Class Exercise 5

This exercise is based upon Chapter 5 of the SAS Certification Prep Guide. This exercise will focus on some of the basic principles of Chapter 5.

We will begin with the same steps we used in the Chapter 4 exercise. Import the Bacterial data set from Excel into WORK.wq, disaggregate it by type of bacteria (E. Coli, Fecal Coliform, or Enterococci) and save each table separately, and then stack them into WORK.wqtrans. We will use both wq and wqtrans.

proc sql;

create table ecoli as

select station, collection\_date, EColi from wq;

quit;

proc sql;

create table fcoli as

select station, collection\_date, fecalcoli from wq;

quit;

proc sql;

create table enteroco as

select station, collection\_date, enterococci from wq;

quit;

proc sql;

create table wqtrans as select station label='Station', collection\_date label='Collection Date' format=mmddyy8., 'EColi' label='Bacteria' as Bacteria, Ecoli label='Count per 100 ml' as count from ecoli

union select station,collection\_date, 'Fecal Coliform', fecalcoli from fcoli

union select station,collection\_date, 'Enterococci', enterococci from enteroco;

quit;

First create a new table of water quality data for 2010 (wq includes measurements from 2009).

proc sql;

create table wqtrans10 like wqtrans;

quit;

Use the DESCRIBE statement to ensure that the columns were set up properly in wqtrans10. When creating wqtrans10, what would be some common-sense constraints to impose on the columns?

Update wqtrans10 with the following 6 records. The first 3 records should be entered using SET, while the last three should be entered using VALUES.

Station Date Bacteria Count

B-280 1/4/10 EColi 1170

B-280 1/4/10 Fecal Coliform 1380

B-280 1/4/10 Enterococci 370

C-001 1/4/10 EColi 61.5

C-001 1/4/10 Fecal Coliform 70

C-001 1/4/10 Enterococci 96.3

Return to wqtrans. Suppose we wanted to add columns to wqtrans and then operate on them. The columns would include different thresholds for different types of bacteria, as well as information on violations. We can use the ALTER command to set up the columns.

proc sql;

alter table wqtrans

add Violation char(1), Threshold num;

quit;

We have not yet used CASE to fill an empty column. Run the code below to enter threshold values for each of the three types of bacteria.

proc sql;

update wqtrans

set threshold=case Bacteria

when 'EColi' then 400

when 'Fecal Coliform' then 200

else 40

end;

*Graduate students should assign Y or N to Violation, based on whether Bacteria readings are greater than their listed Threshold—this can be done using the CASE command.*

Suppose SCDHEC is considering changing the E Coli standard from 400 to 354. Rerun UPDATE in wqtrans to account for this change. Verify that the change was executed properly.