

Transposing Values  
Within Groups

by Season, Basin, Name

Each unique combination  
of BY values creates  
one row in the output  
table.

The VAR statement  
lists the column or  
columns to be transposed

The output table  
will include a separate  
column for each value of  
the ID column.

There can be only one  
ID column. The ID column  
values must be unique in  
the column or BY group.

PREFIX = option provides  
a prefix for each value  
of the ID column in  
the output table

The NAME = option

names the column that identifies the source column containing the compared values -

```
proc means data = myclass;
```

```
var age height cm;
```

```
run;
```

Global Statements

Title

Options

Libname

} don't need a run

title; footnote; <sup>turn off procedure title</sup>  
ods noproctitle; <sup>turn off procedure title</sup>  
proc means data = mycars.

```
mean min max nander=1;  
where Type = "Wagon";
```

```
var argmp;
```

```
label col-name = "label-text";
```

```
class type;
```

```
run;
```

Adding  
Temporary  
labels to  
Columns

By default, PROC  
MEANS generates  
simple summary  
statistics for each  
numeric column in  
the input data.

CLASS col-name;  
WAYS n;

use to specify the numeric  
columns to analyze

PROC MEANS calculates  
default statistics → frequency count (N)  
mean, standard deviation, minimum &  
maximum → for each of the columns  
listed in the VAR statement.

PROC FREQ DATA = input <sup>classmate</sup> table;

TABLES colname(s);

RUN;

we to specify the frequency tables to include in the results.

By default, PROC FREQ creates a frequency table for each column in the input table.

/\* examine extreme values in univariate

OUTPUT

out = output-table

< statistic = col-name >;

output out = heat\_stats

mean =  $\sqrt{\text{Avg Weight}}$ ;

Double quotation marks must be used around macro variables

Formats are an easy way to group data in procedures

# Segmenting Reports

ORDER = FREQ. do sort results by descending frequency

PROC SQL : PROC FedSQL.  
create table work.myclas query consists of clauses.

QUIT

There must be at least a SELECT clause & a FROM clause in the query.

PROC SQL creates a report by default. Adding CREATE TABLE at the beginning of the query turns a report into a table.

# Combining Tables with SQL

DATA step

★ provides more control of reading, writing & manipulating data.

★ can create multiple tables in one step.

⇒ includes looping & array processing.

on upcase (s. basin)  
= b. basin



## Applying Temporary Label to Columns.

proc print data=\_\_\_\_\_

label;

split="\*"

label.

=

sum,

## PROC UNIVARIATE

also generates summary statistics for each numeric column in the data by default, but it includes more detailed statistics related to distribution & extreme value. The WHERE statement can be used in

PROC PRINT

PROC MEANS

FREQ

UNIVARIATE

A SAS macro variable stores text that is substituted in your code when it runs. It's like an automatic find-and-replace.

```
ods rtf file = 'c:\shoes.rtf';
proc print data = sashelp.shoes;
run;
ods rtf close
```

In order to send the PROC PRINT results to an RTF file, you must use the ODS statement that specifies the destination & the FILE = option to specify the name of the file in ( ).

The PROC SORT step overwrites the original data set by default, sorts the data in ascending order by variables

```
proc sort data = sashelp.cars;
  by descending Make;
run;
```

```
libname exlib xlsx "c:\class.xlsx";
```

```
proc export data = mydata.storms
  outfile = "storms.csv"
  dbms = csv;
```

```
run;
```

```
proc format;
  value MULT 1,3,5 = 'odd'
           2,4,6 = 'even';
```

```
run
```

```
proc sort data = SASUSER.PROJECTS out=PSORT,
  by Product Code descending Date Init,
run;
```

OUT = option specifies the name of the sorted data set

proc means data = sashelp.basketball;

class position;  
var nRuns nRBI;

run;

Subsetting IF statements can only appear in DATA steps,

In SAS, WHERE statements can be used in both DATA & PROC steps

where position in ('1B' '2B' '3B');

where position = '1B' or  
position = '2B' or  
position = '3B';

format Date date9. Amount comma8.;

The TITLE statement is a global statement.

The ORDER = FREQ option must be specified in the PROC FREQ statement itself in order to create a report by descending frequency.

proc freq data = sashelp.cars order = freq;  
tables type;  
run;

proc freq data = sashelp.shoes;  
tables product nopercnt;  
run;

NOPERCENT suppresses the percent & cumulative percent statistics.

## The TABLES statement

specifies the variables that are analyzed in the FREQ procedure. By default, a PROC FREQ step without a TABLES statement creates a frequency table for each character & numeric variable in the input data set.

N	Mean	Std Dev	Minimum	Maximum

### MAXDEC =

By default, PROC PRINT displays all variables and observations from a dataset. It does not display labels.   
 it does display row numbers

## The NOOBS option

the display of the observation numbers in the PROC PRINT report.

DATA step permanently adds labels & formats to a data set

The DATA step creates data & any attributes assigned by the LABEL & FORMAT statements in the DATA step are permanently stored with the data set.

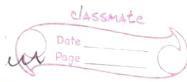
144-164

## PROC CONTENTS

creates a report of the descriptor portion of a SAS data set



The first action



The execution phase of the DATA step is initializing the PDV, then the observations are read into the PDV, calculations in the program are executed, & finally the observations in the PDV is written to the output data set.

The CONTAINS operator tests whether a string is part of the variable's values.

where Text contains 'error'

> Character & numeric variables can be created.

> The value of a variable can be updated.

SAS sets the results of calculation to missing if missing value is used in an arithmetic expression.

The CATX function requires the delimiter to be specified first, followed by the variables you wish to concatenate.

Not a compile-time-only statement

The KEEP statement controls which columns are in the output table.