SAS绘图

示例SASHELP.CARS

MAKE	HORSEPOWER	LENGTH	INVOICE
Acura	265	189	$33,337
Audi	170	179	$23,508
BMW	225	180	$33,873
Buick	275	193	$34,357

直方图

In [1]:
```
libname t "temp";
ods path(prepend) t.template(update);
```

Out[1]:
```
SAS Connection established. Subprocess id is 19646


34   ods listing close;ods html5 (id=saspy_internal) file=stdout options(bitmap_mode='inline') devi
ce=svg style=HTMLBlue; ods
34 ! graphics on / outputfmt=png;
NOTE: Writing HTML5(SASPY_INTERNAL) Body file: STDOUT
35
36   libname t "temp";
NOTE: Libref T was successfully assigned as follows:
      Engine:        V9
      Physical Name: /folders/myfolders/SASData/temp
37   ods path(prepend) t.template(update);
38
39   ods html5 (id=saspy_internal) close;ods listing;

40
```

In [2]:
```
PROC SORT DATA = SASHELP.CARS OUT = C NODUPKEY;
BY MAKE;
RUN;

PROC PRINT DATA = C;
RUN;
```

Out[2]:

The SAS System

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Length
1	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6	265	17	23	4451	106	189
2	Audi	A4 1.8T 4dr	Sedan	Europe	Front	$25,940	$23,508	1.8	4	170	22	31	3252	104	179
3	BMW	X3 3.0i	SUV	Europe	All	$37,000	$33,873	3.0	6	225	16	23	4023	110	180
4	Buick	Rainier	SUV	USA	All	$37,895	$34,357	4.2	6	275	15	21	4600	113	193
5	Cadillac	Escalade	SUV	USA	Front	$52,795	$48,377	5.3	8	295	14	18	5367	116	199
6	Chevrolet	Suburban 1500 LT	SUV	USA	Front	$42,735	$37,422	5.3	8	295	14	18	4947	130	219
7	Chrysler	PT Cruiser 4dr	Sedan	USA	Front	$17,985	$16,919	2.4	4	150	22	29	3101	103	169
8	Dodge	Durango SLT	SUV	USA	All	$32,235	$29,472	4.7	8	230	15	21	4987	119	201
9	Ford	Excursion	SUV	USA	All	$41,475	$36,494	6.8	10	310	10	13	7190	137	227

		6.8 XLT													
10	GMC	Envoy XUV SLE	SUV	USA	Front	$31,890	$28,922	4.2	6	275	15	19	4945	129	208
11	Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	$20,140	$18,451	1.4	4	93	46	51	2732	103	175
12	Hummer	H2	SUV	USA	All	$49,995	$45,815	6.0	8	316	10	12	6400	123	190
13	Hyundai	Santa Fe GLS	SUV	Asia	Front	$21,589	$20,201	2.7	6	173	20	26	3549	103	177
14	Infiniti	G35 4dr	Sedan	Asia	Rear	$28,495	$26,157	3.5	6	260	18	26	3336	112	187
15	Isuzu	Ascender S	SUV	Asia	All	$31,849	$29,977	4.2	6	275	15	20	4967	129	208
16	Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	$29,995	$27,355	2.5	6	192	18	26	3428	107	184
17	Jeep	Grand Cherokee Laredo	SUV	USA	Front	$27,905	$25,686	4.0	6	195	16	21	3790	106	181
18	Kia	Sorento LX	SUV	Asia	Front	$19,635	$18,630	3.5	6	192	16	19	4112	107	180
19	Land Rover	Range Rover HSE	SUV	Europe	All	$72,250	$65,807	4.4	8	282	12	16	5379	113	195
20	Lexus	GX 470	SUV	Asia	All	$45,700	$39,838	4.7	8	235	15	19	4740	110	188
21	Lincoln	Navigator Luxury	SUV	USA	All	$52,775	$46,360	5.4	8	300	13	18	5969	119	206
22	MINI	Cooper	Sedan	Europe	Front	$16,999	$15,437	1.6	4	115	28	37	2524	97	143
23	Mazda	Tribute DX 2.0	SUV	Asia	All	$21,087	$19,742	2.0	4	130	22	25	3091	103	173
24	Mercedes-Benz	G500	SUV	Europe	All	$76,870	$71,540	5.0	8	292	13	14	5423	112	186
25	Mercury	Mountaineer	SUV	USA	Front	$29,995	$27,317	4.0	6	210	16	21	4374	114	190
26	Mitsubishi	Endeavor XLS	SUV	Asia	All	$30,492	$28,330	3.8	6	215	17	21	4134	109	190
27	Nissan	Pathfinder Armada SE	SUV	Asia	Front	$33,840	$30,815	5.6	8	305	13	19	5013	123	207
28	Oldsmobile	Alero GX 2dr	Sedan	USA	Front	$18,825	$17,642	2.2	4	140	24	32	2946	107	187
29	Pontiac	Aztekt	SUV	USA	Front	$21,595	$19,810	3.4	6	185	19	26	3779	108	182
30	Porsche	Cayenne S	SUV	Europe	All	$56,665	$49,865	4.5	8	340	14	18	4950	112	188
31	Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	$30,860	$29,269	2.0	4	210	20	28	3175	105	183
32	Saturn	VUE	SUV	USA	All	$20,585	$19,238	2.2	4	143	21	26	3381	107	181
33	Scion	xA 4dr hatch	Sedan	Asia	Front	$12,965	$12,340	1.5	4	108	32	38	2340	93	154

34	Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	$19,945	$18,399	2.5	4	165	22	28	2965	99	174
35	Suzuki	XL-7 EX	SUV	Asia	Front	$23,699	$22,307	2.7	6	185	18	22	3682	110	187
36	Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	$20,510	$18,926	1.5	4	110	59	51	2890	106	175
37	Volkswagen	Touareg V6	SUV	Europe	All	$35,515	$32,243	3.2	6	220	15	20	5086	112	187
38	Volvo	XC90 T6	SUV	Europe	All	$41,250	$38,851	2.9	6	268	15	20	4638	113	189

In [3]:
```
PROC UNIVARIATE DATA = SASHELP.CARS;
VAR HORSEPOWER;
RUN;
```

Out[3]:

The SAS System

The UNIVARIATE Procedure
Variable: Horsepower

Moments			
N	428	**Sum Weights**	428
Mean	215.885514	**Sum Observations**	92399
Std Deviation	71.8360316	**Variance**	5160.41543
Skewness	0.93033074	**Kurtosis**	1.55215863
Uncorrected SS	22151103	**Corrected SS**	2203497.39
Coeff Variation	33.2750587	**Std Error Mean**	3.47232565

Basic Statistical Measures			
	Location		**Variability**
Mean	215.8855	**Std Deviation**	71.83603
Median	210.0000	**Variance**	5160
Mode	200.0000	**Range**	427.00000
		Interquartile Range	90.00000

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	**t**	62.17318	**Pr > |t|**	<.0001
Sign	**M**	214	**Pr >= |M|**	<.0001
Signed Rank	**S**	45903	**Pr >= |S|**	<.0001

Quantiles (Definition 5)	
Level	**Quantile**
100% Max	500

99%	477
95%	340
90%	302
75% Q3	255
50% Median	210
25% Q1	165
10%	130
5%	115
1%	103
0% Min	73

Extreme Observations

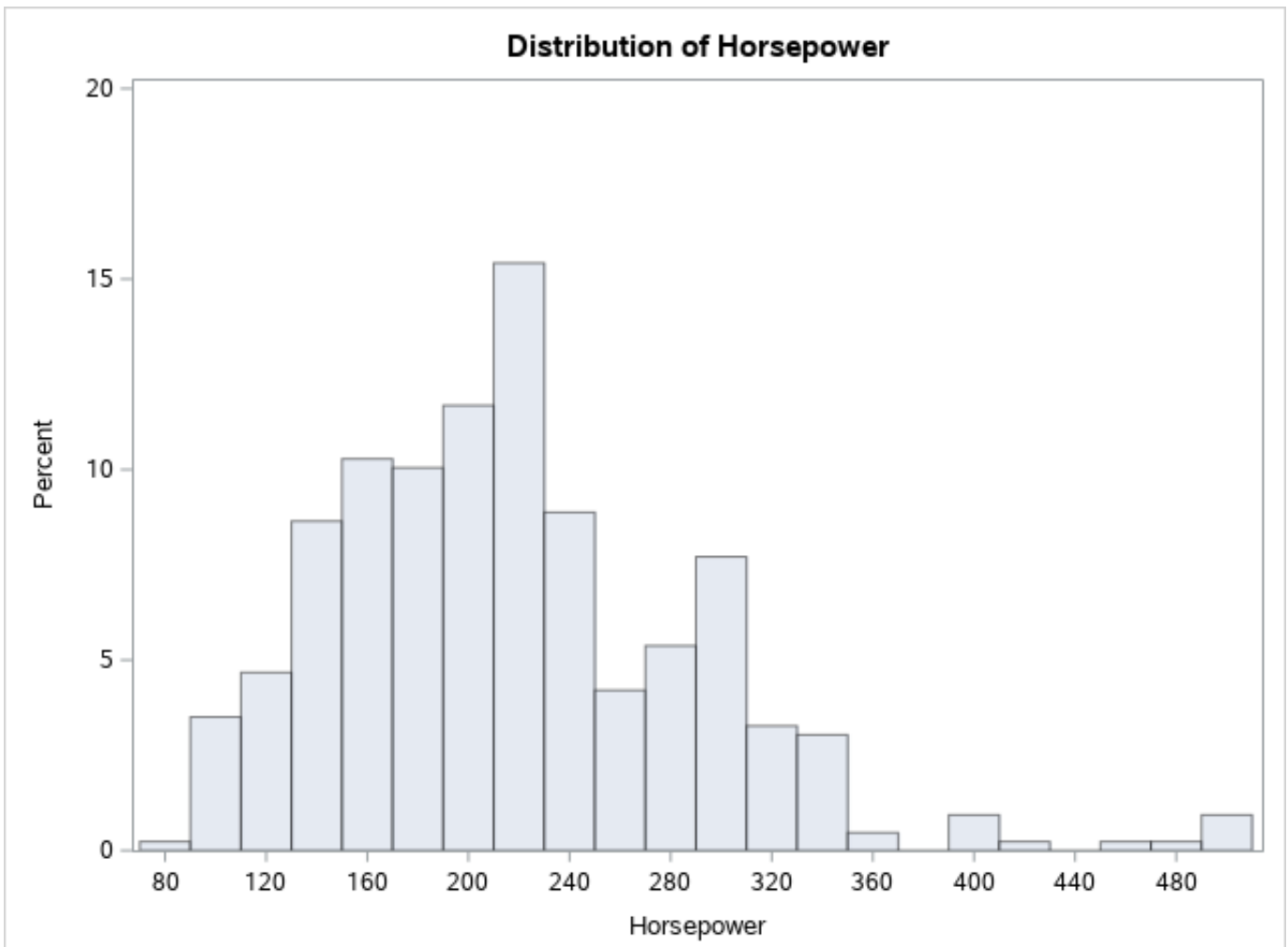
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
73	151	477	335
93	150	493	263
100	405	493	271
103	171	493	272
103	170	500	115

