

```

1          *****;
2          *** Data from Freund & Wilson, 1997 ***;
3          *** TABLE 1.2 - HOUSES DATA          ***;
4          *****;
5          dm'log;clear;output;clear';
6          OPTIONS LS=99 PS=512 nocenter nodate nonumber;
7
8          ODS HTML style=minimal body='C:\EXST 7005\SAS\Example01.html' ;
NOTE: Writing HTML Body file: C:\EXST 7005\SAS\Example01.html
10         ODS RTF style=minimal body='C:\EXST 7005\SAS\Example01.rtf' ;
NOTE: Writing RTF Body file: C:\EXST 7005\SAS\Example01.rtf
12         ODS PDF style=minimal body='C:\EXST 7005\SAS\Example01.PDF';
NOTE: Writing ODS PDF output to DISK destination
      "C:\EXST 7005\SAS\Example01.PDF", printer "PDF".
13
14         TITLE1 'Introductory SAS example 1';
15
16         DATA HouseSales; INFILE CARDS MISSOVER;
17             TITLE2 'Analysis of house sale price data';
18             TITLE3 'Table 1.1 from Freund & Wilson, 1997';
19             INPUT OBS QUALITY $ EXTERIOR $ DSQF SP;
20             CARDS;
NOTE: The data set WORK.HOUSESALES has 42 observations and 5 variables.
NOTE: DATA statement used (Total process time):
      real time          0.03 seconds
      cpu time           0.03 seconds
20         !           RUN;
63         ;
64         PROC PRINT DATA=HouseSales; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The PROCEDURE PRINT printed page 1.
NOTE: PROCEDURE PRINT used (Total process time):
      real time          0.09 seconds
      cpu time           0.03 seconds

```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997

Obs	OBS	QUALITY	EXTERIOR	DSQF	SP	21	21	GOOD	BRICK	1.530	46.600
						22	22	GOOD	BRICK	1.612	43.750
1	1	POOR	FRAME	0.816	19.000	23	23	GOOD	BRICK	1.616	49.900
2	2	POOR	FRAME	0.907	19.800	24	24	GOOD	BRICK	1.675	35.000
3	3	POOR	FRAME	0.938	15.000	25	25	MEDIUM	BRICK	1.694	44.500
4	4	POOR	FRAME	1.032	18.900	26	26	MEDIUM	BRICK	1.704	48.300
5	5	POOR	FRAME	1.100	25.500	27	27	MEDIUM	BRICK	1.708	42.900
6	6	POOR	FRAME	1.180	25.900	28	28	MEDIUM	BRICK	1.711	43.500
7	7	MEDIUM	BRICK	1.278	33.500	29	29	MEDIUM	BRICK	1.716	49.600
8	8	MEDIUM	BRICK	1.289	36.500	30	30	MEDIUM	BRICK	1.731	54.000
9	9	MEDIUM	BRICK	1.320	38.500	31	31	MEDIUM	BRICK	1.740	48.500
10	10	MEDIUM	BRICK	1.328	37.000	32	32	MEDIUM	BRICK	1.741	49.900
11	11	GOOD	BRICK	1.337	34.555	33	33	MEDIUM	BRICK	1.741	48.900
12	12	MEDIUM	BRICK	1.366	35.500	34	34	MEDIUM	BRICK	1.764	39.500
13	13	POOR	FRAME	1.382	22.000	35	35	GOOD	BRICK	1.833	55.500
14	14	MEDIUM	BRICK	1.387	39.500	36	36	MEDIUM	BRICK	1.934	46.000
15	15	MEDIUM	BRICK	1.426	43.600	37	37	MEDIUM	BRICK	1.977	47.900
16	16	MEDIUM	BRICK	1.436	39.100	38	38	GOOD	BRICK	2.012	52.800
17	17	MEDIUM	BRICK	1.440	37.000	39	39	GOOD	BRICK	2.049	56.350
18	18	GOOD	BRICK	1.447	39.000	40	40	GOOD	BRICK	2.054	58.500
19	19	MEDIUM	BRICK	1.450	36.800	41	41	GOOD	BRICK	2.207	61.350
20	20	GOOD	BRICK	1.498	42.800	42	42	GOOD	FRAME	2.233	75.000

```

66          PROC UNIVARIATE DATA=HouseSales PLOT; VAR SP;
67          TITLE4 'Proc Univariate of house sales price'; RUN;
NOTE: The PROCEDURE UNIVARIATE printed page 2.
NOTE: PROCEDURE UNIVARIATE used (Total process time):
      real time          0.12 seconds
      cpu time           0.03 seconds
    
```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Proc Univariate of house sales price

