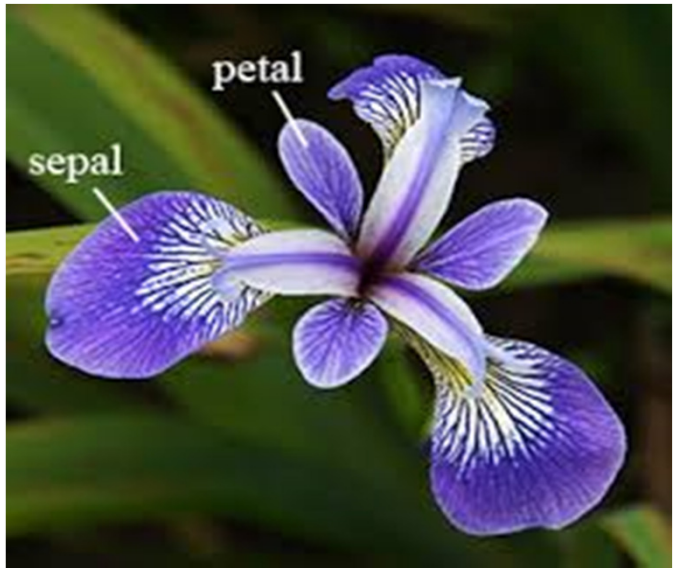
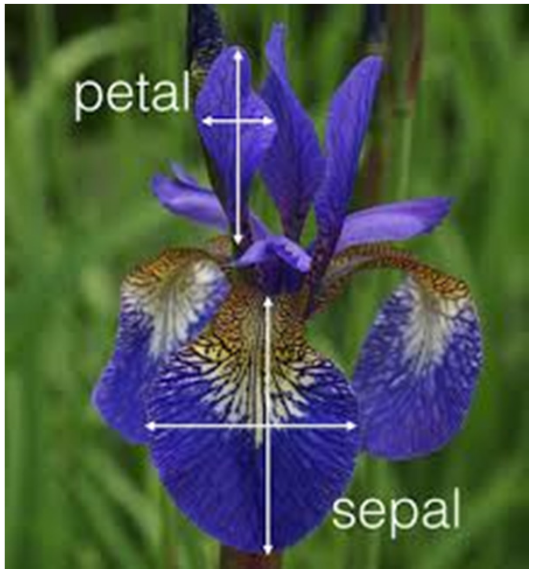
Example of multivariate data: Iris flower data set

I. Setosa

I. Virginica

I. Versicolor


petal
sepal


petal
sepal

Example of multivariate data: Iris flower data set

Measurements of *type*, *petal width* (PW), *petal length* (PL), *sepal width* (SW), and *sepal length* (SL) for a sample of 150 irises.

Type 0 is *Setosa*; type 1 is *Virginica*; and type 2 is *Versicolor*.

Type	PW	PL	SW	SL
0	2	14	33	50
0	2	10	36	46
0	2	16	31	48
0	1	14	36	49
0	2	13	32	44
0	2	16	38	51
0	2	16	30	50
0	4	19	38	51
0	2	14	30	49
0	2	14	36	50
0	4	15	34	54