In [4]:
```
PROC UNIVARIATE DATA = SASHELP.CARS NOPRINT;
HISTOGRAM HORSEPOWER
/
MIDPOINTS = 100 TO 500 BY 20;
RUN;
```

Out[4]:

The SAS System

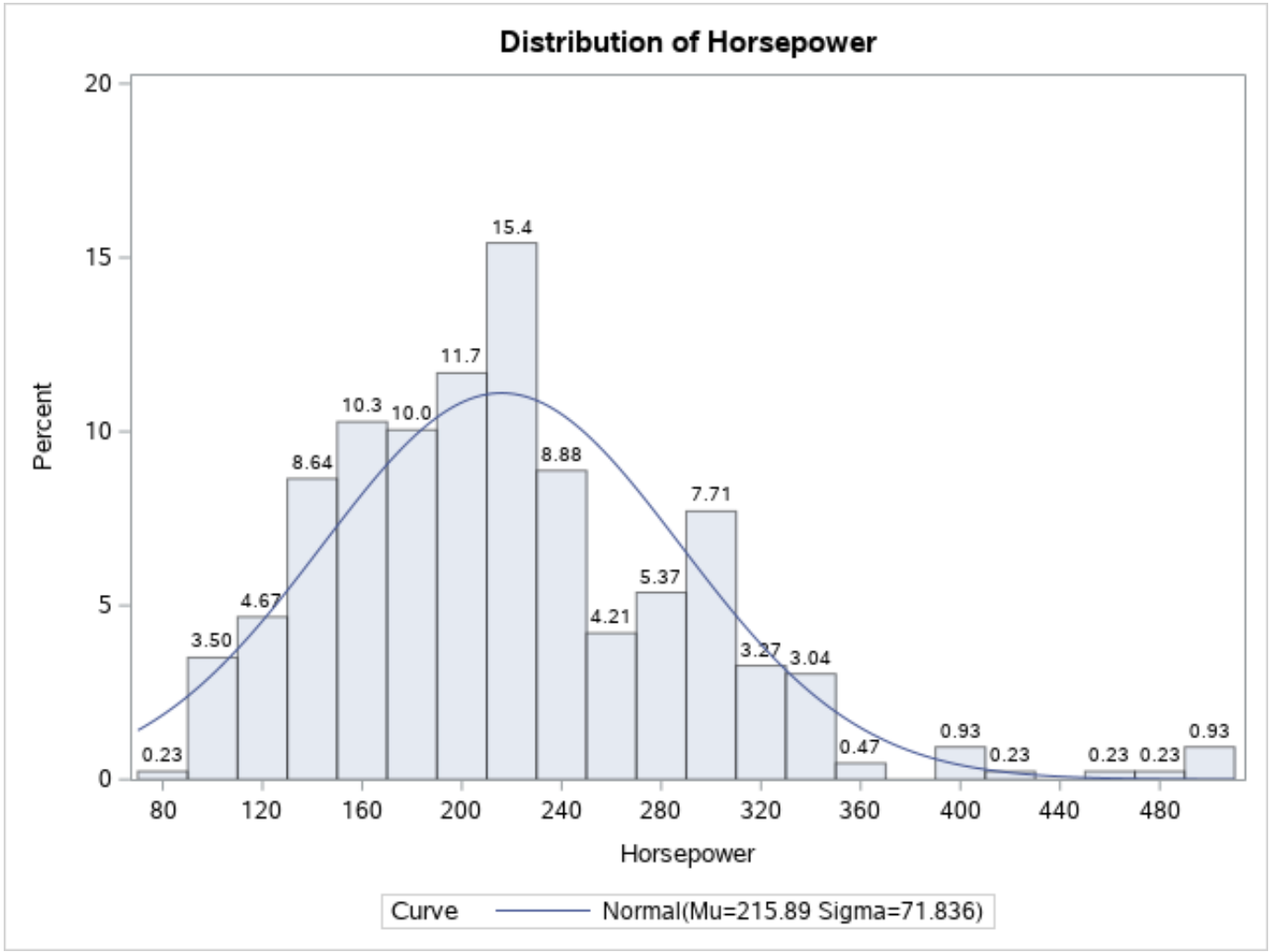
The UNIVARIATE Procedure



In [5]:
```
PROC UNIVARIATE DATA = SASHELP.CARS NOPRINT;
HISTOGRAM HORSEPOWER
/
NORMAL (
    MU = EST
    SIGMA = EST
    COLOR = BLUE
    W = 1
)
BARLABEL = PERCENT
MIDPOINTS = 100 TO 500 BY 20;
RUN;
```

Out[5]:

The UNIVARIATE Procedure



The UNIVARIATE Procedure
Fitted Normal Distribution for Horsepower

Parameters for Normal Distribution

Parameter	Symbol	Estimate
Mean	Mu	215.8855
Std Dev	Sigma	71.83603

Goodness-of-Fit Tests for Normal Distribution

Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.09051574	Pr > D	<0.010
Cramer-von Mises	W-Sq	0.58980554	Pr > W-Sq	<0.005
Anderson-Darling	A-Sq	3.68580519	Pr > A-Sq	<0.005

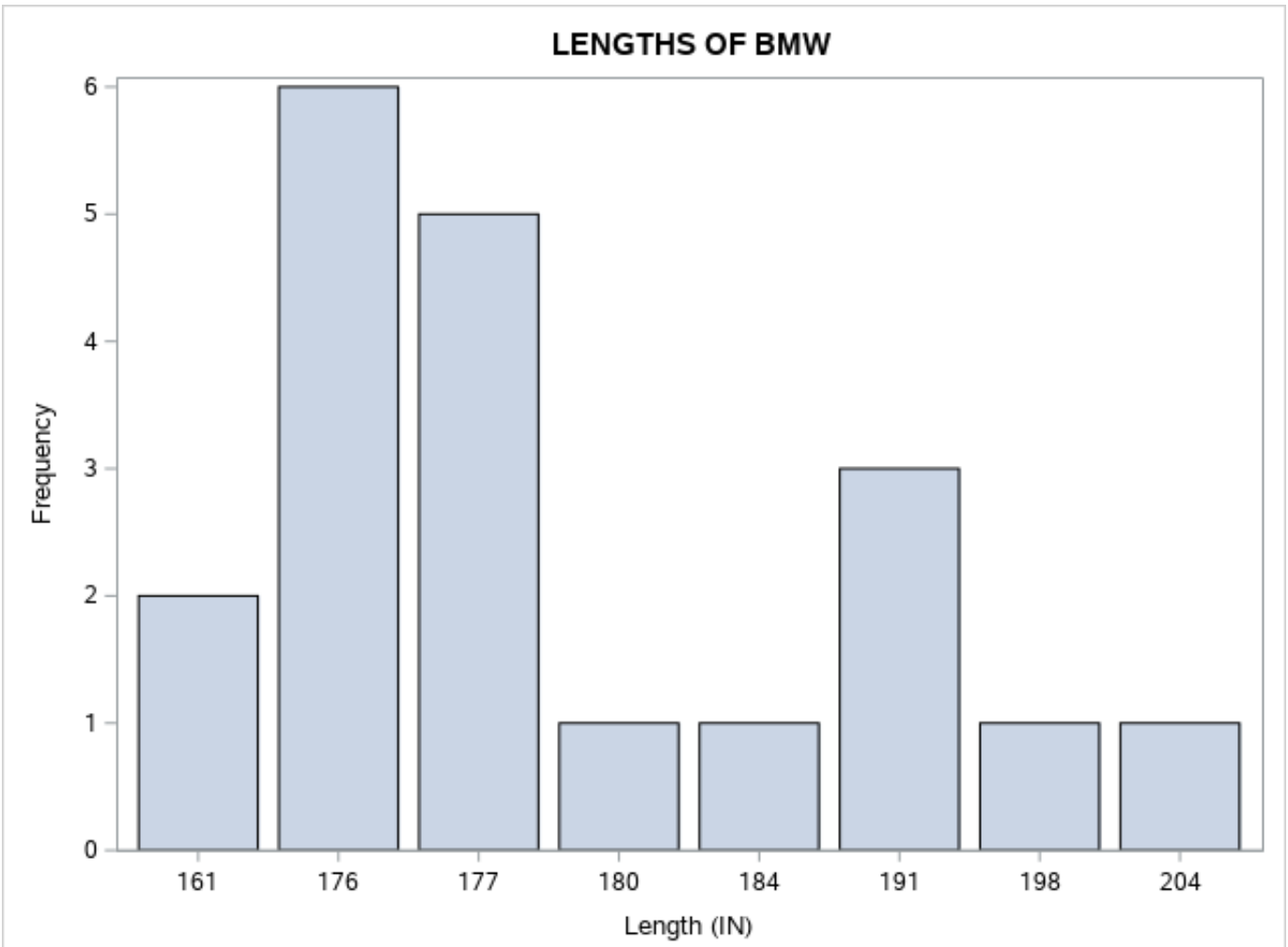
Quantiles for Normal Distribution

	Quantile	

Percent	Observed	Estimated
1.0	103.000	48.7699
5.0	115.000	97.7258
10.0	130.000	123.8239
25.0	165.000	167.4328
50.0	210.000	215.8855
75.0	255.000	264.3382
90.0	302.000	307.9471
95.0	340.000	334.0453
99.0	477.000	383.0011

