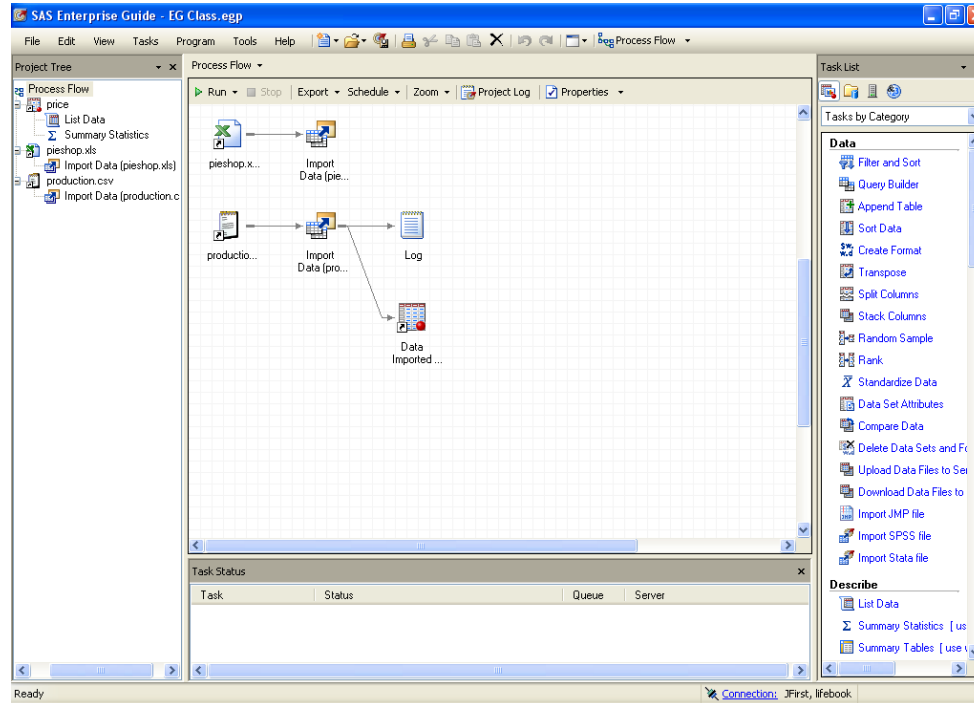




SAS[®] Enterprise Guide For All!



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Steven J. First
President

- 30 years of SAS experience
- Hundreds of manufacturing, retail, government, marketing, and financial applications
- President and Founder of SSC
- Founder of WISAS and WISUG
- Invited speaker at local, regional, and international user groups



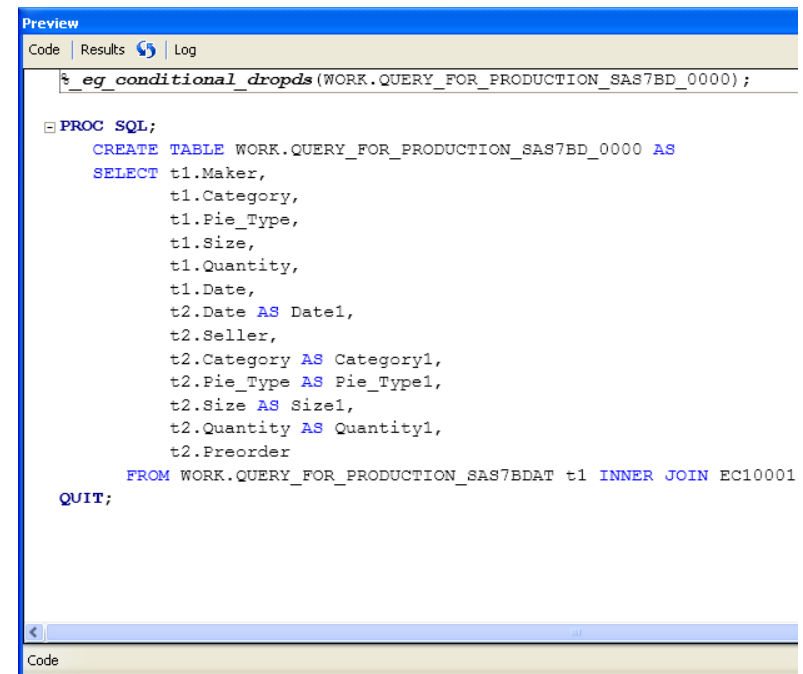
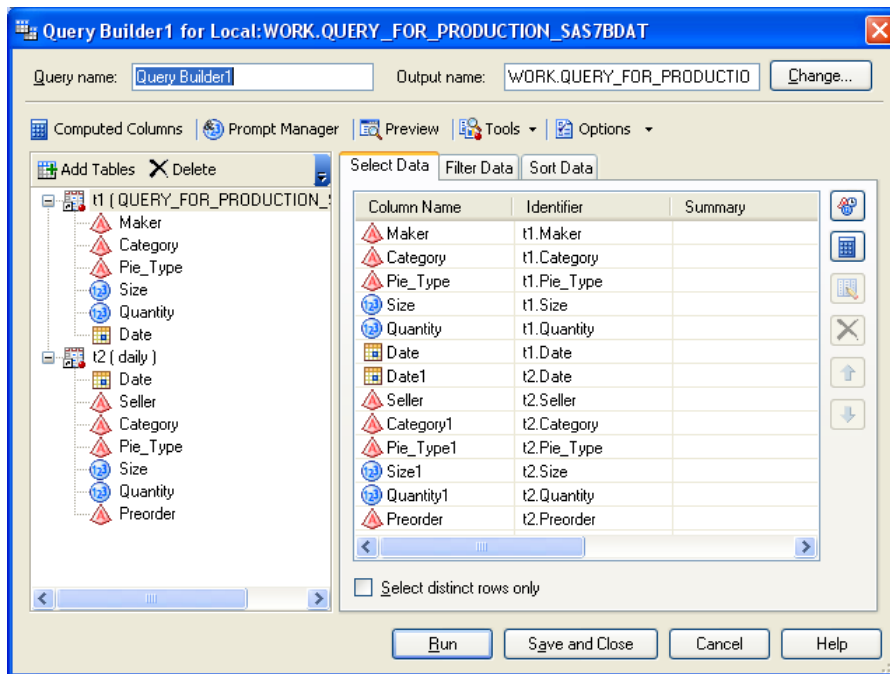
Jennifer First
Director of Operations

- Directs SSC's administrative, sales, and IT staff
- Strategic business planning
- Assists clients with project planning, customized training
- Coordinates WISUG
- Publishes The Missing Semicolon

What is SAS Enterprise Guide?



