

VIEWS

International SAS Programmer Community



News, Hints, Tips and Information for SAS® Users

Issue 33, 1st Quarter 2006

To save publication space, the web browser and Windows framing have been clipped away from the screen images, and most panels are omitted.

A prosperous New Year to all the readers of *VIEWS News*, and I have the latest news of the 2nd PhUSE Conference to be held in Dublin later this year.

In this issue of *VIEWS News* I have also included 3 articles from 2 well-known sources, more graphical tips from LeRoy Bessler and some function tips from the Amadeus Software Consultancy Team. You will also find my regular Formats, Options, and Functions section. I hope you will find them all interesting.

If you would like to contribute an article, or discuss the possibility of doing so, please send an email to me at newsletter@views-uk.org. A list of possible subjects for your articles can be found on the *VIEWS* web site, and anyone is very welcome to add to that list by sending emails with your own questions to newsletter@views-uk.org.

Philip R Holland (Newsletter Editor)

Membership of *VIEWS* is **free** and you can register for notification of all future *VIEWS* events by emailing us at membership@views-uk.org, making certain you include your name and postal address. If you would like to receive email notification whenever a new issue of the free quarterly *VIEWS News* is published on the web site, please remember to also include your email address.

Stop Press!

PhUSE 2006 Conference will be in October!

I would like to apologize to the PhUSE Committee for any confusion caused by my error in the Diary section of *VIEWS News* issue 32. The PhUSE Conference in 2006 will be held in Dublin on 9-11 October, as correctly reported in the PhUSE News section, and not November as was stated in the Diary section.

Philip R Holland (Newsletter Editor)

Did You Know?

If you have a useful hint or tips, please send it to the Editor, and share it with the *VIEWS* membership.

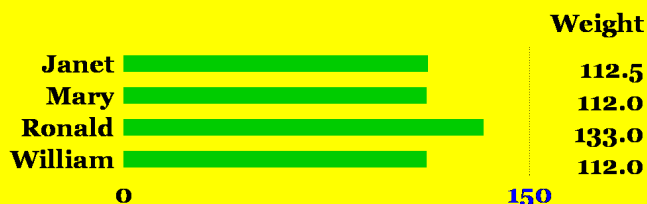
Graphic Communication with Animation

In the 2D world of the screen, time can be handled as a third dimension, by serially presenting two-dimensional graphs using animation. The graphs can be any type: pie chart, bar chart, trend line, scatter plot, map, etc. Below are two (shrunk) panels from an animated graph showing the growth of weight with age.

Weight of Students Who Are Age 13 Maximum Weight of Any Student is 150



Weight of Students Who Are Age 15 Maximum Weight of Any Student is 150



Here is the code used:

Clear out any leftovers from a prior run during the SAS session:

```
PROC CATALOG CAT = work.gseg KILL;  
RUN;  
QUIT;
```

The use of custom XPIXELS and YPIXELS in sizing below requires creation of a modified graph device driver. For more information, see SAS Note SN-005366 at support.sas.com.

```
LIBNAME gdevice0 "c:\Folder";  
PROC GDEVICE NOFS CAT = gdevice0.devices;  
DELETE modanim;  
COPY gifanim FROM = sashelp.devices  
NEWNAME = modanim;  
MODIFY modanim HSIZE = 0 VSIZE = 0;  
RUN;  
QUIT;
```

This code needed only to publish the AnimDemo.GIF file on the web:

```
ODS NORESULTS;  
ODS LISTING CLOSE;
```

```
ODS HTML PATH = "c:\Folder" (URL = NONE)
  FILE = "WeightByAge.html" (TITLE=" . . . ")
  GTITLE GFOOTNOTE
  STYLE = styles.YourFavoriteStyle;

GOPTIONS RESET = ALL DEVICE = GIF XPIXELS = 994
  YPIXELS = 555;
```