The UNIVARIATE Procedure  
 Variable: SP

Moments			
N	42	Sum Weights	42
Mean	41.3739286	Sum Observations	1737.705
Std Deviation	12.446944	Variance	154.926414
Skewness	-0.0453816	Kurtosis	0.48640491
Uncorrected SS	78247.6655	Corrected SS	6351.98298
Coeff Variation	30.0840273	Std Error Mean	1.92060515

Basic Statistical Measures

Location		Variability	
Mean	41.37393	Std Deviation	12.44694
Median	42.85000	Variance	154.92641
Mode	37.00000	Range	60.00000
		Interquartile Range	13.40000

NOTE: The mode displayed is the smallest of 3 modes with a count of 2.

Tests for Location: Mu0=0

Test	-Statistic-	-----p Value-----
Student's t	t 21.54213	Pr >  t  <.0001
Sign	M 21	Pr >=  M  <.0001
Signed Rank	S 451.5	Pr >=  S  <.0001

Quantiles (Definition 5)

Quantile	Estimate
100% Max	75.00
99%	75.00
95%	58.50
90%	55.50
75% Q3	48.90
50% Median	42.85
25% Q1	35.50
10%	22.00
5%	19.00
1%	15.00
0% Min	15.00

Extreme Observations

----Lowest----		----Highest----	
Value	Obs	Value	Obs
15.0	3	55.50	35
18.9	4	56.35	39
19.0	1	58.50	40
19.8	2	61.35	41
22.0	13	75.00	42

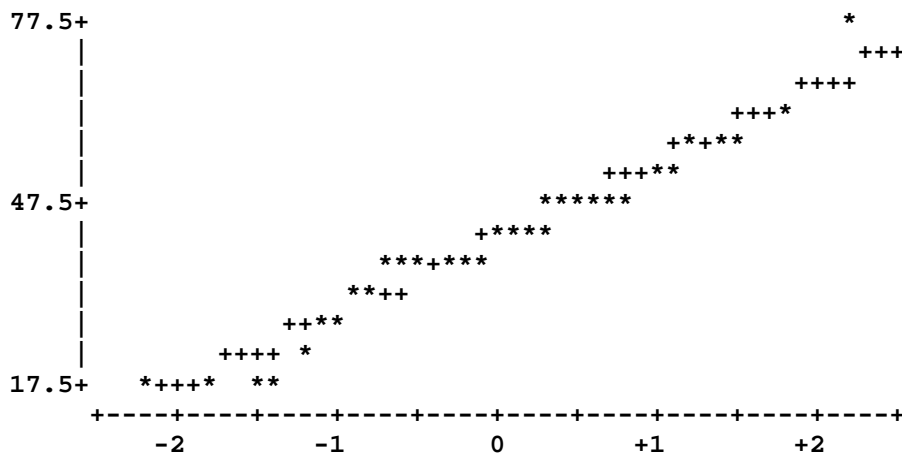
```

Stem Leaf  Boxplot
 7 5          1 0
 7
 6
 6 1          1 |
 5 668       3 |
 5 00034     5 |
 4 678889    6 +-----+
 4 00334444  8 *--+--*
 3 5566777899 10 +-----+
 3 4          1 |
 2 66         2 |
 2 02         2 |
 1 599        3 0

```

-----+  
 Multiply Stem.Leaf by 10\*\*+1

Normal Probability Plot



```

68
69      PROC MEANS DATA=HouseSales N Mean Var StdDev Min Max; VAR SP;
70      TITLE4 'Mean of house sales price'; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The PROCEDURE MEANS printed page 3.
NOTE: PROCEDURE MEANS used (Total process time):
      real time          0.09 seconds
      cpu time           0.01 seconds
71

