

PROC it Like a Pro: Data Storytelling and Dashboards with SAS

Santhoshkumar Selvam| santhoshkumar.selvam@pfizer.com

Pfizer Healthcare India Private Ltd., Chennai

Abstract

Effective data storytelling translates analytics into actionable insights. SAS offers powerful PROC procedures—like GSLIDE, GCHART, TEMPLATE and GREPLAY—that support the creation of dynamic dashboards. These tools help visualize trends and metrics with clarity and impact. By integrating the Output Delivery System (ODS) and macro programming, users can automate and customize dashboards efficiently. While platforms like Python, R, and Power BI are popular for dashboarding, SAS delivers an end-to-end solution—eliminating the need for external tools. This unification enhances efficiency and streamlines development. Our presentation highlights how SAS empowers users to tell compelling data stories from start to finish. A well-structured dashboard with intuitive navigation and relevant metrics improves data interpretation and decision-making. Leveraging SAS ensures visual consistency, accessibility, and actionable insights, making it ideal for both business and research environments.

Introduction:

In today's data-driven world, dashboards are essential for turning raw analytics into actionable insights. My focus will be on how SAS can be used to create these dashboards. A well-designed dashboard helps decision-makers understand trends and take informed actions quickly. Below, I will explain in detail how to use the SAS procedures to achieve this dashboard creation.

Methods

Step	Description
Data Preparation	Clean and structure data for visualization
Visualization	Create charts using PROC GCHART, customize layout with PROC TEMPLATE, and add slides via PROC GSLIDE
ODS Integration	Format and style output for multiple destinations
Macro Automation	Automate repetitive tasks and enable dynamic updates
Dashboard Assembly	Combine panels into a unified dashboard using PROC GREPLAY

PROC GSLIDE — Create header/blank slide

- Used to create presentation-style slides with text, titles, and decorative graphics.
- Ideal for adding summaries, cover pages, or annotations in SAS/GRAPH reports.
- Supports custom fonts, colors, and positioning for professional layouts.

Example syntax:

```
goptions device=png;goptions cback=white;
goptions noborder;goptions xpixels=200 ypixels=200;
title h=50pct c=red font='albany amt' "X";
proc gslide
des=" name="blank";run;
```

PROC GMAP — Choropleth map

- Generates geographic maps with data-driven shading or patterns (choropleth maps).
- Useful for visualizing regional trends, such as sales by state or adverse events by country.
- Supports map projections, legends, and drill-down features for interactive reporting.

Requirements: MAP dataset with ID variables; response variable in DATA.

Example syntax:

```
proc gmap data=work.data map=mapsgfk.region all;
id id1;
choro response / levels=6 legend=legend1 coutline=black name='map';
run;
```

PROC GCHART

- Creates bar charts, pie charts, and other categorical plots from SAS datasets.
- Commonly used for frequency distributions, comparative metrics, and trend visualization.
- Offers customization of axes, colors, and patterns for clear data presentation

Horizontal bars

Prepare data with a SUMVAR and (optionally) subgroup for color.

Syntax:

```
proc gchart data=work.bar_data anno=anno_values;
hbar category / type=sum sumvar=value discrete nostats subgroup=barcolor
nolegend maxis=axis1 raxis=axis2 coutline=same name="bars";
run;
```

Pie charts

```
proc gchart data=work.pie_data;
pie category / type=sum sumvar=percent noheader angle=90 coutline=same
name="pie1";
run;
```

PROC GREPLAY — Template & assembly

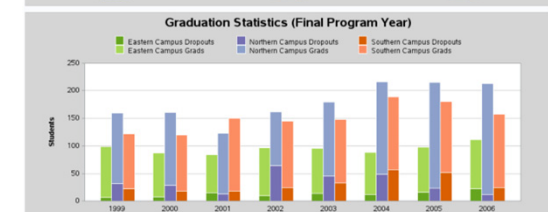
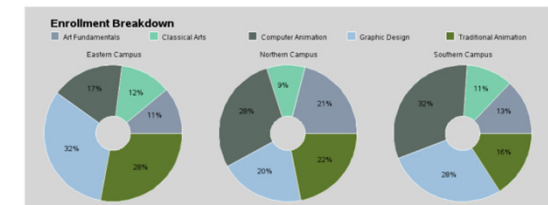
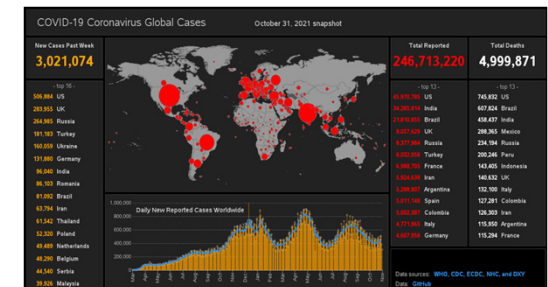
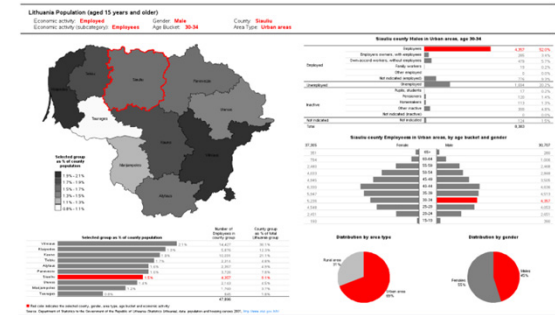
- Replays and arranges previously generated graphics into templates for multi-panel layouts.
- Ideal for combining multiple charts/maps into dashboards or summary pages.
- Supports custom templates and dynamic arrangement for polished presentations.

Define a multi-pane layout with TDEF (coordinates 0–100), then replay graphics.

```
proc greplay nofs igout=work.gseg tc=tempcat;
tdef dash des='dashboard'
template dash;
treplay 0:main 1:map 2:bars 3:pie1;
run; quit;
```

End-to-end flow:

1) Build data → 2) Set GOPTIONS → 3) GSLIDE header → 4) GMAP → 5) GCHART (bars/pies) 6) Define GREPLAY TDEF → 7) TREPLAY into panes → 8) ODS HTML/PNG output. Example Dashboard showed in right side. Please find the example →.



Reference:

- Carpenter, Arthur L. and Charles E. Shipp. Quick Results with SAS/GRAPH Software. Cary, NC: SAS Institute Inc., 1995.
- Jacobs, Marc. "An Introduction to PROC GREPLAY". Proceedings of the Eighteenth Annual SAS® Users Group International Conference. Cary, NC: SAS Institute Inc., 1993, pp. 1366-1372.

Conclusion:

SAS provides an end-to-end dashboarding solution ensuring visual consistency, accessibility, and actionable insights.