

Run SAS in Jupyter Notebooks with SASPy

Installation

1. Python3.4 or higher.
2. Install SASPY using a Python PIP command on the client (check <https://sassoftware.github.io/saspy/install.html#the-authinfo-file-authinfo-on-windows>):


```
pip install saspy
```
3. requires Java 7 or higher on the client.
4. register on the SAS On Demand website,
https://www.sas.com/en_us/software/on-demand-for-academics.html
5. create two files (check <https://support.sas.com/ondemand/saspy.html>)
 :
 - A. Create sasacfg_personal.py; Save sascfg_personal.py to your SASPy installation location.

```
In [1]: # where to save your sascfg_personal.py file
import saspy, os
print(saspy.__file__.replace('__init__.py', 'sascfg_personal.py'))
```

C:\Users\avitr\anaconda3\lib\site-packages\saspy\sascfg_personal.py

- B. Create _authinfo; Save _authinfo to your user's home directory
 C:\Users\ 'YOUR_USERNAME' on Windows.

```
In [2]: # Check Python version
from platform import python_version
python_version()
```

Out[2]: '3.8.8'

```
In [3]: # Check Java version
import subprocess
print (subprocess.check_output(["java", "-version"], stderr=subprocess.STDOUT) )
```

b'java version "1.8.0_333"\r\nJava(TM) SE Runtime Environment (build 1.8.0_333-b02)\r\nJava HotSpot(TM) Client VM (build 25.333-b02, mixed mode, sharing)\r\n'

```
In [4]: # check the version of SASPy
saspy.__version__
```

Out[4]: '4.3.0'

Submit the SASsession object to get info about your session

```
In [5]: # Start a SAS session, SAS is running in UTF-8
import saspy
```

```
sas = saspy.SASsession()
sas
```

Using SAS Config named: oda
SAS Connection established. Subprocess id is 7316

```
Out[5]: Access Method      = IOM
SAS Config name        = oda
SAS Config file         = C:\Users\avitr\anaconda3\lib\site-packages\saspy\sascfg_persona
1.py
WORK Path              = /saswork/SAS_workA77E00019655_odaws02-usw2-2.oda.sas.com/SAS_wor
k7BFD00019655_odaws02-usw2-2.oda.sas.com/
SAS Version            = 9.04.01M6P11072018
SASPy Version          = 4.3.0
Teach me SAS           = False
Batch                  = False
Results                = Pandas
SAS Session Encoding   = utf-8
Python Encoding value  = utf-8
SAS process Pid value = 104021
```

```
In [6]: # Check assinged Libraries
assigned_librefs = sas.assigned_librefs() # Check all assigned libraries
print(assigned_librefs)
```

['WORK', 'SASDATA', 'STPSAMP', 'SASHHELP', 'MAPS', 'MAPSSAS', 'MAPSGFK', 'SASUSER']

Create a SASdata object to use to access the cars data set in the sashelp library.

```
In [7]: # Get SAS cars dataset
cars = sas.sasdata(table='cars', libref='sashelp', results='text')
```

```
In [8]: type(cars)
```

