FROM THE PRESIDENT

It's hard to believe that we’re already in May 2016! The SANDS Executive Committee is preparing our first meeting of the year. We didn’t have our February meeting as we usually do. Instead, Kirk Paul Lafler held a half-day SANDS training on March 9th, 2016 at Pfizer. About 20 people attended the training class, and Kirk generously donated all the proceeds from the training to SANDS. It was an experiment since SANDS funds were running low. We provide networking dinners, door prizes, and giveaways at each meeting for free, and we don’t charge any member fees. In addition, SANDS is incorporated, which means we need to pay California tax every year even though we don’t make any money. Kirk volunteered to host the training to raise the money for SANDS. It was a great success! Thanks, Kirk!

We have invited two speakers to present in the upcoming SANDS meeting on May 18th. William E. Benjamin, Jr., from Owl Computer Consultancy, will present a two-hour workshop on sharing data between SAS and Excel in the afternoon. Right after dinner, Bill will give the featured presentation on tips to execute SAS code more efficiently before he catches his flight back to Arizona. Curtis A. Smith, from Defense Contract Audit Agency, will present the second talk for the evening on how to use distribution analysis to detect anomalies in your data. Both of them are not from the San Diego area, but both of them have presented at previous SANDS meetings. Bill just published his first book on SAS and Excel last year, while Curtis has provided SAS programming tips consistently in our quarterly newsletters for over a decade! You don’t want to miss their presentations!

2016 is an election year for Americans. We’ll use the May meeting time for our SANDS election! SANDS has three annually elected positions on the Executive Committee open to any SANDS member: President, Vice President, and Secretary/Treasurer. If you are interested in running, please email me your name and the position. At the May meeting, we will take nominations from the floor as well. To vote in the election, you will need to be present during the business portion of the meeting. Please show up at the meeting and VOTE!

Try to attend the WUSS 2016 Annual Conference, which will be held in San Francisco from September 7th to September 9th (http://www.wuss.org/).

Once again, I would like to take this chance to thank our sponsors for this meeting: WUSS EC and Pfizer. SANDS meetings are held with no cost to our members because of their generous sponsorship. I would also like to thank all of the SANDS EC members for their hard work.

See you at the meeting!

- Wei Cheng
# MEETING AGENDA - MAY 18, 2016

**Location:** Building CB2, Room 1110 - [RSVP Now!](#)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00 - 5:00</td>
<td>Workshop: Methods of Sharing Data between SAS® and Excel® Using Basic SAS Techniques - William E. Benjamin, Jr.</td>
</tr>
<tr>
<td>5:15 - 5:45</td>
<td>Dinner / Networking</td>
</tr>
<tr>
<td>5:30 - 5:40</td>
<td>“What’s Happening” @ Dinner-Time: 2016 SAS Global Forum Highlights - Kirk Paul Lafler</td>
</tr>
<tr>
<td>5:45 - 6:35</td>
<td><strong>Featured Presentation:</strong> Leave Your Bad Code Behind: 50 Ways to Make Your SAS® Code Execute More Efficiently - William E. Benjamin, Jr.</td>
</tr>
<tr>
<td>6:45 - 7:00</td>
<td>Welcome / SANDS Business - Wei Cheng</td>
</tr>
<tr>
<td>7:10 - 7:30</td>
<td><strong>Short Talk:</strong> Detecting Anomalies in Your Data Using Distribution Analysis – Curtis A. Smith</td>
</tr>
<tr>
<td>7:40 - 7:55</td>
<td>Stump the Programmer and Coders’ Corner - Wei Cheng</td>
</tr>
<tr>
<td>8:00 - 8:15</td>
<td>Door Prizes and Giveaways</td>
</tr>
</tbody>
</table>

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**SANDS**

San Diego SAS Users Group

Sands Newsletter • Volume 20.1
**Workshop: Methods of Sharing Data between SAS® and Excel® Using Basic SAS Techniques**  
(William E. Benjamin, Jr.)