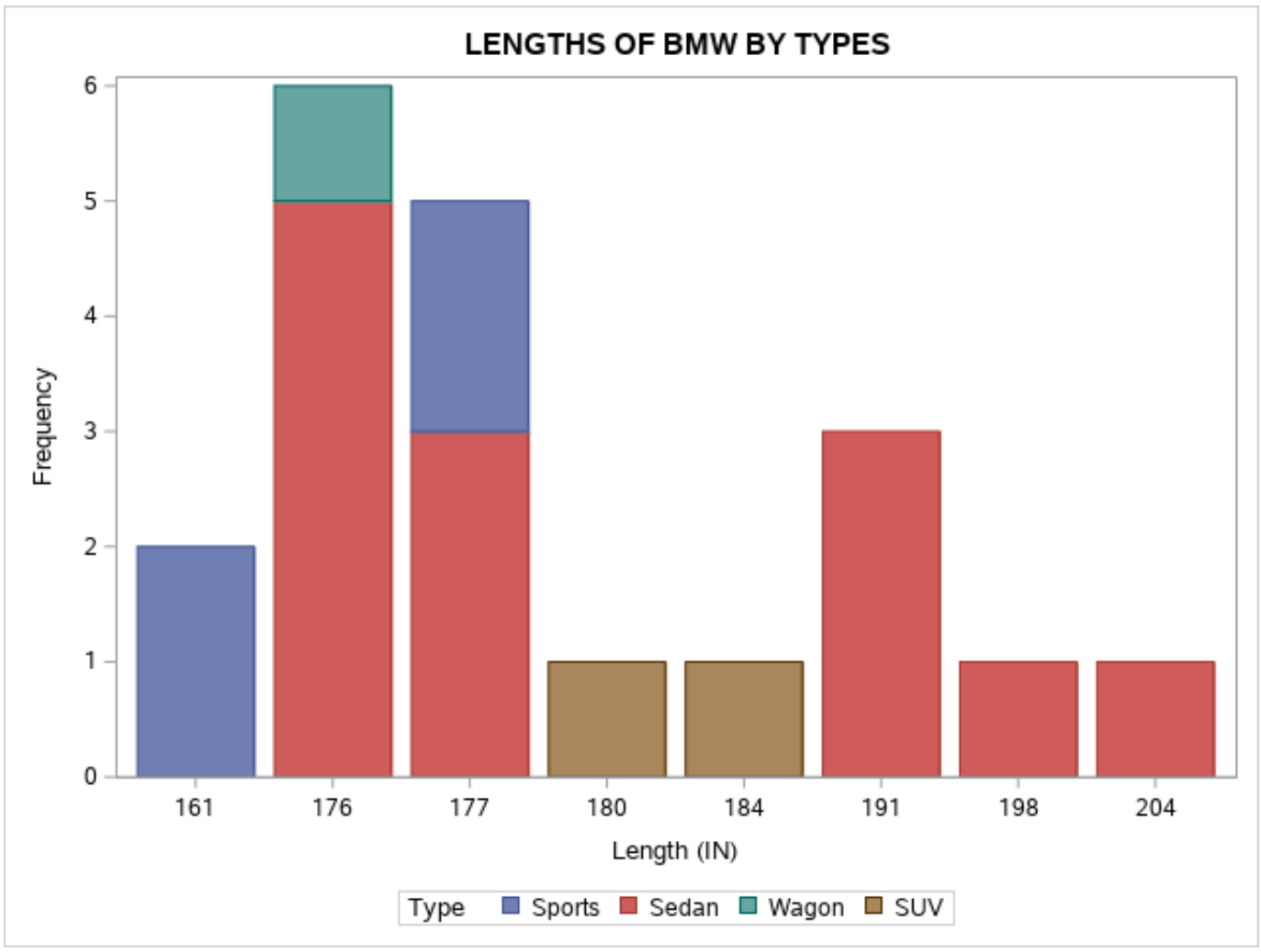
In [6]:
```
PROC SGPLOT DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
VBAR LENGTH;
TITLE 'LENGTHS OF BMW';
RUN;
QUIT;
```

Out[6]:



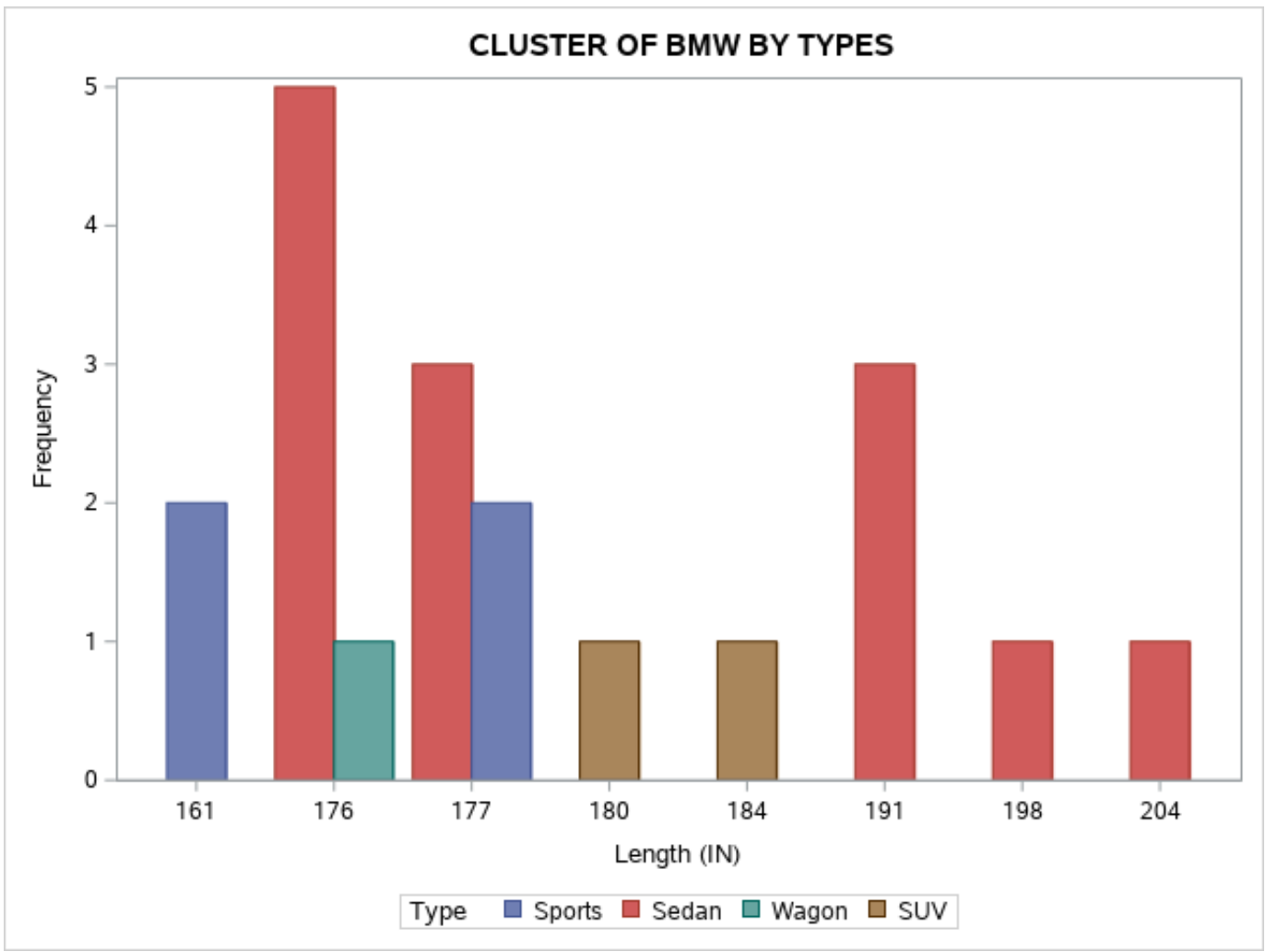
In [7]:
```
PROC SGPLOT DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
VBAR LENGTH /GROUP = TYPE ;
TITLE 'LENGTHS OF BMW BY TYPES';
RUN;
QUIT;
```

Out[7]:



