```
*SAS SCATTER PLOT;
/*
A scatterplot is a type of graph which uses values from two variables plotted
in a Cartesian plane. It is usually used to find out the relationship between
two variables.
In SAS we use PROC SGSCATTER to create scatterplots.

Syntax;
    PROC sgscatter  DATA = DATASET;
       PLOT VARIABLE_1 * VARIABLE_2
       / datalabel = VARIABLE group = VARIABLE;
    RUN;
*/

PROC SQL;
create table CARS1 as
SELECT make, model, type, invoice, horsepower, length, weight
FROM
SASHELP.CARS
WHERE make in ('Audi','BMW')
;
RUN;

TITLE 'Scatterplot - Two Variables';
PROC sgscatter  DATA = CARS1;
   PLOT horsepower*Invoice
   / datalabel = make group = type grid;
   title 'Horsepower vs. Invoice for car makers by types';
RUN;


*Scatterplot with Prediction;
/*
we can use an estimation parameter to predict the strength of
correlation between by drawing an ellipse around the values.
*/

proc sgscatter data = cars1;
compare y = Invoice  x = (horsepower length)
         / group = type  ellipse =(alpha = 0.05 type = predicted);
title
'Average Invoice vs. horsepower for cars by length';
title2
'-- with 95% prediction ellipse --'
;
format
Invoice dollar6.0;
run;

*Scatter Matrix;
/*
We can also have a scatterplot involving more than two variables by grouping
them into pairs.
In the example below we consider three variables and draw a scatter plot matrix.
*/

PROC sgscatter  DATA = CARS1;
   matrix horsepower invoice length
   / group = type;

   title 'Horsepower vs. Invoice vs. Length for car makers by types';
RUN;
```