Out[8]: saspy.sasdata.SASdata

equivalent of SAS ccde:

```
data cars;
  set sashelp.cars;
run;
```

Run SAS Procedure

```
In [88]: %%SAS sas
proc print data=sashelp.cars;
run;
```

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	-
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	-
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	-
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	-
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	-
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	-
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	-
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	-
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3.0	-
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3.0	-
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3.0	-
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3.0	-
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3.0	-
16	Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3.0	-
17	Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	-
18	Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	-
19	Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	-
20	Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	-
21	Audi	RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	-
22	Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	-
23	Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
24	Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	1
25	Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3.0	1
26	Audi	S4 Avant Quattro	Wagon	Europe	All	\$49,090	\$44,446	4.2	1
27	BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3.0	1
28	BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	1
29	BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	1
30	BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	1
31	BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	1
32	BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	1
33	BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3.0	1
34	BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3.0	1
35	BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3.0	1
36	BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	1
37	BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3.0	1
38	BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3.0	1
39	BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	1
40	BMW	745i 4dr	Sedan	Europe	Rear	\$69,195	\$63,190	4.4	1
41	BMW	745Li 4dr	Sedan	Europe	Rear	\$73,195	\$66,830	4.4	1
42	BMW	M3 coupe 2dr	Sports	Europe	Rear	\$48,195	\$44,170	3.2	1
43	BMW	M3 convertible 2dr	Sports	Europe	Rear	\$56,595	\$51,815	3.2	1
44	BMW	Z4 convertible 2.5i 2dr	Sports	Europe	Rear	\$33,895	\$31,065	2.5	1
45	BMW	Z4 convertible 3.0i 2dr	Sports	Europe	Rear	\$41,045	\$37,575	3.0	1
46	BMW	325xi Sport	Wagon	Europe	All	\$32,845	\$30,110	2.5	1
47	Buick	Rainier	SUV	USA	All	\$37,895	\$34,357	4.2	1
48	Buick	Rendezvous CX	SUV	USA	Front	\$26,545	\$24,085	3.4	1
49	Buick	Century Custom 4dr	Sedan	USA	Front	\$22,180	\$20,351	3.1	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
50	Buick	LeSabre Custom 4dr	Sedan	USA	Front	\$26,470	\$24,282	3.8	-
51	Buick	Regal LS 4dr	Sedan	USA	Front	\$24,895	\$22,835	3.8	-
52	Buick	Regal GS 4dr	Sedan	USA	Front	\$28,345	\$26,047	3.8	-
53	Buick	LeSabre Limited 4dr	Sedan	USA	Front	\$32,245	\$29,566	3.8	-
54	Buick	Park Avenue 4dr	Sedan	USA	Front	\$35,545	\$32,244	3.8	-
55	Buick	Park Avenue Ultra 4dr	Sedan	USA	Front	\$40,720	\$36,927	3.8	-
56	Cadillac	Escalade	SUV	USA	Front	\$52,795	\$48,377	5.3	-
57	Cadillac	SRX V8	SUV	USA	Front	\$46,995	\$43,523	4.6	-
58	Cadillac	CTS VVT 4dr	Sedan	USA	Rear	\$30,835	\$28,575	3.6	-
59	Cadillac	Deville 4dr	Sedan	USA	Front	\$45,445	\$41,650	4.6	-
60	Cadillac	Deville DTS 4dr	Sedan	USA	Front	\$50,595	\$46,362	4.6	-
61	Cadillac	Seville SLS 4dr	Sedan	USA	Front	\$47,955	\$43,841	4.6	-
62	Cadillac	XLR convertible 2dr	Sports	USA	Rear	\$76,200	\$70,546	4.6	-
63	Cadillac	Escalade EXT	Truck	USA	All	\$52,975	\$48,541	6.0	-
64	Chevrolet	Suburban 1500 LT	SUV	USA	Front	\$42,735	\$37,422	5.3	-
65	Chevrolet	Tahoe LT	SUV	USA	All	\$41,465	\$36,287	5.3	-
66	Chevrolet	TrailBlazer LT	SUV	USA	Front	\$30,295	\$27,479	4.2	-
67	Chevrolet	Tracker	SUV	USA	Front	\$20,255	\$19,108	2.5	-
68	Chevrolet	Aveo 4dr	Sedan	USA	Front	\$11,690	\$10,965	1.6	-
69	Chevrolet	Aveo LS 4dr hatch	Sedan	USA	Front	\$12,585	\$11,802	1.6	-
70	Chevrolet	Cavalier 2dr	Sedan	USA	Front	\$14,610	\$13,697	2.2	-
71	Chevrolet	Cavalier 4dr	Sedan	USA	Front	\$14,810	\$13,884	2.2	-
72	Chevrolet	Cavalier LS 2dr	Sedan	USA	Front	\$16,385	\$15,357	2.2	-
73	Chevrolet	Impala 4dr	Sedan	USA	Front	\$21,900	\$20,095	3.4	-
74	Chevrolet	Malibu 4dr	Sedan	USA	Front	\$18,995	\$17,434	2.2	-
75	Chevrolet	Malibu LS 4dr	Sedan	USA	Front	\$20,370	\$18,639	3.5	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
76	Chevrolet	Monte Carlo LS 2dr	Sedan	USA	Front	\$21,825	\$20,026	3.4	-
77	Chevrolet	Impala LS 4dr	Sedan	USA	Front	\$25,000	\$22,931	3.8	-
78	Chevrolet	Impala SS 4dr	Sedan	USA	Front	\$27,995	\$25,672	3.8	-
79	Chevrolet	Malibu LT 4dr	Sedan	USA	Front	\$23,495	\$21,551	3.5	-
80	Chevrolet	Monte Carlo SS 2dr	Sedan	USA	Front	\$24,225	\$22,222	3.8	-
81	Chevrolet	Astro	Sedan	USA	All	\$26,395	\$23,954	4.3	-
82	Chevrolet	Venture LS	Sedan	USA	Front	\$27,020	\$24,518	3.4	-
83	Chevrolet	Corvette 2dr	Sports	USA	Rear	\$44,535	\$39,068	5.7	-
84	Chevrolet	Corvette convertible 2dr	Sports	USA	Rear	\$51,535	\$45,193	5.7	-
85	Chevrolet	Avalanche 1500	Truck	USA	All	\$36,100	\$31,689	5.3	-
86	Chevrolet	Colorado Z85	Truck	USA	All	\$18,760	\$17,070	2.8	-
87	Chevrolet	Silverado 1500 Regular Cab	Truck	USA	Rear	\$20,310	\$18,480	4.3	-
88	Chevrolet	Silverado SS	Truck	USA	All	\$40,340	\$35,399	6.0	-
89	Chevrolet	SSR	Truck	USA	Rear	\$41,995	\$39,306	5.3	-
90	Chevrolet	Malibu Maxx LS	Wagon	USA	Front	\$22,225	\$20,394	3.5	-
91	Chrysler	PT Cruiser 4dr	Sedan	USA	Front	\$17,985	\$16,919	2.4	-
92	Chrysler	PT Cruiser Limited 4dr	Sedan	USA	Front	\$22,000	\$20,573	2.4	-
93	Chrysler	Sebring 4dr	Sedan	USA	Front	\$19,090	\$17,805	2.4	-
94	Chrysler	Sebring Touring 4dr	Sedan	USA	Front	\$21,840	\$20,284	2.7	-
95	Chrysler	300M 4dr	Sedan	USA	Front	\$29,865	\$27,797	3.5	-
96	Chrysler	Concorde LX 4dr	Sedan	USA	Front	\$24,130	\$22,452	2.7	-
97	Chrysler	Concorde LXi 4dr	Sedan	USA	Front	\$26,860	\$24,909	3.5	-
98	Chrysler	PT Cruiser GT 4dr	Sedan	USA	Front	\$25,955	\$24,172	2.4	-
99	Chrysler	Sebring convertible 2dr	Sedan	USA	Front	\$25,215	\$23,451	2.4	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
100	Chrysler	300M Special Edition 4dr	Sedan	USA	Front	\$33,295	\$30,884	3.5	1
101	Chrysler	Sebring Limited convertible 2dr	Sedan	USA	Front	\$30,950	\$28,613	2.7	1
102	Chrysler	Town and Country LX	Sedan	USA	Front	\$27,490	\$25,371	3.3	1
103	Chrysler	Town and Country Limited	Sedan	USA	Front	\$38,380	\$35,063	3.8	1
104	Chrysler	Crossfire 2dr	Sports	USA	Rear	\$34,495	\$32,033	3.2	1
105	Chrysler	Pacifica	Wagon	USA	Rear	\$31,230	\$28,725	3.5	1
106	Dodge	Durango SLT	SUV	USA	All	\$32,235	\$29,472	4.7	1
107	Dodge	Neon SE 4dr	Sedan	USA	Front	\$13,670	\$12,849	2.0	1
108	Dodge	Neon SXT 4dr	Sedan	USA	Front	\$15,040	\$14,086	2.0	1
109	Dodge	Intrepid SE 4dr	Sedan	USA	Front	\$22,035	\$20,502	2.7	1
110	Dodge	Stratus SXT 4dr	Sedan	USA	Front	\$18,820	\$17,512	2.4	1
111	Dodge	Stratus SE 4dr	Sedan	USA	Front	\$20,220	\$18,821	2.4	1
112	Dodge	Intrepid ES 4dr	Sedan	USA	Front	\$24,885	\$23,058	3.5	1
113	Dodge	Caravan SE	Sedan	USA	Front	\$21,795	\$20,508	2.4	1
114	Dodge	Grand Caravan SXT	Sedan	USA	All	\$32,660	\$29,812	3.8	1
115	Dodge	Viper SRT-10 convertible 2dr	Sports	USA	Rear	\$81,795	\$74,451	8.3	1
116	Dodge	Dakota Regular Cab	Truck	USA	Rear	\$17,630	\$16,264	3.7	1
117	Dodge	Dakota Club Cab	Truck	USA	Rear	\$20,300	\$18,670	3.7	1
118	Dodge	Ram 1500 Regular Cab ST	Truck	USA	Rear	\$20,215	\$18,076	3.7	1
119	Ford	Excursion 6.8 XLT	SUV	USA	All	\$41,475	\$36,494	6.8	1
120	Ford	Expedition 4.6 XLT	SUV	USA	Front	\$34,560	\$30,468	4.6	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
121	Ford	Explorer XLT V6	SUV	USA	All	\$29,670	\$26,983	4.0	1
122	Ford	Escape XLS	SUV	USA	All	\$22,515	\$20,907	3.0	1
123	Ford	Focus ZX3 2dr hatch	Sedan	USA	Front	\$13,270	\$12,482	2.0	1
124	Ford	Focus LX 4dr	Sedan	USA	Front	\$13,730	\$12,906	2.0	1
125	Ford	Focus SE 4dr	Sedan	USA	Front	\$15,460	\$14,496	2.0	1
126	Ford	Focus ZX5 5dr	Sedan	USA	Front	\$15,580	\$14,607	2.0	1
127	Ford	Focus SVT 2dr	Sedan	USA	Front	\$19,135	\$17,878	2.0	1
128	Ford	Taurus LX 4dr	Sedan	USA	Front	\$20,320	\$18,881	3.0	1
129	Ford	Taurus SES Duratec 4dr	Sedan	USA	Front	\$22,735	\$20,857	3.0	1
130	Ford	Crown Victoria 4dr	Sedan	USA	Rear	\$24,345	\$22,856	4.6	1
131	Ford	Crown Victoria LX 4dr	Sedan	USA	Rear	\$27,370	\$25,105	4.6	1
132	Ford	Crown Victoria LX Sport 4dr	Sedan	USA	Rear	\$30,315	\$27,756	4.6	1
133	Ford	Freestar SE	Sedan	USA	Front	\$26,930	\$24,498	3.9	1
134	Ford	Mustang 2dr (convertible)	Sports	USA	Rear	\$18,345	\$16,943	3.8	1
135	Ford	Mustang GT Premium convertible 2dr	Sports	USA	Rear	\$29,380	\$26,875	4.6	1
136	Ford	Thunderbird Deluxe convert w/hardtop 2d	Sports	USA	Front	\$37,530	\$34,483	3.9	1
137	Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	1
138	Ford	F-150 Supercab Lariat	Truck	USA	All	\$33,540	\$29,405	5.4	1
139	Ford	Ranger 2.3 XL Regular Cab	Truck	USA	Rear	\$14,385	\$13,717	2.3	1
140	Ford	Focus ZTW	Wagon	USA	Front	\$17,475	\$16,375	2.0	1
141	Ford	Taurus SE	Wagon	USA	Front	\$22,290	\$20,457	3.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
142	GMC	Envoy XUV SLE	SUV	USA	Front	\$31,890	\$28,922	4.2	-
143	GMC	Yukon 1500 SLE	SUV	USA	Front	\$35,725	\$31,361	4.8	-
144	GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6.0	-
145	GMC	Safari SLE	Sedan	USA	Rear	\$25,640	\$23,215	4.3	-
146	GMC	Canyon Z85 SL Regular Cab	Truck	USA	Rear	\$16,530	\$14,877	2.8	-
147	GMC	Sierra Extended Cab 1500	Truck	USA	Rear	\$25,717	\$22,604	4.8	-
148	GMC	Sierra HD 2500	Truck	USA	All	\$29,322	\$25,759	6.0	-
149	GMC	Sonoma Crew Cab	Truck	USA	All	\$25,395	\$23,043	4.3	-
150	Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	\$20,140	\$18,451	1.4	-
151	Honda	Insight 2dr (gas/electric)	Hybrid	Asia	Front	\$19,110	\$17,911	2.0	-
152	Honda	Pilot LX	SUV	Asia	All	\$27,560	\$24,843	3.5	-
153	Honda	CR-V LX	SUV	Asia	All	\$19,860	\$18,419	2.4	-
154	Honda	Element LX	SUV	Asia	All	\$18,690	\$17,334	2.4	-
155	Honda	Civic DX 2dr	Sedan	Asia	Front	\$13,270	\$12,175	1.7	-
156	Honda	Civic HX 2dr	Sedan	Asia	Front	\$14,170	\$12,996	1.7	-
157	Honda	Civic LX 4dr	Sedan	Asia	Front	\$15,850	\$14,531	1.7	-
158	Honda	Accord LX 2dr	Sedan	Asia	Front	\$19,860	\$17,924	2.4	-
159	Honda	Accord EX 2dr	Sedan	Asia	Front	\$22,260	\$20,080	2.4	-
160	Honda	Civic EX 4dr	Sedan	Asia	Front	\$17,750	\$16,265	1.7	-
161	Honda	Civic Si 2dr hatch	Sedan	Asia	Front	\$19,490	\$17,849	2.0	-
162	Honda	Accord LX V6 4dr	Sedan	Asia	Front	\$23,760	\$21,428	3.0	-
163	Honda	Accord EX V6 2dr	Sedan	Asia	Front	\$26,960	\$24,304	3.0	-
164	Honda	Odyssey LX	Sedan	Asia	Front	\$24,950	\$22,498	3.5	-
165	Honda	Odyssey EX	Sedan	Asia	Front	\$27,450	\$24,744	3.5	-
166	Honda	S2000 convertible 2dr	Sports	Asia	Rear	\$33,260	\$29,965	2.2	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
167	Hummer	H2	SUV	USA	All	\$49,995	\$45,815	6.0	1
168	Hyundai	Santa Fe GLS	SUV	Asia	Front	\$21,589	\$20,201	2.7	1
169	Hyundai	Accent 2dr hatch	Sedan	Asia	Front	\$10,539	\$10,107	1.6	1
170	Hyundai	Accent GL 4dr	Sedan	Asia	Front	\$11,839	\$11,116	1.6	1
171	Hyundai	Accent GT 2dr hatch	Sedan	Asia	Front	\$11,939	\$11,209	1.6	1
172	Hyundai	Elantra GLS 4dr	Sedan	Asia	Front	\$13,839	\$12,781	2.0	1
173	Hyundai	Elantra GT 4dr	Sedan	Asia	Front	\$15,389	\$14,207	2.0	1
174	Hyundai	Elantra GT 4dr hatch	Sedan	Asia	Front	\$15,389	\$14,207	2.0	1
175	Hyundai	Sonata GLS 4dr	Sedan	Asia	Front	\$19,339	\$17,574	2.7	1
176	Hyundai	Sonata LX 4dr	Sedan	Asia	Front	\$20,339	\$18,380	2.7	1
177	Hyundai	XG350 4dr	Sedan	Asia	Front	\$24,589	\$22,055	3.5	1
178	Hyundai	XG350 L 4dr	Sedan	Asia	Front	\$26,189	\$23,486	3.5	1
179	Hyundai	Tiburon GT V6 2dr	Sports	Asia	Front	\$18,739	\$17,101	2.7	1
180	Infiniti	G35 4dr	Sedan	Asia	Rear	\$28,495	\$26,157	3.5	1
181	Infiniti	G35 Sport Coupe 2dr	Sedan	Asia	Rear	\$29,795	\$27,536	3.5	1
182	Infiniti	G35 4dr	Sedan	Asia	All	\$32,445	\$29,783	3.5	1
183	Infiniti	I35 4dr	Sedan	Asia	Front	\$31,145	\$28,320	3.5	1
184	Infiniti	M45 4dr	Sedan	Asia	Rear	\$42,845	\$38,792	4.5	1
185	Infiniti	Q45 Luxury 4dr	Sedan	Asia	Rear	\$52,545	\$47,575	4.5	1
186	Infiniti	FX35	Wagon	Asia	Rear	\$34,895	\$31,756	3.5	1
187	Infiniti	FX45	Wagon	Asia	All	\$36,395	\$33,121	4.5	1
188	Isuzu	Ascender S	SUV	Asia	All	\$31,849	\$29,977	4.2	1
189	Isuzu	Rodeo S	SUV	Asia	Front	\$20,449	\$19,261	3.2	1
190	Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	\$29,995	\$27,355	2.5	1
191	Jaguar	X-Type 3.0 4dr	Sedan	Europe	All	\$33,995	\$30,995	3.0	1
192	Jaguar	S-Type 3.0 4dr	Sedan	Europe	Rear	\$43,895	\$40,004	3.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
193	Jaguar	S-Type 4.2 4dr	Sedan	Europe	Rear	\$49,995	\$45,556	4.2	-
194	Jaguar	S-Type R 4dr	Sedan	Europe	Rear	\$63,120	\$57,499	4.2	-
195	Jaguar	Vanden Plas 4dr	Sedan	Europe	Rear	\$68,995	\$62,846	4.2	-
196	Jaguar	XJ8 4dr	Sedan	Europe	Rear	\$59,995	\$54,656	4.2	-
197	Jaguar	XJR 4dr	Sedan	Europe	Rear	\$74,995	\$68,306	4.2	-
198	Jaguar	XK8 coupe 2dr	Sports	Europe	Rear	\$69,995	\$63,756	4.2	-
199	Jaguar	XK8 convertible 2dr	Sports	Europe	Rear	\$74,995	\$68,306	4.2	-
200	Jaguar	XKR coupe 2dr	Sports	Europe	Rear	\$81,995	\$74,676	4.2	-
201	Jaguar	XKR convertible 2dr	Sports	Europe	Rear	\$86,995	\$79,226	4.2	-
202	Jeep	Grand Cherokee Laredo	SUV	USA	Front	\$27,905	\$25,686	4.0	-
203	Jeep	Liberty Sport	SUV	USA	All	\$20,130	\$18,973	2.4	-
204	Jeep	Wrangler Sahara convertible 2dr	SUV	USA	All	\$25,520	\$23,275	4.0	-
205	Kia	Sorento LX	SUV	Asia	Front	\$19,635	\$18,630	3.5	-
206	Kia	Optima LX 4dr	Sedan	Asia	Front	\$16,040	\$14,910	2.4	-
207	Kia	Rio 4dr manual	Sedan	Asia	Front	\$10,280	\$9,875	1.6	-
208	Kia	Rio 4dr auto	Sedan	Asia	Front	\$11,155	\$10,705	1.6	-
209	Kia	Spectra 4dr	Sedan	Asia	Front	\$12,360	\$11,630	1.8	-
210	Kia	Spectra GS 4dr hatch	Sedan	Asia	Front	\$13,580	\$12,830	1.8	-
211	Kia	Spectra GSX 4dr hatch	Sedan	Asia	Front	\$14,630	\$13,790	1.8	-
212	Kia	Optima LX V6 4dr	Sedan	Asia	Front	\$18,435	\$16,850	2.7	-
213	Kia	Amanti 4dr	Sedan	Asia	Front	\$26,000	\$23,764	3.5	-
214	Kia	Sedona LX	Sedan	Asia	Front	\$20,615	\$19,400	3.5	-
215	Kia	Rio Cinco	Wagon	Asia	Front	\$11,905	\$11,410	1.6	-
216	Land Rover	Range Rover HSE	SUV	Europe	All	\$72,250	\$65,807	4.4	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
217	Land Rover	Discovery SE	SUV	Europe	All	\$39,250	\$35,777	4.6	-
218	Land Rover	Freelander SE	SUV	Europe	All	\$25,995	\$23,969	2.5	-
219	Lexus	GX 470	SUV	Asia	All	\$45,700	\$39,838	4.7	-
220	Lexus	LX 470	SUV	Asia	All	\$64,800	\$56,455	4.7	-
221	Lexus	RX 330	SUV	Asia	All	\$39,195	\$34,576	3.3	-
222	Lexus	ES 330 4dr	Sedan	Asia	Front	\$32,350	\$28,755	3.3	-
223	Lexus	IS 300 4dr manual	Sedan	Asia	Rear	\$31,045	\$27,404	3.0	-
224	Lexus	IS 300 4dr auto	Sedan	Asia	Rear	\$32,415	\$28,611	3.0	-
225	Lexus	GS 300 4dr	Sedan	Asia	Rear	\$41,010	\$36,196	3.0	-
226	Lexus	GS 430 4dr	Sedan	Asia	Rear	\$48,450	\$42,232	4.3	-
227	Lexus	LS 430 4dr	Sedan	Asia	Rear	\$55,750	\$48,583	4.3	-
228	Lexus	SC 430 convertible 2dr	Sports	Asia	Rear	\$63,200	\$55,063	4.3	-
229	Lexus	IS 300 SportCross	Wagon	Asia	Rear	\$32,455	\$28,647	3.0	-
230	Lincoln	Navigator Luxury	SUV	USA	All	\$52,775	\$46,360	5.4	-
231	Lincoln	Aviator Ultimate	SUV	USA	Front	\$42,915	\$39,443	4.6	-
232	Lincoln	LS V6 Luxury 4dr	Sedan	USA	Rear	\$32,495	\$29,969	3.0	-
233	Lincoln	LS V6 Premium 4dr	Sedan	USA	Rear	\$36,895	\$33,929	3.0	-
234	Lincoln	LS V8 Sport 4dr	Sedan	USA	Rear	\$40,095	\$36,809	3.9	-
235	Lincoln	LS V8 Ultimate 4dr	Sedan	USA	Rear	\$43,495	\$39,869	3.9	-
236	Lincoln	Town Car Signature 4dr	Sedan	USA	Rear	\$41,815	\$38,418	4.6	-
237	Lincoln	Town Car Ultimate 4dr	Sedan	USA	Rear	\$44,925	\$41,217	4.6	-
238	Lincoln	Town Car Ultimate L 4dr	Sedan	USA	Rear	\$50,470	\$46,208	4.6	-
239	MINI	Cooper	Sedan	Europe	Front	\$16,999	\$15,437	1.6	-
240	MINI	Cooper S	Sedan	Europe	Front	\$19,999	\$18,137	1.6	-
241	Mazda	Tribute DX 2.0	SUV	Asia	All	\$21,087	\$19,742	2.0	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
242	Mazda	Mazda3 i 4dr	Sedan	Asia	Front	\$15,500	\$14,525	2.0	-
243	Mazda	Mazda3 s 4dr	Sedan	Asia	Front	\$17,200	\$15,922	2.3	-
244	Mazda	Mazda6 i 4dr	Sedan	Asia	Front	\$19,270	\$17,817	2.3	-
245	Mazda	MPV ES	Sedan	Asia	Front	\$28,750	\$26,600	3.0	-
246	Mazda	MX-5 Miata convertible 2dr	Sports	Asia	Rear	\$22,388	\$20,701	1.8	-
247	Mazda	MX-5 Miata LS convertible 2dr	Sports	Asia	Rear	\$25,193	\$23,285	1.8	-
248	Mazda	RX-8 4dr automatic	Sports	Asia	Rear	\$25,700	\$23,794	1.3	-
249	Mazda	RX-8 4dr manual	Sports	Asia	Rear	\$27,200	\$25,179	1.3	-
250	Mazda	B2300 SX Regular Cab	Truck	Asia	Rear	\$14,840	\$14,070	2.3	-
251	Mazda	B4000 SE Cab Plus	Truck	Asia	All	\$22,350	\$20,482	4.0	-
252	Mercedes-Benz	G500	SUV	Europe	All	\$76,870	\$71,540	5.0	-
253	Mercedes-Benz	ML500	SUV	Europe	All	\$46,470	\$43,268	5.0	-
254	Mercedes-Benz	C230 Sport 2dr	Sedan	Europe	Rear	\$26,060	\$24,249	1.8	-
255	Mercedes-Benz	C320 Sport 2dr	Sedan	Europe	Rear	\$28,370	\$26,435	3.2	-
256	Mercedes-Benz	C240 4dr	Sedan	Europe	Rear	\$32,280	\$30,071	2.6	-
257	Mercedes-Benz	C240 4dr	Sedan	Europe	All	\$33,480	\$31,187	2.6	-
258	Mercedes-Benz	C320 Sport 4dr	Sedan	Europe	Rear	\$35,920	\$33,456	3.2	-
259	Mercedes-Benz	C320 4dr	Sedan	Europe	Rear	\$37,630	\$35,046	3.2	-
260	Mercedes-Benz	C320 4dr	Sedan	Europe	All	\$38,830	\$36,162	3.2	-
261	Mercedes-Benz	C32 AMG 4dr	Sedan	Europe	Rear	\$52,120	\$48,522	3.2	-
262	Mercedes-Benz	CL500 2dr	Sedan	Europe	Rear	\$94,820	\$88,324	5.0	-
263	Mercedes-Benz	CL600 2dr	Sedan	Europe	Rear	\$128,420	\$119,600	5.5	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
264	Mercedes-Benz	CLK320 coupe 2dr (convertible)	Sedan	Europe	Rear	\$45,707	\$41,966	3.2	1
265	Mercedes-Benz	CLK500 coupe 2dr (convertible)	Sedan	Europe	Rear	\$52,800	\$49,104	5.0	1
266	Mercedes-Benz	E320 4dr	Sedan	Europe	Rear	\$48,170	\$44,849	3.2	1
267	Mercedes-Benz	E500 4dr	Sedan	Europe	Rear	\$57,270	\$53,382	5.0	1
268	Mercedes-Benz	S430 4dr	Sedan	Europe	Rear	\$74,320	\$69,168	4.3	1
269	Mercedes-Benz	S500 4dr	Sedan	Europe	All	\$86,970	\$80,939	5.0	1
270	Mercedes-Benz	SL500 convertible 2dr	Sports	Europe	Rear	\$90,520	\$84,325	5.0	1
271	Mercedes-Benz	SL55 AMG 2dr	Sports	Europe	Rear	\$121,770	\$113,388	5.5	1
272	Mercedes-Benz	SL600 convertible 2dr	Sports	Europe	Rear	\$126,670	\$117,854	5.5	1
273	Mercedes-Benz	SLK230 convertible 2dr	Sports	Europe	Rear	\$40,320	\$37,548	2.3	1
274	Mercedes-Benz	SLK32 AMG 2dr	Sports	Europe	Rear	\$56,170	\$52,289	3.2	1
275	Mercedes-Benz	C240	Wagon	Europe	Rear	\$33,780	\$31,466	2.6	1
276	Mercedes-Benz	E320	Wagon	Europe	Rear	\$50,670	\$47,174	3.2	1
277	Mercedes-Benz	E500	Wagon	Europe	All	\$60,670	\$56,474	5.0	1
278	Mercury	Mountaineer	SUV	USA	Front	\$29,995	\$27,317	4.0	1
279	Mercury	Sable GS 4dr	Sedan	USA	Front	\$21,595	\$19,848	3.0	1
280	Mercury	Grand Marquis GS 4dr	Sedan	USA	Rear	\$24,695	\$23,217	4.6	1
281	Mercury	Grand Marquis LS Premium 4dr	Sedan	USA	Rear	\$29,595	\$27,148	4.6	1
282	Mercury	Sable LS Premium 4dr	Sedan	USA	Front	\$23,895	\$21,918	3.0	1
283	Mercury	Grand Marquis LS Ultimate 4dr	Sedan	USA	Rear	\$30,895	\$28,318	4.6	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
284	Mercury	Marauder 4dr	Sedan	USA	Rear	\$34,495	\$31,558	4.6	8
285	Mercury	Monterey Luxury	Sedan	USA	Front	\$33,995	\$30,846	4.2	8
286	Mercury	Sable GS	Wagon	USA	Front	\$22,595	\$20,748	3.0	8
287	Mitsubishi	Endeavor XLS	SUV	Asia	All	\$30,492	\$28,330	3.8	8
288	Mitsubishi	Montero XLS	SUV	Asia	All	\$33,112	\$30,763	3.8	8
289	Mitsubishi	Outlander LS	SUV	Asia	Front	\$18,892	\$17,569	2.4	4
290	Mitsubishi	Lancer ES 4dr	Sedan	Asia	Front	\$14,622	\$13,751	2.0	4
291	Mitsubishi	Lancer LS 4dr	Sedan	Asia	Front	\$16,722	\$15,718	2.0	4
292	Mitsubishi	Galant ES 2.4L 4dr	Sedan	Asia	Front	\$19,312	\$17,957	2.4	4
293	Mitsubishi	Lancer OZ Rally 4dr auto	Sedan	Asia	Front	\$17,232	\$16,196	2.0	4
294	Mitsubishi	Diamante LS 4dr	Sedan	Asia	Front	\$29,282	\$27,250	3.5	8
295	Mitsubishi	Galant GTS 4dr	Sedan	Asia	Front	\$25,700	\$23,883	3.8	8
296	Mitsubishi	Eclipse GTS 2dr	Sports	Asia	Front	\$25,092	\$23,456	3.0	8
297	Mitsubishi	Eclipse Spyder GT convertible 2dr	Sports	Asia	Front	\$26,992	\$25,218	3.0	8
298	Mitsubishi	Lancer Evolution 4dr	Sports	Asia	Front	\$29,562	\$27,466	2.0	4
299	Mitsubishi	Lancer Sportback LS	Wagon	Asia	Front	\$17,495	\$16,295	2.4	4
300	Nissan	Pathfinder Armada SE	SUV	Asia	Front	\$33,840	\$30,815	5.6	8
301	Nissan	Pathfinder SE	SUV	Asia	Front	\$27,339	\$25,972	3.5	8
302	Nissan	Xterra XE V6	SUV	Asia	Front	\$20,939	\$19,512	3.3	8
303	Nissan	Sentra 1.8 4dr	Sedan	Asia	Front	\$12,740	\$12,205	1.8	4
304	Nissan	Sentra 1.8 S 4dr	Sedan	Asia	Front	\$14,740	\$13,747	1.8	4
305	Nissan	Altima S 4dr	Sedan	Asia	Front	\$19,240	\$18,030	2.5	4

