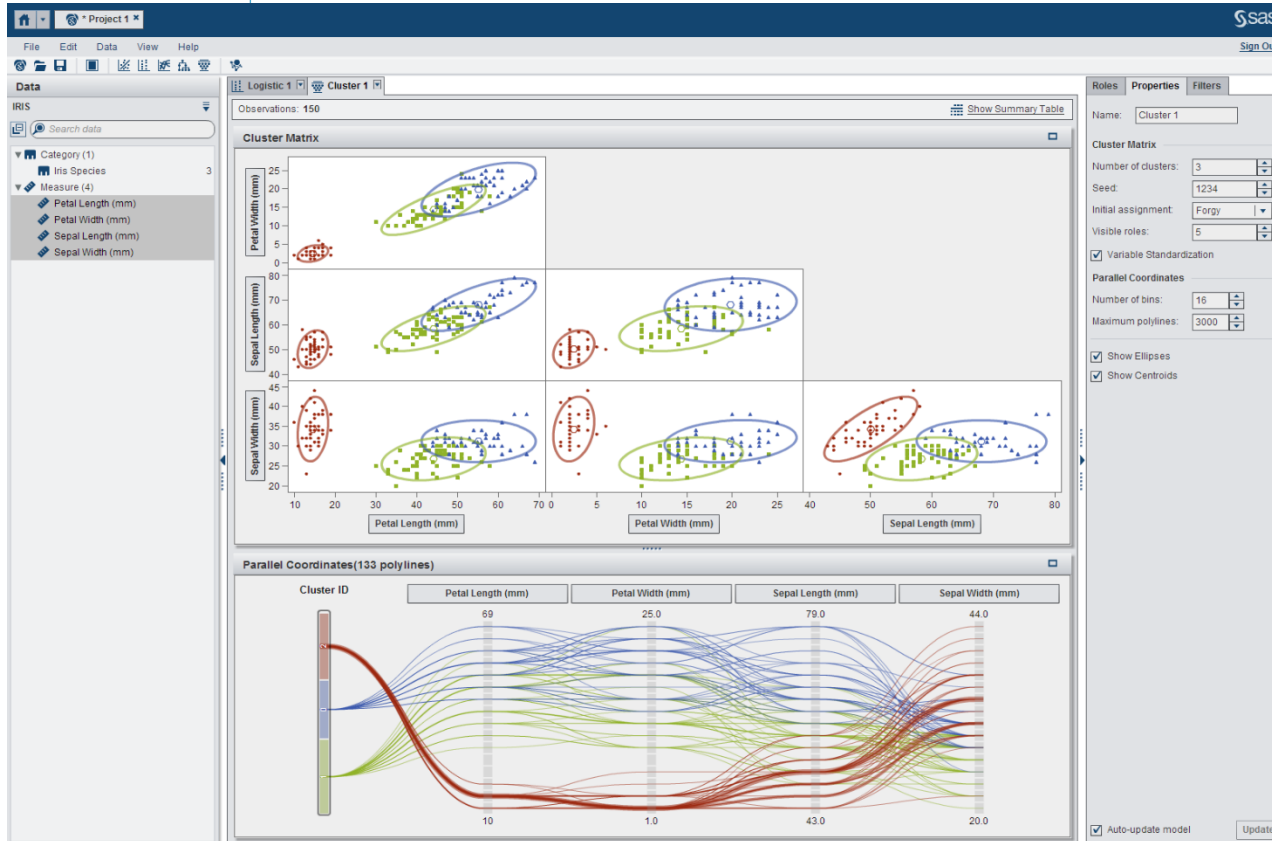


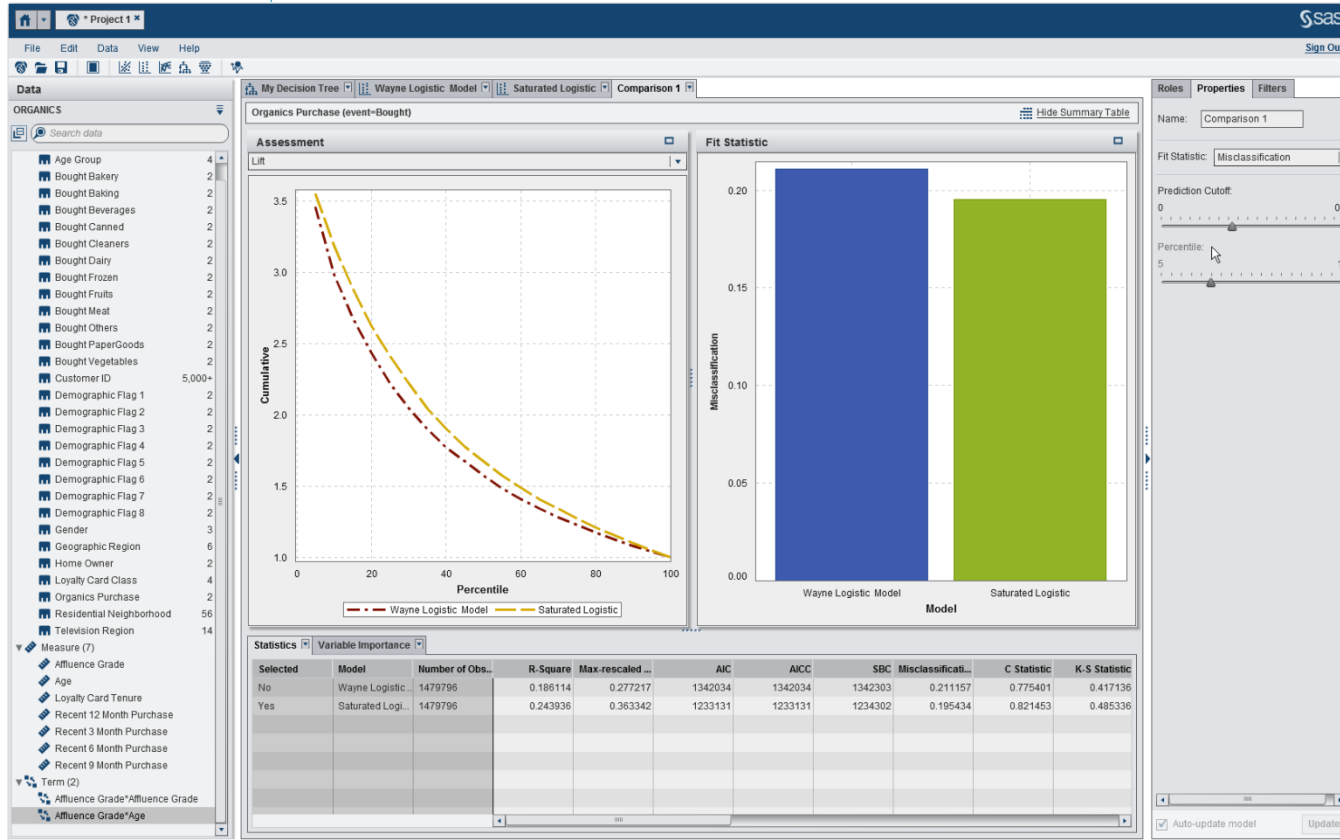












SAS® IN MEMORY STATISTICS

COMBINING THE POWER OF SAS® PROGRAMMING AND SAS® IN MEMORY ANALYTICS

SAS® Studio - SAS Programmer

Search

Folders

- Folder Shortcuts
- My Documents
- Desktop
- My Folders
- CA
 - SRecycle.Bin
 - demodata
 - Documents and Settings
 - Intel
 - MSOCache
 - PerfLogs
 - Program Files
 - Program Files (x86)
 - ProgramData
 - Public
 - IMSTAT
 - Knowledge
 - data
 - data_analysis_usin
 - demo_short_with_...
 - demo_short_with_...
 - demo_short_with_...
 - SAS® LASR™.pptm
 - Thumbs.db
 - VSTAT
 - Recovery
 - SASv9
 - Support
 - System Volume Information
 - temp
 - Users
 - V9setup
 - Windows