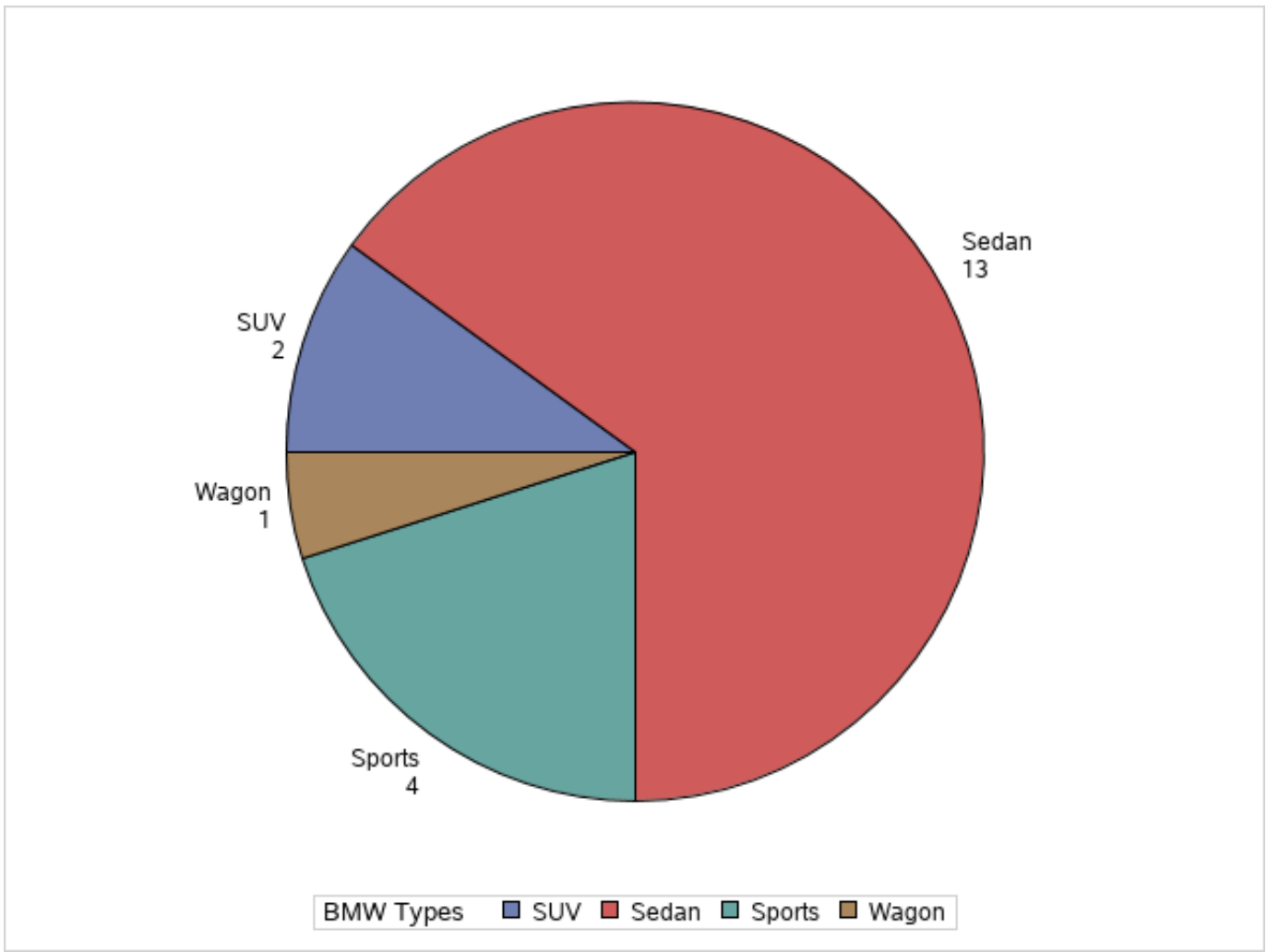
In [8]:
```
PROC SGPLOT DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
VBAR LENGTH /GROUP = TYPE GROUPDISPLAY = CLUSTER;
TITLE 'CLUSTER OF BMW BY TYPES';
RUN;
QUIT;
```

Out[8]:



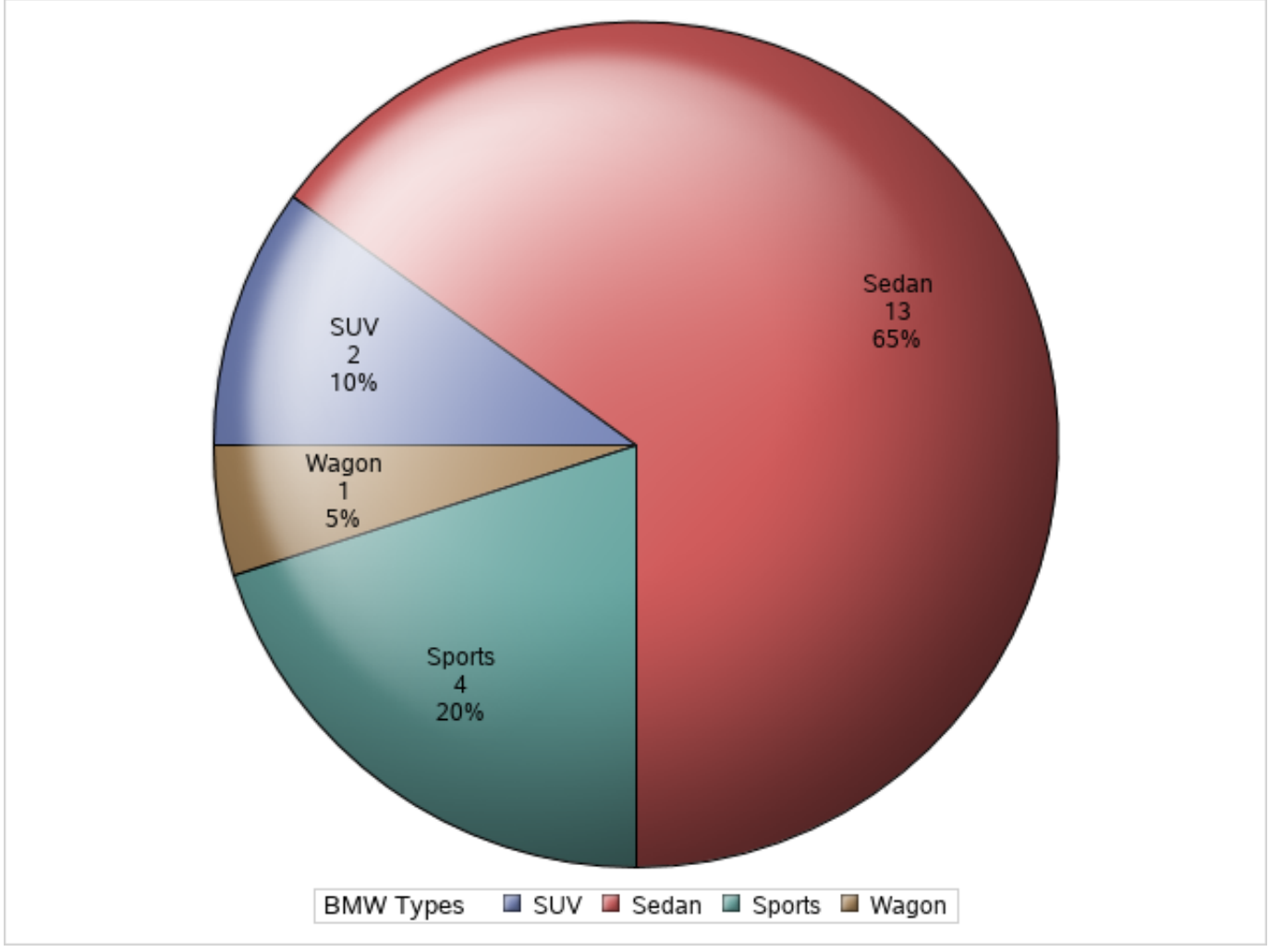
In [9]:
```
PROC TEMPLATE;
  DEFINE STATGRAPH PIE0;
    BEGINGRAPH;
      LAYOUT REGION;
        PIECHART CATEGORY = type /
          DATALABELLOCATION = OUTSIDE
          CATEGORYDIRECTION = CLOCKWISE
          START = 180 NAME = 'pie';
        DISCRETELEGEND 'pie' /
          TITLE = 'BMW Types';
      ENDLAYOUT;
    ENDGRAPH;
  END;
RUN;

PROC SGRENDER
    DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')))
    TEMPLATE = PIE0;
RUN;
```

Out[9]:



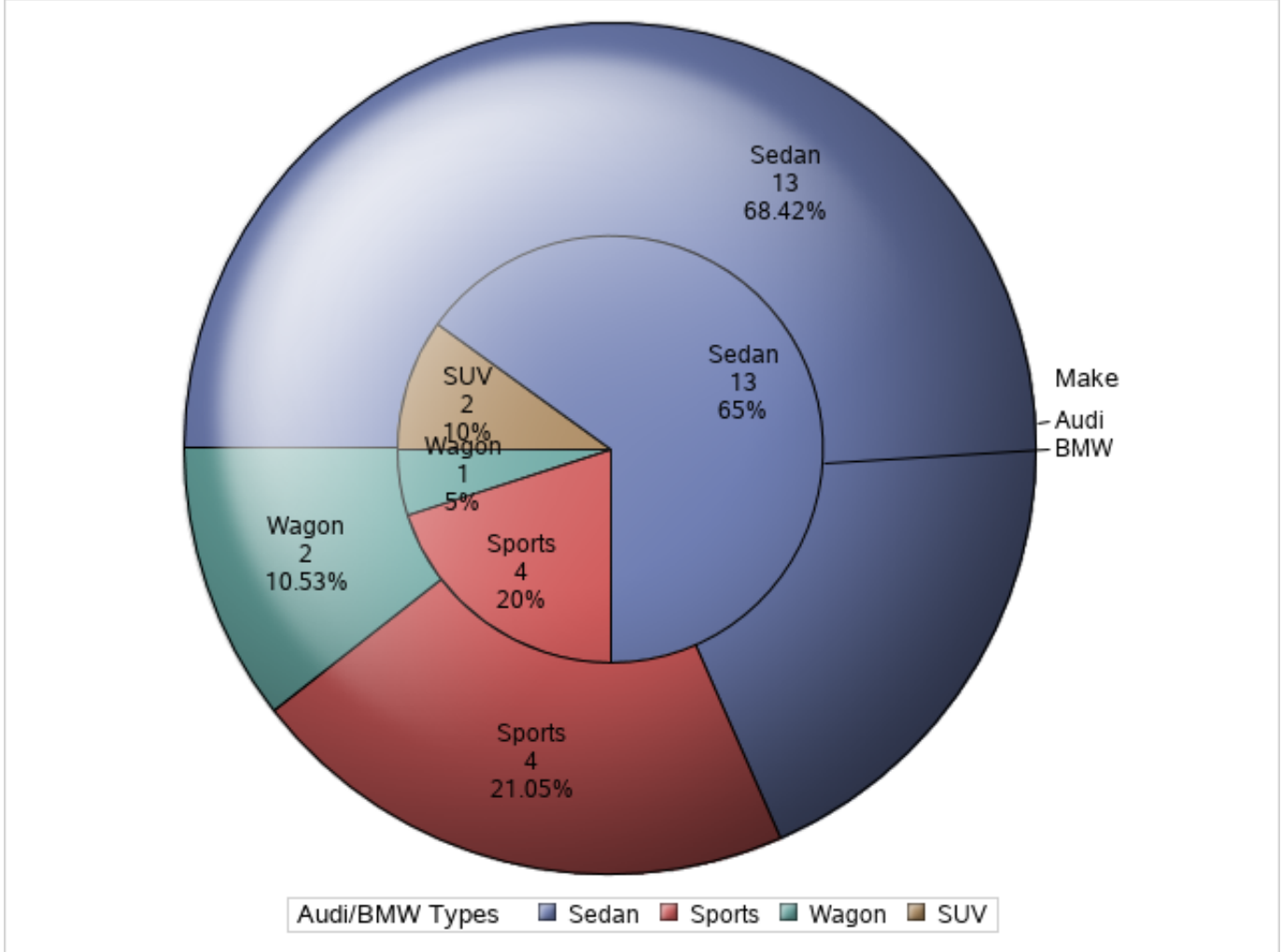
In [10]:
```
PROC TEMPLATE;
  DEFINE STATGRAPH PIE1;
    BEGINGRAPH;
      LAYOUT REGION;
        PIECHART CATEGORY = type /
          DATALABELLOCATION = INSIDE
          DATALABELCONTENT=ALL
          CATEGORYDIRECTION = CLOCKWISE
          DATASKIN= SHEEN
          START = 180 NAME = 'pie';
        DISCRETELEGEND 'pie' /
          TITLE = 'BMW Types';
      ENDLAYOUT;
    ENDGRAPH;
  END;
RUN;

PROC SGRENDER
    DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')))
    TEMPLATE = PIE1;
RUN;
```