Size the image to take maximum advantage of the web browser window size, but avoid any need for scrolling. The pixel counts assume that screen resolution is 1024 x 768, that the web browser is Internet Explorer 6.0, and that no extra toolbars, such as that for Yahoo, are user-enabled.

```
PROC GSLIDE NAME = "AnimDemo";
  TITLE1 'this mandatory static placeholder
    image will never actually display';
RUN;
QUIT;

ODS HTML CLOSE;
ODS LISTING;

PROC SORT DATA = sashelp.class
  OUT = work.ToChart;
  BY Age;
RUN;

PROC MEANS DATA = sashelp.class NOPRINT MAX;
  VAR Weight;
  OUTPUT OUT = FoundMax MAX = MaximumWeight;
RUN;

DATA _NULL_;
  SET FoundMax;
  CALL SYMPUT("MaxWgt",
    TRIM(LEFT(MaximumWeight)));
RUN;

GOPTIONS RESET = ALL DEVICE = modanim
```

Show the sequence of animation panels 3 extra times after the first time:

```
ITERATION = 3
```

Display time for each animation panel in units of 0.01 seconds, but actual time is display-tool-dependent:

```
DELAY = 100
```

See sizing comment above. If not publishing on the web, use XPIXELS=800 YPIXELS=600:

```
XPIXELS = 994 YPIXELS = 555
GSFNAME = animout GSFMODE = REPLACE
CBACK = CXFFFF00 HTEXT = 32 PT
FTEXT = "Georgia/Bold" CTEXT = CX000000;

TITLE1 H = 32 PT F = "Georgia/Bold"
  C = CX000000
  "Weight of Students Who Are Age "
  C = CX9900CC "#BYVAL(Age)" J = C
  C = CX0000FF
  "Maximum Weight of Any Student is &MaxWgt";

PATTERN1 V = SOLID C = CX00CC00;

AXIS1 LABEL = NONE MAJOR = NONE MINOR = NONE
  STYLE = 0 VALUE = (J = R);
```

```
AXIS2 LABEL = NONE MAJOR = NONE MINOR = NONE
  STYLE = 0 ORDER = (0 &MaxWgt)
  VALUE = (TICK = 1 '0' TICK = 2
    C = CX0000FF "&MaxWgt")
  OFFSET = (+3, +7);

OPTIONS NOBYLINE;

FILENAME animout "c:\Folder\AnimDemo.gif";

PROC GCHART DATA = work.ToChart;
  BY Age;
  HBAR Name / SUMVAR = Weight
    SUMLABEL = "Weight" WIDTH = 2
    SPACE = 2 MAXIS = axis1
    RAXIS = axis2 HREF = &MaxWgt
    LREF = 33;

RUN;
QUIT;

FILENAME animout CLEAR;
```

If an animated graph involves annotation that varies from panel to panel, BY processing is not a viable solution. For an animated map that includes annotation of the name and changing population of each of its geographic unit areas, see the ODS paper by Dr. Francesca Pierri and me that was published in the VIEWS 2001 Conference Proceedings.

An animated GIF file can be displayed outside of HTML, e.g. you can insert it as a picture in a Microsoft PowerPoint slide. For that target application, you can use the same code as above except that you:

- (a) must change XPIXELS and YPIXELS to 800 and 600 in order to make best use of the slide display area; and
- (b) may omit the entire block of ODS code.

The third variable that usually classifies the panels in an animated sequence of graphs does not necessarily have to be time or in any way temporal. Animation is an effective tool to avoid viewing problems when presenting three dimensions in two.

LeRoy Bessler, Assurant Health

The Enhanced COMPRESS Function

[SAS 9] The COMPRESS function has been enhanced in SAS 9 by providing an optional 3rd argument, which controls the functions behaviour. The list of modifiers that can be specified in the third argument includes 'K' to 'Keep' whatever you specify in the functions second argument, instead of removing it. The 'U' modifier will act on 'Upper case' letters only and the 'L' modifier on 'Lower case'. 'P' will only act on 'Punctuation' characters found in the text and 'D' will act on 'Digits'. See the examples below:

```
DATA _NULL_;
  text_string =
    "This is a string of text 12345.";

  * Example 1: Keep occurrences of "s" in the
    character string;
  cmp_text_1 = COMPRESS(text_string, "s", "K");

  * Example 2: Remove all digits from the
    character string;
  cmp_text_2 = COMPRESS(text_string, , "D");

  * Example 3: Remove punctuation characters
    from the character string;
  cmp_text_3 = COMPRESS(text_string, , "P");
```

```

* Example 4: Remove upper case characters
from the character string;
cmp_text_4 = COMPRESS(text_string, , "U");

* Example 5: Keep all occurrences of "s",
digits, punctuation and upper case
characters in the character string;
cmp_text_5 =
    COMPRESS(text_string, "s", "KDPU");

PUT cmp_text_1=;
PUT cmp_text_2=;
PUT cmp_text_3=;
PUT cmp_text_4=;
PUT cmp_text_5=;
PUT;

```

The SAS Log will include the following output:

```

cmp_text_1=sss
cmp_text_2=This is a string of text .
cmp_text_3=This is a string of text 12345
cmp_text_4=his is a string of text 12345.
cmp_text_5=Tsss12345.