- Interface for SAS Software
- Can code SAS programs
- Point-and-click interfaces to modify, analyze, and report data
- Organize code, results, and logs in a “Process Flow”



SAS Enterprise Guide Is For Everyone!



- Increase the efficiency of your programmers
- Empower analysts with SAS “Guided Analytics”
- Organize all SAS processes
- Easily create attractive, useful graphs
- Package and distribute reports

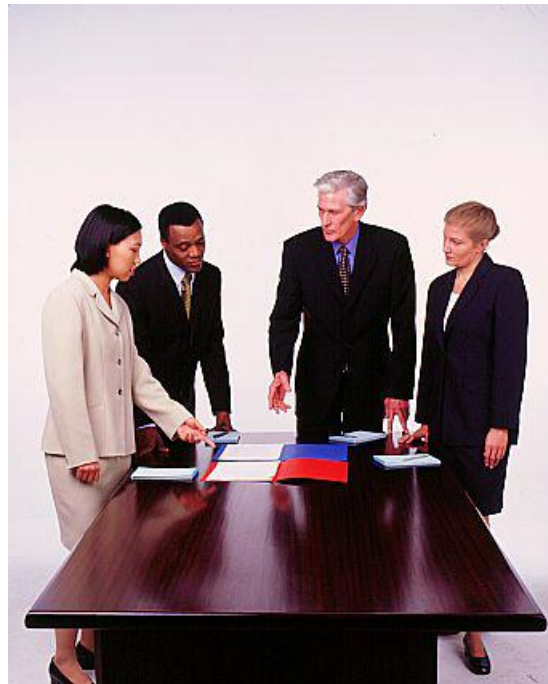
**EG is an Enterprise Wide Solution
that truly has something for everyone!**



Liberate Analysts



- Many analysts don't have an IT background
- No time to learn expert coding
- Conduct data manipulation, analysis, and distribute reports
- Struggle to complete tasks without extensive knowledge of coding



Liberate Analysts (continued)



- No IT staff dedicated to SAS support
- Busy IT staff, managing a heavy workload
- Analysts create own SAS processes.
- Analysts wait for simple queries, reports, and small modifications.
- Analysts can complete many tasks on their own with EG.



Query Building for Analysts



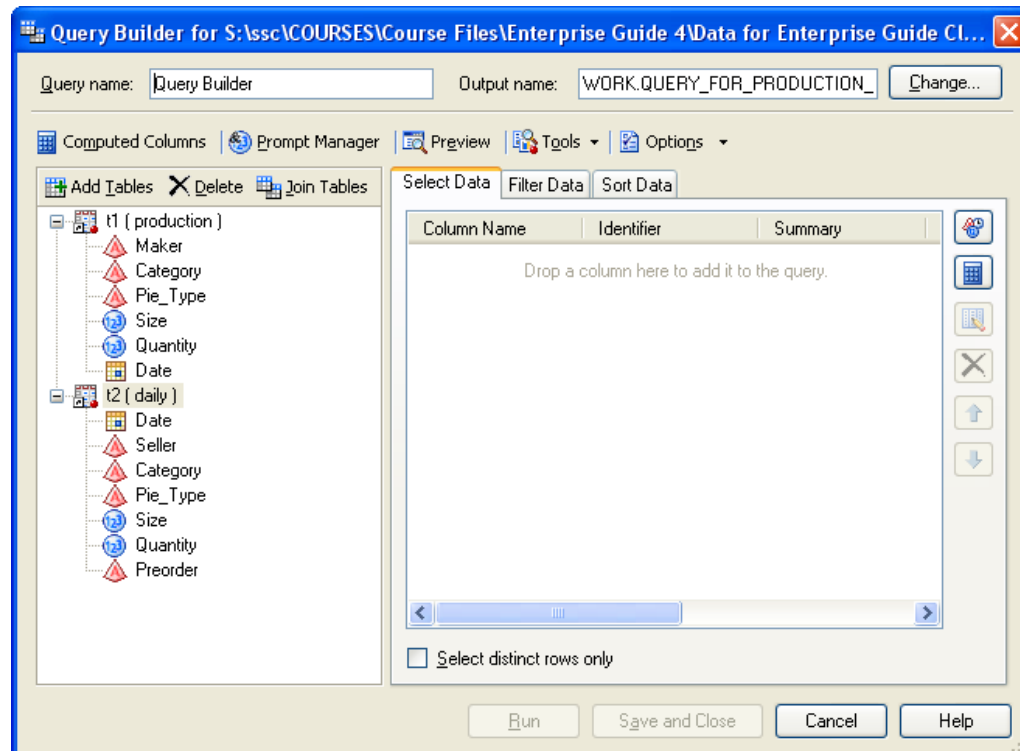
Query Builder is a graphical way analysts can:

- **Join tables**
- **Select variables**
- **Filter data**
- **Sort data**
- **Change data source**
- **Compute columns**
- **Set up prompts**
- **De-dup observations**
- **Change query options**
- **Add titles, footnotes**
- **Limit output**
- **And more**

