Practice

If you restarted your SAS session, open and submit the **libname.sas** program in the course files.

Level 1

1. Creating Custom Formats Based on Single Values

The **pg2.np_summary** table contains public use statistics from the National Park Service. The values of the **Reg** column represent park region as a code. Create a format that, when applied, displays full descriptive values for the regions with high frequency.

a. Open **p204p01.sas** from the **practices** folder. Highlight the PROC FREQ step and run the selected code. Review the output. Notice that regional codes are used, not descriptive values.

The FREQ Procedure

Region				
Reg	Frequency	Percent	Cumulative Frequency	Cumulative Percent
IM	52	38.52	52	38.52
PW	23	17.04	75	55.56
SE	22	16.30	97	71.85
MW	18	13.33	115	85.19
NE	13	9.63	128	94.81
A	6	4.44	134	99.26
NC	1	0.74	135	100.00

b. Add a VALUE statement to the PROC FORMAT step to create a format named $HIGHREG that defines the descriptive values shown below.

Code	Value
IM	*Intermountain*
PW	*Pacific West*
SE	*Southeast*
other codes	*All Other Regions*

c. Add a FORMAT statement to the PROC FREQ step so that the $HIGHREG format is applied to the **Reg** column.

d. Run the program and review the output. Verify that the descriptive values for the **Reg** column are displayed.

High Frequency Regions

The FREQ Procedure

Region				
Reg	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Intermountain	52	38.52	52	38.52
All Other Regions	38	28.15	90	66.67
Pacific West	23	17.04	113	83.70
Southeast	22	16.30	135	100.00

Level 2

2. Creating Custom Formats Based on a Range of Values

The **pg2.np_acres** table contains acreage amounts for national parks. Create a format that, when applied, groups acreage amounts into identified categories.

a. Open **p204p02.sas** from the **practices** folder. Before the DATA step, add a PROC FORMAT step to create a format named PSIZE that categorizes parks based on the gross acres. Use the ranges and values as identified below.

Range	Value
Less than 10,000 acres	*Small*
10,000 through less than 500,000 acres	*Average*
500,000 and more acres	*Large*

b. In the DATA step, add an assignment statement to create a new column named **ParkSize**. Use the PUT function to create the new column based on the formatted values of **GrossAcres**.

c. Run the program and view the output table. Verify the values of the **ParkSize** column.

	Region	ParkCode	ParkName	State	GrossAcres	ParkSize
1	Southeast	ABLI	A LINCOLN BI...	KY	345	Small
2	Northeast	ACAD	ACADIA NP	ME	49,057	Average
3	Northeast	ADAM	ADAMS NHP	MA	24	Small
4	Northeast	AFBG	AFRICAN BURI...	NY	0	Small
5	Midwest	AGFO	AGATE FOSSI...	NE	3,058	Small
6	Alaska		ALAGNAK WIL...	AK	30,665	Average
7	Intermountain	ALFL	ALIBATES FLI...	TX	1,371	Small

Challenge

3. Creating Custom Formats Based on Nesting Formats

The **pg2.np_weather** table contains weather-related statistics for four national park locations. Create a format that, when applied, groups dates into identified categories.

a. Access the *Base SAS® 9.4 Procedures Guide*. Find the PROC FORMAT section and the VALUE statement page. Scroll to the bottom of the page to look at examples where existing SAS formats are used for labels in a custom format.

b. Open **p204p03.sas** from the **practices** folder.

c. Add a PROC FORMAT step to create a format named DECADE that categorizes dates as identified below.

- Dates from January 1, 2000 – December 31, 2009 are displayed with the value *2000-2009*.
- Dates from January 1, 2010 – December 31, 2017 are displayed with the value *2010-2017*.
- Dates from January 1, 2018 – March 31, 2018 are displayed with the value *1st Quarter 2018*.
- Dates from April 1, 2018, and beyond display the actual date value using the MMDDYY10. format.

d. Modify the PROC MEANS step so that the DECADE format is applied to the **Date** column.

e. Run the program and review the output. Verify that the descriptive values for the **Date** column are displayed.

Precipitation and Snowfall
Note: Amounts shown in inches

The MEANS Procedure

Date	Name	Variable	Label	Sum	Mean
2000-2009	Black Canyon Of The Gunnison, CO	PRCP SNOW	Precipitation Snow	135.52 723.30	0.19 1.04
	Moose, WY	PRCP SNOW	Precipitation Snow	192.56 1487.80	0.16 1.24
	Panther Junction, TX	PRCP SNOW	Precipitation Snow	133.27 0.30	0.25 0.00
	Port Alsworth, AK	PRCP SNOW	Precipitation Snow	180.49 890.20	0.18 0.89
2010-2017	Black Canyon Of The Gunnison, CO	PRCP SNOW	Precipitation Snow	161.37 946.50	0.19 1.36
	Moose, WY	PRCP SNOW	Precipitation Snow	185.11 0.00	0.16 0.00
04/24/2018	Moose, WY	PRCP SNOW	Precipitation Snow	0.04 0.00	0.04 0.00
04/30/2018	Panther Junction, TX	PRCP SNOW	Precipitation Snow	0.19 0.00	0.19 0.00

End of Practices