```

Amadeus Software Consultancy Team

Ask The Consultant

This part of VIEWS News is where you can get your technical questions answered. Send your questions to the Editor.

Using the IFC and IFN Functions

Q: Are there any SAS functions like the IF() function in Excel?

A: [SAS 9] You can use the IFC() and IFN() SAS functions to evaluate an expression and return a value for the condition being true and another for it being false. IFC() returns a character value and IFN() returns a numeric value. Note that when using the IFC() function, you need to specify the length of the character variable, otherwise a default length of 200 is used.

```

DATA work.chkdemog (KEEP = staffno dept age
                    location gt60 grade_err);
    LENGTH staffno $8 dept $2 location $5;
    SET work.demog;
    location = IFC(UPCASE(dept) IN ("A","B","F"),
                  "North", "South");
    gt60 = IFN(age>60, 1, 0);
    grade_err = IFN(UPCASE(grade)="LOW" AND
                  salary>20000, 1, 0);
RUN;

```

Obs	staffno	dept	location	age	gt60	grade_err
1	001	A	North	22	0	0
2	002	B	North	26	0	0
3	003	C	South	28	0	1
4	004	D	South	30	0	0
5	005	E	South	56	0	0
6	006	F	North	52	0	0
7	007	D	South	60	0	0
8	008	D	South	56	0	0
9	009	E	South	46	0	0
10	0010	C	North	65	1	0
.....						

Amadeus Software Consultancy Team

Formats, Options, and Functions

This section is devoted to the description of useful, or unusual, SAS Formats, Options, and Functions.

Surprisingly this format and its related informat have never been featured in this section before! The **PERCENTw.d** format multiplies values by 100, formats them the same as the **BESTw.d** format, and adds a percentage sign (%) to the end of the formatted value. It also encloses negative values in parentheses. The **PERCENTw.d** format allows room for a percentage sign and parentheses, even if the value is not negative. In the same way the **PERCENTw.d** informat converts the numeric portion of the input data to a number using the same method as the **COMMAw.d** informat, and interprets numbers in parentheses as negative values. If a percentage sign (%) follows the number in the input field, **PERCENTw.d** divides the number by 100.

[SAS 9] The **MLOGICNEST** system option allows the macro nesting information to be written to the SAS Log in the **MLOGIC** output. The setting of **MLOGICNEST** does not affect the output of any currently executing macro, and does not imply the setting of **MLOGIC**. You must set both **MLOGIC** and **MLOGICNEST** in order for output (with nesting information) to be written to the SAS Log. The default **NOMLOGICNEST** system option prevents the macro nesting information from being displayed in the **MLOGIC** output in the SAS Log.

[SAS 9] The **CONSTANT()** function returns a variety of different machine and mathematical constants, e.g. 'e', 'pi', the smallest and largest double-precision numbers.

PhUSE News

PhUSE Conference 2006

This year's conference will be held in Dublin, Ireland between the 9-11 October. It will build on the success of PhUSE 2005 and promises to be the European Event of the year for Programmers in the Pharmaceutical Industry.

As part of the build-up, 1 March is a very important day for the PhUSE community as all of the following will happen on this date:

- The PhUSE 2006 newsletter will be published on the website.
- The call for contributions for PhUSE 2006 will be launched.
- Advanced registration for the conference opens with great discounts for early bird bookings.

Other important dates are:

- Abstracts due 31 May.
- Early-bird registration closes 31 July.
- Final papers due 31 August

The paper streams for this year's conference are:

Applications and Software Development papers focus on the use of software in the development of applications, including those utilising SAS/AF, SAS Integration Technologies and SAS/IntrNet. Presentations in this section cover the application's code and development process - development, implementation and integration in the company's environment and processes. Papers can include any "lessons learned" or "suggestions for future development".