Query Building for Analysts



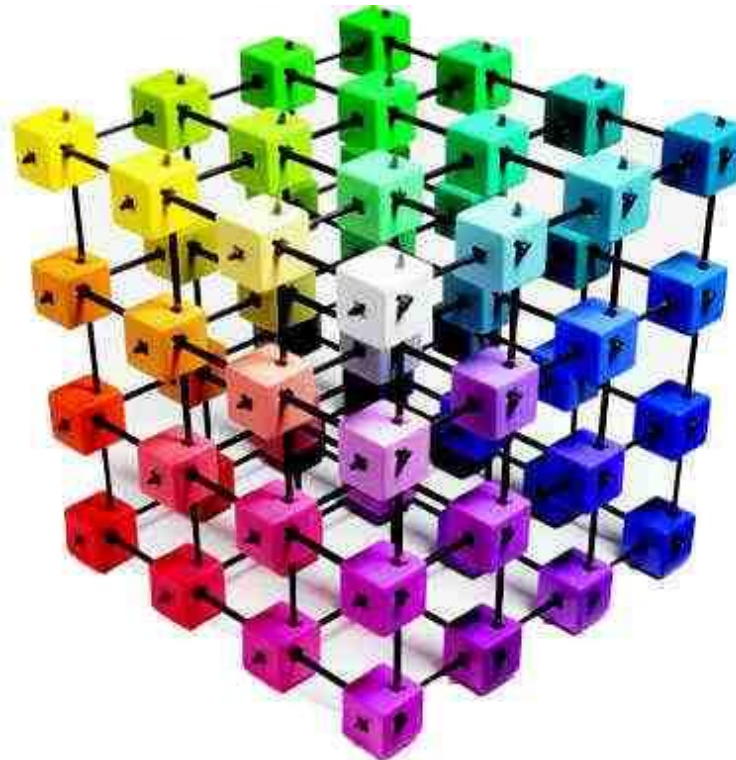
- Intuitive, easy to understand and use, eliminates coding errors
- Queries become easy for non-programmers.
- Simple tasks don't require the support of a SAS programmer.
- Query Builder builds code that can be reused and modified.



Accessing Data for Analysts



- Access a variety of data sources, including SAS, Excel, and databases.
- Access virtually any data source, across platforms, with the appropriate privileges and SAS products
- Can be done through a GUI



Import Data Wizard



- As data is imported, it can be modified: dropping fields, changing variable attributes, which worksheet or cells to import, and more.
- All without any coding

3 of 4 Define Field Attributes

Select columns and define attributes:

Inc	Source Name	Name	Label	Type	Source Informat	Len.	Output Format	Output Informat
<input checked="" type="checkbox"/>	Sold By	Sold By	Sold By	String	\$CHAR6.	6	\$CHAR6.	\$CHAR6.
<input checked="" type="checkbox"/>	Category	Category	Category	String	\$CHAR14.	14	\$CHAR14.	\$CHAR14.
<input checked="" type="checkbox"/>	Type	Type	Type	String	\$CHAR18.	18	\$CHAR18.	\$CHAR18.
<input checked="" type="checkbox"/>	Size	Size	Size	Number	BEST12.	8	BEST12.	BEST12.
<input checked="" type="checkbox"/>	Quantity	Quantity	Quantity	Number	BEST12.	8	BEST12.	BEST12.
<input checked="" type="checkbox"/>	Preorder	Preorder	Preorder	String	\$CHAR3.	3	\$CHAR3.	\$CHAR3.

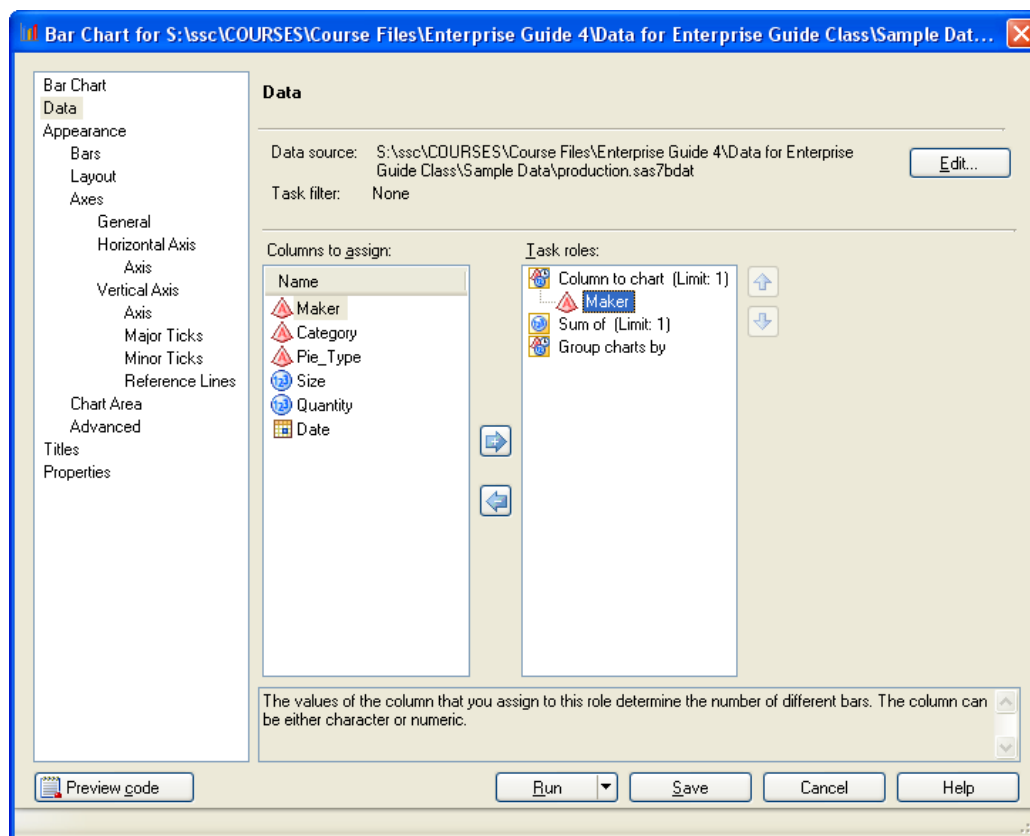
Select All Clear All Modify...