*Abstract:*

This workshop will examine methods intermediate level SAS programmers may be familiar with. The detailed examples presented demonstrate movement of data between SAS and Excel file structures using basic SAS methods. This workshop does not address DDE, VBS, or VBA solutions, which are Microsoft solutions. These concepts and techniques will include the following:

1. Cut and paste, and accessing Excel data from the SAS Display Manager Window and toolbar
2. Conversion of text files to an Excel format using built in Excel data conversion features
3. PROC EXPORT and PROC IMPORT features and examples
4. SAS LIBNAME methods and examples
5. SAS Enterprise Guide methods to access Excel files
6. ODS destination and Tagset Template output files (CSV, HTLM, MSOFFICE2K, EXCELP, and EXCEL)
7. SAS procedures that output Tagset Template files

Several of these features are available with only BASE SAS installed. However, others will require the installation of SAS/ACCESS for PC File Format software or SAS Enterprise Guide software. Each of the examples will be shown and explained in enough detail to allow application by the user when the workshop is complete. While most of these techniques are common and widely used, they are also feature-rich and they permit access to Excel files in ways that are not frequently used. The workshop will show you how to differentiate features that access 32-bit and 64-bit Excel files and how to change the format of variables read from an Excel file using DATASET options to read specific Excel columns.

This workshop will touch upon many topics and techniques. The intent is to provide the student with the resources and knowledge that will make them aware of the varied options available for transferring data between SAS and Excel. Many of the options provided by the SAS tools and procedures vary slightly in their definitions but produce very different results.

**Featured Presentation: Leave Your Bad Code Behind: 50 Ways to Make Your SAS® Code Execute More Efficiently**  
(William E. Benjamin Jr.)

*Abstract:*

This laundry list of tips shows 50 ways to help SAS programmers make their code run faster and more efficiently. Topics include maximizing each DATA step, making simple tasks take less code, using macro variables to simplify maintenance, using built-in features, optimizing code to save disk space, using sorts for more than just sorting, and ways to make the program code just read better.

*Bio: William E. Benjamin, Jr.*'s expertise includes Base SAS® Software, SAS/AF, and SAS Macros. William has a BS degree in computer science from Arizona State University and an MBA from Western International University. He has been a SAS software user since 1983 and a computer programmer since 1973. His programming experience spans from vacuum tube mainframes, to current PC computers. William currently owns a consulting company called OWL Computer Consultancy, LLC in Phoenix AZ. His new SAS Press book "Exchanging Data between SAS and Microsoft Excel: Tips and Techniques to Transfer and Manage Data More Efficiently" was released in April 2015.
Short Talk: Detecting Anomalies in Your Data Using Distribution Analysis (Curtis A. Smith)

Abstract:
Analyzing large amounts of data looking for anomalies can be a disheartening task. You need techniques that will allow you to quickly assess the data in ways that will highlight potential anomalies while keeping you from chasing the wind. Distribution analysis is one such technique. Using a distribution analysis with SAS® Software you can quickly identify areas within your data where you should focus your attention. The author will present SAS code and screen images of SAS Enterprise Guide that will enable you to quickly and easily find anomalies in the data you analyze. The SAS code will feature the UNIVARIATE procedure and SAS/GRAPH® procedures. The techniques presented are powerful, yet easy to understand and use.

Bio: Curtis A. Smith has worked for the Defense Contract Audit Agency for nearly thirty-three years as an auditor, IT technical specialist, supervisor, field office manager, and headquarters program manager. He has retrieved and analyzed data on a variety of platforms, using a variety of software. He has been a SAS enthusiast for about 25 years and has spoken on a variety of topics at a variety of venues, including SUGI, WUSS, and SANDS. Curtis has an business degree from California State University Long Beach and a Master’s degree in policy management from Georgetown University.
TIPS FOR USING A DATA WAREHOUSE

In our last episode we explored a simplified way to subset a SAS data set using the SELECT statement. This time we will explore a handy way to create a profile of our SAS data set so we can both document our data and also use the profile to verify the accuracy of our SAS data set.

