From the President

Happy New Year!

Winter is heavy, but you’re in luck: San Diego’s winter season is short. As a historical winter storm kept a tight grip on much of the east coast, we have the privilege of enjoying warm, nice, and sunny days. It’s time to talk about SANDS business and meetings again. Unlike sand, which doesn’t have a beginning, SANDS began with a 2-day meeting in 1983; you can find more history about SANDS on the SANDS web site (www.sandsug.org). We hope there is no end for SANDS, just like sand.

We had another good meeting last November. About forty people attended the afternoon workshop and evening meeting. In the upcoming February meeting, Steve Beck from InVentiv Health Clinical SRE, LLC will discuss interviewing tips and techniques in the afternoon workshop. Bruce Kayton from SimulStat Inc. will give the featured presentation on how to manage bulk SAS job submissions. The second talk in the evening meeting will be presented by Scott Leslie from Medimpact Healthcare Systems, Inc. He will show you how to import and display data using SAS Enterprise Guide.

It is also election time for SANDS in the first meeting of the year! SANDS has three annually elected positions on the Executive Committee, open to any SANDS member. They are: President, Vice President, and Secretary/Treasurer. If you are interested in running, please email me your name and the position you would like to apply for. At the February meeting, we will take nominations from the floor as well. I look forward to seeing you in the business portion of the meeting to vote!

This year, the SAS Global Forum will be held in Washington, DC, from March 23 to March 26 (http://support.sas.com/events/sasglobalforum/2014/index2.html). PharmaSUG’s 2014 Annual Conference will be held in San Diego from June 1st to June 4th (http://www.pharmasug.org/us/index.html).

There are some changes in the SANDS Executive Committee. Bob Hull will be stepping down as job bank coordinator. Bob has served on the SANDS EC for many years, and we appreciate his excellent work for our local SAS community. Jia Hu from SynteractHCR will be our new job bank coordinator. We have great news! Ren-Yu Tzeng is returning to Pfizer, and she will work with Yiyun to coordinate our meeting locations. Pfizer has generously provided our meeting locations for the past several years. Their sponsorship makes our meetings possible. Let’s take this chance to thank the sponsors, advertisers, and the volunteers, who continuously support our local SAS community.

We welcome your comments and suggestions at any time of the year! Thank you for reading and have a wonderful year!

— Wei Cheng
Workshop:
Interviewing Tips and Techniques
Steve Beck, inVentiv Health Clinical SRE, LLC

Abstract
When was the last time you looked for a job? Last year? 10 years ago? We are not always looking for a job. However, when we find ourselves in a position where we have to get on the job market, it is good to firm up your interviewing skills. The interview is your one time to make a lasting impression. Getting to this stage of the hiring process is a huge accomplishment, so do not go in unprepared. In this workshop, we will discuss best practices for professional level positions.

• How and what to prepare for an interview
• What to bring with you (or not)
• How to answer typical questions (or abstract questions)
• When to talk about salary
• Closing the interview and proper follow-up techniques

Be remembered for your skills and qualifications and get the job you want. Come join the interview techniques workshop.

Biography
Steve Beck is a Senior Account Manager for inVentiv Health Clinical, Strategic Resourcing division. He is a seasoned life cycle staffing professional with 15 years of experience working with all aspects of the Business Development, Recruiting, Client Management, and HR Management. Over the past 12 years, Steve has focused on recruiting in the Pharmaceutical and Biotechnology industry specifically in Biostatistics, SAS Programming, and Clinical Data Management.

Featured Presentation:
Managing Bulk SAS Job Submissions with Post Execution Analysis and Notification
Bruce Kayton, SimulStat Inc.

Abstract
Running all the programs in a study analysis with all their dependencies can be a time-consuming or inefficient process if done individually or sequentially. This utility uses a driving process to define dependencies, enabling programs to run efficiently in quick succession or often simultaneously to best utilize available resources.

Upon the completion of all programs a submission summary is generated with run times and log analyses highlighting any warning or error issues. The submitter is notified via email about job completion with a hyperlink to the log analysis in spreadsheet format containing individual program details and hyperlinks to logs and errors.

Benefits are: hands-off submission, which gives users the ability to focus on other tasks; efficient use of resources allowing programs that are not dependent on each other to be run simultaneously; instant awareness of relevant issues upon job completion that can also be tied in to an automated notification to responsible parties; quick access to program logs and error conditions; summary information gives management a high-level view of the status of an analysis; quantified summary detail to determine time required to consistently run a full analysis; and standardized error and warning evaluation.