<Back Next> Finish Cancel Help

Reporting and Templates for Analysts



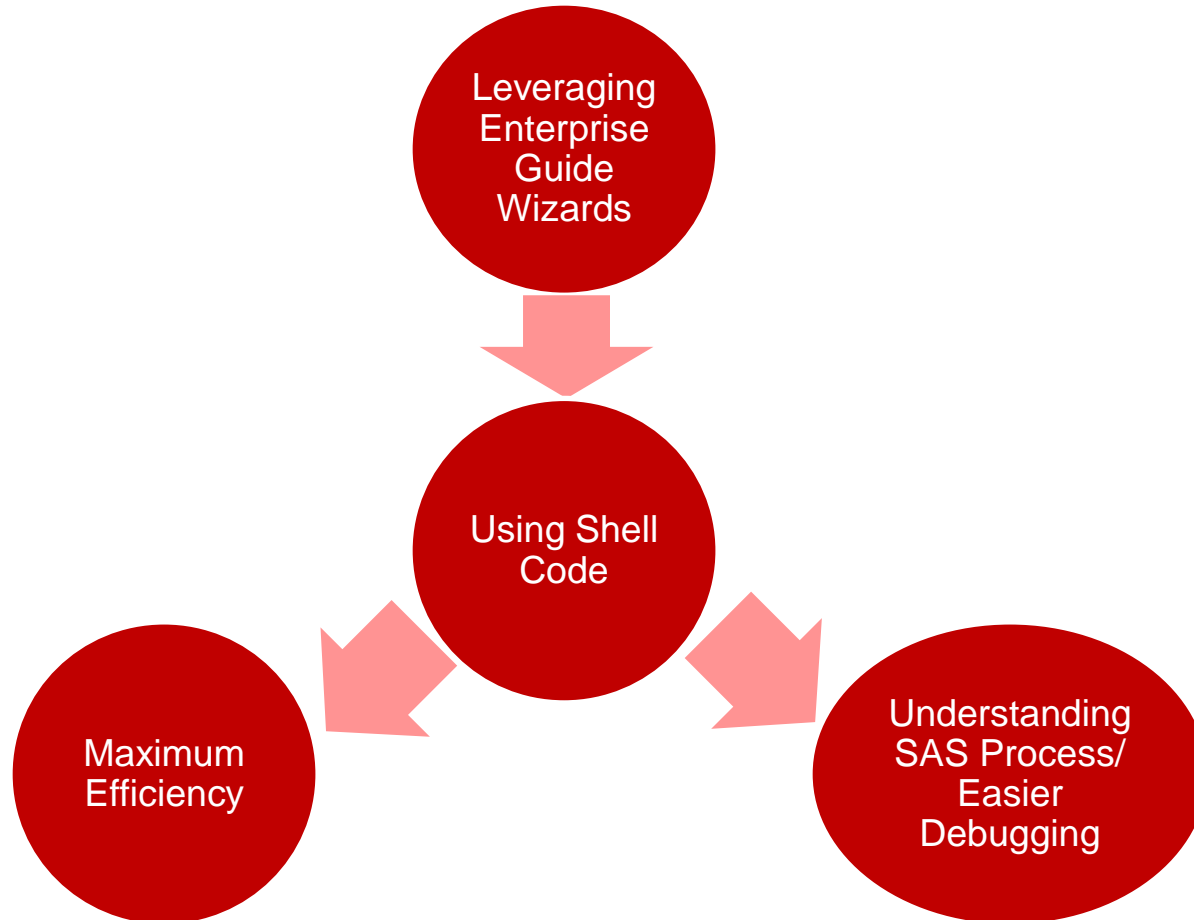
- Analysts may depend on others to create simple reports.
- For simple changes, they need further assistance.
- Analysts leverage SAS reporting capabilities in an easy GUI, creating custom reports and templates



Analysts Can Transition Into Programming

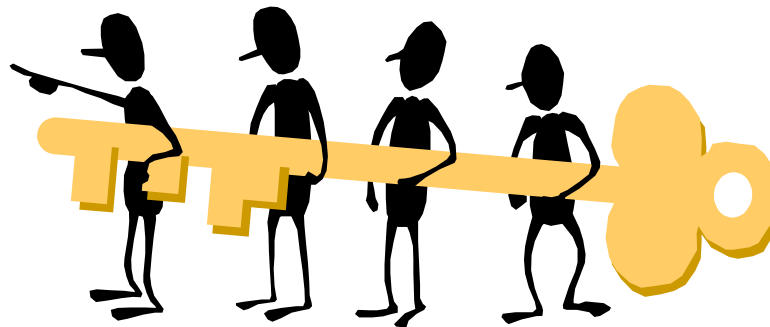


- Use GUI for the majority of tasks
- Generate shell code and learn how to program as necessary





IT	Analysts
<ul style="list-style-type: none">• Complex data manipulations• Specialized reports• Production processes• Other complex issues	<ul style="list-style-type: none">• Simple queries• Accessing data• Simple reporting and graphs• Graphing