SAS makes it very easy to create a profile of our SAS data set. Simply using the mighty UNIVARIATE procedure, with the basic syntax as follows:

```sas
proc univariate
   data = in.bigdata
   cibasic(type=twosided alpha=0.05) mu0=0 freq modes;
   by region;
   var hrs12;
   output out=out.result
      (LABEL="Distribution Analysis for bigdata")
      mean=mean min=min max=max n=n var=var std=std css=css
      cv=cv mode=mode nmiss=nmiss nob=nobs range=range
      stdmean=stdmean sum=sum sumwgt=sumwgt uss=uss;
   histogram hrs12 / normal ( w=1 l=1 color=yellow mu=est
      sigma=est) cframe=gray caxes=black waxis=1 cbarline=black
      cfill=blue pfill=solid;
run;
quit;
```

Let’s get some background on the UNIVARIATE procedure from the SAS Institute (Sas(r) 9.4 procedures, 2015) (check the reference to see the entire quote):

The UNIVARIATE procedure provides a variety of descriptive measures, graphical displays, and statistical methods, which you can use to summarize, visualize, analyze, and model the statistical distributions of numeric variables... Exploring the distributions of the variables in a data set is an important preliminary step in data analysis, data warehousing, and data mining... Modeling the distributions of data and validating distributional assumptions are basic steps in statistical analysis... Summarizing the distribution of the data is often helpful for creating effective statistical reports and presentations.

Here’s an example of how a portion of the output might look:

```
Distribution analysis of: HRS12
The UNIVARIATE Procedure
Variable: HRS12

REGION=EASTERN

<table>
<thead>
<tr>
<th>Basic Statistical Measures</th>
<th>Location</th>
<th>Variability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>747.7766</td>
<td>Std Deviation</td>
</tr>
<tr>
<td>Median</td>
<td>744.0000</td>
<td>Variance</td>
</tr>
<tr>
<td>Mode</td>
<td>792.0000</td>
<td>Range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interquartile Range</td>
</tr>
</tbody>
</table>

<p>| Basic Confidence Limits Assuming Normality |</p>
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>95% Confidence Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>747.77656</td>
<td>746.47295 749.08016</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>47.09011</td>
<td>46.18829 48.03027</td>
</tr>
<tr>
<td>Variance</td>
<td>2217</td>
<td>2133 2307</td>
</tr>
</tbody>
</table>

Tests for Location: Mu0=0
Test    Statistic    p Value
```

There is a lot more information available than there is space here to show, including the histogram requested in the code above. (You will have to run the procedure for yourself to see all of the available information.) But, just the basic mean, median, mode, etc., information is very helpful. What I find especially useful is generating descriptive statistics for the entire SAS data set and then generating descriptive statistics on a by group, as shown in the code above. This allows me to analyze a by group against the entire population statistics. For example, I might find that the mean for a by group does not make sense when compared to the mean for the entire population. When generating descriptive statistics for a by group, I
especially like to use the OUTPUT statement to create an output SAS data set of the results which I then export to an Excel workbook. I then have all of the descriptive statistics in a handy to absorb spreadsheet, like the example below.

<table>
<thead>
<tr>
<th></th>
<th>REGION</th>
<th>number of nonmissing values, HRS12</th>
<th>the mean, HRS12</th>
<th>the standard deviation, HRS12</th>
<th>the variance, HRS12</th>
<th>the largest value, HRS12</th>
<th>the smallest value, HRS12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EASTERN</td>
<td>5,015</td>
<td>747.78</td>
<td>47.09</td>
<td>2,217.48</td>
<td>984.00</td>
<td>243.43</td>
</tr>
<tr>
<td>2</td>
<td>NORTHERN</td>
<td>5,369</td>
<td>740.10</td>
<td>52.59</td>
<td>2,766.10</td>
<td>984.00</td>
<td>(72.00)</td>
</tr>
<tr>
<td>3</td>
<td>SOUTHERN</td>
<td>708</td>
<td>725.25</td>
<td>86.61</td>
<td>7,501.09</td>
<td>816.00</td>
<td>24.00</td>
</tr>
<tr>
<td>4</td>
<td>WESTERN</td>
<td>4,977</td>
<td>742.91</td>
<td>62.43</td>
<td>3,897.80</td>
<td>984.00</td>
<td>120.00</td>
</tr>
</tbody>
</table>

While the syntax for all of the available options for the UNIVARIATE procedure can be daunting, here’s a cheat tip: open your SAS data set in SAS Enterprise Guide and use the task for Distribution Analysis...voilá!

