Practice

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

Level 1

1. Using the LARGEST and ROUND Functions

The **pg2.np_lodging** table contains statistics for lodging from 2010 through 2017. Each column name starts with **CL** followed by the year. (For example, **CL2010** contains the number of nights stayed in 2010 for that park.)

a. Open the **p203p01.sas** program from the **practices** folder. Highlight the PROC PRINT step and run the selected code. Examine the column names and the 10 rows printed from the **np_lodging** table.

b. Use the LARGEST function to create three new columns (**Stay1**, **Stay2**, and **Stay3**) whose values are the first, second, and third highest number of nights stayed from 2010 through 2017.

Note: Use column list abbreviations to avoid typing each column name.

c. Use the MEAN function to create a column named **StayAvg** that is the average number of nights stayed for the years 2010 through 2017. Use the ROUND function to round values to the nearest integer.

d. Add a subsetting IF statement to output only rows with **StayAvg** greater than zero. Highlight the DATA step and run the selected code.

	Park	Stay1	Stay2	Stay3	StayAvg
1	Badlands NP	9,875	9,646	9,474	8,047
2	Big Bend NP	50,747	48,280	47,378	45,274
3	Big South Fork NRRA	5,207	3,703	3,079	2,782
4	Blue Ridge PKWY	53,688	50,257	49,906	45,290
5	Bryce Canyon NP	56,844	54,525	53,792	52,068
6	Buffalo NR	3,614	3,150	2,782	2,406
7	Canyon de Chelly NM	27,363	25,146	23,259	18,289

Level 2

2. Working with Date/Time Values

The **pg2.np_hourlyrain** table contains hourly rain amounts for the Panther Junction, TX, station located in Big Bend National Park. The **DateTime** column contains date/time values.

a. Open the **p203p02.sas** program from the **practices** folder. Run the program and notice that each row includes a datetime value and rain amount. The **MonthlyRainTotal** column represents a cumulative total of **Rain** for each value of **Month**.

b. Uncommment the subsetting IF statement to continue processing a row only if it is the last row within each month. After the subsetting IF statement, create the following new columns:

1) **Date** – the date portion of the **DateTime** column

2) **MonthEnd** – the last day of the month

c. Format **Date** and **MonthEnd** as a date value and keep only the **StationName**, **MonthlyRainTotal**, **Date**, and **MonthEnd** columns.

	StationName	MonthlyRainTotal	Date	MonthEnd
1	PANTHER JUNCTION TX	0.3	24JAN2017	31JAN2017
2	PANTHER JUNCTION TX	0	01FEB2017	28FEB2017
3	PANTHER JUNCTION TX	0	01MAR2017	31MAR2017
4	PANTHER JUNCTION TX	0	16APR2017	30APR2017
5	PANTHER JUNCTION TX	2	27MAY2017	31MAY2017
6	PANTHER JUNCTION TX	1.2	20JUN2017	30JUN2017

Challenge

3. Creating Projected Date Values

The **pg2.np_weather** table contains weather-related statistics for locations in four national parks. Determine the number of weeks between the first and last snowfall in each park for the 2015-2016 winter season.

a. Open the **p203p03.sas** program from the **practices** folder. The program contains a PROC SORT step that creates the **winter2015_2016** table. This table contains rows with dates with some snowfall between October 1, 2015, and June 1, 2016, sorted by **Code** and **Date**. Only the **Name**, **Code**, **Date**, and **Snow** columns are kept.

b. Modify the DATA step to create the **snowforecast** table based on the following specifications:

1) Process the data in groups by **Code**.

2) For the first row within each **Code** group, create a new column named **FirstSnow** that is the date of the first snowfall for that code.

3) For the last row within each **Code** group, do the following:

   a) Create a new column named **LastSnow** that is the date of the first snowfall for that code.

   b) Create a new column named **WinterLengthWeeks** that counts the number of full weeks between the **FirstSnow** and **LastSnow** dates.

   c) Create a new column named **ProjectedFirstSnow** that is the same day of the first snowfall for the next year.

   d) Output the row to the new table.

   Note: Be sure to retain the values of **FirstSnow** in the PDV so that they will be included with the rows that are in the output table.

4) Apply the DATE7. format to the **FirstSnow**, **LastSnow**, and **ProjectedFirstSnow** columns and drop the **Date** and **Snow** columns.

	Name	Code	FirstSnow	LastSnow	WinterLength Weeks	ProjectedFirst Snow
1	Panther Junction, TX	BIBE	28DEC15	28DEC15	0	28DEC16
2	Black Canyon Of The Gunnison, CO	BLCA	23OCT15	09MAY16	28	23OCT16
3	Moose, WY	GRTE	29OCT15	31MAR16	22	29OCT16
4	Port Alsworth, AK	LACL	29OCT15	08MAR16	18	29OCT16

End of Practices