Increase Programmer's Efficiency



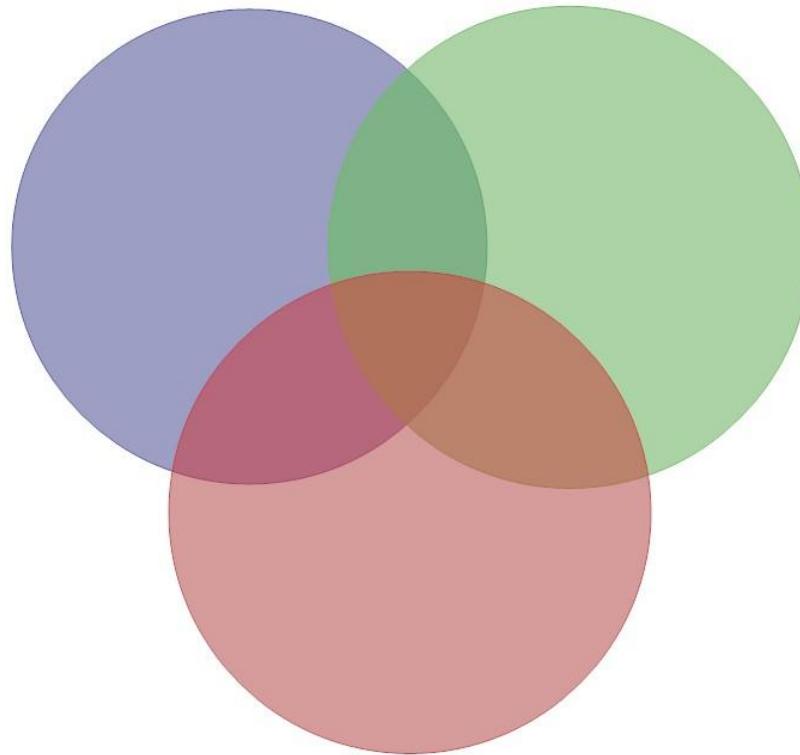
- EG for heavy lifting
- Wizards to join tables, creating reports, and querying data
- Quicker than coding from scratch
- Less error prone



Increase Programmer's Efficiency



- Easy to misspell a word or miss a comma
- Cumbersome to join several tables (EG can do up to 32 tables at once!).
- Join tables within a wizard in a fraction of the time.



Joining Tables in SAS Enterprise Guide



- EG will find join key or can manually specify
- Choose what type of join and other options

The screenshot displays the 'Tables and Joins' window in SAS Enterprise Guide. It shows four tables: t1 (production), t2 (daily), t3 (nutrition), and t4 (price). The tables are connected by join lines, indicating a sequence of joins. The 'Join Properties' dialog box is open, showing the 'Join type' as 'Matching rows only given a condition (Inner Join)'. The 'Condition' section shows a Venn diagram with two overlapping circles, and the 'Left table and column' is 't1.Date' and the 'Right table and column' is 't2.Date'. The 'Filter to include in the 'join tables on' clause' is empty.

Table	Columns
t1 (production)	Maker, Category, Pie_Type, Size, Quantity, Date
t2 (daily)	Date, Seller, Category, Pie_Type, Size, Quantity, Preorder
t3 (nutrition)	type, Calories_per_serving, Contains_nuts, Contains_dairy
t4 (price)	Category, Type, Size, Price, Cost

Code Generated By SAS Enterprise Guide



Use the code that is generated behind the scenes and modify it

The screenshot shows the SAS Enterprise Guide interface. The main window is titled 'Query Builder' and displays the following SQL code:

```
eg_conditional_drops(WORK.QUERY_FOR_PRODUCTION_SAS7BDAT);  
  
PROC SQL;  
  CREATE TABLE WORK.QUERY_FOR_PRODUCTION_SAS7BDAT AS  
  SELECT  
    t1.Maker,  
    t1.Category,  
    t1.Pie_Type,  
    t1.Size,  
    t1.Quantity,  
    t1.Date,  
    t2.Date AS Date1,  
    t2.Seller, |  
    t2.Category AS Category1,  
    t2.Pie_Type AS Pie_Type1,  
    t2.Size AS Size1,  
    t2.Quantity AS Quantity1,  
    t3.type,  
    t3.Calories_per_serving,  
    t3.Contains_nuts,  
    t4.Category AS Category2,  
    t4.Type AS Type1,  
    t4.Size AS Size2,  
    t4.Price,  
    t4.Cost,  
    t3.Contains_dairy,  
    t2.Preorder  
  FROM EC100013.production t1 INNER JOIN EC100015.daily t2 ON (t1.Date = t2.Date) INNER JOIN EC100019.pric  
    (t1.Category = t4.Category) FULL JOIN EC100017.nutrition t3 ON (t4.Type = t3.type);  
QUIT;
```

The interface also shows a 'Project Tree' on the left with a 'Query Builder' task selected, and a 'Task List' on the bottom left with various data manipulation tasks like 'Sort Data', 'Create Format', etc.

Code Generated By SAS Enterprise Guide



Increase efficiency by leveraging wizards with programming knowledge



New Programmer Features in Enterprise Guide 4.3



Integrated Syntax Help

Using mouse-over or clicking F1 over a SAS keyword will display syntax for the keyword, as well as a description

The screenshot shows the SAS Enterprise Guide interface. The 'Project Tree' on the left shows a 'production' folder containing 'Query Builder' and 'daily'. The 'Program' window is open, showing a 'proc sql' statement. A context menu is displayed over the 'proc sql' text, providing the following information:

Keyword: SQL
Context: [PROCEDURE DEFINITION] PROC SQL
Syntax: Syntax: PROC SQL <option(s)>;
...statements;
<QUIT;>

The SQL procedure implements Structured Query Language (SQL) for SAS. SQL is a standardized, widely used language that retrieves data from and updates data in tables and the views that are based on those tables.

The SAS SQL procedure enables you to:

- o retrieve and manipulate data that is stored in tables or views.
- o create tables, views, and indexes on columns in tables.
- o create SAS macro variables that contain values from rows in a query's result.
- o add or modify the data values in a table's columns or insert and delete rows.
You can also modify the table itself by adding, modifying, or dropping columns.
- o send DBMS-specific SQL statements to a database management system (DBMS) and retrieve DBMS data.



Syntax Suggestion

When typing a SAS keyword, SAS will display a list of potential keywords to use in code.

