Creating New Columns

In addition to selecting columns that are stored in a table, you can create new columns that exist for the duration of the query. These columns can contain text or calculations. PROC SQL writes the columns that you create as if they were columns from the table.

Adding Text to Output

You can add text to the output by including a string expression, or literal expression, in a query. The following query includes two strings "Math Score 1 for", "is“ as additional columns in the output:

```
proc sql;
select "Math Score 1 for", Name, "is", Score1
      from score_data;
```

To prevent the column headings ‘Name’ and ‘Score1’ from printing, you can assign a label that starts with a special character to each of the columns.

PROC SQL does not output the column name when a label is assigned, and it does not output labels that begin with special characters. For example, you could use the following query to suppress the column names: Name, Score1.

```
proc sql;
select “Math Score 1 for”, Name label='#', “is”, Score1 label='#'
      from score_data;
```

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Calculating Values and Assigning a Column Alias

You can perform calculations with values that you retrieve from numeric columns.

By specifying a column alias, you can assign a new name to any column within a PROC SQL query. The new name must follow the rules for SAS names. The name persists only for that query.

The following example calculate score means/averages, and assign new names (which are in Red) to the columns containing the resulted means:

```
Proc sql;
select *,
   mean(score1) as score1_ave format 4.1 ,
   mean(score2) as score2_ave format 4.1 ,
   mean(score3) as score3_ave format 4.1
from score_data;
```

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Referring to a Calculated Column by Alias

When you use a column alias to refer to a calculated value, you must use the CALCULATED keyword with the alias to inform PROC SQL that the value is calculated within the query. The following example uses two calculated values, score1_ave and score2_ave, to calculate a third value, Diff12:

```
Proc sql;
select *,
  mean(score1) as score1_ave format 4.1 ,
  mean(score2) as score2_ave format 4.1 ,
  mean(score3) as score3_ave format 4.1 ,
(Calculated score1_ave - Calculated score2_ave)
                 as Diff12 format=4.1

from score_data;
```

Note: You can use an alias to refer to a calculated column in a SELECT clause, a WHERE clause, or ORDER BY clause.

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