## Creating Two-Way Frequency Reports

The **pg1.np_codelookup** table is primarily used to look up a park name or park code. However, the table also includes columns for the park type and park region. Use this table to analyze the frequency of park types by the various regions.

1. Create a new program. Write a PROC FREQ step to analyze rows from **pg1.np_codelookup**.

    - Generate a two-way frequency table for **Type** by **Region**.
    - Exclude any park type that contains the word *Other*.
    - The levels with the most rows should come first in the order.
    - Suppress the display of column percentages.
    - Use **Park Types by Region** as the report title.
    - Submit the program and review the results.

```
title1 'Park Types by Region';
proc freq data=pg1.np_codelookup order=freq;
    tables Type*Region / nocol;
    where Type not like '%Other%';
run;
```

2. What are the top three park types based on total frequency count?

    **Note**: Statistics labels appear in the main table in Enterprise Guide if SAS Report is the output format.

    **National Historic Site**, **National Monument**, and **National Park**

3. Modify the PROC FREQ step to make the following changes:

    - Limit the park types to the three that were determined in the previous step.
    - In addition to suppressing the display of column percentages, use the CROSSLIST option to display the table.
    - Add a frequency plot that groups the bars by the row variable, displays row percentages, and has a horizontal orientation.
      **Note**: Use SAS documentation to learn how the GROUPBY=, SCALE=, and ORIENT= options can be used to control the appearance of the plot.
    - Use **Selected Park Types by Region** as the report title.
    - Submit the program and review the results.

```
title1 'Selected Park Types by Region';
ods graphics on;
proc freq data=pg1.np_codelookup order=freq;
    tables Type*Region /  nocol crosslist
           plots=freqplot(groupby=row scale=grouppercent orient=horizontal);
    where Type in ('National Historic Site', 'National Monument', 'National Park');
run;
title;
```

4. Which **Region** has the highest Row Percent value?

    The *Intermountain* region has the highest, with a value of 49.28%.