More Exciting New Features

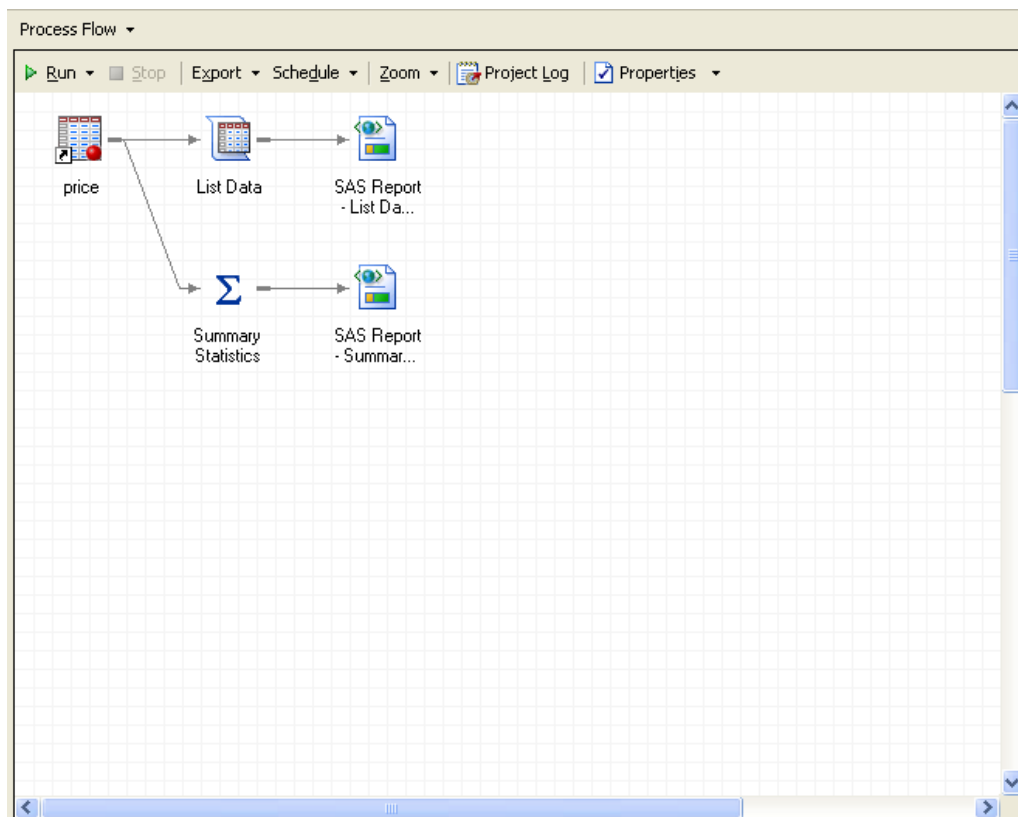
Displaying libraries and data members, parentheses matching, program formatting, and more!

These new features will change the programming experience of every programmer, from novice to expert.

SAS Process Organization



- Organizing SAS process (programs, data, reports, logs, and documentation) into one flowchart like file, called a “Project.”
- Simplifies comprehension, updates, and standards across organization
- Base SAS processes can be imported into a “Project.”



Easily Create Useful, Beautiful Graphs



- Creating graphs is simple with EG's interface!
- No SAS/GRAPH syntax
- Completed in a fraction of the time

- **Bar charts**
- **Pie charts**
- **Line plots**
- **Scatter plots**
- **Area plots**

- **Donut charts**
- **Bubble plots**
- **Contour plots**
- **Box plots**
- **And more**

Graph Interface



Bar Chart for S:\sssc\COURSES\Course Files\Enterprise Guide 4\Data for Enterprise Guide Class\Sample Dat...

Bar Chart

Bar Chart

Vertical Colored Bar

Simple Vertical Bar

Grouped Vertical Bar

Stacked Vertical Bar

Grouped/Stacked Vertical Bar

Grouped Colored Vertical Bar

Grouped Colored Vertical Group

Interleave Vertical Bar

3D Grouped Vertical Bar

3D Grouped/Stacked Vertical Bar

3D Grouped Colored Vertical Bar

3D Grouped Vertical Colored Group

Simple Horizontal Bar

Grouped Horizontal Bar

Stacked Horizontal Bar

Grouped/Stacked Horizontal Bar

Cancels the task and does not save any options that you have selected.