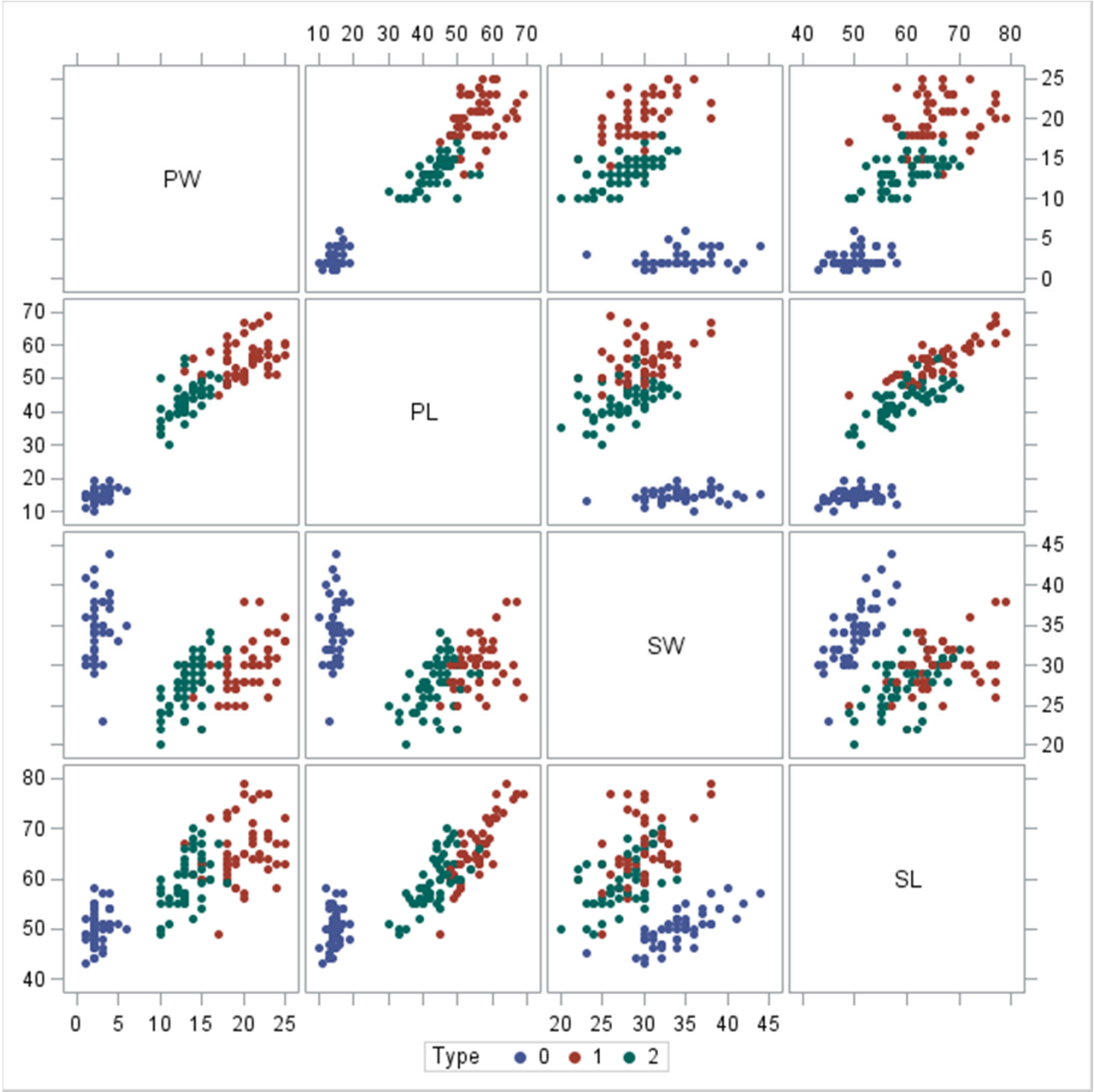
I. Setosa

I. Virginica

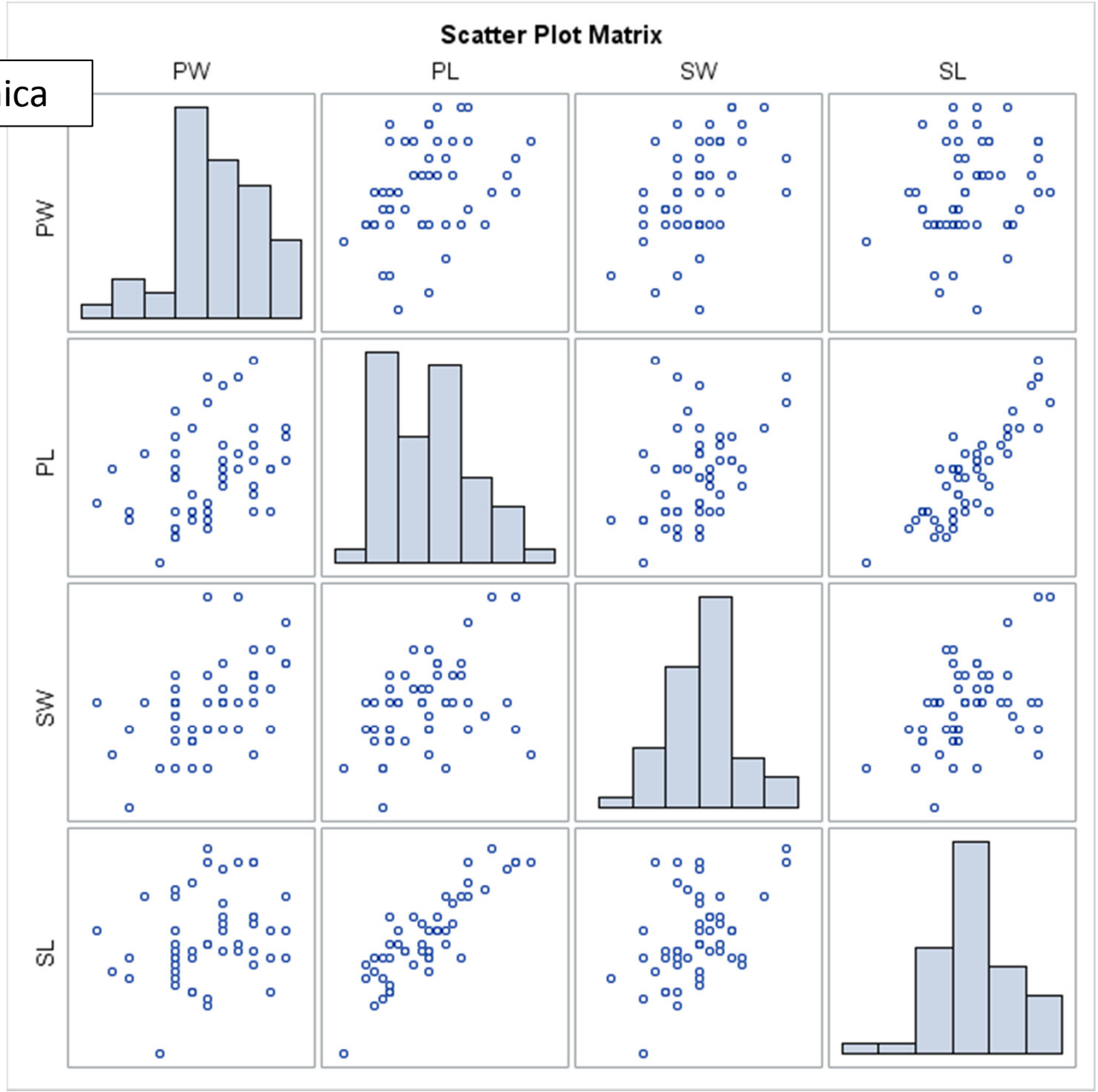
I. Versicolor

The MEANS Procedure

Type	N Obs	Variable	N	Mean	Std Dev
0	50	PW	50	2.460	1.054
		PL	50	14.620	1.737
		SW	50	34.280	3.791
		SL	50	50.100	3.536
1	50	PW	50	20.060	2.903
		PL	50	55.520	5.519
		SW	50	29.740	3.225
		SL	50	65.880	6.359
2	50	PW	50	13.260	1.978
		PL	50	43.220	5.362
		SW	50	27.640	3.141
		SL	50	59.360	5.162


PW
PL
SW
SL
10 20 30 40 50 60 70
40 50 60 70 80
0 5 10 15 20 25
10 20 30 40 50 60 70
20 25 30 35 40 45
0 5 10 15 20 25
10 20 30 40 50 60 70
20 25 30 35 40 45
Type 0 1 2

I. Virginica



I. Virginica

Type	PW	PL	SW	SL
1	24	56	31	67
1	23	51	31	69
1	20	52	30	65
1	19	51	27	58
1	17	45	25	49
1	19	50	25	63
1	18	49	27	63
1	21	56	28	64
1	19	51	27	58
1	18	55	31	64
1	15	50	22	60
1	23	57	32	69
1	20	49	28	56
1	18	58	25	67
1	21	54	31	69
1	25	61	36	72
1	21	55	30	68
1	22	56	28	64
1	15	51	28	63
1	23	59	32	68
1	23	54	34	62
1	25	57	33	67

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