Biography
Bruce Kayton is a Senior SAS Programming Consultant for Simulstat Inc., in San Diego. He specializes in the development and maintenance of a library of utility macros encompassing SDTM and ADaM programming and clinical reporting tools. Bruce prides himself in being available as a troubleshooter, giving his full attention to product support and assisting users with finding solutions to challenging technical issues. He has presented four papers at WUSS over the years. The most notable being: “Generating PowerPoint Presentations Using SAS, Microsoft Schemas and XML”, for which he won a Best Paper Presentation award. Bruce has lived and worked as a consultant in South Africa, where he grew up, England and the USA. He first started out as a Cobol programmer and has almost exclusively used SAS since 1992. He has worked as a consultant over the years in a variety of industries such as Life Insurance, Banking, Oil, Pharmaceuticals, Telecoms, Health Insurance and Medical Devices. He has worked for the last six years as a consultant through Simulstat Inc., for Amgen in Thousand Oaks.
Short Talk:
Importing and Displaying Data Using SAS® Enterprise Guide®: Las Vegas Style
Scott Leslie, MedImpact Healthcare Systems, Inc.

Abstract
SAS® Enterprise Guide® allows users to import and display data quicker and easier than ever. The Import Data wizard contains multiple options to transform Excel spreadsheets into clean SAS data sets which can then be displayed as charts, tables, and graphs with the use of several available Task wizards. Topics covered in this paper include navigating Enterprise Guide menus, importing Excel spreadsheets using the Import Data wizard, summarizing data sets with Task wizards, and using the Report Layout tool to create a PDF of your final output. US Census and publicly available real estate data on Las Vegas are used to demonstrate these effective Enterprise Guide features.

Biography
Scott Leslie is a Health Outcomes Researcher for MedImpact Healthcare Systems, Inc., with 12 years of SAS® experience in the pharmacy benefits and medical management field. His SAS skills include Base SAS, SAS/STAT, SQL, Enterprise Guide, and ODS. Scott holds a Masters of Public Health degree in Epidemiology and Biostatistics from Loma Linda University. He is an author of a SAS book chapter and has presented at local, regional, and international SAS user group conferences, as well as various clinical and scientific conferences. He is an executive committee member of Western Users of SAS Software (WUSS) and San Diego SAS Users’ Group (SANDS).

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Stump the Programmer #67
Bad Variable Name Choices

Art Carpenter, CA Occidental Consultants

What happens if we inadvertently use a keyword as a variable name, and then use that variable in a
PROC step that also uses that keyword? This problem was suggested by Howard Schreier on a SAS Forums
thread.

The data set CLASS has a variable named DESCENDING. When that variable is used in a BY statement,
how will the data be sorted?

***** Part 1;
* Keyword DESCENDING – what is the
* order of the data after the SORT?;

data class;
  set sashelp.class;
  descending = age;
run;

proc sort data=class;
  by descending name;
run;

The variable short cuts _NUMERIC_, _CHARACTER_, and _ALL_, along with the temporary variable
names _N_ and _ERROR_, are used as variable names in the data set BADNAMES. The variable shortcuts
are valid keywords in a PROC PRINT’s VAR statement. What variables are printed? Give yourself extra credit
if you can determine the variable order in the output.

***** Part 2;
* Keywords _NUMERIC_ _CHARACTER_ _ALL_;
* What variables are printed and why?;

proc summary data=sashelp.class nway;
  class sex;
  output out=badnames(rename = (_freq_ = _n_ _type_= _error_))
    min(age) = _numeric_
    max(age) = _character_
    mode(age)= _all_;
run;

title BAD Names;
proc print data=badnames;
  var _numeric_ _character_ _char_ _all_
run;
SANDS Membership

Membership in the San Diego SAS Users Group, Inc. (SANDS) provides an opportunity for SAS users to meet and keep updated on SAS issues. Seminars and presentations allow SAS users to gain knowledge with little or no cost. It is also an opportunity for consultants and prospective employees to meet possible employers, and companies to show their SAS-related products and host a meeting. We welcome those interested in giving presentations and writing articles for the newsletter. Presently, there is no charge to attend our meetings or to receive our newsletter; small fees may be asked for some special functions or workshops.