```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Mean of house sales price

The MEANS Procedure

Analysis Variable : SP					
N	Mean	Variance	Std Dev	Minimum	Maximum
42	41.3739286	154.9264141	12.4469440	15.0000000	75.0000000

```

72          PROC SORT DATA=HouseSales; BY QUALITY; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The data set WORK.HOUSESALES has 42 observations and 5 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

73          PROC MEANS DATA=HouseSales N Mean Var StdDev Min Max; BY QUALITY; VAR SP;
74          TITLE4 'Mean of house sales price by house quality'; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The PROCEDURE MEANS printed page 4.
NOTE: PROCEDURE MEANS used (Total process time):
      real time          0.09 seconds
      cpu time           0.00 seconds
    
```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Mean of house sales price by house quality

QUALITY=GOOD

Analysis Variable : SP					
N	Mean	Variance	Std Dev	Minimum	Maximum
13	50.0850000	132.6176333	11.5159730	34.5550000	75.0000000

QUALITY=MEDIUM

Analysis Variable : SP					
N	Mean	Variance	Std Dev	Minimum	Maximum
22	42.7500000	33.2845238	5.7692741	33.5000000	54.0000000

QUALITY=POOR

Analysis Variable : SP					
N	Mean	Variance	Std Dev	Minimum	Maximum
7	20.8714286	15.1657143	3.8943182	15.0000000	25.9000000

```

75
76          PROC FREQ DATA=HouseSales; TABLE EXTERIOR;
77          TITLE4 'Frequency table of house Exterior'; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The PROCEDURE FREQ printed page 5.
NOTE: PROCEDURE FREQ used (Total process time):
      real time          0.09 seconds
      cpu time           0.00 seconds
    
```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Frequency table of house Exterior

FREQ Procedure

EXTERIOR	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BRICK	34	80.95	34	80.95
FRAME	8	19.05	42	100.00

```

78
79     PROC FREQ DATA=HouseSales; TABLE QUALITY;
80     TITLE4 'Frequency table of house Quality'; RUN;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: The PROCEDURE FREQ printed page 6.
NOTE: PROCEDURE FREQ used (Total process time):
      real time          0.14 seconds
      cpu time           0.00 seconds
    
```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Frequency table of house Quality

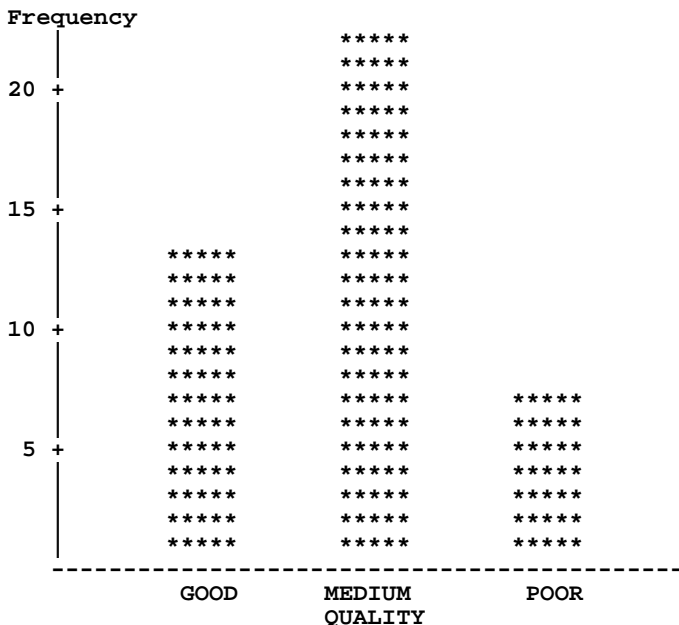
The FREQ Procedure

QUALITY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GOOD	13	30.95	13	30.95
MEDIUM	22	52.38	35	83.33
POOR	7	16.67	42	100.00

```

81
82     OPTIONS PS=40;
83     PROC CHART DATA=HouseSales; VBAR QUALITY;
84     TITLE4 'Frequency table of house Quality'; RUN;
NOTE: The PROCEDURE CHART printed page 7.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.09 seconds
      cpu time           0.00 seconds
    
```