PW	50	20.06000	2.90257	1003	13.00000	25.00000
PL	50	55.52000	5.51895	2776	45.00000	69.00000
SW	50	29.74000	3.22497	1487	22.00000	38.00000
SL	50	65.88000	6.35880	3294	49.00000	79.00000

I. Virginica

Covariance Matrix, DF = 49				
	PW	PL	SW	SL
PW	8.42489796	5.60081633	4.70979592	4.68081633
PL	5.60081633	30.45877551	7.13795918	30.32897959
SW	4.70979592	7.13795918	10.40040816	9.37632653
SL	4.68081633	30.32897959	9.37632653	40.43428571

Pearson Correlation Coefficients, N = 50 Prob > |r| under H0: Rho=0				
	PW	PL	SW	SL
PW	1.00000	0.34963 0.0128	0.50315 0.0002	0.25361 0.0756
PL	0.34963 0.0128	1.00000	0.40104 0.0039	0.86422 <.0001
SW	0.50315 0.0002	0.40104 0.0039	1.00000	0.45723 0.0008
SL	0.25361 0.0756	0.86422 <.0001	0.45723 0.0008	1.00000

SAS code

```
proc means data=iris n mean stdev maxdec=3;
class type;
var PW PL SW SL;
run;

proc sgscatter;
matrix PW PL SW SL/group=type markerattrs=(symbol=circlefilled);
run;

data virginica;
set iris;
if type=1;
proc corr cov plots=matrix(histogram);
var PW PL SW SL;
run;
```