The **Coder's Corner** section is dedicated to brief presentations of real-life code, programming tips, efficiency techniques, undocumented features, useful algorithms and macros and other creative uses of software.

Coding Solutions papers concentrate on the innovative coding solutions using SAS Base (including ODS, macros, etc.) and Graph that enable us to problem solve, analyse and present data systems. These papers are not limited to any particular area but can cover a wide range of coding solutions.

The **Data Management** stream is dedicated to the many aspects of data manipulation and database management done by programmers in the pharmaceutical industry, e.g. extracting raw data from various sources, data validation, data transformation and the interfaces to clinical data management systems.

Presentations in the **Professional Development and Management** session covers training and certification, hiring and managing programmers as well as career development, presentation skills, project management and technical support.

Posters cover a wide variety of SAS-related topics in a poster board form rather than a formal lecture. Posters are ideal for presentations that include graphics, source code, statistical concepts or thought-provoking concepts that invite conference participants to review at their own pace. Posters are on display throughout the conference and authors are available for questions during a designated time.

Regulatory Affairs - This stream focuses on all aspects of interactions between statisticians/programmers and health authorities (not just the FDA). Topics covered may include, but are not limited to: CDISC, electronic submissions, validation of programs, inspections and audits, regulations: 21 CFR part 11, GCP, ICH, etc...

SAS@ Starters - An opportunity for either new programmers to share their thoughts about SAS and gain experience presenting at conferences or more experienced to present papers that would be of interest to programmers with 3 years or less experience. The focus of the stream is to provide new programmers a warm welcome to the industry and to ask questions in a more informal atmosphere.

The **Statistics and Pharmacokinetics** section is designed to allow users to share how they have used any statistical or computing package to resolve statistical issues within the clinical trial field.

Technical Solutions papers concentrate on the innovative coding solutions that enable us to problem solve, analyse and present data and develop systems. These papers are not limited to any particular area but can cover a wide range of coding solutions.

In the **Tutorials** section experienced users will provide in-depth explanations of a wide range of topics. All presentations are denoted as Beginner, Intermediate and Advanced for users at all levels of expertise.

May we take this opportunity to mention that, following a good early take-up, we have a limited number of sponsorship and exhibitor slots left for this year's conference. To take up either of these offers, please email John Hirst, john.hirst@covance.com, so that we can try to accommodate your needs. More details are available on the PhUSE web site, www.phuse.info.

PhUSE Committee

In Brief

- Back issues of *VIEWS News* are available from the *VIEWS* web site.
- Phil Mason now has a SAS tips newsletter, which can be requested by going to www.woodstreet.org.uk and then clicking on Tips. Previous tips can also be found on the web site.
- More SAS hints and tips can be found on the SAS FAQ pages at www.hollandnumerics.com/sasfaq.

Diary

Are you organising an event that would be of interest to the VIEWS readership? Let us know as we are interested in all non-profit making events related to SAS.

March 2006

21 **Tricks of the Trade**, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

26-29 **SUGI**, San Francisco, USA

The SAS User Group International (SUGI) Conference is held each year and focuses on the technical aspects of SAS software.

April 2006

5 **Changes and Enhancements in SAS9 for the Applied Statistician**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

20 **Tricks of the Trade**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

May 2006

16-18 **SAS Forum International**, Geneva, Switzerland

The SAS Forum International is held each year and focuses on the more commercial aspects of SAS software.

23 **Changes and Enhancements in SAS9 for the Applied Statistician**, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

June 2006

1 **Changes and Enhancements in SAS9**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

July 2006

11 **Tricks of the Trade**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

27 **Changes and Enhancements in SAS9**, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

August 2006

10 **Tricks of the Trade**, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

September 2006

14 Changes and Enhancements in SAS9 for the Applied Statistician, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

October 2006

9-11 PhUSE, Dublin

The Pharmaceutical Users Software Exchange (PhUSE) conference is the premier programming event for the pharmaceutical industry in Europe.

19 Tricks of the Trade, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

November 2006

21 Changes and Enhancements in SAS9 for the Applied Statistician, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

28 Changes and Enhancements in SAS9, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

December 2006

5 Changes and Enhancements in SAS9, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

All VIEWS event information will be posted and/or emailed to registered members of VIEWS, and will include an event application form. Please send your queries about any VIEWS events to event@views-uk.org, and don't forget to look at the web site for the latest news.

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