Out[10]:



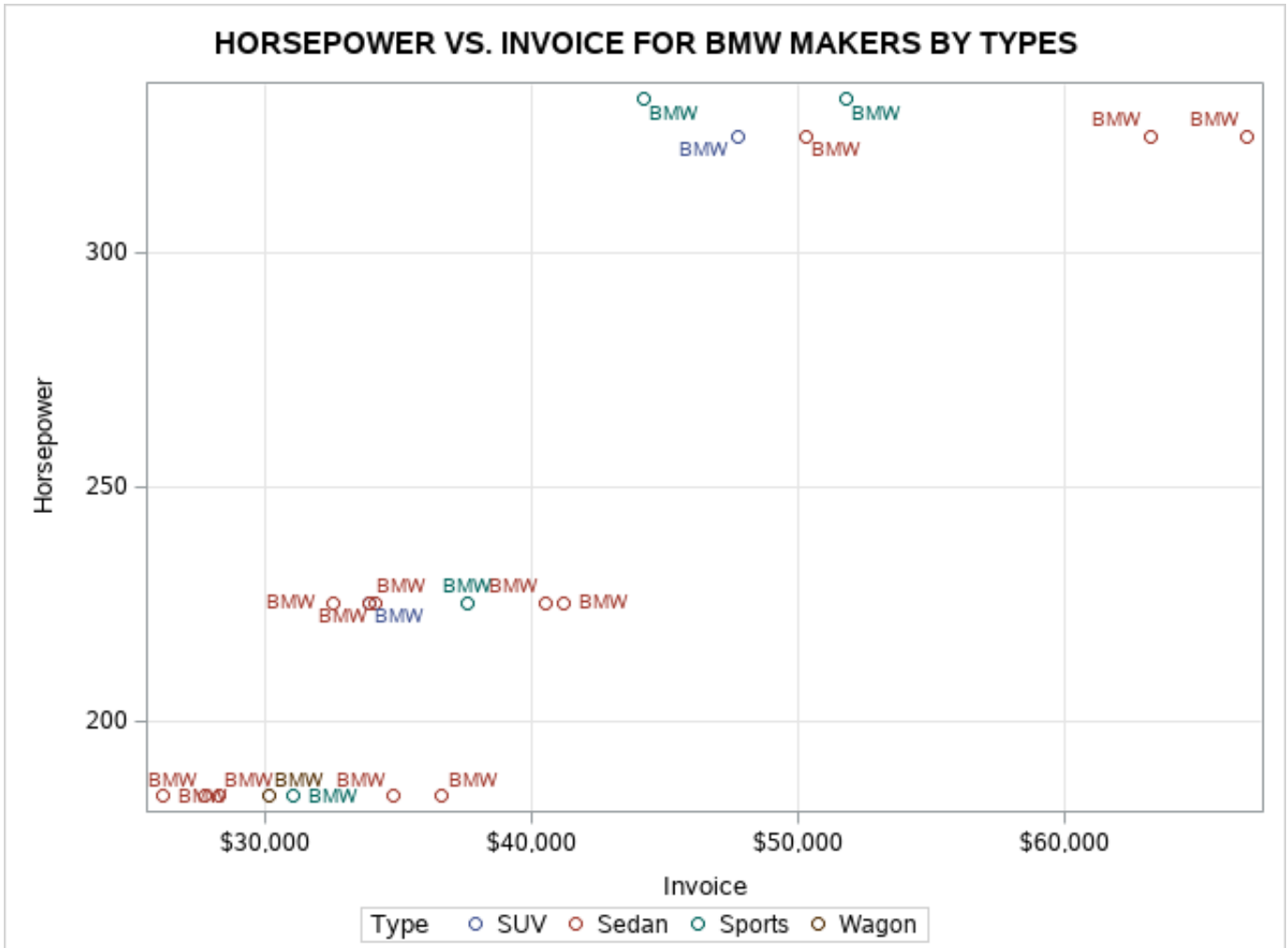
In [11]:
```
PROC TEMPLATE;
  DEFINE STATGRAPH PIE2;
    BEGINGRAPH;
      LAYOUT REGION;
        PIECHART CATEGORY = type / Group = make
          DATALABELLOCATION = INSIDE
          DATALABELCONTENT=ALL
          CATEGORYDIRECTION = CLOCKWISE
          DATASKIN= SHEEN
          START = 180 NAME = 'pie';
        DISCRETELEGEND 'pie' /
          TITLE = 'Audi/BMW Types';
      ENDLAYOUT;
    ENDGRAPH;
  END;
RUN;

PROC SGRENDER
    DATA = SASHELP.CARS(WHERE = (MAKE IN ('Audi', 'BMW')))
    TEMPLATE = PIE2;
RUN;
```

Out[11]:



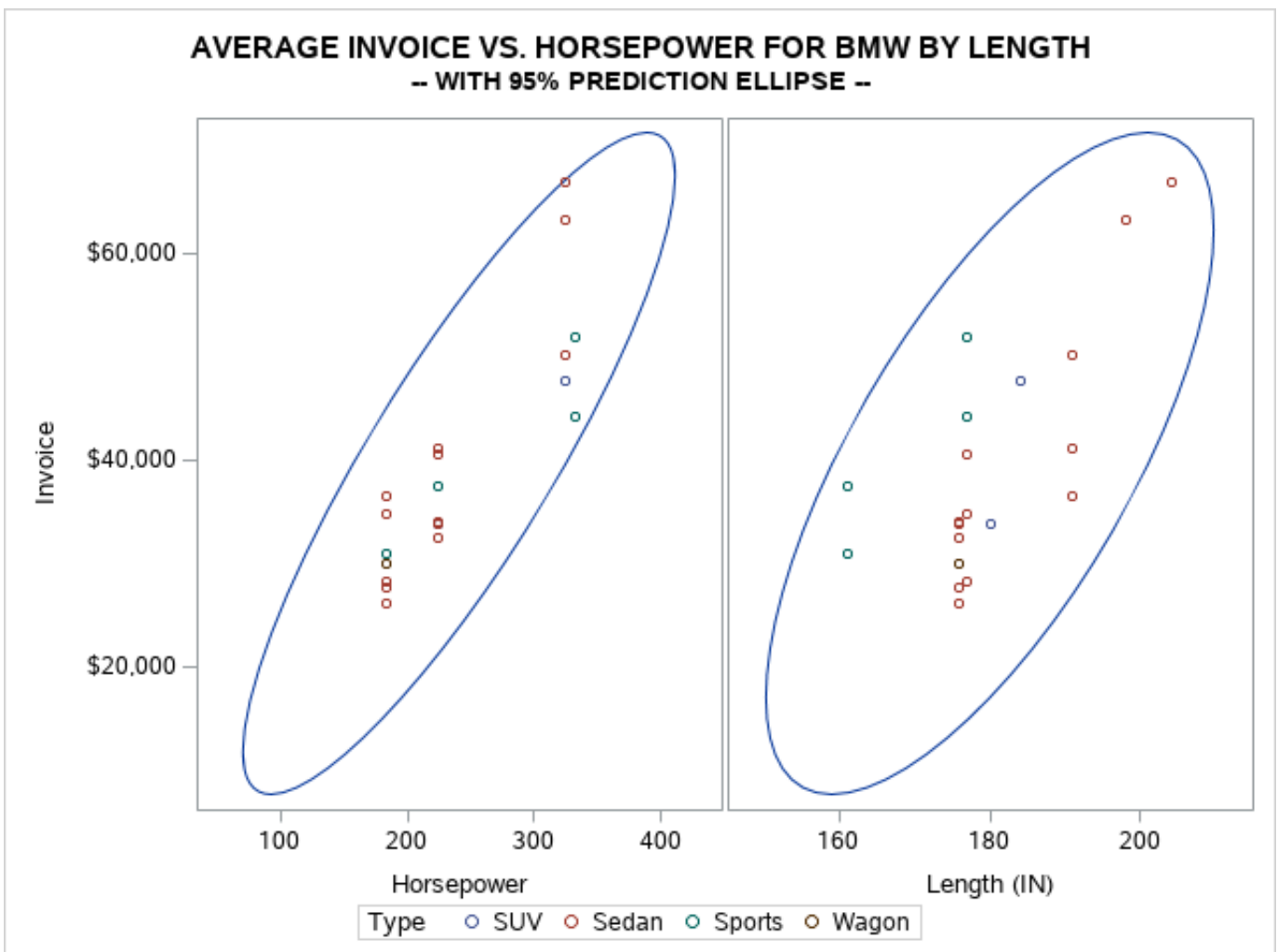
In [12]:
```
PROC SGSCATTER
    DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
    PLOT HORSEPOWER * INVOICE
    / DATALABEL = MAKE GROUP = TYPE GRID;
    TITLE 'HORSEPOWER VS. INVOICE FOR BMW MAKERS BY TYPES';
RUN;
```