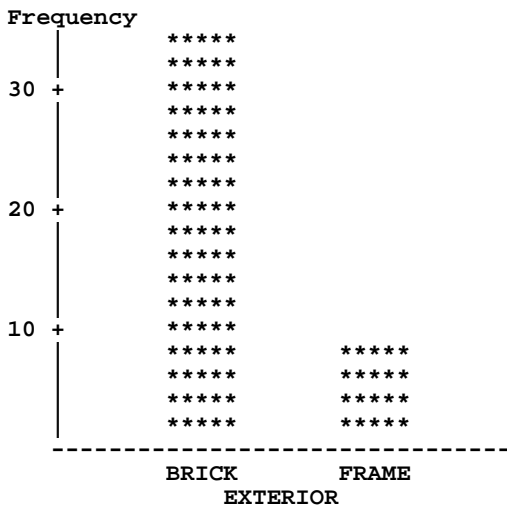
Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Frequency table of house Quality



```

86      PROC CHART DATA=HouseSales; VBAR EXTERIOR;
87      TITLE4 'Bar chart of house Exterior'; RUN;
NOTE: The PROCEDURE CHART printed page 8.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.09 seconds
      cpu time           0.01 seconds
    
```

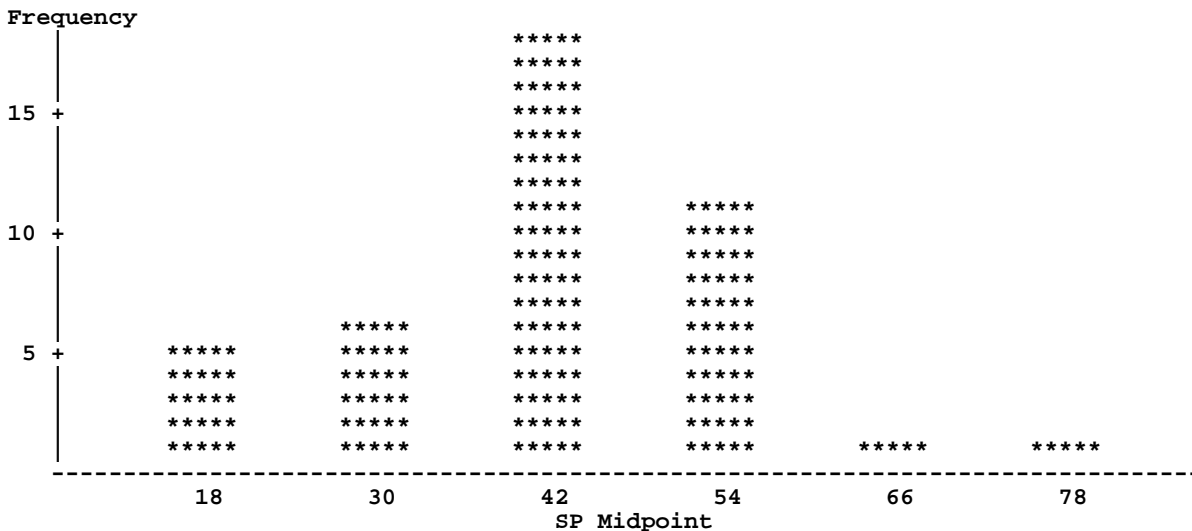
Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Bar chart of house Exterior



```

89      PROC CHART DATA=HouseSales; VBAR SP;
90      TITLE4 'Bar chart of house Sale Price'; RUN;
NOTE: The PROCEDURE CHART printed page 9.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.12 seconds
      cpu time           0.01 seconds
    
```