Tasks

Snippets

Libraries

File Shortcuts

CODE LOG

*demo_short_with_ODS_10032013_v3.smpUSE.sas *

```

proc imstat;
  /*---MERGE---*/
  table lasr.cardatap;
  schema carinfo (modelkey=modelkey / prefix=info) / mode=table;
run;

41:table lasr.carinfo;
42:fetch / from=1 to=5 format;
43:run;
44:
45:/*---EXPLORE---*/
46:table lasr.cardatap;
47:distinct_all / save=tbl1;
48:run;
49:* the name list in LIST1 is automatically created;
50:* no need to type in variable names one by one;
51:store tbl1(where="NDistinct le 5", l)=list1;
52:run;
53:frequency c1list1;
54:crosstab wheelTypeID*wheelType;
55:corr mmr;
56:ods output frequency=work.freq1;
57:run;
58:table lasr.cardatap(tempnames=(avgOdo));
59:summary avgOdo / tempnames=avgOdo tempexpress="avgOdo = vehOdo / v
60:  groupby=badbuy partition;
61:run;
62:quit;
63:ods graphics / height=4in width=12in;
64:
65:proc sgpanel data=freq1;
66:  panelby column / novarname columns=8 rows=1 uniscale=row;
67:  vbar formattedvalue / group=column response=frequency datalabe
68:run;
69:
70:proc imstat;
71:  /*---MERGE---*/
72:  table lasr.cardatap;
73:  schema carinfo (modelkey=modelkey / prefix=info) / mode=table;
74:run;
75:
76:/*---CLEAN-UP---*/
77:table lasr.&templast_;
78:promote cardata2;
79:where info_nationality ne 'NULL';
80:run;
81:table lasr.cardata2;
82:where;
83:compute deltal "deltal = vehboost - mmracquisitionretailaveragepri
84:compute deltal2 "deltal2 = vehboost - mmrcurrentretailaveragepri
  
```

RESULTS

Column	Row	mmracquisitionaverageprice	mmracquisitionaverageprice	mmracquisitionaverageprice	mmracquisitionaverageprice	n
1		36060	0	0	0	
2		0	33264	0	0	
3		0	0	0	766	
NULL		0	0	3169	0	

Pairwise Correlations for Table WORK.CARDATAP

Column	Row	mmracquisitionaverageprice	mmracquisitionaverageprice	mmracquisitionaverageprice	mmracquisitionaverageprice	n
1		1.0000	0.9601	0.9154	0.9102	
2		0.9603	1.0000	0.9027	0.9182	
3		0.9154	0.9027	1.0000	0.9602	
4		0.9102	0.9182	0.9602	1.0000	
5		0.9379	0.9236	0.9516	0.8496	
6		0.9325	0.9321	0.8494	0.8557	
7		0.8718	0.8607	0.9131	0.9032	
8		0.8710	0.8712	0.9091	0.9095	

Summary Statistics for Table WORK.CARDATAP

auction	badbuy	Column	Min	Max	N	Sum	Mean	Std Dev	Std Error	Coefficient of Variation	Number Missing
ADESA	N	avgOdo	2074.14	52767	12245	183129149	14973	6532.88	45.4799	33.8400	0
ADESA	Y	avgOdo	2061.14	38340	2193	26867437.5	13619	4266.17	61.7834	31.5591	0
MANHEIM	N	avgOdo	795.86	83729	35328	547241364	15094	5443.37	28.5593	36.1382	0
MANHEIM	Y	avgOdo	1870.13	47410	4715	62358270.7	13228	4262.05	62.6064	32.4528	0
OTHER	N	avgOdo	2118.89	48523	15433	258772573	16633	5807.60	46.7489	24.9059	0
OTHER	Y	avgOdo	1208.25	42628	2088	29776523.4	14399	4985.38	106.99	33.7903	0

Frequency (Sum)

Formatted

Column

auction

badbuy

isonlinesale

primeunit

transmission

wheeltype

wheetype