Preview code

Run

Save

Cancel

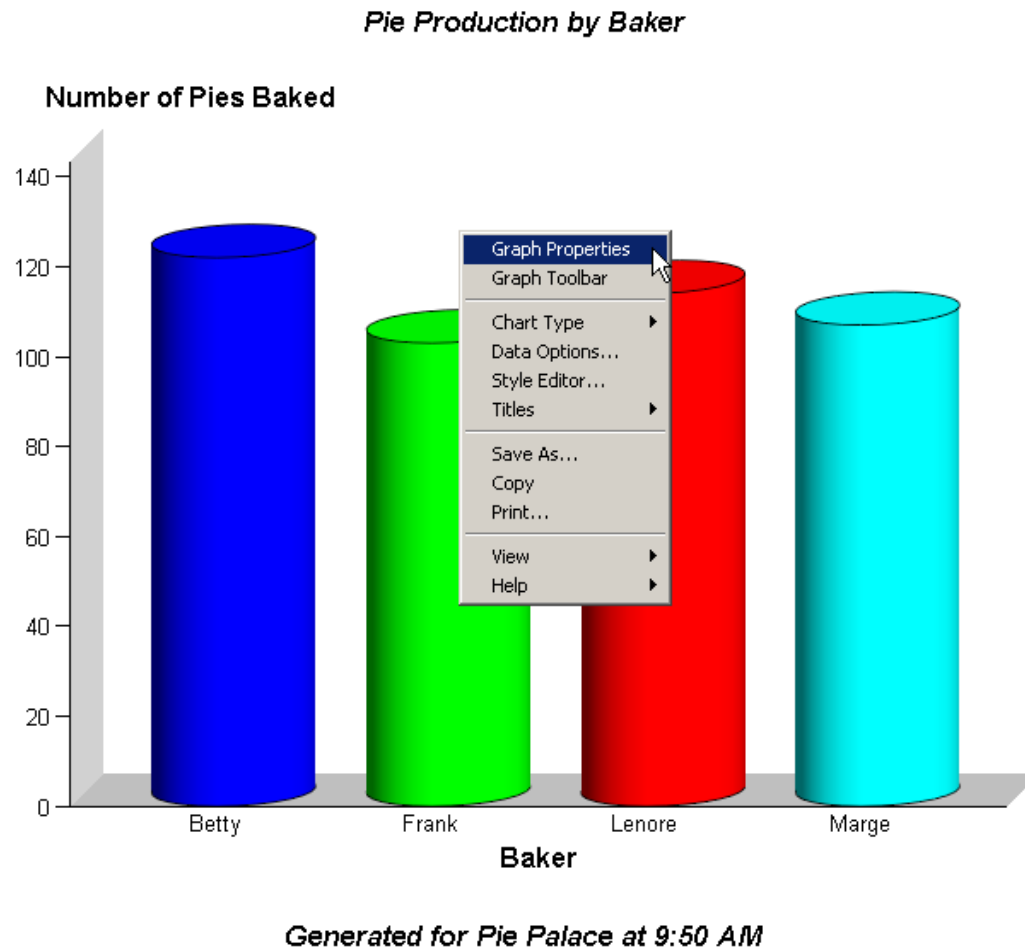
Help

The "Column to chart" role must have a variable assigned to it.

A Graph Created in SAS Enterprise Guide



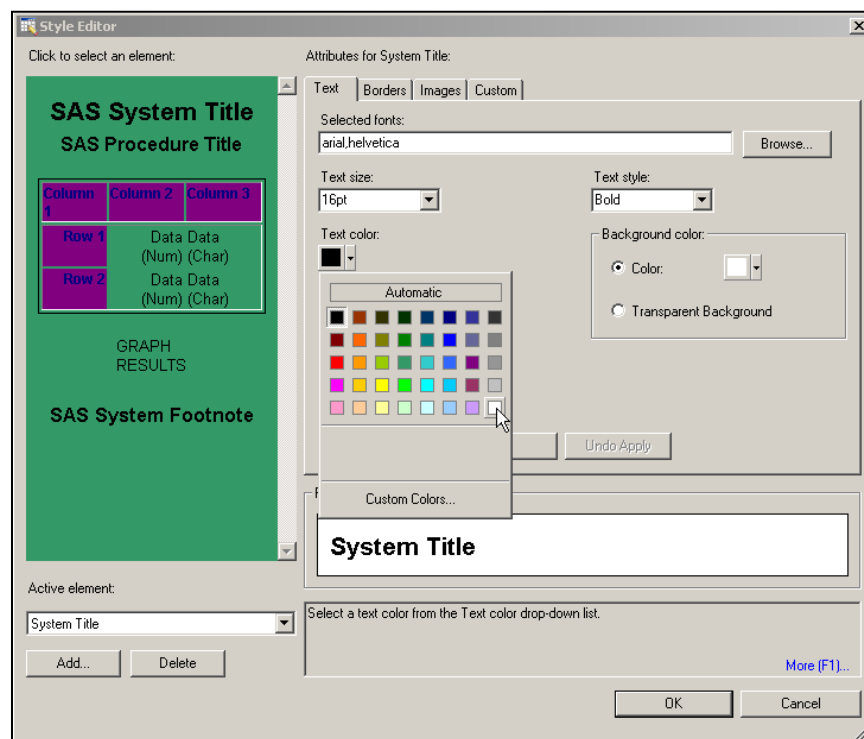
Easily create graphs within SAS



Simple Reporting



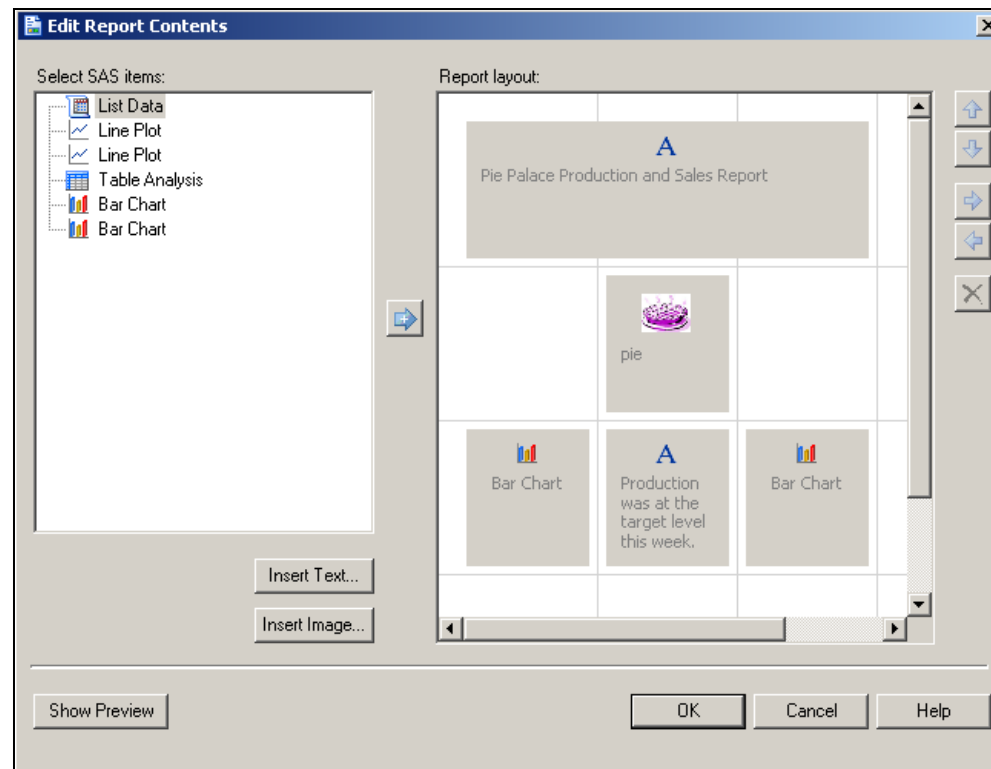
- HTML, PDF, RTF, SAS Report, and Text
- CSS's that define styles, fonts, color, and include pictures
- Each element easy to manipulate
- Store and reuse templates
- Easily create attractive, consistent reports across enterprise