Out[12]:



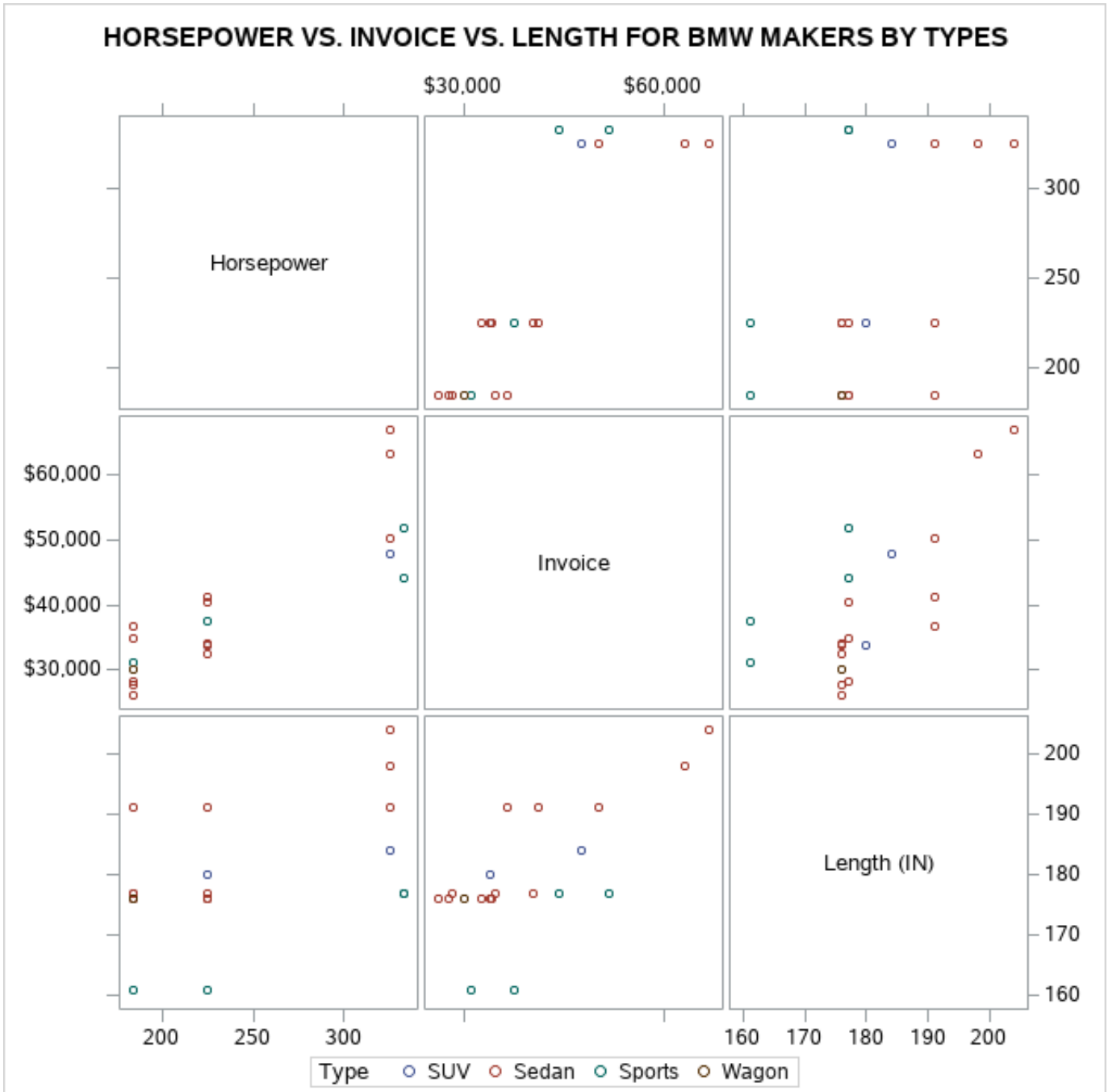
In [13]:
```
PROC SGSCATTER DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
    COMPARE Y = INVOICE  X = (HORSEPOWER LENGTH)
    /GROUP = TYPE ELLIPSE = (ALPHA = 0.05 TYPE = PREDICTED);
    TITLE
    'AVERAGE INVOICE VS. HORSEPOWER FOR BMW BY LENGTH';
    TITLE2
    '-- WITH 95% PREDICTION ELLIPSE --'
    ;
    FORMAT
    INVOICE DOLLAR6.0;
RUN;
```

Out[13]:



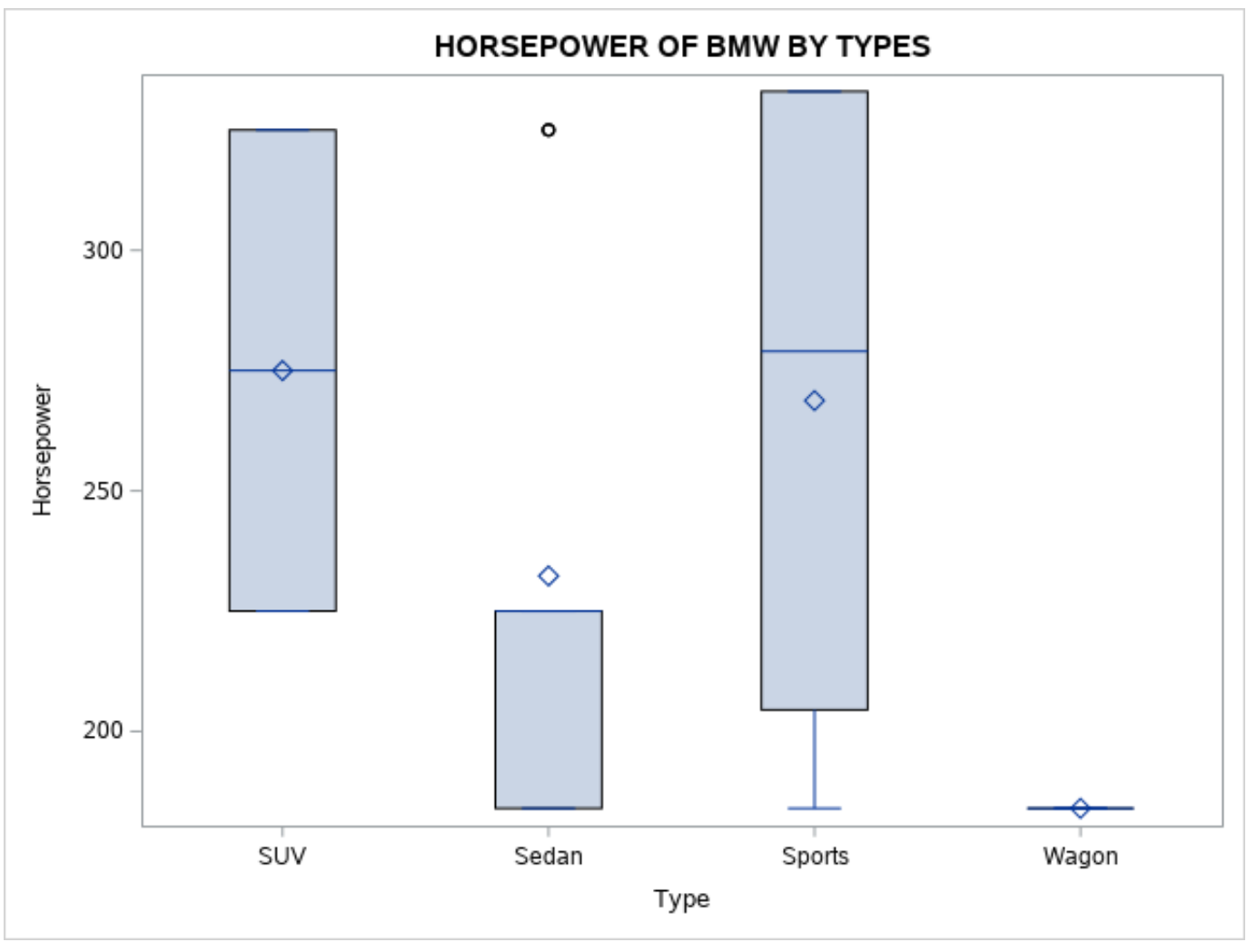
In [14]:
```
PROC SGSCATTER DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
    MATRIX HORSEPOWER INVOICE LENGTH
    / GROUP = TYPE;
    TITLE 'HORSEPOWER VS. INVOICE VS. LENGTH FOR BMW MAKERS BY TYPES';
RUN;
```

Out[14]:



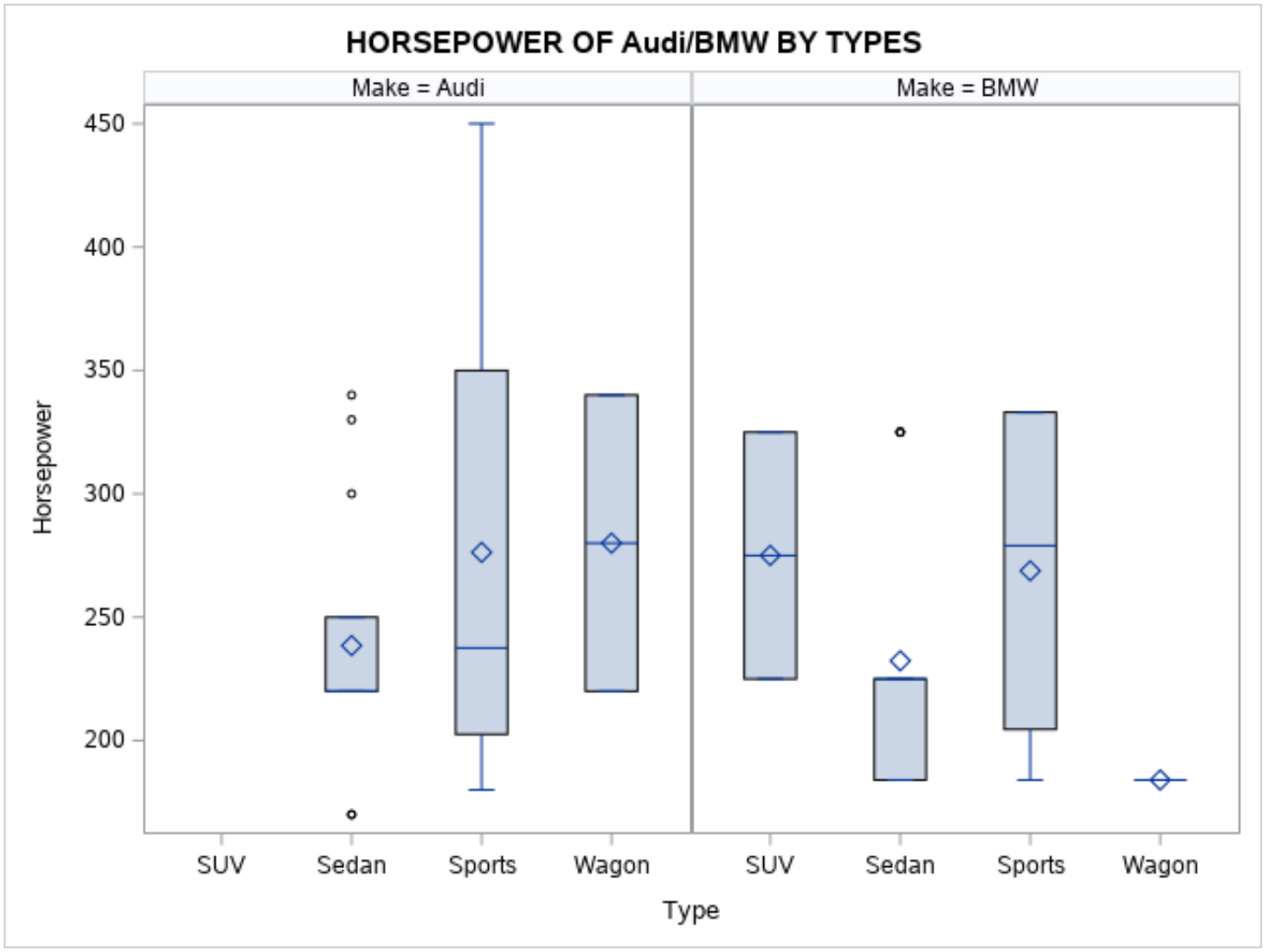
In [15]:
```
PROC SGPLOT DATA = SASHELP.CARS(WHERE = (MAKE IN ('BMW')));
    VBOX HORSEPOWER
    / CATEGORY = TYPE;
    TITLE 'HORSEPOWER OF BMW BY TYPES';
RUN;
```

Out[15]:



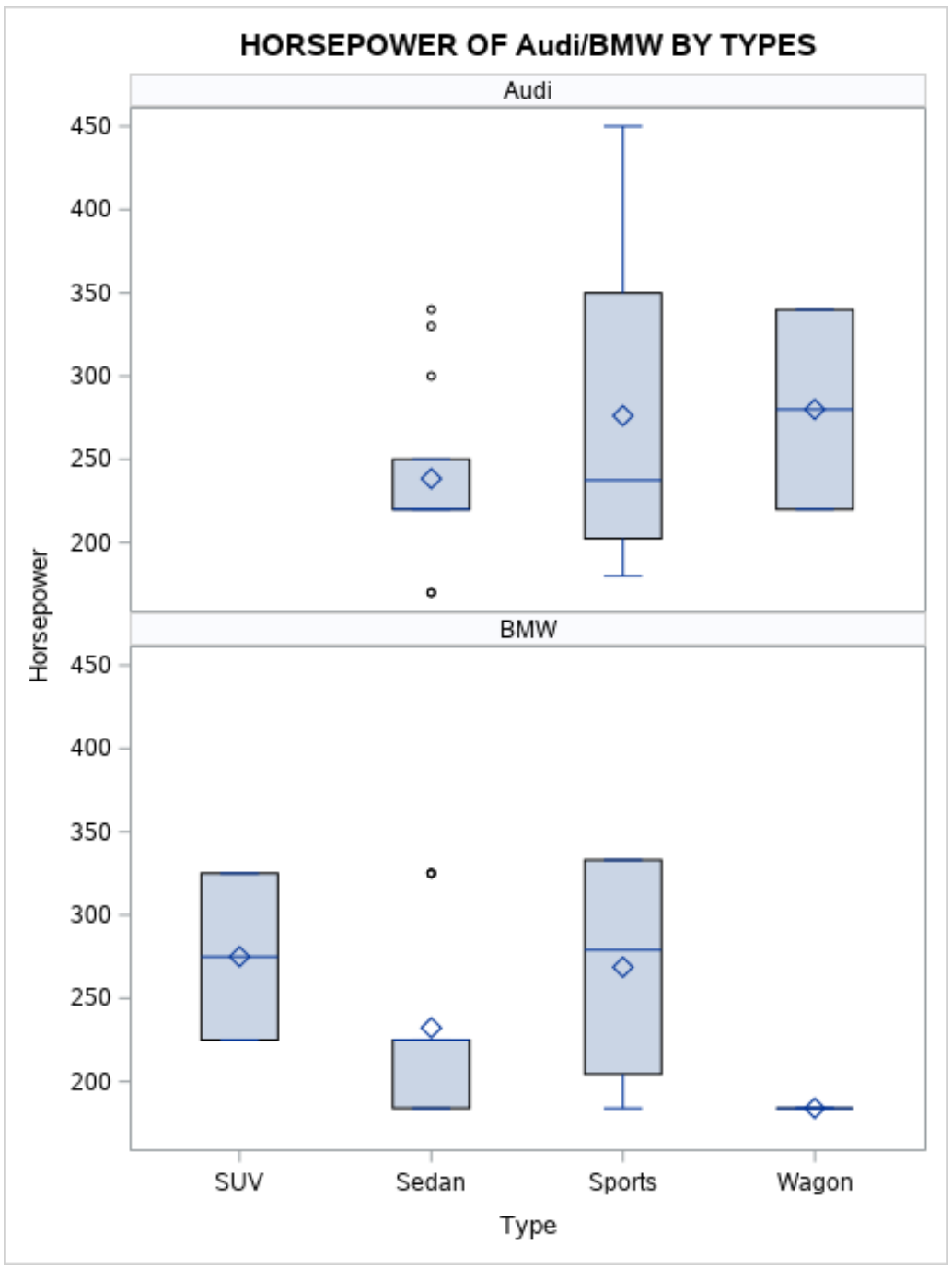
In [16]:
```
PROC SGPANEL DATA = SASHELP.CARS(WHERE = (MAKE IN ('Audi', 'BMW')));
    PANELBY MAKE;
    VBOX HORSEPOWER / CATEGORY = TYPE;
    TITLE 'HORSEPOWER OF Audi/BMW BY TYPES';
RUN;
```

Out[16]:



In [17]:
```
PROC SGPANEL DATA = SASHELP.CARS(WHERE = (MAKE IN ('Audi', 'BMW')));
    PANELBY MAKE / COLUMNS = 1 NOVARNAME;
    VBOX HORSEPOWER / CATEGORY = TYPE;
    TITLE 'HORSEPOWER OF Audi/BMW BY TYPES';
RUN;
```

Out[17]:



>

> Visualizing Longitudinal Data with Dropouts (http://blog.sina.com.cn/s/blog_58ea0d1f0101i448.html)
>
> tumor data (http://support.sas.com/documentation/cdl/en/statug/66103/HTML/default/viewer.htm#statug_phreg_examples07.htm)
>
> template (https://www.cnblogs.com/abble/p/11344773.html)

In [18]:
```
data Tumor;
   infile datalines missover;
   input ID Time Dead Dose P1-P15;
   label ID='Subject ID';
   datalines;
 1 47 1  1.0  0  5  6  8 10 10 10 10
 2 71 1  1.0  0  0  0  0  0  0  0  0  1  1  1  1 1 1 1
 3 81 0  1.0  0  1  1  1  1  1  1  1  1  1  1  1 1 1 1
 4 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
 5 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
 6 65 1  1.0  0  0  0  1  1  1  1  1  1  1  1  1 1
 7 71 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
 8 69 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0
 9 67 1  1.0  0  0  1  1  2  2  2  2  3  3  3  3 3 3
10 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
11 37 1  1.0  9  9  9
12 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
13 77 0  1.0  0  0  0  0  1  1  1  1  1  1  1  1 1 1 1
14 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
15 81 0  1.0  0  0  0  0  0  0  0  0  0  0  0  0 0 0 0
16 54 0  2.5  0  1  1  1  2  2  2  2  2  2  2  2
17 53 0  2.5  0  0  0  0  0  0  0  0  0  0  0  0
18 38 0  2.5  5 13 14
19 54 0  2.5  2  6  6  6  6  6  6  6  6  6  6  6
20 51 1  2.5 15 15 15 16 16 17 17 17 17 17 17
21 47 1  2.5 13 20 20 20 20 20 20 20
22 27 1  2.5 22
23 41 1  2.5  6 13 13 13
24 49 1  2.5  0  3  3  3  3  3  3  3  3
25 53 0  2.5  0  0  1  1  1  1  1  1  1  1  1  1
26 50 1  2.5  0  0  2  3  4  6  6  6  6  6
27 37 1  2.5  3 15 15
28 49 1  2.5  2  3  3  3  3  4  4  4  4
29 46 1  2.5  4  6  7  9  9  9  9
30 48 0  2.5 15 26 26 26 26 26 26 26
31 54 0 10.0 12 14 15 15 15 15 15 15 15 15 15 15
32 37 1 10.0 12 16 17
33 53 1 10.0  3  6  6  6  6  6  6  6  6  6  6  6
34 45 1 10.0  4 12 15 20 20 20
35 53 0 10.0  6 10 13 13 13 15 15 15 15 15 15 20
36 49 1 10.0  0  2  2  2  2  2  2  2  2
37 39 0 10.0  7  8  8
38 27 1 10.0 17
39 49 1 10.0  0  6  9 14 14 14 14 14 14
40 43 1 10.0 14 18 20 20 20
41 28 0 10.0  8
42 34 1 10.0 11 18
43 45 1 10.0 10 12 16 16 16 16
44 37 1 10.0  0  1  1
45 43 1 10.0  9 19 19 19 19
;

proc print data = tumor;
run;
```