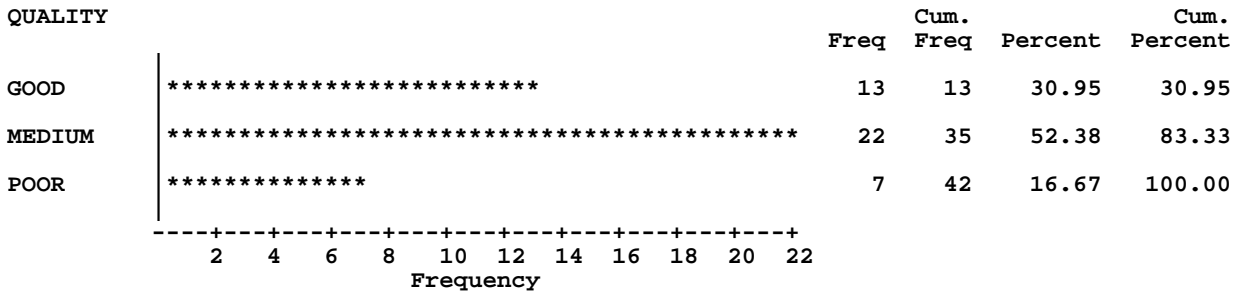
Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Bar chart of house Sale Price



```

92      PROC CHART DATA=HouseSales; HBAR QUALITY;
93      TITLE4 'Bar chart of house Quality'; RUN;
NOTE: The PROCEDURE CHART printed page 10.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.09 seconds
      cpu time           0.00 seconds
    
```

Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Bar chart of house Quality



```

98      proc chart data=HouseSales;
99      vbar SP;
100     run;
NOTE: The PROCEDURE CHART printed page 11.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.07 seconds
      cpu time           0.00 seconds
    
```

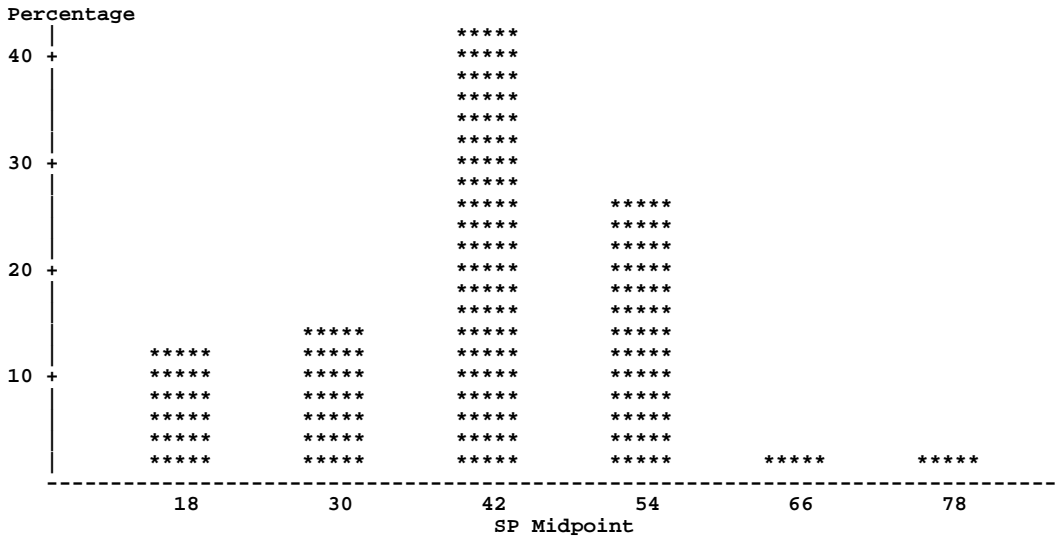
Introductory SAS example 1  
 Analysis of house sale price data  
 Table 1.1 from Freund & Wilson, 1997  
 Bar chart of house Quality



```

101     Title2 'Histogram of Sale Price percentages';
102     proc chart data=HouseSales;
103     vbar SP / type=percent;
104     run;
NOTE: The PROCEDURE CHART printed page 12.
NOTE: PROCEDURE CHART used (Total process time):
      real time          0.10 seconds
      cpu time           0.04 seconds
    
```