Next time we will explore an easy way to use SAS Enterprise Guide to create a data dictionary of our SAS data set.

Thanks for reading.

Curtis Smith, DoD Project Manager
ca.smith86@att.net


Stump the Programmer #75
by Art Carpenter

Expanding Dates in a Temporary Array

We would like to list a series of dates as values in a temporary array. The following ARRAY statement works like expected.

```sas
array a {5} _temporary_
  ('01jan2015'd '02jan2015'd
  '03jan2015'd '04jan2015'd '05jan2015'd);
```

This is a lot of typing. If we knew the actual date values we could use the following shorthand notation for a list of values to form an equivalent array.

```sas
array b {5} _temporary_ (20089:20093);
```

Can we use this same shorthand notation with date constants?

```sas
array c {5} _temporary_ ('01jan2015'd : '05jan2015'd);
```

The answer is NO. Why not and what is a practical coding solution for using date constants as part of a list which is built using the colon operator?
KIRK’S KORNER:
HIGHLIGHTS OF THE SAS® GLOBAL FORUM 2016
CONFERENCE

After returning home from the greatest, and largest, SAS® conference on earth, I want to share a few highlights from the SAS Global Forum (SGF) 2016 Conference, where thousands of like-minded SAS attendees from every corner of the globe took part in the multi-day SAS-fest. For four days, from sun-up to well after sun-down, conference attendees heard about a number of new product introductions, features and solutions, and learned countless tips, tricks, shortcuts, programming techniques, and other content.

The SAS Global Forum (SGF) 2016 Conference took place in the resort city of Las Vegas famed for its incredible energy, 24-hour casinos, unlimited entertainment options, and the SAS Global Forum 2016 Conference. From Monday, April 18th through Thursday, April 21st, 2016, SAS users attended, learned, and networked with like-minded colleagues. Attendees gathered to watch and listen to speakers in the many informative and content-filled sessions, including the opening session, keynotes, presentations, breakout sessions, hundreds of papers, hands-on workshops (HOWs), demonstrations, e-posters, mixers, networking events, and other venues. In fact, sessions were so well attended that not an empty seat could be found.

So, what were the highlights from the SAS Global Forum 2016 conference? I’ve listed a number of clickable links, below, to relive and enjoy the conference experience with informative videos. Using your favorite web browser, access the SGF 2016 Conference highlights by Jennifer L. Waller, PhD, Conference Chair; Jim Goodnight and Oliver Schabenberger introduce SAS Viya; the past year developments interview by Jim Goodnight; an opening video on analytics & the grand challenges; a listing of the conference breakout sessions; the complete list of published conference papers; SGF 2016 conference highlights; and a look at next year’s SAS Global Forum 2017 conference in Lake Buena Vista, Florida.

Enjoy, learn and experience the greatest, and largest, show on earth for SAS users – SAS Global Forum!

Conference Highlights
SAS Viya Announcement & Overview
Demo: Visual Analytics and Visual Statistics on SAS Viya
Jim Goodnight Interview: Past Year’s Biggest Developments
Opening Video: Analytics & The Grand Challenges
Keynote Speakers
Breakout Sessions
Published Papers
2017 Conference Highlights

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Software Intelligence Corporation
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LinkedIn: http://www.linkedin.com/in/KirkPaulLafler
Twitter: @sasNerd
Map to Pfizer La Jolla Campus

**Directions to the Campus Buildings**

*Please refer all Contractors and Visitors that will be visiting CB1-CB6, CB10 or The Pfizer Incubator to the CB2 Visitors Check-in Center.*

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<tr>
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<td>7” x 9”</td>
<td>$225</td>
</tr>
</tbody>
</table>

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