The SANDS membership list is not given out to others and is used only to disseminate SANDS related business, such as newsletters or special announcements. Those wishing to sell their products or services have the opportunity to advertise in the newsletter at reasonable rates.

To become a member, please email the following to Cathy Liu: Name, Title, Organization, Telephone, E-mail, Fax, Address, Work or Home indicator, Computer Platform, SAS version, and SAS related areas of interest.

SANDS Sponsorship

We would like to thank Pfizer for having once again generously provided our meeting room. This month, the SANDS Executive Committee is sponsoring our meeting dinner and activities. It is our sponsors who make it possible for us to hold our meetings free of charge so, at the event, please do let sponsor representatives know how much you appreciate their support. If your company would like to sponsor SANDS activities, please contact the SANDS sponsorship coordinators, Tyler Smith and Vivian Huang.
Tips for Using a Data Warehouse

Curtis Smith, Defense Contract Audit Agency

In our last episode, we explored ways to use macro variables to make our SAS code easier to program and maintain when using our SAS data warehouse. Because of a sudden interest in my SUGI 27 paper on the use of Benford’s Law, this time we will explore a few SAS functions that I mention in that paper.

On page 5 of my Benford’s Law paper, I show the following fundamental code I use to determine the observed distributions of the first digits in a data set numeric variable:

```sas
data work.observed (keep=firstdgt count var index=(firstdgt));
set in.infile.;
  firstdgt=input(substr(scan(put(var,best8.),1),1,1),best8.);
  count=1;
run;
```

In the code above, the user-specified file to analyze (IN.INFILE) is read and a new variable, FIRSTDGT, is created. To create a new numeric variable containing the first digit of the existing numeric variable, we need to get the existing numeric variable into a temporary character string so we can substring the first digit and then store that character first digit into the new numeric variable. So, this new variable is created by using the PUT function to convert the user specified numeric variable (VAR) to a character string. Then the SCAN function with the SUBSTR function gets the first digit from the character string. Finally, the INPUT function stores that first digit to the new numeric variable. (The remainder of this code from my article is not germane to our discussion today.)

So, what are these functions INPUT, SCAN, and PUT? Let’s examine them briefly in the order that we need to use them in this code; that is, PUT, SCAN, and then INPUT.

The PUT function returns a value using a specified format. We use the PUT function to convert a numeric value to a character value. The syntax for the PUT function is:

```
PUT(source, format.)
```

The source identifies the constant, variable, or expression whose value we want to reformat and the source can be character or numeric. Let’s get some background on PUT function from the SAS Institute. (SAS® 9.4 function, 2014)

> *The PUT statement and the PUT function are similar. The PUT function returns a value using a specified format. You must use an assignment statement to store the value in a variable. The PUT statement writes a value to an external destination (either the SAS log or a destination you specify).*

So, parsing the PUT function from our code, we have:

```
put(var,best8.)
```

So, if the value of the VAR variable was 12345, we now have “12345” held as a character string. However, because numeric variables are stored right-justified and because character variables are stored left-justified, the PUT function will pad the left of the converted character string with blanks to fill the length of the converted character string to the length of the format, which in this case is 8. (Thanks to Ron Cody for pointing this out to me.) So, the converted character string from each row of the input data set could have any number of leading blanks, which will make substringing the first digits problematic. So, the SCAN function to the rescue.

The SCAN function returns the nth word from a character string. We use the SCAN function to extract from a character string only the words or string of characters we desire. The syntax for the SCAN function is:
SCAN(string, count<,charlist <,modifiers>>)

A key to using this function is understanding the use of the count. Let’s get some background on SCAN function from the SAS Institute. (SAS® 9.2 language, 2014)

Count is a nonzero numeric constant, variable, or expression that has an integer value that specifies the number of the word in the character string that you want SCAN to select. For example, a value of 1 indicates the first word, a value of 2 indicates the second word, and so on.

So, parsing the SCAN function along with the PUT function from our code, we have:

```
scan(put(var,best8.),1)
```

So, if the value of the VAR variable was 12345, we now have “12345” held as a character string and returned by the SCAN function. The SCAN function solves our leading blanks problem by treating all of them as a single delimiter and then getting the numeral digits that follow. Ron Cody points out that I can accomplish the same result using the COMPRESS function or the LEFT function.