Introductory SAS example 1  
Histogram of Sale Price percentages



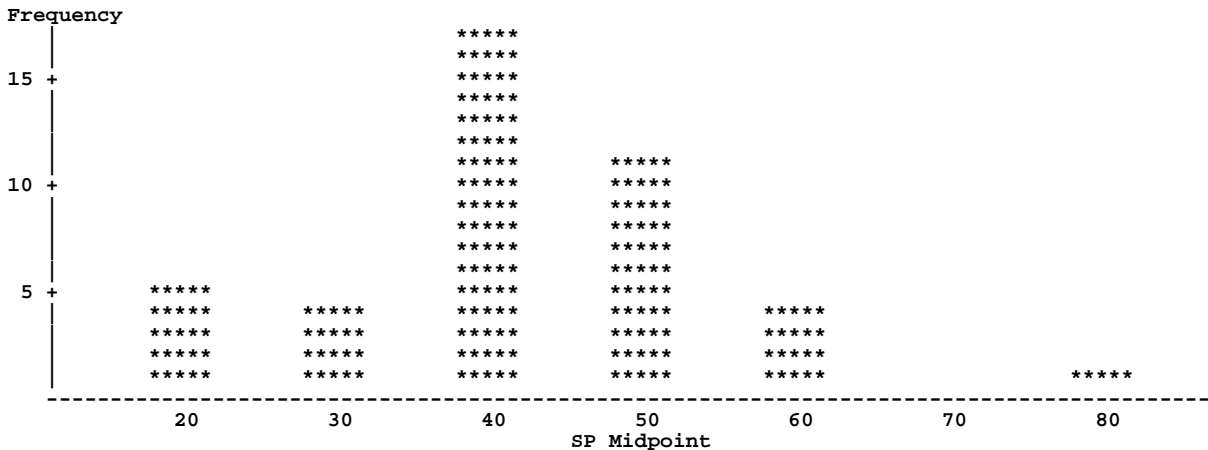
```

105     Title2 'Histogram of Sale Price with midpoints specified';
106     proc chart data=HouseSales;
107         vbar SP / midpoints =20 30 40 50 60 70 80;
108     run;

```

NOTE: The PROCEDURE CHART printed page 13.  
NOTE: PROCEDURE CHART used (Total process time):  
real time 0.09 seconds  
cpu time 0.01 seconds

Introductory SAS example 1  
Histogram of Sale Price with midpoints specified



```

109     Title2 'Horizontal bar chart with midpoints specified';
110     proc chart data=HouseSales;
111         hbar SP / midpoints = 20 to 80 by 10;
112     run;

```

NOTE: The PROCEDURE CHART printed page 14.  
NOTE: PROCEDURE CHART used (Total process time):  
real time 0.18 seconds  
cpu time 0.01 seconds





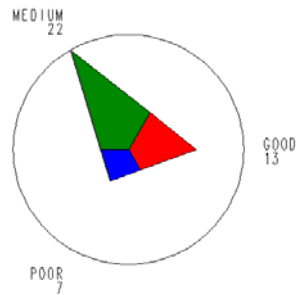
```

119      proc gchart data=HouseSales;
120          star QUALITY;
121      run;
NOTE: 49 RECORDS WRITTEN TO C:\EXST 7005\SAS\gchart1.gif
122      Title2 'Donut chart of Sale Price frequency';
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: PROCEDURE GCHART used (Total process time):
      real time          1.88 seconds
      cpu time           0.49 seconds

```

## Introductory SAS example 1

Star chart of Sale Price frequency  
FREQUENCY of QUALITY



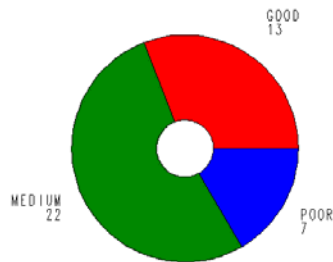
```

123      proc gchart data=HouseSales;
124          donut QUALITY;
125      run;
NOTE: 53 RECORDS WRITTEN TO C:\EXST 7005\SAS\gchart2.gif

```

## Introductory SAS example 1

Donut chart of Sale Price frequency  
FREQUENCY of QUALITY



126

```

127      OPTIONS PS=99;
128
129      ods html close;
130      ods rtf close;
131      ods PDF close;
NOTE: ODS PDF printed 20 pages to C:\EXST 7005\SAS\Example01.PDF.
132
133      run;
134      quit;
NOTE: There were 42 observations read from the data set WORK.HOUSESALES.
NOTE: PROCEDURE GCHART used (Total process time):
      real time          3.52 seconds
      cpu time           0.46 seconds

```