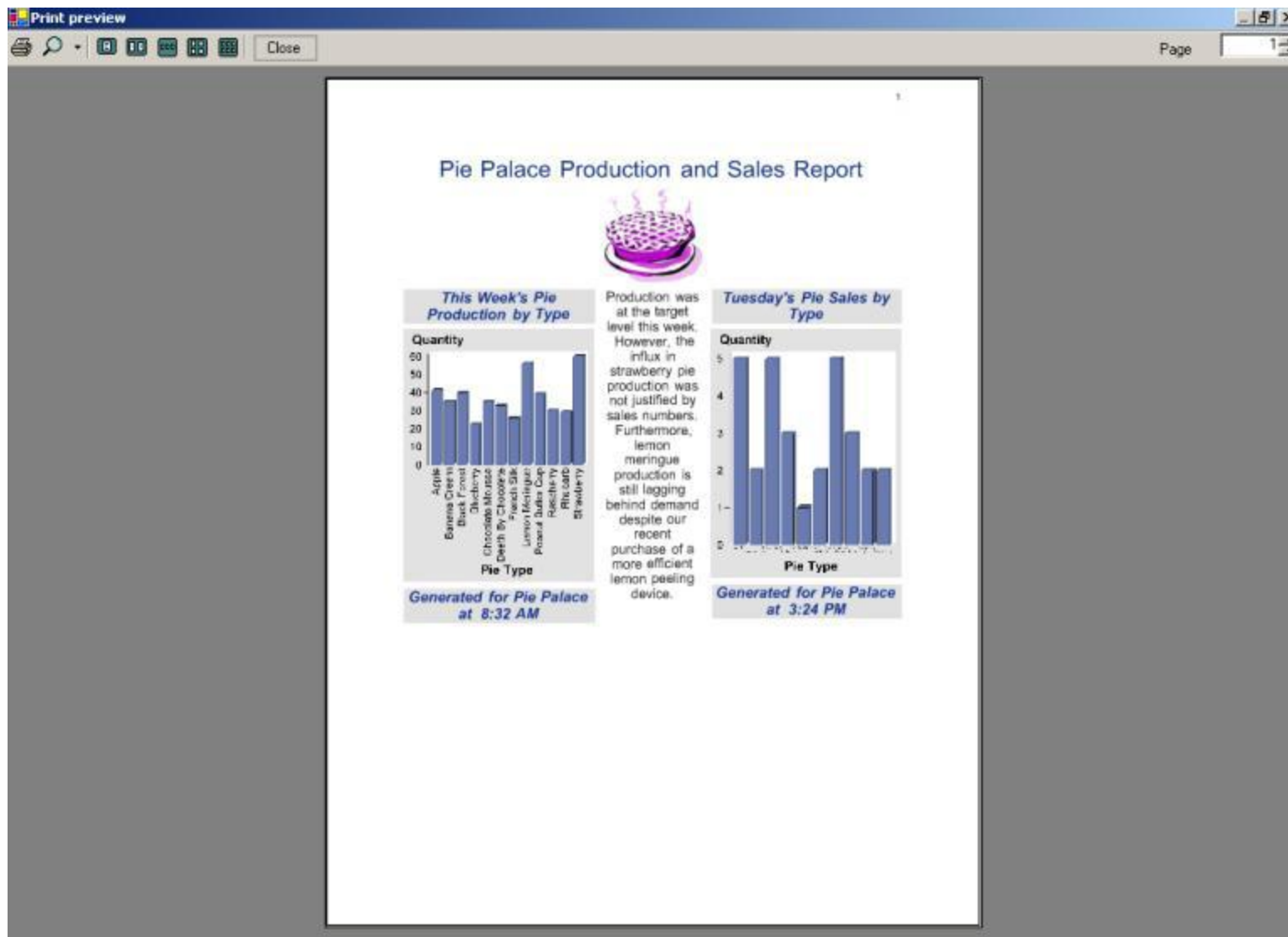
Packaged Reports



- Easy to package reports!
- With a few clicks, package multiple reports
- Charts, titles, text, images, and more
- Email or schedule for distribution



Example of a Packaged Report



Missing Functionality



Some functionality is not available or is limited in EG:

- DDE
- X STATEMENT AND SYSTASK (need special permission from administrator)
- SAS/AF Applications
- %WINDOW
- Statements, PROMPT options on LIBNAME statements, and interactive environments such as the Report window
- DATA step debugger
- SAS statements that require user interaction and that do not work well in a SAS batch program
- THE ENDSAS STATEMENT

Lots of documentation and ideas about how to address these items

Internal Resistance



- Experienced users have processes that work. If it's not broke, why fix it?
- Analysts may fear it is technical and they will not be able to use it.



Solution to Resistance – Hands-On Time!



- Programmers
Use current processes and streamline future development.
- Analysts
Achieve results with ease

Everyone will fall in love



Logistics of Implementation



- Part of Base SAS
- PC product
- Many have EG and aren't aware
- May need IT for installation or environment support
- Additional products may be needed to access data and other platforms.



Conclusion



- Something for everyone
- Streamline and standardize processes
- Increase efficiency and capabilities.
- Some resistance at first
- Once users get some hands-on time, they will never go back.

Enterprise Guide is truly an enterprise wide software for the future!



Additional Reading



- Bangi, Audimar. 2010. "SAS® Programmer's Paradise: New Goodies in SAS® Enterprise Guide® 4." Proceedings of the SAS Global 2010 Conference. Cary, NC: SAS. Available at <http://support.sas.com/resources/papers/proceedings10/137-2010.pdf>.
- The Little SAS Book for Enterprise Guide 4.2, Slaughter and Delwiche
- The SAS Dummy Blog: <http://blogs.sas.com/sasdummys/>
- The Missing Semicolon: www.sys-seminar.com



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