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
306	Nissan	Sentra SE-R 4dr	Sedan	Asia	Front	\$17,640	\$16,444	2.5	-
307	Nissan	Altima SE 4dr	Sedan	Asia	Front	\$23,290	\$21,580	3.5	-
308	Nissan	Maxima SE 4dr	Sedan	Asia	Front	\$27,490	\$25,182	3.5	-
309	Nissan	Maxima SL 4dr	Sedan	Asia	Front	\$29,440	\$26,966	3.5	-
310	Nissan	Quest S	Sedan	Asia	Front	\$24,780	\$22,958	3.5	-
311	Nissan	Quest SE	Sedan	Asia	Front	\$32,780	\$30,019	3.5	-
312	Nissan	350Z coupe 2dr	Sports	Asia	Rear	\$26,910	\$25,203	3.5	-
313	Nissan	350Z Enthusiast convertible 2dr	Sports	Asia	Rear	\$34,390	\$31,845	3.5	-
314	Nissan	Frontier King Cab XE V6	Truck	Asia	All	\$19,479	\$18,253	3.3	-
315	Nissan	Titan King Cab XE	Truck	Asia	All	\$26,650	\$24,926	5.6	-
316	Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	-
317	Oldsmobile	Alero GX 2dr	Sedan	USA	Front	\$18,825	\$17,642	2.2	-
318	Oldsmobile	Alero GLS 2dr	Sedan	USA	Front	\$23,675	\$21,485	3.4	-
319	Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	-
320	Pontiac	Aztek	SUV	USA	Front	\$21,595	\$19,810	3.4	-
321	Pontiac	Sunfire 1SA 2dr	Sedan	USA	Front	\$15,495	\$14,375	2.2	-
322	Pontiac	Grand Am GT 2dr	Sedan	USA	Front	\$22,450	\$20,595	3.4	-
323	Pontiac	Grand Prix GT1 4dr	Sedan	USA	Front	\$22,395	\$20,545	3.8	-
324	Pontiac	Sunfire 1SC 2dr	Sedan	USA	Front	\$17,735	\$16,369	2.2	-
325	Pontiac	Grand Prix GT2 4dr	Sedan	USA	Front	\$24,295	\$22,284	3.8	-
326	Pontiac	Bonneville GXP 4dr	Sedan	USA	Front	\$35,995	\$32,997	4.6	-
327	Pontiac	Montana	Sedan	USA	Front	\$23,845	\$21,644	3.4	-
328	Pontiac	Montana EWB	Sedan	USA	All	\$31,370	\$28,454	3.4	-
329	Pontiac	GTO 2dr	Sports	USA	Rear	\$33,500	\$30,710	5.7	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
330	Pontiac	Vibe	Wagon	USA	Rear	\$17,045	\$15,973	1.8	-
331	Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	-
332	Porsche	911 Carrera convertible 2dr (coupe)	Sports	Europe	Rear	\$79,165	\$69,229	3.6	-
333	Porsche	911 Carrera 4S coupe 2dr (convert)	Sports	Europe	All	\$84,165	\$72,206	3.6	-
334	Porsche	911 Targa coupe 2dr	Sports	Europe	Rear	\$76,765	\$67,128	3.6	-
335	Porsche	911 GT2 2dr	Sports	Europe	Rear	\$192,465	\$173,560	3.6	-
336	Porsche	Boxster convertible 2dr	Sports	Europe	Rear	\$43,365	\$37,886	2.7	-
337	Porsche	Boxster S convertible 2dr	Sports	Europe	Rear	\$52,365	\$45,766	3.2	-
338	Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	\$30,860	\$29,269	2.0	-
339	Saab	9-3 Aero 4dr	Sedan	Europe	Front	\$33,360	\$31,562	2.0	-
340	Saab	9-5 Arc 4dr	Sedan	Europe	Front	\$35,105	\$33,011	2.3	-
341	Saab	9-5 Aero 4dr	Sedan	Europe	Front	\$39,465	\$37,721	2.3	-
342	Saab	9-3 Arc convertible 2dr	Sedan	Europe	Front	\$40,670	\$38,520	2.0	-
343	Saab	9-3 Aero convertible 2dr	Sedan	Europe	Front	\$43,175	\$40,883	2.0	-
344	Saab	9-5 Aero	Wagon	Europe	Front	\$40,845	\$38,376	2.3	-
345	Saturn	VUE	SUV	USA	All	\$20,585	\$19,238	2.2	-
346	Saturn	Ion1 4dr	Sedan	USA	Front	\$10,995	\$10,319	2.2	-
347	Saturn	Ion2 4dr	Sedan	USA	Front	\$14,300	\$13,393	2.2	-
348	Saturn	Ion3 4dr	Sedan	USA	Front	\$15,825	\$14,811	2.2	-
349	Saturn	Ion2 quad coupe 2dr	Sedan	USA	Front	\$14,850	\$13,904	2.2	-
350	Saturn	Ion3 quad coupe 2dr	Sedan	USA	Front	\$16,350	\$15,299	2.2	-
351	Saturn	L300-2 4dr	Sedan	USA	Front	\$21,410	\$19,801	3.0	-
352	Saturn	L300 2	Wagon	USA	Front	\$23,560	\$21,779	2.2	-
353	Scion	xA 4dr hatch	Sedan	Asia	Front	\$12,965	\$12,340	1.5	-
354	Scion	xB	Wagon	Asia	Front	\$14,165	\$13,480	1.5	-
355	Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	\$19,945	\$18,399	2.5	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
356	Subaru	Legacy L 4dr	Sedan	Asia	All	\$20,445	\$18,713	2.5	-
357	Subaru	Legacy GT 4dr	Sedan	Asia	All	\$25,645	\$23,336	2.5	-
358	Subaru	Outback Limited Sedan 4dr	Sedan	Asia	All	\$27,145	\$24,687	2.5	-
359	Subaru	Outback H6 4dr	Sedan	Asia	All	\$29,345	\$26,660	3.0	-
360	Subaru	Outback H-6 VDC 4dr	Sedan	Asia	All	\$31,545	\$28,603	3.0	-
361	Subaru	Impreza WRX 4dr	Sports	Asia	All	\$25,045	\$23,022	2.0	-
362	Subaru	Impreza WRX STi 4dr	Sports	Asia	All	\$31,545	\$29,130	2.5	-
363	Subaru	Baja	Truck	Asia	All	\$24,520	\$22,304	2.5	-
364	Subaru	Forester X	Wagon	Asia	All	\$21,445	\$19,646	2.5	-
365	Subaru	Outback	Wagon	Asia	All	\$23,895	\$21,773	2.5	-
366	Suzuki	XL-7 EX	SUV	Asia	Front	\$23,699	\$22,307	2.7	-
367	Suzuki	Vitara LX	SUV	Asia	All	\$17,163	\$16,949	2.5	-
368	Suzuki	Aeno S 4dr	Sedan	Asia	Front	\$12,884	\$12,719	2.3	-
369	Suzuki	Aerio LX 4dr	Sedan	Asia	Front	\$14,500	\$14,317	2.3	-
370	Suzuki	Forenza S 4dr	Sedan	Asia	Front	\$12,269	\$12,116	2.0	-
371	Suzuki	Forenza EX 4dr	Sedan	Asia	Front	\$15,568	\$15,378	2.0	-
372	Suzuki	Verona LX 4dr	Sedan	Asia	Front	\$17,262	\$17,053	2.5	-
373	Suzuki	Aerio SX	Wagon	Asia	All	\$16,497	\$16,291	2.3	-
374	Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	\$20,510	\$18,926	1.5	-
375	Toyota	Sequoia SR5	SUV	Asia	All	\$35,695	\$31,827	4.7	-
376	Toyota	4Runner SR5 V6	SUV	Asia	Front	\$27,710	\$24,801	4.0	-
377	Toyota	Highlander V6	SUV	Asia	All	\$27,930	\$24,915	3.3	-
378	Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	-
379	Toyota	RAV4	SUV	Asia	All	\$20,290	\$18,553	2.4	-
380	Toyota	Corolla CE 4dr	Sedan	Asia	Front	\$14,085	\$13,065	1.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
381	Toyota	Corolla S 4dr	Sedan	Asia	Front	\$15,030	\$13,650	1.8	-
382	Toyota	Corolla LE 4dr	Sedan	Asia	Front	\$15,295	\$13,889	1.8	-
383	Toyota	Echo 2dr manual	Sedan	Asia	Front	\$10,760	\$10,144	1.5	-
384	Toyota	Echo 2dr auto	Sedan	Asia	Front	\$11,560	\$10,896	1.5	-
385	Toyota	Echo 4dr	Sedan	Asia	Front	\$11,290	\$10,642	1.5	-
386	Toyota	Camry LE 4dr	Sedan	Asia	Front	\$19,560	\$17,558	2.4	-
387	Toyota	Camry LE V6 4dr	Sedan	Asia	Front	\$22,775	\$20,325	3.0	-
388	Toyota	Camry Solara SE 2dr	Sedan	Asia	Front	\$19,635	\$17,722	2.4	-
389	Toyota	Camry Solara SE V6 2dr	Sedan	Asia	Front	\$21,965	\$19,819	3.3	-
390	Toyota	Avalon XL 4dr	Sedan	Asia	Front	\$26,560	\$23,693	3.0	-
391	Toyota	Camry XLE V6 4dr	Sedan	Asia	Front	\$25,920	\$23,125	3.0	-
392	Toyota	Camry Solara SLE V6 2dr	Sedan	Asia	Front	\$26,510	\$23,908	3.3	-
393	Toyota	Avalon XLS 4dr	Sedan	Asia	Front	\$30,920	\$27,271	3.0	-
394	Toyota	Sienna CE	Sedan	Asia	Front	\$23,495	\$21,198	3.3	-
395	Toyota	Sienna XLE Limited	Sedan	Asia	Front	\$28,800	\$25,690	3.3	-
396	Toyota	Celica GT-S 2dr	Sports	Asia	Front	\$22,570	\$20,363	1.8	-
397	Toyota	MR2 Spyder convertible 2dr	Sports	Asia	Rear	\$25,130	\$22,787	1.8	-
398	Toyota	Tacoma	Truck	Asia	Rear	\$12,800	\$11,879	2.4	-
399	Toyota	Tundra Regular Cab V6	Truck	Asia	Rear	\$16,495	\$14,978	3.4	-
400	Toyota	Tundra Access Cab V6 SR5	Truck	Asia	All	\$25,935	\$23,520	3.4	-
401	Toyota	Matrix XR	Wagon	Asia	Front	\$16,695	\$15,156	1.8	-
402	Volkswagen	Touareg V6	SUV	Europe	All	\$35,515	\$32,243	3.2	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
403	Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	\$18,715	\$17,478	2.0	-
404	Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	\$19,825	\$18,109	1.8	-
405	Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	\$21,055	\$19,638	1.9	-
406	Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	\$21,055	\$19,638	1.8	-
407	Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	\$23,785	\$21,686	2.8	-
408	Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	\$23,215	\$21,689	2.0	-
409	Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	\$23,955	\$21,898	1.8	-
410	Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	\$33,180	\$30,583	2.8	-
411	Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	\$39,235	\$36,052	4.0	-
412	Volkswagen	Phaeton 4dr	Sedan	Europe	Front	\$65,000	\$59,912	4.2	-
413	Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	\$75,000	\$69,130	6.0	12
414	Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2.0	-
415	Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	\$24,955	\$22,801	1.8	-
416	Volkswagen	Passat W8	Wagon	Europe	Front	\$40,235	\$36,956	4.0	-
417	Volvo	XC90 T6	SUV	Europe	All	\$41,250	\$38,851	2.9	-
418	Volvo	S40 4dr	Sedan	Europe	Front	\$25,135	\$23,701	1.9	-
419	Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	-
420	Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	-
421	Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	-
422	Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	-
423	Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	-
424	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	-
425	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders
426	Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	6
427	Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4
428	Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	6

In [85]:

```
# try proc sql

sas.submitLST("proc sql;select * from sashelp.cars;quit", method='listorlog')
```

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	300
Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4	160
Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200
Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	250
Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	270
Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	270
Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	400
Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	160
Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	180
Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	6	220
Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3.0	6	220
Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3.0	6	220
Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3.0	6	220
Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3.0	6	220
Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3.0	6	220
Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3.0	6	220