Out[18]:

HORSEPOWER OF Audi/BMW BY TYPES

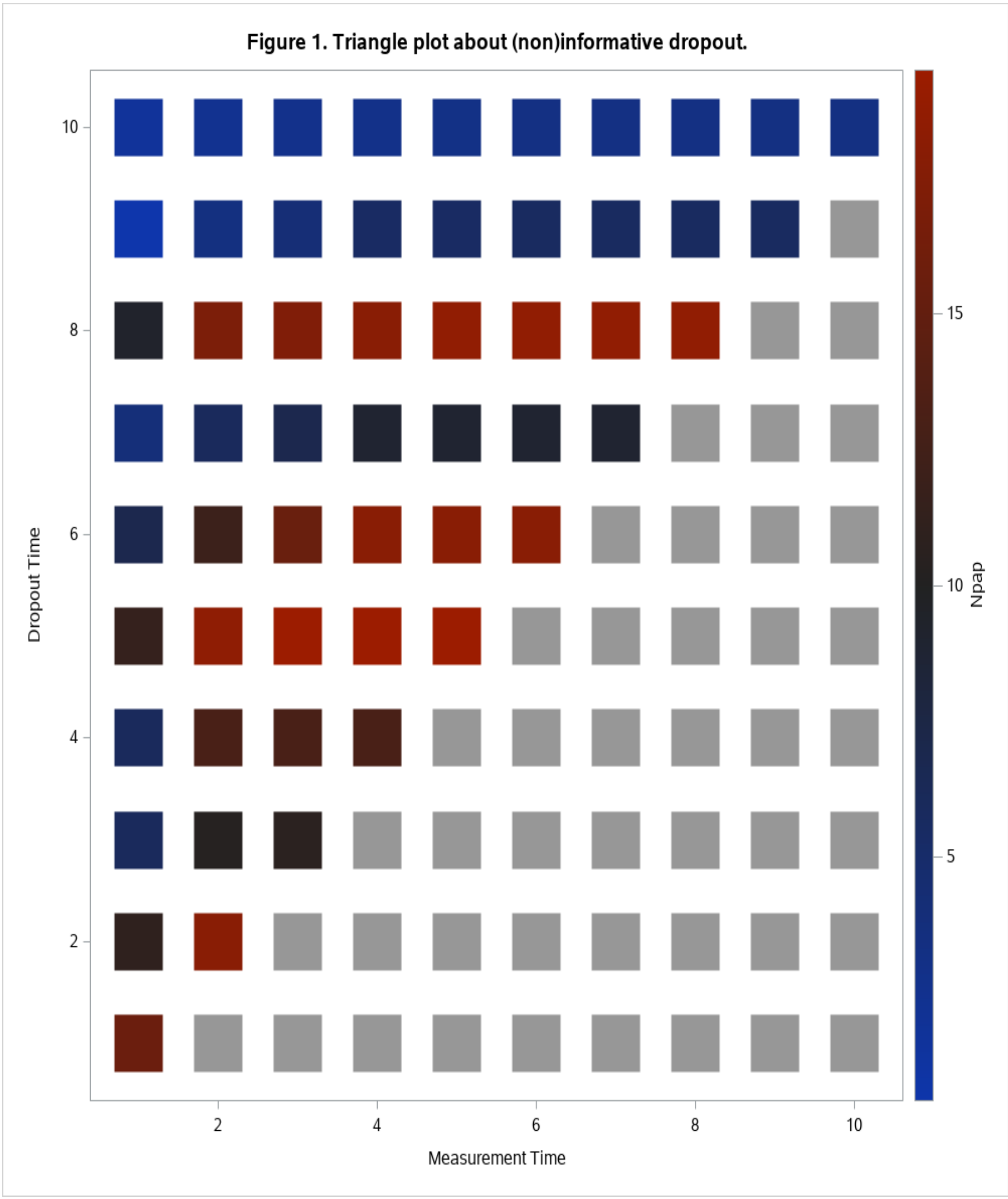
Obs	ID	Time	Dead	Dose	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
1	1	47	1	1.0	0	5	6	8	10	10	10	10	.	.	.	.	.	.	.
2	2	71	1	1.0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
3	3	81	0	1.0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5	5	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	6	65	1	1.0	0	0	0	1	1	1	1	1	1	1	1	1	1	.	.
7	7	71	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	69	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.
9	9	67	1	1.0	0	0	1	1	2	2	2	2	3	3	3	3	3	3	.
10	10	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	11	37	1	1.0	9	9	9	.	.	.	.	.	.	.	.	.	.	.	.
12	12	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	13	77	0	1.0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
14	14	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	15	81	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	16	54	0	2.5	0	1	1	1	2	2	2	2	2	2	2	2	.	.	.
17	17	53	0	2.5	0	0	0	0	0	0	0	0	0	0	0	0	.	.	.
18	18	38	0	2.5	5	13	14	.	.	.	.	.	.	.	.	.	.	.	.
19	19	54	0	2.5	2	6	6	6	6	6	6	6	6	6	6	6	.	.	.
20	20	51	1	2.5	15	15	15	16	16	17	17	17	17	17	17	.	.	.	.
21	21	47	1	2.5	13	20	20	20	20	20	20	20	.	.	.	.	.	.	.
22	22	27	1	2.5	22	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	23	41	1	2.5	6	13	13	13	.	.	.	.	.	.	.	.	.	.	.
24	24	49	1	2.5	0	3	3	3	3	3	3	3	3	.	.	.	.	.	.
25	25	53	0	2.5	0	0	1	1	1	1	1	1	1	1	1	1	.	.	.
26	26	50	1	2.5	0	0	2	3	4	6	6	6	6	6	.	.	.	.	.
27	27	37	1	2.5	3	15	15	.	.	.	.	.	.	.	.	.	.	.	.
28	28	49	1	2.5	2	3	3	3	3	4	4	4	4	.	.	.	.	.	.
29	29	46	1	2.5	4	6	7	9	9	9	9	.	.	.	.	.	.	.	.
30	30	48	0	2.5	15	26	26	26	26	26	26	26	.	.	.	.	.	.	.
31	31	54	0	10.0	12	14	15	15	15	15	15	15	15	15	15	15	.	.	.
32	32	37	1	10.0	12	16	17	.	.	.	.	.	.	.	.	.	.	.	.
33	33	53	1	10.0	3	6	6	6	6	6	6	6	6	6	6	6	.	.	.
34	34	45	1	10.0	4	12	15	20	20	20	.	.	.	.	.	.	.	.	.
35	35	53	0	10.0	6	10	13	13	13	15	15	15	15	15	15	20	.	.	.
36	36	49	1	10.0	0	2	2	2	2	2	2	2	2	.	.	.	.	.	.
37	37	39	0	10.0	7	8	8	.	.	.	.	.	.	.	.	.	.	.	.
38	38	27	1	10.0	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.
39	39	49	1	10.0	0	6	9	14	14	14	14	14	14	.	.	.	.	.	.
40	40	43	1	10.0	14	18	20	20	20	.	.	.	.	.	.	.	.	.	.
41	41	28	0	10.0	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.
42	42	34	1	10.0	11	18	.	.	.	.	.	.	.	.	.	.	.	.	.
43	43	45	1	10.0	10	12	16	16	16	16	.	.	.	.	.	.	.	.	.
44	44	37	1	10.0	0	1	1	.	.	.	.	.	.	.	.	.	.	.	.
45	45	43	1	10.0	9	19	19	19	19	.	.	.	.	.	.	.	.	.	.

In [19]:
```
data tumor1;
set tumor;
array p[10];
do droptime=1 to dim(p);
if missing(p[droptime]) then leave;
end;
droptime =droptime-1;
do MeasureTime =1 to dim(p);
Npap =p[MeasureTime];
output;
end;
keep ID MeasureTime Npap droptime;
run;


proc means data=tumor1 nway noprint;
class DropTime MeasureTime;
var Npap;
output out =meanout mean=mean_Npap;
run;


proc template;
define statgraph scatterplot;
dynamic _X_ _Y_ _VMCG_ _MSIZE_ _LMCG_;
begingraph;
entrytitle "Figure 1. Triangle plot about (non)informative dropout.";
layout overlay;
scatterplot x=_X_ y=_Y_ /name="sca"  markercolorgradient=_VMCG_       markerattrs=(symbol=squarefil
led size=_MSIZE_);
discretelegend "sca";
continuouslegend "sca"/ orient=vertical halign=right title=_LMCG_;
endlayout;
endgraph;
end;
run;

ods graphics on/width=1000 height=1000;
proc sgrender data =meanout template=scatterplot;
dynamic _X_='MeasureTime' _Y_='DropTime' _VMCG_='mean_Npap'
_MSIZE_='30pt' _LMCG_='Npap';
Label MeasureTime="Measurement Time" DropTime="Dropout Time";
run;
```

Out[19]:

HORSEPOWER OF Audi/BMW BY TYPES



In [ ]: