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The Art of Accurate Reports

(with Examples from SAS® Enterprise Guide®)

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ABSTRACT

Many times, we find ourselves with an overwhelming amount of data at our fingertips. The goal of this paper is to aid the user in creating accurate reports in SAS Enterprise Guide in a simple top-down approach using four steps; Envisioning, Planning, Creating, then Testing. For this paper, we will be working data from the Florida Fish and Wildlife Conservation Commission.

ENVISION YOUR REPORT

The first step to creating an accurate report is knowing what you want and how you want it. You might be tempted to skip this step. You might say “Of course I know what I want!” then start building. I assure you, this step is vital. Having a solid vision of what you want keeps you on track.

LAYOUT AND FORMAT

Start with a notepad, virtual or not. Type in the name of your report then the columns you want, even if the columns don’t exist in the data you are working with. Below the columns, write the format that suites each one if at all. Remember that raw data doesn’t have commas or dollar signs. For columns that do not exist in the data, define them.

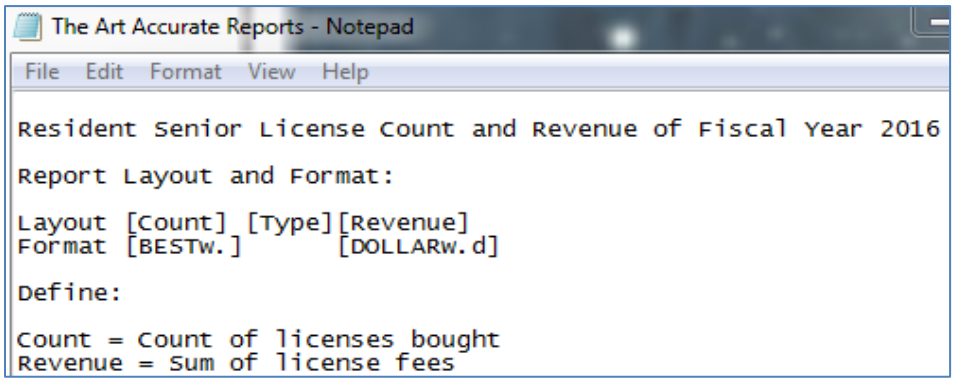

Figure 1. Your handy notepad.

NOT EVERYTHING IS AS IT SEEMS. USING THE DATA DICTIONARY:

Now that you know what you want and how you want it. It’s time to know what you have. Most systems have a Data Dictionary. This nifty file contains descriptions of each column in your data set. Any good SAS System Administrator has one, ask yours! It could look like the one below or a bit different. If you have the Column names and Definitions, then you are golden.

RLIS Replicated Data Dictionary <-- Name of Data Dictionary

ACHInputFile <-- Table Name Object

Stores the ACH Input files generated by Brandt. <-- Table Description

[Column Name]	Type	Length	Null	[Description]
ACHInputFileId	int	4	No	Unique ACH Input File id.

Figure 2. Example of a data dictionary.

KNOW YOUR DATA:

Systems can be huge and complex like a clock. One gear can depend on another. Using the Data Dictionary, look at your tables then ask yourself “What is this table used for?” and “How do they work together?”.

Note: The data provided to you in SAS might not be the same one used in the system. There can be hundreds of tables in a system. Instead of sifting through all of them, your SAS Systems Administrator might have created a couple tables for you to use!

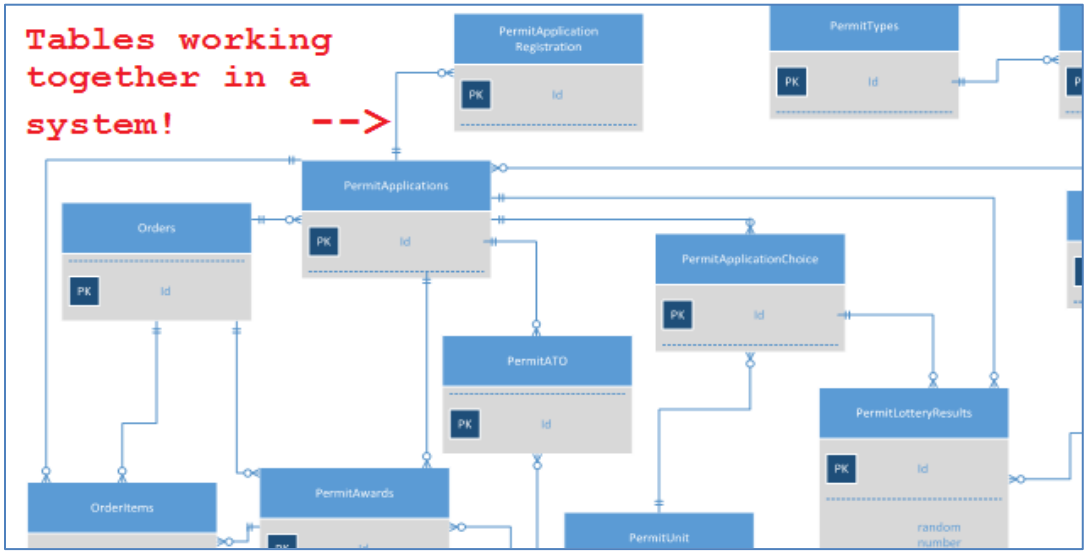

Figure 3. Tables working together in a system.

PLAN YOUR REPORT

WHICH DATA SETS TO USE

For the report mentioned in step one, I have chosen two sets; a table that contains all orders from 2016 and a table that contains current customers. There are other tables available but these two contain all the information that I need, no more, no less.

Note: Use caution when using multiple tables as you might it the same information twice

WRITE IT OUT – “THINK TWICE, CODE ONCE”:

There's an old saying when it comes to programming and it's "Think Twice, Code Once". It means you should plan before you code. When writing a complex program with hundreds of lines of code, poor planning could lead to disaster like having to write the program all over again; resulting in hours of wasted time. Now, we aren't coding but this saying applies to a lot of things in life and it certainly applies to creating an accurate report. In your notepad, write out a plan. Carefully, step by step, put an imaginary process flow into words.

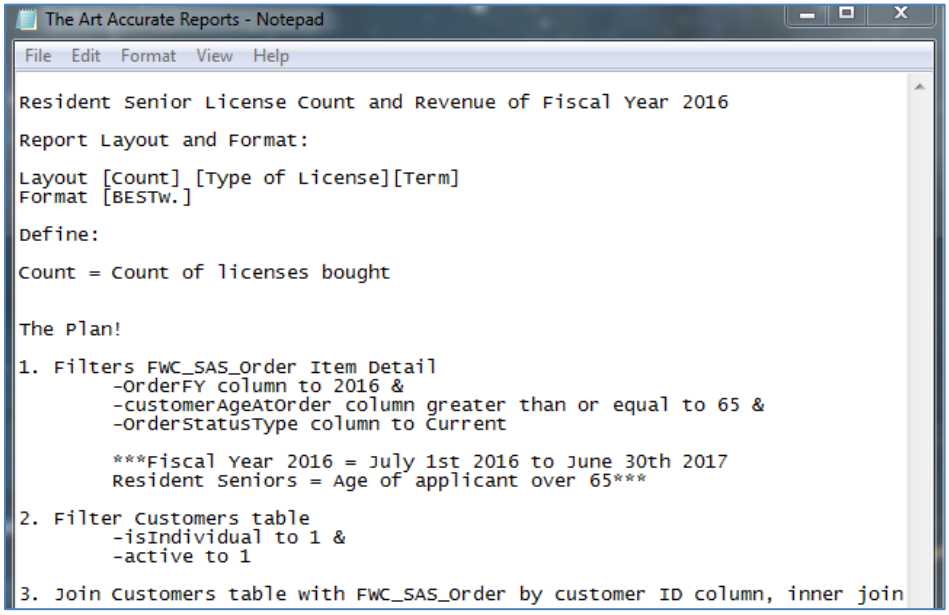

Figure 4. Creating a plan.

CREATE YOUR REPORT

Now, follow your brilliant plan! By writing it out, you have already worked out any kinks that you would have run into otherwise. If you add extra filters or do something that isn't in the plan, be sure to add it to your notepad. You are not only writing for your future self, but for others to follow behind you.

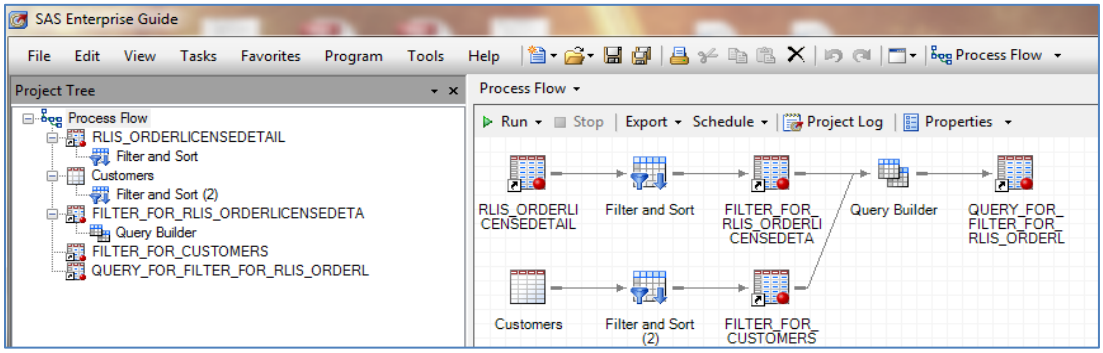

Figure 5. The plan in action!

TIP#1. THE WHEN STATEMENT:

The WHEN statement is incredibly versatile. The WHEN statement is used when you want to replace one value with another but only when that value meets certain conditions. Just remember to add case, when, then, else, end.

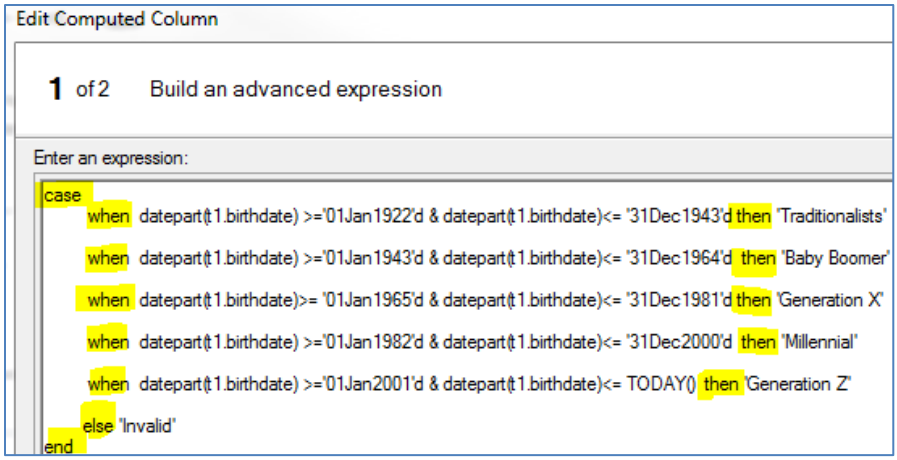

Figure 6. Using the WHEN statement to create a column for the different generations of customers.

TIP#2. ASSIGN PROJECT LIBRARY:

Let's say we have SAS® Visual Analytics and we want to eventually use the report we are creating. Our version of SAS® Visual Analytics uses a different server than SAS® Enterprise Guide®. We use the assign project library to allow the data to be used on both servers.

TEST YOUR REPORT

The last but certainly not least step. Testing your report. You have gone through the steps precisely and confident that your report is accurate. However, no matter how certain you are there's always a chance of making mistakes. We're human after all.

THE CHECKLIST

- Compare your report to information from the system you are working in. It's always good to make sure your report accurately reflects the system.
- Ask a co-worker if it the report makes sense. Now, I'm not talking about just any co-worker; try to find one that is familiar with the system.

  Red flags include comments like:

  "That seems a bit inflated/deflated."

  "… Are you sure?"

  and "That seems way off."
- Take a break. Either it be 15 minutes or a day. Just give yourself time to refresh. When you return, read your notes over.
- Compare your data to your data. This might sound silly but try to create another report that should logically reflect the report you created first. Example, for our report of finding how many senior customers purchased a license in 2016; create a table that counts and sums the distinct number of senior customers from that year. The rows should match.

CONCLUSION

In conclusion, reporting isn't just something we do. It's an art. Happy reporting!

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

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