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	6	
Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	8	
Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	8	
Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	8	
Audi	RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	8	
Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	4	
Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	4	
Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	6	
Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3	6	
Audi	S4 Avant Quattro	Wagon	Europe	All	\$49,090	\$44,446	4.2	8	
BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3	6	
BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	8	
BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	6	
BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	6	
BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	6	
BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	6	
BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3	6	
BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3	6	
BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3	6	
BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	6	
BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3	6	
BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3	6	
BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	8	
BMW	745i 4dr	Sedan	Europe	Rear	\$69,195	\$63,190	4.4	8	
BMW	745Li 4dr	Sedan	Europe	Rear	\$73,195	\$66,830	4.4	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
BMW	M3 coupe 2dr	Sports	Europe	Rear	\$48,195	\$44,170	3.2	6	
BMW	M3 convertible 2dr	Sports	Europe	Rear	\$56,595	\$51,815	3.2	6	
BMW	Z4 convertible 2.5i 2dr	Sports	Europe	Rear	\$33,895	\$31,065	2.5	6	
BMW	Z4 convertible 3.0i 2dr	Sports	Europe	Rear	\$41,045	\$37,575	3	6	
BMW	325xi Sport	Wagon	Europe	All	\$32,845	\$30,110	2.5	6	
Buick	Rainier	SUV	USA	All	\$37,895	\$34,357	4.2	6	
Buick	Rendezvous CX	SUV	USA	Front	\$26,545	\$24,085	3.4	6	
Buick	Century Custom 4dr	Sedan	USA	Front	\$22,180	\$20,351	3.1	6	
Buick	LeSabre Custom 4dr	Sedan	USA	Front	\$26,470	\$24,282	3.8	6	
Buick	Regal LS 4dr	Sedan	USA	Front	\$24,895	\$22,835	3.8	6	
Buick	Regal GS 4dr	Sedan	USA	Front	\$28,345	\$26,047	3.8	6	
Buick	LeSabre Limited 4dr	Sedan	USA	Front	\$32,245	\$29,566	3.8	6	
Buick	Park Avenue 4dr	Sedan	USA	Front	\$35,545	\$32,244	3.8	6	
Buick	Park Avenue Ultra 4dr	Sedan	USA	Front	\$40,720	\$36,927	3.8	6	
Cadillac	Escalade	SUV	USA	Front	\$52,795	\$48,377	5.3	8	
Cadillac	SRX V8	SUV	USA	Front	\$46,995	\$43,523	4.6	8	
Cadillac	CTS VVT 4dr	Sedan	USA	Rear	\$30,835	\$28,575	3.6	6	
Cadillac	Deville 4dr	Sedan	USA	Front	\$45,445	\$41,650	4.6	8	
Cadillac	Deville DTS 4dr	Sedan	USA	Front	\$50,595	\$46,362	4.6	8	
Cadillac	Seville SLS 4dr	Sedan	USA	Front	\$47,955	\$43,841	4.6	8	
Cadillac	XLR convertible 2dr	Sports	USA	Rear	\$76,200	\$70,546	4.6	8	
Cadillac	Escalade EXT	Truck	USA	All	\$52,975	\$48,541	6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Chevrolet	Suburban 1500 LT	SUV	USA	Front	\$42,735	\$37,422	5.3	8	
Chevrolet	Tahoe LT	SUV	USA	All	\$41,465	\$36,287	5.3	8	
Chevrolet	TrailBlazer LT	SUV	USA	Front	\$30,295	\$27,479	4.2	6	
Chevrolet	Tracker	SUV	USA	Front	\$20,255	\$19,108	2.5	6	
Chevrolet	Aveo 4dr	Sedan	USA	Front	\$11,690	\$10,965	1.6	4	
Chevrolet	Aveo LS 4dr hatch	Sedan	USA	Front	\$12,585	\$11,802	1.6	4	
Chevrolet	Cavalier 2dr	Sedan	USA	Front	\$14,610	\$13,697	2.2	4	
Chevrolet	Cavalier 4dr	Sedan	USA	Front	\$14,810	\$13,884	2.2	4	
Chevrolet	Cavalier LS 2dr	Sedan	USA	Front	\$16,385	\$15,357	2.2	4	
Chevrolet	Impala 4dr	Sedan	USA	Front	\$21,900	\$20,095	3.4	6	
Chevrolet	Malibu 4dr	Sedan	USA	Front	\$18,995	\$17,434	2.2	4	
Chevrolet	Malibu LS 4dr	Sedan	USA	Front	\$20,370	\$18,639	3.5	6	
Chevrolet	Monte Carlo LS 2dr	Sedan	USA	Front	\$21,825	\$20,026	3.4	6	
Chevrolet	Impala LS 4dr	Sedan	USA	Front	\$25,000	\$22,931	3.8	6	
Chevrolet	Impala SS 4dr	Sedan	USA	Front	\$27,995	\$25,672	3.8	6	
Chevrolet	Malibu LT 4dr	Sedan	USA	Front	\$23,495	\$21,551	3.5	6	
Chevrolet	Monte Carlo SS 2dr	Sedan	USA	Front	\$24,225	\$22,222	3.8	6	
Chevrolet	Astro	Sedan	USA	All	\$26,395	\$23,954	4.3	6	
Chevrolet	Venture LS	Sedan	USA	Front	\$27,020	\$24,518	3.4	6	
Chevrolet	Corvette 2dr	Sports	USA	Rear	\$44,535	\$39,068	5.7	8	
Chevrolet	Corvette convertible 2dr	Sports	USA	Rear	\$51,535	\$45,193	5.7	8	
Chevrolet	Avalanche 1500	Truck	USA	All	\$36,100	\$31,689	5.3	8	
Chevrolet	Colorado Z85	Truck	USA	All	\$18,760	\$17,070	2.8	4	
Chevrolet	Silverado 1500 Regular Cab	Truck	USA	Rear	\$20,310	\$18,480	4.3	6	
Chevrolet	Silverado SS	Truck	USA	All	\$40,340	\$35,399	6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Chevrolet	SSR	Truck	USA	Rear	\$41,995	\$39,306	5.3	8	
Chevrolet	Malibu Maxx LS	Wagon	USA	Front	\$22,225	\$20,394	3.5	6	
Chrysler	PT Cruiser 4dr	Sedan	USA	Front	\$17,985	\$16,919	2.4	4	
Chrysler	PT Cruiser Limited 4dr	Sedan	USA	Front	\$22,000	\$20,573	2.4	4	
Chrysler	Sebring 4dr	Sedan	USA	Front	\$19,090	\$17,805	2.4	4	
Chrysler	Sebring Touring 4dr	Sedan	USA	Front	\$21,840	\$20,284	2.7	6	
Chrysler	300M 4dr	Sedan	USA	Front	\$29,865	\$27,797	3.5	6	
Chrysler	Concorde LX 4dr	Sedan	USA	Front	\$24,130	\$22,452	2.7	6	
Chrysler	Concorde LXi 4dr	Sedan	USA	Front	\$26,860	\$24,909	3.5	6	
Chrysler	PT Cruiser GT 4dr	Sedan	USA	Front	\$25,955	\$24,172	2.4	4	
Chrysler	Sebring convertible 2dr	Sedan	USA	Front	\$25,215	\$23,451	2.4	4	
Chrysler	300M Special Edition 4dr	Sedan	USA	Front	\$33,295	\$30,884	3.5	6	
Chrysler	Sebring Limited convertible 2dr	Sedan	USA	Front	\$30,950	\$28,613	2.7	6	
Chrysler	Town and Country LX	Sedan	USA	Front	\$27,490	\$25,371	3.3	6	
Chrysler	Town and Country Limited	Sedan	USA	Front	\$38,380	\$35,063	3.8	6	
Chrysler	Crossfire 2dr	Sports	USA	Rear	\$34,495	\$32,033	3.2	6	
Chrysler	Pacifica	Wagon	USA	Rear	\$31,230	\$28,725	3.5	6	
Dodge	Durango SLT	SUV	USA	All	\$32,235	\$29,472	4.7	8	
Dodge	Neon SE 4dr	Sedan	USA	Front	\$13,670	\$12,849	2	4	
Dodge	Neon SXT 4dr	Sedan	USA	Front	\$15,040	\$14,086	2	4	
Dodge	Intrepid SE 4dr	Sedan	USA	Front	\$22,035	\$20,502	2.7	6	
Dodge	Stratus SXT 4dr	Sedan	USA	Front	\$18,820	\$17,512	2.4	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Dodge	Stratus SE 4dr	Sedan	USA	Front	\$20,220	\$18,821	2.4	4	
Dodge	Intrepid ES 4dr	Sedan	USA	Front	\$24,885	\$23,058	3.5	6	
Dodge	Caravan SE	Sedan	USA	Front	\$21,795	\$20,508	2.4	4	
Dodge	Grand Caravan SXT	Sedan	USA	All	\$32,660	\$29,812	3.8	6	
Dodge	Viper SRT-10 convertible 2dr	Sports	USA	Rear	\$81,795	\$74,451	8.3	10	
Dodge	Dakota Regular Cab	Truck	USA	Rear	\$17,630	\$16,264	3.7	6	
Dodge	Dakota Club Cab	Truck	USA	Rear	\$20,300	\$18,670	3.7	6	
Dodge	Ram 1500 Regular Cab ST	Truck	USA	Rear	\$20,215	\$18,076	3.7	6	
Ford	Excursion 6.8 XLT	SUV	USA	All	\$41,475	\$36,494	6.8	10	
Ford	Expedition 4.6 XLT	SUV	USA	Front	\$34,560	\$30,468	4.6	8	
Ford	Explorer XLT V6	SUV	USA	All	\$29,670	\$26,983	4	6	
Ford	Escape XLS	SUV	USA	All	\$22,515	\$20,907	3	6	
Ford	Focus ZX3 2dr hatch	Sedan	USA	Front	\$13,270	\$12,482	2	4	
Ford	Focus LX 4dr	Sedan	USA	Front	\$13,730	\$12,906	2	4	
Ford	Focus SE 4dr	Sedan	USA	Front	\$15,460	\$14,496	2	4	
Ford	Focus ZX5 5dr	Sedan	USA	Front	\$15,580	\$14,607	2	4	
Ford	Focus SVT 2dr	Sedan	USA	Front	\$19,135	\$17,878	2	4	
Ford	Taurus LX 4dr	Sedan	USA	Front	\$20,320	\$18,881	3	6	
Ford	Taurus SES Duratec 4dr	Sedan	USA	Front	\$22,735	\$20,857	3	6	
Ford	Crown Victoria 4dr	Sedan	USA	Rear	\$24,345	\$22,856	4.6	8	
Ford	Crown Victoria LX 4dr	Sedan	USA	Rear	\$27,370	\$25,105	4.6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Ford	Crown Victoria LX Sport 4dr	Sedan	USA	Rear	\$30,315	\$27,756	4.6	8	
Ford	Freestar SE	Sedan	USA	Front	\$26,930	\$24,498	3.9	6	
Ford	Mustang 2dr (convertible)	Sports	USA	Rear	\$18,345	\$16,943	3.8	6	
Ford	Mustang GT Premium convertible 2dr	Sports	USA	Rear	\$29,380	\$26,875	4.6	8	
Ford	Thunderbird Deluxe convert w/hardtop 2d	Sports	USA	Front	\$37,530	\$34,483	3.9	8	
Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	8	
Ford	F-150 Supercab Lariat	Truck	USA	All	\$33,540	\$29,405	5.4	8	
Ford	Ranger 2.3 XL Regular Cab	Truck	USA	Rear	\$14,385	\$13,717	2.3	4	
Ford	Focus ZTW	Wagon	USA	Front	\$17,475	\$16,375	2	4	
Ford	Taurus SE	Wagon	USA	Front	\$22,290	\$20,457	3	6	
GMC	Envoy XUV SLE	SUV	USA	Front	\$31,890	\$28,922	4.2	6	
GMC	Yukon 1500 SLE	SUV	USA	Front	\$35,725	\$31,361	4.8	8	
GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6	8	
GMC	Safari SLE	Sedan	USA	Rear	\$25,640	\$23,215	4.3	6	
GMC	Canyon Z85 SL Regular Cab	Truck	USA	Rear	\$16,530	\$14,877	2.8	4	
GMC	Sierra Extended Cab 1500	Truck	USA	Rear	\$25,717	\$22,604	4.8	8	
GMC	Sierra HD 2500	Truck	USA	All	\$29,322	\$25,759	6	8	
GMC	Sonoma Crew Cab	Truck	USA	All	\$25,395	\$23,043	4.3	6	
Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	\$20,140	\$18,451	1.4	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Honda	Insight 2dr (gas/electric)	Hybrid	Asia	Front	\$19,110	\$17,911	2	3	
Honda	Pilot LX	SUV	Asia	All	\$27,560	\$24,843	3.5	6	
Honda	CR-V LX	SUV	Asia	All	\$19,860	\$18,419	2.4	4	
Honda	Element LX	SUV	Asia	All	\$18,690	\$17,334	2.4	4	
Honda	Civic DX 2dr	Sedan	Asia	Front	\$13,270	\$12,175	1.7	4	
Honda	Civic HX 2dr	Sedan	Asia	Front	\$14,170	\$12,996	1.7	4	
Honda	Civic LX 4dr	Sedan	Asia	Front	\$15,850	\$14,531	1.7	4	
Honda	Accord LX 2dr	Sedan	Asia	Front	\$19,860	\$17,924	2.4	4	
Honda	Accord EX 2dr	Sedan	Asia	Front	\$22,260	\$20,080	2.4	4	
Honda	Civic EX 4dr	Sedan	Asia	Front	\$17,750	\$16,265	1.7	4	
Honda	Civic Si 2dr hatch	Sedan	Asia	Front	\$19,490	\$17,849	2	4	
Honda	Accord LX V6 4dr	Sedan	Asia	Front	\$23,760	\$21,428	3	6	
Honda	Accord EX V6 2dr	Sedan	Asia	Front	\$26,960	\$24,304	3	6	
Honda	Odyssey LX	Sedan	Asia	Front	\$24,950	\$22,498	3.5	6	
Honda	Odyssey EX	Sedan	Asia	Front	\$27,450	\$24,744	3.5	6	
Honda	S2000 convertible 2dr	Sports	Asia	Rear	\$33,260	\$29,965	2.2	4	
Hummer	H2	SUV	USA	All	\$49,995	\$45,815	6	8	
Hyundai	Santa Fe GLS	SUV	Asia	Front	\$21,589	\$20,201	2.7	6	
Hyundai	Accent 2dr hatch	Sedan	Asia	Front	\$10,539	\$10,107	1.6	4	
Hyundai	Accent GL 4dr	Sedan	Asia	Front	\$11,839	\$11,116	1.6	4	
Hyundai	Accent GT 2dr hatch	Sedan	Asia	Front	\$11,939	\$11,209	1.6	4	
Hyundai	Elantra GLS 4dr	Sedan	Asia	Front	\$13,839	\$12,781	2	4	
Hyundai	Elantra GT 4dr	Sedan	Asia	Front	\$15,389	\$14,207	2	4	
Hyundai	Elantra GT 4dr hatch	Sedan	Asia	Front	\$15,389	\$14,207	2	4	
Hyundai	Sonata GLS 4dr	Sedan	Asia	Front	\$19,339	\$17,574	2.7	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Hyundai	Sonata LX 4dr	Sedan	Asia	Front	\$20,339	\$18,380	2.7	6	
Hyundai	XG350 4dr	Sedan	Asia	Front	\$24,589	\$22,055	3.5	6	
Hyundai	XG350 L 4dr	Sedan	Asia	Front	\$26,189	\$23,486	3.5	6	
Hyundai	Tiburon GT V6 2dr	Sports	Asia	Front	\$18,739	\$17,101	2.7	6	
Infiniti	G35 4dr	Sedan	Asia	Rear	\$28,495	\$26,157	3.5	6	
Infiniti	G35 Sport Coupe 2dr	Sedan	Asia	Rear	\$29,795	\$27,536	3.5	6	
Infiniti	G35 4dr	Sedan	Asia	All	\$32,445	\$29,783	3.5	6	
Infiniti	I35 4dr	Sedan	Asia	Front	\$31,145	\$28,320	3.5	6	
Infiniti	M45 4dr	Sedan	Asia	Rear	\$42,845	\$38,792	4.5	8	
Infiniti	Q45 Luxury 4dr	Sedan	Asia	Rear	\$52,545	\$47,575	4.5	8	
Infiniti	FX35	Wagon	Asia	Rear	\$34,895	\$31,756	3.5	6	
Infiniti	FX45	Wagon	Asia	All	\$36,395	\$33,121	4.5	8	
Isuzu	Ascender S	SUV	Asia	All	\$31,849	\$29,977	4.2	6	
Isuzu	Rodeo S	SUV	Asia	Front	\$20,449	\$19,261	3.2	6	
Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	\$29,995	\$27,355	2.5	6	
Jaguar	X-Type 3.0 4dr	Sedan	Europe	All	\$33,995	\$30,995	3	6	
Jaguar	S-Type 3.0 4dr	Sedan	Europe	Rear	\$43,895	\$40,004	3	6	
Jaguar	S-Type 4.2 4dr	Sedan	Europe	Rear	\$49,995	\$45,556	4.2	8	
Jaguar	S-Type R 4dr	Sedan	Europe	Rear	\$63,120	\$57,499	4.2	8	
Jaguar	Vanden Plas 4dr	Sedan	Europe	Rear	\$68,995	\$62,846	4.2	8	
Jaguar	XJ8 4dr	Sedan	Europe	Rear	\$59,995	\$54,656	4.2	8	
Jaguar	XJR 4dr	Sedan	Europe	Rear	\$74,995	\$68,306	4.2	8	
Jaguar	XK8 coupe 2dr	Sports	Europe	Rear	\$69,995	\$63,756	4.2	8	
Jaguar	XK8 convertible 2dr	Sports	Europe	Rear	\$74,995	\$68,306	4.2	8	
Jaguar	XKR coupe 2dr	Sports	Europe	Rear	\$81,995	\$74,676	4.2	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Jaguar	XKR convertible 2dr	Sports	Europe	Rear	\$86,995	\$79,226	4.2	8	
Jeep	Grand Cherokee Laredo	SUV	USA	Front	\$27,905	\$25,686	4	6	
Jeep	Liberty Sport	SUV	USA	All	\$20,130	\$18,973	2.4	4	
Jeep	Wrangler Sahara convertible 2dr	SUV	USA	All	\$25,520	\$23,275	4	6	
Kia	Sorento LX	SUV	Asia	Front	\$19,635	\$18,630	3.5	6	
Kia	Optima LX 4dr	Sedan	Asia	Front	\$16,040	\$14,910	2.4	4	
Kia	Rio 4dr manual	Sedan	Asia	Front	\$10,280	\$9,875	1.6	4	
Kia	Rio 4dr auto	Sedan	Asia	Front	\$11,155	\$10,705	1.6	4	
Kia	Spectra 4dr	Sedan	Asia	Front	\$12,360	\$11,630	1.8	4	
Kia	Spectra GS 4dr hatch	Sedan	Asia	Front	\$13,580	\$12,830	1.8	4	
Kia	Spectra GSX 4dr hatch	Sedan	Asia	Front	\$14,630	\$13,790	1.8	4	
Kia	Optima LX V6 4dr	Sedan	Asia	Front	\$18,435	\$16,850	2.7	6	
Kia	Amanti 4dr	Sedan	Asia	Front	\$26,000	\$23,764	3.5	6	
Kia	Sedona LX	Sedan	Asia	Front	\$20,615	\$19,400	3.5	6	
Kia	Rio Cinco	Wagon	Asia	Front	\$11,905	\$11,410	1.6	4	
Land Rover	Range Rover HSE	SUV	Europe	All	\$72,250	\$65,807	4.4	8	
Land Rover	Discovery SE	SUV	Europe	All	\$39,250	\$35,777	4.6	8	
Land Rover	Freelander SE	SUV	Europe	All	\$25,995	\$23,969	2.5	6	
Lexus	GX 470	SUV	Asia	All	\$45,700	\$39,838	4.7	8	
Lexus	LX 470	SUV	Asia	All	\$64,800	\$56,455	4.7	8	
Lexus	RX 330	SUV	Asia	All	\$39,195	\$34,576	3.3	6	
Lexus	ES 330 4dr	Sedan	Asia	Front	\$32,350	\$28,755	3.3	6	
Lexus	IS 300 4dr manual	Sedan	Asia	Rear	\$31,045	\$27,404	3	6	
Lexus	IS 300 4dr auto	Sedan	Asia	Rear	\$32,415	\$28,611	3	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Lexus	GS 300 4dr	Sedan	Asia	Rear	\$41,010	\$36,196	3	6	
Lexus	GS 430 4dr	Sedan	Asia	Rear	\$48,450	\$42,232	4.3	8	
Lexus	LS 430 4dr	Sedan	Asia	Rear	\$55,750	\$48,583	4.3	8	
Lexus	SC 430 convertible 2dr	Sports	Asia	Rear	\$63,200	\$55,063	4.3	8	
Lexus	IS 300 SportCross	Wagon	Asia	Rear	\$32,455	\$28,647	3	6	
Lincoln	Navigator Luxury	SUV	USA	All	\$52,775	\$46,360	5.4	8	
Lincoln	Aviator Ultimate	SUV	USA	Front	\$42,915	\$39,443	4.6	8	
Lincoln	LS V6 Luxury 4dr	Sedan	USA	Rear	\$32,495	\$29,969	3	6	
Lincoln	LS V6 Premium 4dr	Sedan	USA	Rear	\$36,895	\$33,929	3	6	
Lincoln	LS V8 Sport 4dr	Sedan	USA	Rear	\$40,095	\$36,809	3.9	8	
Lincoln	LS V8 Ultimate 4dr	Sedan	USA	Rear	\$43,495	\$39,869	3.9	8	
Lincoln	Town Car Signature 4dr	Sedan	USA	Rear	\$41,815	\$38,418	4.6	8	
Lincoln	Town Car Ultimate 4dr	Sedan	USA	Rear	\$44,925	\$41,217	4.6	8	
Lincoln	Town Car Ultimate L 4dr	Sedan	USA	Rear	\$50,470	\$46,208	4.6	8	
MINI	Cooper	Sedan	Europe	Front	\$16,999	\$15,437	1.6	4	
MINI	Cooper S	Sedan	Europe	Front	\$19,999	\$18,137	1.6	4	
Mazda	Tribute DX 2.0	SUV	Asia	All	\$21,087	\$19,742	2	4	
Mazda	Mazda3 i 4dr	Sedan	Asia	Front	\$15,500	\$14,525	2	4	
Mazda	Mazda3 s 4dr	Sedan	Asia	Front	\$17,200	\$15,922	2.3	4	
Mazda	Mazda6 i 4dr	Sedan	Asia	Front	\$19,270	\$17,817	2.3	4	
Mazda	MPV ES	Sedan	Asia	Front	\$28,750	\$26,600	3	6	
Mazda	MX-5 Miata convertible 2dr	Sports	Asia	Rear	\$22,388	\$20,701	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Mazda	MX-5 Miata LS convertible 2dr	Sports	Asia	Rear	\$25,193	\$23,285	1.8	4	
Mazda	RX-8 4dr automatic	Sports	Asia	Rear	\$25,700	\$23,794	1.3		
Mazda	RX-8 4dr manual	Sports	Asia	Rear	\$27,200	\$25,179	1.3		
Mazda	B2300 SX Regular Cab	Truck	Asia	Rear	\$14,840	\$14,070	2.3	4	
Mazda	B4000 SE Cab Plus	Truck	Asia	All	\$22,350	\$20,482	4	6	
Mercedes-Benz	G500	SUV	Europe	All	\$76,870	\$71,540	5	8	
Mercedes-Benz	ML500	SUV	Europe	All	\$46,470	\$43,268	5	8	
Mercedes-Benz	C230 Sport 2dr	Sedan	Europe	Rear	\$26,060	\$24,249	1.8	4	
Mercedes-Benz	C320 Sport 2dr	Sedan	Europe	Rear	\$28,370	\$26,435	3.2	6	
Mercedes-Benz	C240 4dr	Sedan	Europe	Rear	\$32,280	\$30,071	2.6	6	
Mercedes-Benz	C240 4dr	Sedan	Europe	All	\$33,480	\$31,187	2.6	6	
Mercedes-Benz	C320 Sport 4dr	Sedan	Europe	Rear	\$35,920	\$33,456	3.2	6	
Mercedes-Benz	C320 4dr	Sedan	Europe	Rear	\$37,630	\$35,046	3.2	6	
Mercedes-Benz	C320 4dr	Sedan	Europe	All	\$38,830	\$36,162	3.2	6	
Mercedes-Benz	C32 AMG 4dr	Sedan	Europe	Rear	\$52,120	\$48,522	3.2	6	
Mercedes-Benz	CL500 2dr	Sedan	Europe	Rear	\$94,820	\$88,324	5	8	
Mercedes-Benz	CL600 2dr	Sedan	Europe	Rear	\$128,420	\$119,600	5.5	12	
Mercedes-Benz	CLK320 coupe 2dr (convertible)	Sedan	Europe	Rear	\$45,707	\$41,966	3.2	6	
Mercedes-Benz	CLK500 coupe 2dr (convertible)	Sedan	Europe	Rear	\$52,800	\$49,104	5	8	
Mercedes-Benz	E320 4dr	Sedan	Europe	Rear	\$48,170	\$44,849	3.2	6	
Mercedes-Benz	E500 4dr	Sedan	Europe	Rear	\$57,270	\$53,382	5	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Mercedes-Benz	S430 4dr	Sedan	Europe	Rear	\$74,320	\$69,168	4.3	8	
Mercedes-Benz	S500 4dr	Sedan	Europe	All	\$86,970	\$80,939	5	8	
Mercedes-Benz	SL500 convertible 2dr	Sports	Europe	Rear	\$90,520	\$84,325	5	8	
Mercedes-Benz	SL55 AMG 2dr	Sports	Europe	Rear	\$121,770	\$113,388	5.5	8	
Mercedes-Benz	SL600 convertible 2dr	Sports	Europe	Rear	\$126,670	\$117,854	5.5	12	
Mercedes-Benz	SLK230 convertible 2dr	Sports	Europe	Rear	\$40,320	\$37,548	2.3	4	
Mercedes-Benz	SLK32 AMG 2dr	Sports	Europe	Rear	\$56,170	\$52,289	3.2	6	
Mercedes-Benz	C240	Wagon	Europe	Rear	\$33,780	\$31,466	2.6	6	
Mercedes-Benz	E320	Wagon	Europe	Rear	\$50,670	\$47,174	3.2	6	
Mercedes-Benz	E500	Wagon	Europe	All	\$60,670	\$56,474	5	8	
Mercury	Mountaineer	SUV	USA	Front	\$29,995	\$27,317	4	6	
Mercury	Sable GS 4dr	Sedan	USA	Front	\$21,595	\$19,848	3	6	
Mercury	Grand Marquis GS 4dr	Sedan	USA	Rear	\$24,695	\$23,217	4.6	8	
Mercury	Grand Marquis LS Premium 4dr	Sedan	USA	Rear	\$29,595	\$27,148	4.6	8	
Mercury	Sable LS Premium 4dr	Sedan	USA	Front	\$23,895	\$21,918	3	6	
Mercury	Grand Marquis LS Ultimate 4dr	Sedan	USA	Rear	\$30,895	\$28,318	4.6	8	
Mercury	Marauder 4dr	Sedan	USA	Rear	\$34,495	\$31,558	4.6	8	
Mercury	Monterey Luxury	Sedan	USA	Front	\$33,995	\$30,846	4.2	6	
Mercury	Sable GS	Wagon	USA	Front	\$22,595	\$20,748	3	6	
Mitsubishi	Endeavor XLS	SUV	Asia	All	\$30,492	\$28,330	3.8	6	
Mitsubishi	Montero XLS	SUV	Asia	All	\$33,112	\$30,763	3.8	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Mitsubishi	Outlander LS	SUV	Asia	Front	\$18,892	\$17,569	2.4	4	
Mitsubishi	Lancer ES 4dr	Sedan	Asia	Front	\$14,622	\$13,751	2	4	
Mitsubishi	Lancer LS 4dr	Sedan	Asia	Front	\$16,722	\$15,718	2	4	
Mitsubishi	Galant ES 2.4L 4dr	Sedan	Asia	Front	\$19,312	\$17,957	2.4	4	
Mitsubishi	Lancer OZ Rally 4dr auto	Sedan	Asia	Front	\$17,232	\$16,196	2	4	
Mitsubishi	Diamante LS 4dr	Sedan	Asia	Front	\$29,282	\$27,250	3.5	6	
Mitsubishi	Galant GTS 4dr	Sedan	Asia	Front	\$25,700	\$23,883	3.8	6	
Mitsubishi	Eclipse GTS 2dr	Sports	Asia	Front	\$25,092	\$23,456	3	6	
Mitsubishi	Eclipse Spyder GT convertible 2dr	Sports	Asia	Front	\$26,992	\$25,218	3	6	
Mitsubishi	Lancer Evolution 4dr	Sports	Asia	Front	\$29,562	\$27,466	2	4	
Mitsubishi	Lancer Sportback LS	Wagon	Asia	Front	\$17,495	\$16,295	2.4	4	
Nissan	Pathfinder Armada SE	SUV	Asia	Front	\$33,840	\$30,815	5.6	8	
Nissan	Pathfinder SE	SUV	Asia	Front	\$27,339	\$25,972	3.5	6	
Nissan	Xterra XE V6	SUV	Asia	Front	\$20,939	\$19,512	3.3	6	
Nissan	Sentra 1.8 4dr	Sedan	Asia	Front	\$12,740	\$12,205	1.8	4	
Nissan	Sentra 1.8 S 4dr	Sedan	Asia	Front	\$14,740	\$13,747	1.8	4	
Nissan	Altima S 4dr	Sedan	Asia	Front	\$19,240	\$18,030	2.5	4	
Nissan	Sentra SE-R 4dr	Sedan	Asia	Front	\$17,640	\$16,444	2.5	4	
Nissan	Altima SE 4dr	Sedan	Asia	Front	\$23,290	\$21,580	3.5	6	
Nissan	Maxima SE 4dr	Sedan	Asia	Front	\$27,490	\$25,182	3.5	6	
Nissan	Maxima SL 4dr	Sedan	Asia	Front	\$29,440	\$26,966	3.5	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Nissan	Quest S	Sedan	Asia	Front	\$24,780	\$22,958	3.5	6	
Nissan	Quest SE	Sedan	Asia	Front	\$32,780	\$30,019	3.5	6	
Nissan	350Z coupe 2dr	Sports	Asia	Rear	\$26,910	\$25,203	3.5	6	
Nissan	350Z Enthusiast convertible 2dr	Sports	Asia	Rear	\$34,390	\$31,845	3.5	6	
Nissan	Frontier King Cab XE V6	Truck	Asia	All	\$19,479	\$18,253	3.3	6	
Nissan	Titan King Cab XE	Truck	Asia	All	\$26,650	\$24,926	5.6	8	
Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	6	
Oldsmobile	Alero GX 2dr	Sedan	USA	Front	\$18,825	\$17,642	2.2	4	
Oldsmobile	Alero GLS 2dr	Sedan	USA	Front	\$23,675	\$21,485	3.4	6	
Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	6	
Pontiac	Aztek	SUV	USA	Front	\$21,595	\$19,810	3.4	6	
Pontiac	Sunfire 1SA 2dr	Sedan	USA	Front	\$15,495	\$14,375	2.2	4	
Pontiac	Grand Am GT 2dr	Sedan	USA	Front	\$22,450	\$20,595	3.4	6	
Pontiac	Grand Prix GT 4dr	Sedan	USA	Front	\$22,395	\$20,545	3.8	6	
Pontiac	Sunfire 1SC 2dr	Sedan	USA	Front	\$17,735	\$16,369	2.2	4	
Pontiac	Grand Prix GT2 4dr	Sedan	USA	Front	\$24,295	\$22,284	3.8	6	
Pontiac	Bonneville GXP 4dr	Sedan	USA	Front	\$35,995	\$32,997	4.6	8	
Pontiac	Montana	Sedan	USA	Front	\$23,845	\$21,644	3.4	6	
Pontiac	Montana EWB	Sedan	USA	All	\$31,370	\$28,454	3.4	6	
Pontiac	GTO 2dr	Sports	USA	Rear	\$33,500	\$30,710	5.7	8	
Pontiac	Vibe	Wagon	USA	Rear	\$17,045	\$15,973	1.8	4	
Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	8	
Porsche	911 Carrera convertible 2dr (coupe)	Sports	Europe	Rear	\$79,165	\$69,229	3.6	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Porsche	911 Carrera 4S coupe 2dr (convert)	Sports	Europe	All	\$84,165	\$72,206	3.6	6	
Porsche	911 Targa coupe 2dr	Sports	Europe	Rear	\$76,765	\$67,128	3.6	6	
Porsche	911 GT2 2dr	Sports	Europe	Rear	\$192,465	\$173,560	3.6	6	
Porsche	Boxster convertible 2dr	Sports	Europe	Rear	\$43,365	\$37,886	2.7	6	
Porsche	Boxster S convertible 2dr	Sports	Europe	Rear	\$52,365	\$45,766	3.2	6	
Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	\$30,860	\$29,269	2	4	
Saab	9-3 Aero 4dr	Sedan	Europe	Front	\$33,360	\$31,562	2	4	
Saab	9-5 Arc 4dr	Sedan	Europe	Front	\$35,105	\$33,011	2.3	4	
Saab	9-5 Aero 4dr	Sedan	Europe	Front	\$39,465	\$37,721	2.3	4	
Saab	9-3 Arc convertible 2dr	Sedan	Europe	Front	\$40,670	\$38,520	2	4	
Saab	9-3 Aero convertible 2dr	Sedan	Europe	Front	\$43,175	\$40,883	2	4	
Saab	9-5 Aero	Wagon	Europe	Front	\$40,845	\$38,376	2.3	4	
Saturn	VUE	SUV	USA	All	\$20,585	\$19,238	2.2	4	
Saturn	Ion1 4dr	Sedan	USA	Front	\$10,995	\$10,319	2.2	4	
Saturn	Ion2 4dr	Sedan	USA	Front	\$14,300	\$13,393	2.2	4	
Saturn	Ion3 4dr	Sedan	USA	Front	\$15,825	\$14,811	2.2	4	
Saturn	Ion2 quad coupe 2dr	Sedan	USA	Front	\$14,850	\$13,904	2.2	4	
Saturn	Ion3 quad coupe 2dr	Sedan	USA	Front	\$16,350	\$15,299	2.2	4	
Saturn	L300-2 4dr	Sedan	USA	Front	\$21,410	\$19,801	3	6	
Saturn	L300 2	Wagon	USA	Front	\$23,560	\$21,779	2.2	4	
Scion	xA 4dr hatch	Sedan	Asia	Front	\$12,965	\$12,340	1.5	4	
Scion	xB	Wagon	Asia	Front	\$14,165	\$13,480	1.5	4	
Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	\$19,945	\$18,399	2.5	4	
Subaru	Legacy L 4dr	Sedan	Asia	All	\$20,445	\$18,713	2.5	4	
Subaru	Legacy GT 4dr	Sedan	Asia	All	\$25,645	\$23,336	2.5	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Subaru	Outback Limited Sedan 4dr	Sedan	Asia	All	\$27,145	\$24,687	2.5	4	
Subaru	Outback H6 4dr	Sedan	Asia	All	\$29,345	\$26,660	3	6	
Subaru	Outback H-6 VDC 4dr	Sedan	Asia	All	\$31,545	\$28,603	3	6	
Subaru	Impreza WRX 4dr	Sports	Asia	All	\$25,045	\$23,022	2	4	
Subaru	Impreza WRX STi 4dr	Sports	Asia	All	\$31,545	\$29,130	2.5	4	
Subaru	Baja	Truck	Asia	All	\$24,520	\$22,304	2.5	4	
Subaru	Forester X	Wagon	Asia	All	\$21,445	\$19,646	2.5	4	
Subaru	Outback	Wagon	Asia	All	\$23,895	\$21,773	2.5	4	
Suzuki	XL-7 EX	SUV	Asia	Front	\$23,699	\$22,307	2.7	6	
Suzuki	Vitara LX	SUV	Asia	All	\$17,163	\$16,949	2.5	6	
Suzuki	Aeno S 4dr	Sedan	Asia	Front	\$12,884	\$12,719	2.3	4	
Suzuki	Aerio LX 4dr	Sedan	Asia	Front	\$14,500	\$14,317	2.3	4	
Suzuki	Forenza S 4dr	Sedan	Asia	Front	\$12,269	\$12,116	2	4	
Suzuki	Forenza EX 4dr	Sedan	Asia	Front	\$15,568	\$15,378	2	4	
Suzuki	Verona LX 4dr	Sedan	Asia	Front	\$17,262	\$17,053	2.5	6	
Suzuki	Aerio SX	Wagon	Asia	All	\$16,497	\$16,291	2.3	4	
Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	\$20,510	\$18,926	1.5	4	
Toyota	Sequoia SR5	SUV	Asia	All	\$35,695	\$31,827	4.7	8	
Toyota	4Runner SR5 V6	SUV	Asia	Front	\$27,710	\$24,801	4	6	
Toyota	Highlander V6	SUV	Asia	All	\$27,930	\$24,915	3.3	6	
Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	8	
Toyota	RAV4	SUV	Asia	All	\$20,290	\$18,553	2.4	4	
Toyota	Corolla CE 4dr	Sedan	Asia	Front	\$14,085	\$13,065	1.8	4	
Toyota	Corolla S 4dr	Sedan	Asia	Front	\$15,030	\$13,650	1.8	4	
Toyota	Corolla LE 4dr	Sedan	Asia	Front	\$15,295	\$13,889	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Toyota	Echo 2dr manual	Sedan	Asia	Front	\$10,760	\$10,144	1.5	4	
Toyota	Echo 2dr auto	Sedan	Asia	Front	\$11,560	\$10,896	1.5	4	
Toyota	Echo 4dr	Sedan	Asia	Front	\$11,290	\$10,642	1.5	4	
Toyota	Camry LE 4dr	Sedan	Asia	Front	\$19,560	\$17,558	2.4	4	
Toyota	Camry LE V6 4dr	Sedan	Asia	Front	\$22,775	\$20,325	3	6	
Toyota	Camry Solara SE 2dr	Sedan	Asia	Front	\$19,635	\$17,722	2.4	4	
Toyota	Camry Solara SE V6 2dr	Sedan	Asia	Front	\$21,965	\$19,819	3.3	6	
Toyota	Avalon XL 4dr	Sedan	Asia	Front	\$26,560	\$23,693	3	6	
Toyota	Camry XLE V6 4dr	Sedan	Asia	Front	\$25,920	\$23,125	3	6	
Toyota	Camry Solara SLE V6 2dr	Sedan	Asia	Front	\$26,510	\$23,908	3.3	6	
Toyota	Avalon XLS 4dr	Sedan	Asia	Front	\$30,920	\$27,271	3	6	
Toyota	Sienna CE	Sedan	Asia	Front	\$23,495	\$21,198	3.3	6	
Toyota	Sienna XLE Limited	Sedan	Asia	Front	\$28,800	\$25,690	3.3	6	
Toyota	Celica GT-S 2dr	Sports	Asia	Front	\$22,570	\$20,363	1.8	4	
Toyota	MR2 Spyder convertible 2dr	Sports	Asia	Rear	\$25,130	\$22,787	1.8	4	
Toyota	Tacoma	Truck	Asia	Rear	\$12,800	\$11,879	2.4	4	
Toyota	Tundra Regular Cab V6	Truck	Asia	Rear	\$16,495	\$14,978	3.4	6	
Toyota	Tundra Access Cab V6 SR5	Truck	Asia	All	\$25,935	\$23,520	3.4	6	
Toyota	Matrix XR	Wagon	Asia	Front	\$16,695	\$15,156	1.8	4	
Volkswagen	Touareg V6	SUV	Europe	All	\$35,515	\$32,243	3.2	6	
Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	\$18,715	\$17,478	2	4	
Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	\$19,825	\$18,109	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	\$21,055	\$19,638	1.9	4	
Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	\$21,055	\$19,638	1.8	4	
Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	\$23,785	\$21,686	2.8	6	
Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	\$23,215	\$21,689	2	4	
Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	\$23,955	\$21,898	1.8	4	
Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	\$33,180	\$30,583	2.8	6	
Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	\$39,235	\$36,052	4	8	
Volkswagen	Phaeton 4dr	Sedan	Europe	Front	\$65,000	\$59,912	4.2	8	
Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	\$75,000	\$69,130	6	12	
Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2	4	
Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	\$24,955	\$22,801	1.8	4	
Volkswagen	Passat W8	Wagon	Europe	Front	\$40,235	\$36,956	4	8	
Volvo	XC90 T6	SUV	Europe	All	\$41,250	\$38,851	2.9	6	
Volvo	S40 4dr	Sedan	Europe	Front	\$25,135	\$23,701	1.9	4	
Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	5	
Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	5	
Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	5	
Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	6	
Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	5	
Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	5	
Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	5	
Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	6	
Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	5	



In [87]:

```
%%SAS sas
proc sql;
select * from sashelp.cars;
quit;
```

Out[87]:

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	
Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2	4	
Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	
Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	
Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	
Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	
Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	
Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	
Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	
Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3	6	
Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3	6	
Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3	6	
Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3	6	
Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3	6	
Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3	6	
Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	6	
Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	8	
Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	8	
Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	8	
Audi	RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	8	
Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	4	
Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	4	
Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	6	
Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3	6	
Audi	S4 Avant Quattro	Wagon	Europe	All	\$49,090	\$44,446	4.2	8	
BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3	6	
BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	8	
BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	6	
BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	6	
BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	6	
BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	6	
BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3	6	
BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3	6	
BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3	6	
BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	6	
BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3	6	
BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3	6	
BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	8	
BMW	745i 4dr	Sedan	Europe	Rear	\$69,195	\$63,190	4.4	8	
BMW	745Li 4dr	Sedan	Europe	Rear	\$73,195	\$66,830	4.4	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
BMW	M3 coupe 2dr	Sports	Europe	Rear	\$48,195	\$44,170	3.2	6	
BMW	M3 convertible 2dr	Sports	Europe	Rear	\$56,595	\$51,815	3.2	6	
BMW	Z4 convertible 2.5i 2dr	Sports	Europe	Rear	\$33,895	\$31,065	2.5	6	
BMW	Z4 convertible 3.0i 2dr	Sports	Europe	Rear	\$41,045	\$37,575	3	6	
BMW	325xi Sport	Wagon	Europe	All	\$32,845	\$30,110	2.5	6	
Buick	Rainier	SUV	USA	All	\$37,895	\$34,357	4.2	6	
Buick	Rendezvous CX	SUV	USA	Front	\$26,545	\$24,085	3.4	6	
Buick	Century Custom 4dr	Sedan	USA	Front	\$22,180	\$20,351	3.1	6	
Buick	LeSabre Custom 4dr	Sedan	USA	Front	\$26,470	\$24,282	3.8	6	
Buick	Regal LS 4dr	Sedan	USA	Front	\$24,895	\$22,835	3.8	6	
Buick	Regal GS 4dr	Sedan	USA	Front	\$28,345	\$26,047	3.8	6	
Buick	LeSabre Limited 4dr	Sedan	USA	Front	\$32,245	\$29,566	3.8	6	
Buick	Park Avenue 4dr	Sedan	USA	Front	\$35,545	\$32,244	3.8	6	
Buick	Park Avenue Ultra 4dr	Sedan	USA	Front	\$40,720	\$36,927	3.8	6	
Cadillac	Escalade	SUV	USA	Front	\$52,795	\$48,377	5.3	8	
Cadillac	SRX V8	SUV	USA	Front	\$46,995	\$43,523	4.6	8	
Cadillac	CTS VVT 4dr	Sedan	USA	Rear	\$30,835	\$28,575	3.6	6	
Cadillac	Deville 4dr	Sedan	USA	Front	\$45,445	\$41,650	4.6	8	
Cadillac	Deville DTS 4dr	Sedan	USA	Front	\$50,595	\$46,362	4.6	8	
Cadillac	Seville SLS 4dr	Sedan	USA	Front	\$47,955	\$43,841	4.6	8	
Cadillac	XLR convertible 2dr	Sports	USA	Rear	\$76,200	\$70,546	4.6	8	
Cadillac	Escalade EXT	Truck	USA	All	\$52,975	\$48,541	6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Chevrolet	Suburban 1500 LT	SUV	USA	Front	\$42,735	\$37,422	5.3	8	
Chevrolet	Tahoe LT	SUV	USA	All	\$41,465	\$36,287	5.3	8	
Chevrolet	TrailBlazer LT	SUV	USA	Front	\$30,295	\$27,479	4.2	6	
Chevrolet	Tracker	SUV	USA	Front	\$20,255	\$19,108	2.5	6	
Chevrolet	Aveo 4dr	Sedan	USA	Front	\$11,690	\$10,965	1.6	4	
Chevrolet	Aveo LS 4dr hatch	Sedan	USA	Front	\$12,585	\$11,802	1.6	4	
Chevrolet	Cavalier 2dr	Sedan	USA	Front	\$14,610	\$13,697	2.2	4	
Chevrolet	Cavalier 4dr	Sedan	USA	Front	\$14,810	\$13,884	2.2	4	
Chevrolet	Cavalier LS 2dr	Sedan	USA	Front	\$16,385	\$15,357	2.2	4	
Chevrolet	Impala 4dr	Sedan	USA	Front	\$21,900	\$20,095	3.4	6	
Chevrolet	Malibu 4dr	Sedan	USA	Front	\$18,995	\$17,434	2.2	4	
Chevrolet	Malibu LS 4dr	Sedan	USA	Front	\$20,370	\$18,639	3.5	6	
Chevrolet	Monte Carlo LS 2dr	Sedan	USA	Front	\$21,825	\$20,026	3.4	6	
Chevrolet	Impala LS 4dr	Sedan	USA	Front	\$25,000	\$22,931	3.8	6	
Chevrolet	Impala SS 4dr	Sedan	USA	Front	\$27,995	\$25,672	3.8	6	
Chevrolet	Malibu LT 4dr	Sedan	USA	Front	\$23,495	\$21,551	3.5	6	
Chevrolet	Monte Carlo SS 2dr	Sedan	USA	Front	\$24,225	\$22,222	3.8	6	
Chevrolet	Astro	Sedan	USA	All	\$26,395	\$23,954	4.3	6	
Chevrolet	Venture LS	Sedan	USA	Front	\$27,020	\$24,518	3.4	6	
Chevrolet	Corvette 2dr	Sports	USA	Rear	\$44,535	\$39,068	5.7	8	
Chevrolet	Corvette convertible 2dr	Sports	USA	Rear	\$51,535	\$45,193	5.7	8	
Chevrolet	Avalanche 1500	Truck	USA	All	\$36,100	\$31,689	5.3	8	
Chevrolet	Colorado Z85	Truck	USA	All	\$18,760	\$17,070	2.8	4	
Chevrolet	Silverado 1500 Regular Cab	Truck	USA	Rear	\$20,310	\$18,480	4.3	6	
Chevrolet	Silverado SS	Truck	USA	All	\$40,340	\$35,399	6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Chevrolet	SSR	Truck	USA	Rear	\$41,995	\$39,306	5.3	8	
Chevrolet	Malibu Maxx LS	Wagon	USA	Front	\$22,225	\$20,394	3.5	6	
Chrysler	PT Cruiser 4dr	Sedan	USA	Front	\$17,985	\$16,919	2.4	4	
Chrysler	PT Cruiser Limited 4dr	Sedan	USA	Front	\$22,000	\$20,573	2.4	4	
Chrysler	Sebring 4dr	Sedan	USA	Front	\$19,090	\$17,805	2.4	4	
Chrysler	Sebring Touring 4dr	Sedan	USA	Front	\$21,840	\$20,284	2.7	6	
Chrysler	300M 4dr	Sedan	USA	Front	\$29,865	\$27,797	3.5	6	
Chrysler	Concorde LX 4dr	Sedan	USA	Front	\$24,130	\$22,452	2.7	6	
Chrysler	Concorde LXi 4dr	Sedan	USA	Front	\$26,860	\$24,909	3.5	6	
Chrysler	PT Cruiser GT 4dr	Sedan	USA	Front	\$25,955	\$24,172	2.4	4	
Chrysler	Sebring convertible 2dr	Sedan	USA	Front	\$25,215	\$23,451	2.4	4	
Chrysler	300M Special Edition 4dr	Sedan	USA	Front	\$33,295	\$30,884	3.5	6	
Chrysler	Sebring Limited convertible 2dr	Sedan	USA	Front	\$30,950	\$28,613	2.7	6	
Chrysler	Town and Country LX	Sedan	USA	Front	\$27,490	\$25,371	3.3	6	
Chrysler	Town and Country Limited	Sedan	USA	Front	\$38,380	\$35,063	3.8	6	
Chrysler	Crossfire 2dr	Sports	USA	Rear	\$34,495	\$32,033	3.2	6	
Chrysler	Pacifica	Wagon	USA	Rear	\$31,230	\$28,725	3.5	6	
Dodge	Durango SLT	SUV	USA	All	\$32,235	\$29,472	4.7	8	
Dodge	Neon SE 4dr	Sedan	USA	Front	\$13,670	\$12,849	2	4	
Dodge	Neon SXT 4dr	Sedan	USA	Front	\$15,040	\$14,086	2	4	
Dodge	Intrepid SE 4dr	Sedan	USA	Front	\$22,035	\$20,502	2.7	6	
Dodge	Stratus SXT 4dr	Sedan	USA	Front	\$18,820	\$17,512	2.4	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Dodge	Stratus SE 4dr	Sedan	USA	Front	\$20,220	\$18,821	2.4	4	
Dodge	Intrepid ES 4dr	Sedan	USA	Front	\$24,885	\$23,058	3.5	6	
Dodge	Caravan SE	Sedan	USA	Front	\$21,795	\$20,508	2.4	4	
Dodge	Grand Caravan SXT	Sedan	USA	All	\$32,660	\$29,812	3.8	6	
Dodge	Viper SRT-10 convertible 2dr	Sports	USA	Rear	\$81,795	\$74,451	8.3	10	
Dodge	Dakota Regular Cab	Truck	USA	Rear	\$17,630	\$16,264	3.7	6	
Dodge	Dakota Club Cab	Truck	USA	Rear	\$20,300	\$18,670	3.7	6	
Dodge	Ram 1500 Regular Cab ST	Truck	USA	Rear	\$20,215	\$18,076	3.7	6	
Ford	Excursion 6.8 XLT	SUV	USA	All	\$41,475	\$36,494	6.8	10	
Ford	Expedition 4.6 XLT	SUV	USA	Front	\$34,560	\$30,468	4.6	8	
Ford	Explorer XLT V6	SUV	USA	All	\$29,670	\$26,983	4	6	
Ford	Escape XLS	SUV	USA	All	\$22,515	\$20,907	3	6	
Ford	Focus ZX3 2dr hatch	Sedan	USA	Front	\$13,270	\$12,482	2	4	
Ford	Focus LX 4dr	Sedan	USA	Front	\$13,730	\$12,906	2	4	
Ford	Focus SE 4dr	Sedan	USA	Front	\$15,460	\$14,496	2	4	
Ford	Focus ZX5 5dr	Sedan	USA	Front	\$15,580	\$14,607	2	4	
Ford	Focus SVT 2dr	Sedan	USA	Front	\$19,135	\$17,878	2	4	
Ford	Taurus LX 4dr	Sedan	USA	Front	\$20,320	\$18,881	3	6	
Ford	Taurus SES Duratec 4dr	Sedan	USA	Front	\$22,735	\$20,857	3	6	
Ford	Crown Victoria 4dr	Sedan	USA	Rear	\$24,345	\$22,856	4.6	8	
Ford	Crown Victoria LX 4dr	Sedan	USA	Rear	\$27,370	\$25,105	4.6	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Ford	Crown Victoria LX Sport 4dr	Sedan	USA	Rear	\$30,315	\$27,756	4.6	8	
Ford	Freestar SE	Sedan	USA	Front	\$26,930	\$24,498	3.9	6	
Ford	Mustang 2dr (convertible)	Sports	USA	Rear	\$18,345	\$16,943	3.8	6	
Ford	Mustang GT Premium convertible 2dr	Sports	USA	Rear	\$29,380	\$26,875	4.6	8	
Ford	Thunderbird Deluxe convert w/hardtop 2d	Sports	USA	Front	\$37,530	\$34,483	3.9	8	
Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	8	
Ford	F-150 Supercab Lariat	Truck	USA	All	\$33,540	\$29,405	5.4	8	
Ford	Ranger 2.3 XL Regular Cab	Truck	USA	Rear	\$14,385	\$13,717	2.3	4	
Ford	Focus ZTW	Wagon	USA	Front	\$17,475	\$16,375	2	4	
Ford	Taurus SE	Wagon	USA	Front	\$22,290	\$20,457	3	6	
GMC	Envoy XUV SLE	SUV	USA	Front	\$31,890	\$28,922	4.2	6	
GMC	Yukon 1500 SLE	SUV	USA	Front	\$35,725	\$31,361	4.8	8	
GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6	8	
GMC	Safari SLE	Sedan	USA	Rear	\$25,640	\$23,215	4.3	6	
GMC	Canyon Z85 SL Regular Cab	Truck	USA	Rear	\$16,530	\$14,877	2.8	4	
GMC	Sierra Extended Cab 1500	Truck	USA	Rear	\$25,717	\$22,604	4.8	8	
GMC	Sierra HD 2500	Truck	USA	All	\$29,322	\$25,759	6	8	
GMC	Sonoma Crew Cab	Truck	USA	All	\$25,395	\$23,043	4.3	6	
Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	\$20,140	\$18,451	1.4	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Honda	Insight 2dr (gas/electric)	Hybrid	Asia	Front	\$19,110	\$17,911	2	3	
Honda	Pilot LX	SUV	Asia	All	\$27,560	\$24,843	3.5	6	
Honda	CR-V LX	SUV	Asia	All	\$19,860	\$18,419	2.4	4	
Honda	Element LX	SUV	Asia	All	\$18,690	\$17,334	2.4	4	
Honda	Civic DX 2dr	Sedan	Asia	Front	\$13,270	\$12,175	1.7	4	
Honda	Civic HX 2dr	Sedan	Asia	Front	\$14,170	\$12,996	1.7	4	
Honda	Civic LX 4dr	Sedan	Asia	Front	\$15,850	\$14,531	1.7	4	
Honda	Accord LX 2dr	Sedan	Asia	Front	\$19,860	\$17,924	2.4	4	
Honda	Accord EX 2dr	Sedan	Asia	Front	\$22,260	\$20,080	2.4	4	
Honda	Civic EX 4dr	Sedan	Asia	Front	\$17,750	\$16,265	1.7	4	
Honda	Civic Si 2dr hatch	Sedan	Asia	Front	\$19,490	\$17,849	2	4	
Honda	Accord LX V6 4dr	Sedan	Asia	Front	\$23,760	\$21,428	3	6	
Honda	Accord EX V6 2dr	Sedan	Asia	Front	\$26,960	\$24,304	3	6	
Honda	Odyssey LX	Sedan	Asia	Front	\$24,950	\$22,498	3.5	6	
Honda	Odyssey EX	Sedan	Asia	Front	\$27,450	\$24,744	3.5	6	
Honda	S2000 convertible 2dr	Sports	Asia	Rear	\$33,260	\$29,965	2.2	4	
Hummer	H2	SUV	USA	All	\$49,995	\$45,815	6	8	
Hyundai	Santa Fe GLS	SUV	Asia	Front	\$21,589	\$20,201	2.7	6	
Hyundai	Accent 2dr hatch	Sedan	Asia	Front	\$10,539	\$10,107	1.6	4	
Hyundai	Accent GL 4dr	Sedan	Asia	Front	\$11,839	\$11,116	1.6	4	
Hyundai	Accent GT 2dr hatch	Sedan	Asia	Front	\$11,939	\$11,209	1.6	4	
Hyundai	Elantra GLS 4dr	Sedan	Asia	Front	\$13,839	\$12,781	2	4	
Hyundai	Elantra GT 4dr	Sedan	Asia	Front	\$15,389	\$14,207	2	4	
Hyundai	Elantra GT 4dr hatch	Sedan	Asia	Front	\$15,389	\$14,207	2	4	
Hyundai	Sonata GLS 4dr	Sedan	Asia	Front	\$19,339	\$17,574	2.7	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Hyundai	Sonata LX 4dr	Sedan	Asia	Front	\$20,339	\$18,380	2.7	6	
Hyundai	XG350 4dr	Sedan	Asia	Front	\$24,589	\$22,055	3.5	6	
Hyundai	XG350 L 4dr	Sedan	Asia	Front	\$26,189	\$23,486	3.5	6	
Hyundai	Tiburon GT V6 2dr	Sports	Asia	Front	\$18,739	\$17,101	2.7	6	
Infiniti	G35 4dr	Sedan	Asia	Rear	\$28,495	\$26,157	3.5	6	
Infiniti	G35 Sport Coupe 2dr	Sedan	Asia	Rear	\$29,795	\$27,536	3.5	6	
Infiniti	G35 4dr	Sedan	Asia	All	\$32,445	\$29,783	3.5	6	
Infiniti	I35 4dr	Sedan	Asia	Front	\$31,145	\$28,320	3.5	6	
Infiniti	M45 4dr	Sedan	Asia	Rear	\$42,845	\$38,792	4.5	8	
Infiniti	Q45 Luxury 4dr	Sedan	Asia	Rear	\$52,545	\$47,575	4.5	8	
Infiniti	FX35	Wagon	Asia	Rear	\$34,895	\$31,756	3.5	6	
Infiniti	FX45	Wagon	Asia	All	\$36,395	\$33,121	4.5	8	
Isuzu	Ascender S	SUV	Asia	All	\$31,849	\$29,977	4.2	6	
Isuzu	Rodeo S	SUV	Asia	Front	\$20,449	\$19,261	3.2	6	
Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	\$29,995	\$27,355	2.5	6	
Jaguar	X-Type 3.0 4dr	Sedan	Europe	All	\$33,995	\$30,995	3	6	
Jaguar	S-Type 3.0 4dr	Sedan	Europe	Rear	\$43,895	\$40,004	3	6	
Jaguar	S-Type 4.2 4dr	Sedan	Europe	Rear	\$49,995	\$45,556	4.2	8	
Jaguar	S-Type R 4dr	Sedan	Europe	Rear	\$63,120	\$57,499	4.2	8	
Jaguar	Vanden Plas 4dr	Sedan	Europe	Rear	\$68,995	\$62,846	4.2	8	
Jaguar	XJ8 4dr	Sedan	Europe	Rear	\$59,995	\$54,656	4.2	8	
Jaguar	XJR 4dr	Sedan	Europe	Rear	\$74,995	\$68,306	4.2	8	
Jaguar	XK8 coupe 2dr	Sports	Europe	Rear	\$69,995	\$63,756	4.2	8	
Jaguar	XK8 convertible 2dr	Sports	Europe	Rear	\$74,995	\$68,306	4.2	8	
Jaguar	XKR coupe 2dr	Sports	Europe	Rear	\$81,995	\$74,676	4.2	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Jaguar	XKR convertible 2dr	Sports	Europe	Rear	\$86,995	\$79,226	4.2	8	
Jeep	Grand Cherokee Laredo	SUV	USA	Front	\$27,905	\$25,686	4	6	
Jeep	Liberty Sport	SUV	USA	All	\$20,130	\$18,973	2.4	4	
Jeep	Wrangler Sahara convertible 2dr	SUV	USA	All	\$25,520	\$23,275	4	6	
Kia	Sorento LX	SUV	Asia	Front	\$19,635	\$18,630	3.5	6	
Kia	Optima LX 4dr	Sedan	Asia	Front	\$16,040	\$14,910	2.4	4	
Kia	Rio 4dr manual	Sedan	Asia	Front	\$10,280	\$9,875	1.6	4	
Kia	Rio 4dr auto	Sedan	Asia	Front	\$11,155	\$10,705	1.6	4	
Kia	Spectra 4dr	Sedan	Asia	Front	\$12,360	\$11,630	1.8	4	
Kia	Spectra GS 4dr hatch	Sedan	Asia	Front	\$13,580	\$12,830	1.8	4	
Kia	Spectra GSX 4dr hatch	Sedan	Asia	Front	\$14,630	\$13,790	1.8	4	
Kia	Optima LX V6 4dr	Sedan	Asia	Front	\$18,435	\$16,850	2.7	6	
Kia	Amanti 4dr	Sedan	Asia	Front	\$26,000	\$23,764	3.5	6	
Kia	Sedona LX	Sedan	Asia	Front	\$20,615	\$19,400	3.5	6	
Kia	Rio Cinco	Wagon	Asia	Front	\$11,905	\$11,410	1.6	4	
Land Rover	Range Rover HSE	SUV	Europe	All	\$72,250	\$65,807	4.4	8	
Land Rover	Discovery SE	SUV	Europe	All	\$39,250	\$35,777	4.6	8	
Land Rover	Freelander SE	SUV	Europe	All	\$25,995	\$23,969	2.5	6	
Lexus	GX 470	SUV	Asia	All	\$45,700	\$39,838	4.7	8	
Lexus	LX 470	SUV	Asia	All	\$64,800	\$56,455	4.7	8	
Lexus	RX 330	SUV	Asia	All	\$39,195	\$34,576	3.3	6	
Lexus	ES 330 4dr	Sedan	Asia	Front	\$32,350	\$28,755	3.3	6	
Lexus	IS 300 4dr manual	Sedan	Asia	Rear	\$31,045	\$27,404	3	6	
Lexus	IS 300 4dr auto	Sedan	Asia	Rear	\$32,415	\$28,611	3	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Lexus	GS 300 4dr	Sedan	Asia	Rear	\$41,010	\$36,196	3	6	
Lexus	GS 430 4dr	Sedan	Asia	Rear	\$48,450	\$42,232	4.3	8	
Lexus	LS 430 4dr	Sedan	Asia	Rear	\$55,750	\$48,583	4.3	8	
Lexus	SC 430 convertible 2dr	Sports	Asia	Rear	\$63,200	\$55,063	4.3	8	
Lexus	IS 300 SportCross	Wagon	Asia	Rear	\$32,455	\$28,647	3	6	
Lincoln	Navigator Luxury	SUV	USA	All	\$52,775	\$46,360	5.4	8	
Lincoln	Aviator Ultimate	SUV	USA	Front	\$42,915	\$39,443	4.6	8	
Lincoln	LS V6 Luxury 4dr	Sedan	USA	Rear	\$32,495	\$29,969	3	6	
Lincoln	LS V6 Premium 4dr	Sedan	USA	Rear	\$36,895	\$33,929	3	6	
Lincoln	LS V8 Sport 4dr	Sedan	USA	Rear	\$40,095	\$36,809	3.9	8	
Lincoln	LS V8 Ultimate 4dr	Sedan	USA	Rear	\$43,495	\$39,869	3.9	8	
Lincoln	Town Car Signature 4dr	Sedan	USA	Rear	\$41,815	\$38,418	4.6	8	
Lincoln	Town Car Ultimate 4dr	Sedan	USA	Rear	\$44,925	\$41,217	4.6	8	
Lincoln	Town Car Ultimate L 4dr	Sedan	USA	Rear	\$50,470	\$46,208	4.6	8	
MINI	Cooper	Sedan	Europe	Front	\$16,999	\$15,437	1.6	4	
MINI	Cooper S	Sedan	Europe	Front	\$19,999	\$18,137	1.6	4	
Mazda	Tribute DX 2.0	SUV	Asia	All	\$21,087	\$19,742	2	4	
Mazda	Mazda3 i 4dr	Sedan	Asia	Front	\$15,500	\$14,525	2	4	
Mazda	Mazda3 s 4dr	Sedan	Asia	Front	\$17,200	\$15,922	2.3	4	
Mazda	Mazda6 i 4dr	Sedan	Asia	Front	\$19,270	\$17,817	2.3	4	
Mazda	MPV ES	Sedan	Asia	Front	\$28,750	\$26,600	3	6	
Mazda	MX-5 Miata convertible 2dr	Sports	Asia	Rear	\$22,388	\$20,701	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Mazda	MX-5 Miata LS convertible 2dr	Sports	Asia	Rear	\$25,193	\$23,285	1.8	4	
Mazda	RX-8 4dr automatic	Sports	Asia	Rear	\$25,700	\$23,794	1.3		
Mazda	RX-8 4dr manual	Sports	Asia	Rear	\$27,200	\$25,179	1.3		
Mazda	B2300 SX Regular Cab	Truck	Asia	Rear	\$14,840	\$14,070	2.3	4	
Mazda	B4000 SE Cab Plus	Truck	Asia	All	\$22,350	\$20,482	4	6	
Mercedes-Benz	G500	SUV	Europe	All	\$76,870	\$71,540	5	8	
Mercedes-Benz	ML500	SUV	Europe	All	\$46,470	\$43,268	5	8	
Mercedes-Benz	C230 Sport 2dr	Sedan	Europe	Rear	\$26,060	\$24,249	1.8	4	
Mercedes-Benz	C320 Sport 2dr	Sedan	Europe	Rear	\$28,370	\$26,435	3.2	6	
Mercedes-Benz	C240 4dr	Sedan	Europe	Rear	\$32,280	\$30,071	2.6	6	
Mercedes-Benz	C240 4dr	Sedan	Europe	All	\$33,480	\$31,187	2.6	6	
Mercedes-Benz	C320 Sport 4dr	Sedan	Europe	Rear	\$35,920	\$33,456	3.2	6	
Mercedes-Benz	C320 4dr	Sedan	Europe	Rear	\$37,630	\$35,046	3.2	6	
Mercedes-Benz	C320 4dr	Sedan	Europe	All	\$38,830	\$36,162	3.2	6	
Mercedes-Benz	C32 AMG 4dr	Sedan	Europe	Rear	\$52,120	\$48,522	3.2	6	
Mercedes-Benz	CL500 2dr	Sedan	Europe	Rear	\$94,820	\$88,324	5	8	
Mercedes-Benz	CL600 2dr	Sedan	Europe	Rear	\$128,420	\$119,600	5.5	12	
Mercedes-Benz	CLK320 coupe 2dr (convertible)	Sedan	Europe	Rear	\$45,707	\$41,966	3.2	6	
Mercedes-Benz	CLK500 coupe 2dr (convertible)	Sedan	Europe	Rear	\$52,800	\$49,104	5	8	
Mercedes-Benz	E320 4dr	Sedan	Europe	Rear	\$48,170	\$44,849	3.2	6	
Mercedes-Benz	E500 4dr	Sedan	Europe	Rear	\$57,270	\$53,382	5	8	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Mercedes-Benz	S430 4dr	Sedan	Europe	Rear	\$74,320	\$69,168	4.3	8	
Mercedes-Benz	S500 4dr	Sedan	Europe	All	\$86,970	\$80,939	5	8	
Mercedes-Benz	SL500 convertible 2dr	Sports	Europe	Rear	\$90,520	\$84,325	5	8	
Mercedes-Benz	SL55 AMG 2dr	Sports	Europe	Rear	\$121,770	\$113,388	5.5	8	
Mercedes-Benz	SL600 convertible 2dr	Sports	Europe	Rear	\$126,670	\$117,854	5.5	12	
Mercedes-Benz	SLK230 convertible 2dr	Sports	Europe	Rear	\$40,320	\$37,548	2.3	4	
Mercedes-Benz	SLK32 AMG 2dr	Sports	Europe	Rear	\$56,170	\$52,289	3.2	6	
Mercedes-Benz	C240	Wagon	Europe	Rear	\$33,780	\$31,466	2.6	6	
Mercedes-Benz	E320	Wagon	Europe	Rear	\$50,670	\$47,174	3.2	6	
Mercedes-Benz	E500	Wagon	Europe	All	\$60,670	\$56,474	5	8	
Mercury	Mountaineer	SUV	USA	Front	\$29,995	\$27,317	4	6	
Mercury	Sable GS 4dr	Sedan	USA	Front	\$21,595	\$19,848	3	6	
Mercury	Grand Marquis GS 4dr	Sedan	USA	Rear	\$24,695	\$23,217	4.6	8	
Mercury	Grand Marquis LS Premium 4dr	Sedan	USA	Rear	\$29,595	\$27,148	4.6	8	
Mercury	Sable LS Premium 4dr	Sedan	USA	Front	\$23,895	\$21,918	3	6	
Mercury	Grand Marquis LS Ultimate 4dr	Sedan	USA	Rear	\$30,895	\$28,318	4.6	8	
Mercury	Marauder 4dr	Sedan	USA	Rear	\$34,495	\$31,558	4.6	8	
Mercury	Monterey Luxury	Sedan	USA	Front	\$33,995	\$30,846	4.2	6	
Mercury	Sable GS	Wagon	USA	Front	\$22,595	\$20,748	3	6	
Mitsubishi	Endeavor XLS	SUV	Asia	All	\$30,492	\$28,330	3.8	6	
Mitsubishi	Montero XLS	SUV	Asia	All	\$33,112	\$30,763	3.8	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Mitsubishi	Outlander LS	SUV	Asia	Front	\$18,892	\$17,569	2.4	4	
Mitsubishi	Lancer ES 4dr	Sedan	Asia	Front	\$14,622	\$13,751	2	4	
Mitsubishi	Lancer LS 4dr	Sedan	Asia	Front	\$16,722	\$15,718	2	4	
Mitsubishi	Galant ES 2.4L 4dr	Sedan	Asia	Front	\$19,312	\$17,957	2.4	4	
Mitsubishi	Lancer OZ Rally 4dr auto	Sedan	Asia	Front	\$17,232	\$16,196	2	4	
Mitsubishi	Diamante LS 4dr	Sedan	Asia	Front	\$29,282	\$27,250	3.5	6	
Mitsubishi	Galant GTS 4dr	Sedan	Asia	Front	\$25,700	\$23,883	3.8	6	
Mitsubishi	Eclipse GTS 2dr	Sports	Asia	Front	\$25,092	\$23,456	3	6	
Mitsubishi	Eclipse Spyder GT convertible 2dr	Sports	Asia	Front	\$26,992	\$25,218	3	6	
Mitsubishi	Lancer Evolution 4dr	Sports	Asia	Front	\$29,562	\$27,466	2	4	
Mitsubishi	Lancer Sportback LS	Wagon	Asia	Front	\$17,495	\$16,295	2.4	4	
Nissan	Pathfinder Armada SE	SUV	Asia	Front	\$33,840	\$30,815	5.6	8	
Nissan	Pathfinder SE	SUV	Asia	Front	\$27,339	\$25,972	3.5	6	
Nissan	Xterra XE V6	SUV	Asia	Front	\$20,939	\$19,512	3.3	6	
Nissan	Sentra 1.8 4dr	Sedan	Asia	Front	\$12,740	\$12,205	1.8	4	
Nissan	Sentra 1.8 S 4dr	Sedan	Asia	Front	\$14,740	\$13,747	1.8	4	
Nissan	Altima S 4dr	Sedan	Asia	Front	\$19,240	\$18,030	2.5	4	
Nissan	Sentra SE-R 4dr	Sedan	Asia	Front	\$17,640	\$16,444	2.5	4	
Nissan	Altima SE 4dr	Sedan	Asia	Front	\$23,290	\$21,580	3.5	6	
Nissan	Maxima SE 4dr	Sedan	Asia	Front	\$27,490	\$25,182	3.5	6	
Nissan	Maxima SL 4dr	Sedan	Asia	Front	\$29,440	\$26,966	3.5	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Nissan	Quest S	Sedan	Asia	Front	\$24,780	\$22,958	3.5	6	
Nissan	Quest SE	Sedan	Asia	Front	\$32,780	\$30,019	3.5	6	
Nissan	350Z coupe 2dr	Sports	Asia	Rear	\$26,910	\$25,203	3.5	6	
Nissan	350Z Enthusiast convertible 2dr	Sports	Asia	Rear	\$34,390	\$31,845	3.5	6	
Nissan	Frontier King Cab XE V6	Truck	Asia	All	\$19,479	\$18,253	3.3	6	
Nissan	Titan King Cab XE	Truck	Asia	All	\$26,650	\$24,926	5.6	8	
Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	6	
Oldsmobile	Alero GX 2dr	Sedan	USA	Front	\$18,825	\$17,642	2.2	4	
Oldsmobile	Alero GLS 2dr	Sedan	USA	Front	\$23,675	\$21,485	3.4	6	
Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	6	
Pontiac	Aztek	SUV	USA	Front	\$21,595	\$19,810	3.4	6	
Pontiac	Sunfire 1SA 2dr	Sedan	USA	Front	\$15,495	\$14,375	2.2	4	
Pontiac	Grand Am GT 2dr	Sedan	USA	Front	\$22,450	\$20,595	3.4	6	
Pontiac	Grand Prix GT 4dr	Sedan	USA	Front	\$22,395	\$20,545	3.8	6	
Pontiac	Sunfire 1SC 2dr	Sedan	USA	Front	\$17,735	\$16,369	2.2	4	
Pontiac	Grand Prix GT2 4dr	Sedan	USA	Front	\$24,295	\$22,284	3.8	6	
Pontiac	Bonneville GXP 4dr	Sedan	USA	Front	\$35,995	\$32,997	4.6	8	
Pontiac	Montana	Sedan	USA	Front	\$23,845	\$21,644	3.4	6	
Pontiac	Montana EWB	Sedan	USA	All	\$31,370	\$28,454	3.4	6	
Pontiac	GTO 2dr	Sports	USA	Rear	\$33,500	\$30,710	5.7	8	
Pontiac	Vibe	Wagon	USA	Rear	\$17,045	\$15,973	1.8	4	
Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	8	
Porsche	911 Carrera convertible 2dr (coupe)	Sports	Europe	Rear	\$79,165	\$69,229	3.6	6	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Porsche	911 Carrera 4S coupe 2dr (convert)	Sports	Europe	All	\$84,165	\$72,206	3.6	6	
Porsche	911 Targa coupe 2dr	Sports	Europe	Rear	\$76,765	\$67,128	3.6	6	
Porsche	911 GT2 2dr	Sports	Europe	Rear	\$192,465	\$173,560	3.6	6	
Porsche	Boxster convertible 2dr	Sports	Europe	Rear	\$43,365	\$37,886	2.7	6	
Porsche	Boxster S convertible 2dr	Sports	Europe	Rear	\$52,365	\$45,766	3.2	6	
Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	\$30,860	\$29,269	2	4	
Saab	9-3 Aero 4dr	Sedan	Europe	Front	\$33,360	\$31,562	2	4	
Saab	9-5 Arc 4dr	Sedan	Europe	Front	\$35,105	\$33,011	2.3	4	
Saab	9-5 Aero 4dr	Sedan	Europe	Front	\$39,465	\$37,721	2.3	4	
Saab	9-3 Arc convertible 2dr	Sedan	Europe	Front	\$40,670	\$38,520	2	4	
Saab	9-3 Aero convertible 2dr	Sedan	Europe	Front	\$43,175	\$40,883	2	4	
Saab	9-5 Aero	Wagon	Europe	Front	\$40,845	\$38,376	2.3	4	
Saturn	VUE	SUV	USA	All	\$20,585	\$19,238	2.2	4	
Saturn	Ion1 4dr	Sedan	USA	Front	\$10,995	\$10,319	2.2	4	
Saturn	Ion2 4dr	Sedan	USA	Front	\$14,300	\$13,393	2.2	4	
Saturn	Ion3 4dr	Sedan	USA	Front	\$15,825	\$14,811	2.2	4	
Saturn	Ion2 quad coupe 2dr	Sedan	USA	Front	\$14,850	\$13,904	2.2	4	
Saturn	Ion3 quad coupe 2dr	Sedan	USA	Front	\$16,350	\$15,299	2.2	4	
Saturn	L300-2 4dr	Sedan	USA	Front	\$21,410	\$19,801	3	6	
Saturn	L300 2	Wagon	USA	Front	\$23,560	\$21,779	2.2	4	
Scion	xA 4dr hatch	Sedan	Asia	Front	\$12,965	\$12,340	1.5	4	
Scion	xB	Wagon	Asia	Front	\$14,165	\$13,480	1.5	4	
Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	\$19,945	\$18,399	2.5	4	
Subaru	Legacy L 4dr	Sedan	Asia	All	\$20,445	\$18,713	2.5	4	
Subaru	Legacy GT 4dr	Sedan	Asia	All	\$25,645	\$23,336	2.5	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Subaru	Outback Limited Sedan 4dr	Sedan	Asia	All	\$27,145	\$24,687	2.5	4	
Subaru	Outback H6 4dr	Sedan	Asia	All	\$29,345	\$26,660	3	6	
Subaru	Outback H-6 VDC 4dr	Sedan	Asia	All	\$31,545	\$28,603	3	6	
Subaru	Impreza WRX 4dr	Sports	Asia	All	\$25,045	\$23,022	2	4	
Subaru	Impreza WRX STi 4dr	Sports	Asia	All	\$31,545	\$29,130	2.5	4	
Subaru	Baja	Truck	Asia	All	\$24,520	\$22,304	2.5	4	
Subaru	Forester X	Wagon	Asia	All	\$21,445	\$19,646	2.5	4	
Subaru	Outback	Wagon	Asia	All	\$23,895	\$21,773	2.5	4	
Suzuki	XL-7 EX	SUV	Asia	Front	\$23,699	\$22,307	2.7	6	
Suzuki	Vitara LX	SUV	Asia	All	\$17,163	\$16,949	2.5	6	
Suzuki	Aeno S 4dr	Sedan	Asia	Front	\$12,884	\$12,719	2.3	4	
Suzuki	Aerio LX 4dr	Sedan	Asia	Front	\$14,500	\$14,317	2.3	4	
Suzuki	Forenza S 4dr	Sedan	Asia	Front	\$12,269	\$12,116	2	4	
Suzuki	Forenza EX 4dr	Sedan	Asia	Front	\$15,568	\$15,378	2	4	
Suzuki	Verona LX 4dr	Sedan	Asia	Front	\$17,262	\$17,053	2.5	6	
Suzuki	Aerio SX	Wagon	Asia	All	\$16,497	\$16,291	2.3	4	
Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	\$20,510	\$18,926	1.5	4	
Toyota	Sequoia SR5	SUV	Asia	All	\$35,695	\$31,827	4.7	8	
Toyota	4Runner SR5 V6	SUV	Asia	Front	\$27,710	\$24,801	4	6	
Toyota	Highlander V6	SUV	Asia	All	\$27,930	\$24,915	3.3	6	
Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	8	
Toyota	RAV4	SUV	Asia	All	\$20,290	\$18,553	2.4	4	
Toyota	Corolla CE 4dr	Sedan	Asia	Front	\$14,085	\$13,065	1.8	4	
Toyota	Corolla S 4dr	Sedan	Asia	Front	\$15,030	\$13,650	1.8	4	
Toyota	Corolla LE 4dr	Sedan	Asia	Front	\$15,295	\$13,889	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Toyota	Echo 2dr manual	Sedan	Asia	Front	\$10,760	\$10,144	1.5	4	
Toyota	Echo 2dr auto	Sedan	Asia	Front	\$11,560	\$10,896	1.5	4	
Toyota	Echo 4dr	Sedan	Asia	Front	\$11,290	\$10,642	1.5	4	
Toyota	Camry LE 4dr	Sedan	Asia	Front	\$19,560	\$17,558	2.4	4	
Toyota	Camry LE V6 4dr	Sedan	Asia	Front	\$22,775	\$20,325	3	6	
Toyota	Camry Solara SE 2dr	Sedan	Asia	Front	\$19,635	\$17,722	2.4	4	
Toyota	Camry Solara SE V6 2dr	Sedan	Asia	Front	\$21,965	\$19,819	3.3	6	
Toyota	Avalon XL 4dr	Sedan	Asia	Front	\$26,560	\$23,693	3	6	
Toyota	Camry XLE V6 4dr	Sedan	Asia	Front	\$25,920	\$23,125	3	6	
Toyota	Camry Solara SLE V6 2dr	Sedan	Asia	Front	\$26,510	\$23,908	3.3	6	
Toyota	Avalon XLS 4dr	Sedan	Asia	Front	\$30,920	\$27,271	3	6	
Toyota	Sienna CE	Sedan	Asia	Front	\$23,495	\$21,198	3.3	6	
Toyota	Sienna XLE Limited	Sedan	Asia	Front	\$28,800	\$25,690	3.3	6	
Toyota	Celica GT-S 2dr	Sports	Asia	Front	\$22,570	\$20,363	1.8	4	
Toyota	MR2 Spyder convertible 2dr	Sports	Asia	Rear	\$25,130	\$22,787	1.8	4	
Toyota	Tacoma	Truck	Asia	Rear	\$12,800	\$11,879	2.4	4	
Toyota	Tundra Regular Cab V6	Truck	Asia	Rear	\$16,495	\$14,978	3.4	6	
Toyota	Tundra Access Cab V6 SR5	Truck	Asia	All	\$25,935	\$23,520	3.4	6	
Toyota	Matrix XR	Wagon	Asia	Front	\$16,695	\$15,156	1.8	4	
Volkswagen	Touareg V6	SUV	Europe	All	\$35,515	\$32,243	3.2	6	
Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	\$18,715	\$17,478	2	4	
Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	\$19,825	\$18,109	1.8	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsep
Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	\$21,055	\$19,638	1.9	4	
Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	\$21,055	\$19,638	1.8	4	
Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	\$23,785	\$21,686	2.8	6	
Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	\$23,215	\$21,689	2	4	
Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	\$23,955	\$21,898	1.8	4	
Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	\$33,180	\$30,583	2.8	6	
Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	\$39,235	\$36,052	4	8	
Volkswagen	Phaeton 4dr	Sedan	Europe	Front	\$65,000	\$59,912	4.2	8	
Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	\$75,000	\$69,130	6	12	
Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2	4	
Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	\$24,955	\$22,801	1.8	4	
Volkswagen	Passat W8	Wagon	Europe	Front	\$40,235	\$36,956	4	8	
Volvo	XC90 T6	SUV	Europe	All	\$41,250	\$38,851	2.9	6	
Volvo	S40 4dr	Sedan	Europe	Front	\$25,135	\$23,701	1.9	4	
Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	5	
Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	5	
Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	5	
Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	6	
Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	5	
Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	5	
Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	5	
Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	6	
Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4	