In the case of my Benford’s Law code, I only wanted the first digit of a numeral. So, after converting that numeral to a character string, I use the trusty SUBSTR function to isolate just the first character. So, parsing the SUBSTR function, the SCAN function, along with the PUT function from our code, we have:

```
substr(scan(put(var,best8.),1),1,1)
```

This will result with just the first character (in this case, “1”) being held for us.

The INPUT function returns the value that is produced when SAS converts an expression by using the specified informat. We use INPUT to convert a character value to a numeric value. The syntax for the INPUT function is:

```
INPUT(source, <? | ??> informat.)
```

Let’s get some background on INPUT function from the SAS Institute. (SAS® 9.4 function, 2014a)

The INPUT function enables you to convert the value of source by using a specified informat. The informat determines whether the result is numeric or character. Use INPUT to convert character values to numeric values or other character values. The INPUT function returns the value produced when a SAS expression is converted using a specified informat. You must use an assignment statement to store that value in a variable.

So, taking the entire line of code, the INPUT function takes that single character value “1” and converts it to a numeric value using the BEST8. Informat and stores that numeric value into the new variable FIRSTDGT.

```
firstdgt=input(substr(scan(put(var,best8.),1),1,1),best8.);
```

Simple, wasn’t it?

Thanks for reading. And, thank you, Ron Cody.


Kirk’s Korner
Kirk Paul Lafler, Software Intelligence Corporation

Using SAS ODS Graphics for Quick Results

Novice as well as expert SAS users now can, quickly and easily, use Base-SAS software to create a wide
tility of graph output. SAS ODS Graphics, an extension of the Output Delivery System (ODS), puts in the
hands of users powerful procedures to create high quality graphs ranging from simple scatter plots,
histograms, and bar charts to multi-panel, multi-page, classification graphs.

The appearance and layout of ODS Graphics output is controlled by ODS style and graph templates. This
means that ODS Graphics produces template-based graph output using Graph Template Language (GTL)
syntax. As a result, users have considerable power and control in the creation of sophisticated, and
production-ready, graphs. ODS Graphics supports three statistical graphic procedures for users to use in
creating graph output:

• PROC SGPLOT
• PROC SGSCATTER
• PROC SGPANEL

To demonstrate the capabilities of ODS Graphics, a few examples will be illustrated below. The MOVIES
data used in the production of the following examples, is illustrated in Figure 1 below. Note: Readers can find
additional information about ODS Graphics and its uses in my new ebook, Quick Results with SAS® ODS
Graphics.

<table>
<thead>
<tr>
<th>Title</th>
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<th>Category</th>
<th>Year</th>
<th>Studio</th>
<th>Rating</th>
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<td>Action Adventure</td>
<td>1995</td>
<td>Paramount Pictures</td>
<td>R</td>
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<td>1942</td>
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<tr>
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<td>Paramount Pictures</td>
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<tr>
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<td>Columbia TriStar</td>
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<td>PG-13</td>
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<tr>
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<td>PG</td>
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<tr>
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<td>1999</td>
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<td>G</td>
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<tr>
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<td>154</td>
<td>Drama Romance</td>
<td>1997</td>
<td>Paramount Pictures</td>
<td>PG-13</td>
</tr>
</tbody>
</table>

Figure 1. MOVIES Input Dataset
Barchart with PROC SGPLOT

title 'Vertical Bar Chart';
proc sgplot data=sasuser.movies;
  vbar rating;
run;

SGPLOT Results

Scatter Plot with PROC SGSCATTER

title 'Scatterplot Matrix';
proc sgscatter data=sasuser.movies;
  matrix length year;
run;

SGSCATTER Results
Histogram with PROC SG PANEL

title 'Histogram with Panels Chart';
proc sgpanel data=sasuser.movies;
    panelby category / rows=3 columns=4;
    histogram year / scale=proportion;
run;

SGPANEL Results

Contact Information

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A photo ID is required for visitor check in.

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Proceed on I-5 North for approx. 10 miles.
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Make a right at the second stop light which will be Science Center Drive.
CB2 Visitors Center is located at the end of the cul-de-sac.
Visitor Parking is to the left. Please follow Visitors Signs.
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<th>Dimensions (w x h)</th>
<th>Cost</th>
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<tr>
<td>Full Page</td>
<td>7&quot; x 9&quot;</td>
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</table>

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