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size (L)	Cylinders	Horsepower
Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	5	

In [10]:

```
# different style of writing and executing SAS command via saspy
sas.submitLST("proc print data=sashelp.cars; run;", method='listorlog')
```

The SAS System

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	7
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	6
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3.0	6
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3.0	6
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3.0	6
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3.0	6
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3.0	6
16	Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3.0	6

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
17	Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	1
18	Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	1
19	Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	1
20	Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	1
21	Audi	RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	1
22	Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	1
23	Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	1
24	Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	1
25	Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3.0	1
26	Audi	S4 Avant Quattro	Wagon	Europe	All	\$49,090	\$44,446	4.2	1
27	BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3.0	1
28	BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	1
29	BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	1
30	BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	1
31	BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	1
32	BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	1
33	BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3.0	1
34	BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3.0	1
35	BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3.0	1
36	BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	1
37	BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3.0	1
38	BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3.0	1
39	BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	1
40	BMW	745i 4dr	Sedan	Europe	Rear	\$69,195	\$63,190	4.4	1
41	BMW	745Li 4dr	Sedan	Europe	Rear	\$73,195	\$66,830	4.4	1
42	BMW	M3 coupe 2dr	Sports	Europe	Rear	\$48,195	\$44,170	3.2	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
43	BMW	M3 convertible 2dr	Sports	Europe	Rear	\$56,595	\$51,815	3.2	1
44	BMW	Z4 convertible 2.5i 2dr	Sports	Europe	Rear	\$33,895	\$31,065	2.5	1
45	BMW	Z4 convertible 3.0i 2dr	Sports	Europe	Rear	\$41,045	\$37,575	3.0	1
46	BMW	325xi Sport	Wagon	Europe	All	\$32,845	\$30,110	2.5	1
47	Buick	Rainier	SUV	USA	All	\$37,895	\$34,357	4.2	1
48	Buick	Rendezvous CX	SUV	USA	Front	\$26,545	\$24,085	3.4	1
49	Buick	Century Custom 4dr	Sedan	USA	Front	\$22,180	\$20,351	3.1	1
50	Buick	LeSabre Custom 4dr	Sedan	USA	Front	\$26,470	\$24,282	3.8	1
51	Buick	Regal LS 4dr	Sedan	USA	Front	\$24,895	\$22,835	3.8	1
52	Buick	Regal GS 4dr	Sedan	USA	Front	\$28,345	\$26,047	3.8	1
53	Buick	Park Avenue Limited 4dr	Sedan	USA	Front	\$32,245	\$29,566	3.8	1
54	Buick	Park Avenue Ultra 4dr	Sedan	USA	Front	\$35,545	\$32,244	3.8	1
55	Buick	Escalade	SUV	USA	Front	\$40,720	\$36,927	3.8	1
56	Cadillac	SRX V8	SUV	USA	Front	\$52,795	\$48,377	5.3	1
57	Cadillac	CTS VVT 4dr	Sedan	USA	Rear	\$46,995	\$43,523	4.6	1
58	Cadillac	DeVille 4dr	Sedan	USA	Front	\$45,445	\$41,650	4.6	1
59	Cadillac	Deville DTS 4dr	Sedan	USA	Front	\$50,595	\$46,362	4.6	1
60	Cadillac	Seville SLS 4dr	Sedan	USA	Front	\$47,955	\$43,841	4.6	1
61	Cadillac	XLR convertible 2dr	Sports	USA	Rear	\$76,200	\$70,546	4.6	1
62	Cadillac	Escalade EXT	Truck	USA	All	\$52,975	\$48,541	6.0	1
63	Chevrolet	Suburban 1500 LT	SUV	USA	Front	\$42,735	\$37,422	5.3	1
64	Chevrolet	Tahoe LT	SUV	USA	All	\$41,465	\$36,287	5.3	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
66	Chevrolet	TrailBlazer LT	SUV	USA	Front	\$30,295	\$27,479	4.2	1
67	Chevrolet	Tracker	SUV	USA	Front	\$20,255	\$19,108	2.5	1
68	Chevrolet	Aveo 4dr	Sedan	USA	Front	\$11,690	\$10,965	1.6	1
69	Chevrolet	Aveo LS 4dr hatch	Sedan	USA	Front	\$12,585	\$11,802	1.6	1
70	Chevrolet	Cavalier 2dr	Sedan	USA	Front	\$14,610	\$13,697	2.2	1
71	Chevrolet	Cavalier 4dr	Sedan	USA	Front	\$14,810	\$13,884	2.2	1
72	Chevrolet	Cavalier LS 2dr	Sedan	USA	Front	\$16,385	\$15,357	2.2	1
73	Chevrolet	Impala 4dr	Sedan	USA	Front	\$21,900	\$20,095	3.4	1
74	Chevrolet	Malibu 4dr	Sedan	USA	Front	\$18,995	\$17,434	2.2	1
75	Chevrolet	Malibu LS 4dr	Sedan	USA	Front	\$20,370	\$18,639	3.5	1
76	Chevrolet	Monte Carlo LS 2dr	Sedan	USA	Front	\$21,825	\$20,026	3.4	1
77	Chevrolet	Impala LS 4dr	Sedan	USA	Front	\$25,000	\$22,931	3.8	1
78	Chevrolet	Impala SS 4dr	Sedan	USA	Front	\$27,995	\$25,672	3.8	1
79	Chevrolet	Malibu LT 4dr	Sedan	USA	Front	\$23,495	\$21,551	3.5	1
80	Chevrolet	Monte Carlo SS 2dr	Sedan	USA	Front	\$24,225	\$22,222	3.8	1
81	Chevrolet	Astro	Sedan	USA	All	\$26,395	\$23,954	4.3	1
82	Chevrolet	Venture LS	Sedan	USA	Front	\$27,020	\$24,518	3.4	1
83	Chevrolet	Corvette 2dr	Sports	USA	Rear	\$44,535	\$39,068	5.7	1
84	Chevrolet	Corvette convertible 2dr	Sports	USA	Rear	\$51,535	\$45,193	5.7	1
85	Chevrolet	Avalanche 1500	Truck	USA	All	\$36,100	\$31,689	5.3	1
86	Chevrolet	Colorado Z85	Truck	USA	All	\$18,760	\$17,070	2.8	1
87	Chevrolet	Silverado 1500 Regular Cab	Truck	USA	Rear	\$20,310	\$18,480	4.3	1
88	Chevrolet	Silverado SS	Truck	USA	All	\$40,340	\$35,399	6.0	1
89	Chevrolet	SSR	Truck	USA	Rear	\$41,995	\$39,306	5.3	1
90	Chevrolet	Malibu Maxx LS	Wagon	USA	Front	\$22,225	\$20,394	3.5	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
91	Chrysler	PT Cruiser 4dr	Sedan	USA	Front	\$17,985	\$16,919	2.4	-
92	Chrysler	PT Cruiser Limited 4dr	Sedan	USA	Front	\$22,000	\$20,573	2.4	-
93	Chrysler	Sebring 4dr	Sedan	USA	Front	\$19,090	\$17,805	2.4	-
94	Chrysler	Sebring Touring 4dr	Sedan	USA	Front	\$21,840	\$20,284	2.7	-
95	Chrysler	300M 4dr	Sedan	USA	Front	\$29,865	\$27,797	3.5	-
96	Chrysler	Concorde LX 4dr	Sedan	USA	Front	\$24,130	\$22,452	2.7	-
97	Chrysler	Concorde LXi 4dr	Sedan	USA	Front	\$26,860	\$24,909	3.5	-
98	Chrysler	PT Cruiser GT 4dr	Sedan	USA	Front	\$25,955	\$24,172	2.4	-
99	Chrysler	Sebring convertible 2dr	Sedan	USA	Front	\$25,215	\$23,451	2.4	-
100	Chrysler	300M Special Edition 4dr	Sedan	USA	Front	\$33,295	\$30,884	3.5	-
101	Chrysler	Sebring Limited convertible 2dr	Sedan	USA	Front	\$30,950	\$28,613	2.7	-
102	Chrysler	Town and Country LX	Sedan	USA	Front	\$27,490	\$25,371	3.3	-
103	Chrysler	Town and Country Limited	Sedan	USA	Front	\$38,380	\$35,063	3.8	-
104	Chrysler	Crossfire 2dr	Sports	USA	Rear	\$34,495	\$32,033	3.2	-
105	Chrysler	Pacifica	Wagon	USA	Rear	\$31,230	\$28,725	3.5	-
106	Dodge	Durango SLT	SUV	USA	All	\$32,235	\$29,472	4.7	-
107	Dodge	Neon SE 4dr	Sedan	USA	Front	\$13,670	\$12,849	2.0	-
108	Dodge	Neon SXT 4dr	Sedan	USA	Front	\$15,040	\$14,086	2.0	-
109	Dodge	Intrepid SE 4dr	Sedan	USA	Front	\$22,035	\$20,502	2.7	-
110	Dodge	Stratus SXT 4dr	Sedan	USA	Front	\$18,820	\$17,512	2.4	-
111	Dodge	Stratus SE 4dr	Sedan	USA	Front	\$20,220	\$18,821	2.4	-
112	Dodge	Intrepid ES 4dr	Sedan	USA	Front	\$24,885	\$23,058	3.5	-
113	Dodge	Caravan SE	Sedan	USA	Front	\$21,795	\$20,508	2.4	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
114	Dodge	Grand Caravan SXT	Sedan	USA	All	\$32,660	\$29,812	3.8	1
115	Dodge	Viper SRT-10 convertible 2dr	Sports	USA	Rear	\$81,795	\$74,451	8.3	10
116	Dodge	Dakota Regular Cab	Truck	USA	Rear	\$17,630	\$16,264	3.7	1
117	Dodge	Dakota Club Cab	Truck	USA	Rear	\$20,300	\$18,670	3.7	1
118	Dodge	Ram 1500 Regular Cab ST	Truck	USA	Rear	\$20,215	\$18,076	3.7	1
119	Ford	Excursion 6.8 XLT	SUV	USA	All	\$41,475	\$36,494	6.8	10
120	Ford	Expedition 4.6 XLT	SUV	USA	Front	\$34,560	\$30,468	4.6	1
121	Ford	Explorer XLT V6	SUV	USA	All	\$29,670	\$26,983	4.0	1
122	Ford	Escape XLS	SUV	USA	All	\$22,515	\$20,907	3.0	1
123	Ford	Focus ZX3 2dr hatch	Sedan	USA	Front	\$13,270	\$12,482	2.0	1
124	Ford	Focus LX 4dr	Sedan	USA	Front	\$13,730	\$12,906	2.0	1
125	Ford	Focus SE 4dr	Sedan	USA	Front	\$15,460	\$14,496	2.0	1
126	Ford	Focus ZX5 5dr	Sedan	USA	Front	\$15,580	\$14,607	2.0	1
127	Ford	Focus SVT 2dr	Sedan	USA	Front	\$19,135	\$17,878	2.0	1
128	Ford	Taurus LX 4dr	Sedan	USA	Front	\$20,320	\$18,881	3.0	1
129	Ford	Taurus SES Duratec 4dr	Sedan	USA	Front	\$22,735	\$20,857	3.0	1
130	Ford	Crown Victoria 4dr	Sedan	USA	Rear	\$24,345	\$22,856	4.6	1
131	Ford	Crown Victoria LX 4dr	Sedan	USA	Rear	\$27,370	\$25,105	4.6	1
132	Ford	Crown Victoria LX Sport 4dr	Sedan	USA	Rear	\$30,315	\$27,756	4.6	1
133	Ford	Freestar SE	Sedan	USA	Front	\$26,930	\$24,498	3.9	1
134	Ford	Mustang 2dr (convertible)	Sports	USA	Rear	\$18,345	\$16,943	3.8	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
135	Ford	Mustang GT Premium convertible 2dr	Sports	USA	Rear	\$29,380	\$26,875	4.6	-
136	Ford	Thunderbird Deluxe convert w/hardtop 2d	Sports	USA	Front	\$37,530	\$34,483	3.9	-
137	Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	-
138	Ford	F-150 Supercab Lariat	Truck	USA	All	\$33,540	\$29,405	5.4	-
139	Ford	Ranger 2.3 XL Regular Cab	Truck	USA	Rear	\$14,385	\$13,717	2.3	-
140	Ford	Focus ZTW	Wagon	USA	Front	\$17,475	\$16,375	2.0	-
141	Ford	Taurus SE	Wagon	USA	Front	\$22,290	\$20,457	3.0	-
142	GMC	Envoy XUV SLE	SUV	USA	Front	\$31,890	\$28,922	4.2	-
143	GMC	Yukon 1500 SLE	SUV	USA	Front	\$35,725	\$31,361	4.8	-
144	GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6.0	-
145	GMC	Safari SLE	Sedan	USA	Rear	\$25,640	\$23,215	4.3	-
146	GMC	Canyon Z85 SL Regular Cab	Truck	USA	Rear	\$16,530	\$14,877	2.8	-
147	GMC	Sierra Extended Cab 1500	Truck	USA	Rear	\$25,717	\$22,604	4.8	-
148	GMC	Sierra HD 2500	Truck	USA	All	\$29,322	\$25,759	6.0	-
149	GMC	Sonoma Crew Cab	Truck	USA	All	\$25,395	\$23,043	4.3	-
150	Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	\$20,140	\$18,451	1.4	-
151	Honda	Insight 2dr (gas/electric)	Hybrid	Asia	Front	\$19,110	\$17,911	2.0	-
152	Honda	Pilot LX	SUV	Asia	All	\$27,560	\$24,843	3.5	-
153	Honda	CR-V LX	SUV	Asia	All	\$19,860	\$18,419	2.4	-
154	Honda	Element LX	SUV	Asia	All	\$18,690	\$17,334	2.4	-
155	Honda	Civic DX 2dr	Sedan	Asia	Front	\$13,270	\$12,175	1.7	-
156	Honda	Civic HX 2dr	Sedan	Asia	Front	\$14,170	\$12,996	1.7	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
157	Honda	Civic LX 4dr	Sedan	Asia	Front	\$15,850	\$14,531	1.7	-
158	Honda	Accord LX 2dr	Sedan	Asia	Front	\$19,860	\$17,924	2.4	-
159	Honda	Accord EX 2dr	Sedan	Asia	Front	\$22,260	\$20,080	2.4	-
160	Honda	Civic EX 4dr	Sedan	Asia	Front	\$17,750	\$16,265	1.7	-
161	Honda	Civic Si 2dr hatch	Sedan	Asia	Front	\$19,490	\$17,849	2.0	-
162	Honda	Accord LX V6 4dr	Sedan	Asia	Front	\$23,760	\$21,428	3.0	-
163	Honda	Accord EX V6 2dr	Sedan	Asia	Front	\$26,960	\$24,304	3.0	-
164	Honda	Odyssey LX	Sedan	Asia	Front	\$24,950	\$22,498	3.5	-
165	Honda	Odyssey EX	Sedan	Asia	Front	\$27,450	\$24,744	3.5	-
166	Honda	S2000 convertible 2dr	Sports	Asia	Rear	\$33,260	\$29,965	2.2	-
167	Hummer	H2	SUV	USA	All	\$49,995	\$45,815	6.0	-
168	Hyundai	Santa Fe GLS	SUV	Asia	Front	\$21,589	\$20,201	2.7	-
169	Hyundai	Accent 2dr hatch	Sedan	Asia	Front	\$10,539	\$10,107	1.6	-
170	Hyundai	Accent GL 4dr	Sedan	Asia	Front	\$11,839	\$11,116	1.6	-
171	Hyundai	Accent GT 2dr hatch	Sedan	Asia	Front	\$11,939	\$11,209	1.6	-
172	Hyundai	Elantra GLS 4dr	Sedan	Asia	Front	\$13,839	\$12,781	2.0	-
173	Hyundai	Elantra GT 4dr	Sedan	Asia	Front	\$15,389	\$14,207	2.0	-
174	Hyundai	Elantra GT 4dr hatch	Sedan	Asia	Front	\$15,389	\$14,207	2.0	-
175	Hyundai	Sonata GLS 4dr	Sedan	Asia	Front	\$19,339	\$17,574	2.7	-
176	Hyundai	Sonata LX 4dr	Sedan	Asia	Front	\$20,339	\$18,380	2.7	-
177	Hyundai	XG350 4dr	Sedan	Asia	Front	\$24,589	\$22,055	3.5	-
178	Hyundai	XG350 L 4dr	Sedan	Asia	Front	\$26,189	\$23,486	3.5	-
179	Hyundai	Tiburon GT V6 2dr	Sports	Asia	Front	\$18,739	\$17,101	2.7	-
180	Infiniti	G35 4dr	Sedan	Asia	Rear	\$28,495	\$26,157	3.5	-
181	Infiniti	G35 Sport Coupe 2dr	Sedan	Asia	Rear	\$29,795	\$27,536	3.5	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
182	Infiniti	G35 4dr	Sedan	Asia	All	\$32,445	\$29,783	3.5	1
183	Infiniti	I35 4dr	Sedan	Asia	Front	\$31,145	\$28,320	3.5	1
184	Infiniti	M45 4dr	Sedan	Asia	Rear	\$42,845	\$38,792	4.5	1
185	Infiniti	Q45 Luxury 4dr	Sedan	Asia	Rear	\$52,545	\$47,575	4.5	1
186	Infiniti	FX35	Wagon	Asia	Rear	\$34,895	\$31,756	3.5	1
187	Infiniti	FX45	Wagon	Asia	All	\$36,395	\$33,121	4.5	1
188	Isuzu	Ascender S	SUV	Asia	All	\$31,849	\$29,977	4.2	1
189	Isuzu	Rodeo S	SUV	Asia	Front	\$20,449	\$19,261	3.2	1
190	Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	\$29,995	\$27,355	2.5	1
191	Jaguar	X-Type 3.0 4dr	Sedan	Europe	All	\$33,995	\$30,995	3.0	1
192	Jaguar	S-Type 3.0 4dr	Sedan	Europe	Rear	\$43,895	\$40,004	3.0	1
193	Jaguar	S-Type 4.2 4dr	Sedan	Europe	Rear	\$49,995	\$45,556	4.2	1
194	Jaguar	S-Type R 4dr	Sedan	Europe	Rear	\$63,120	\$57,499	4.2	1
195	Jaguar	Vanden Plas 4dr	Sedan	Europe	Rear	\$68,995	\$62,846	4.2	1
196	Jaguar	XJ8 4dr	Sedan	Europe	Rear	\$59,995	\$54,656	4.2	1
197	Jaguar	XJR 4dr	Sedan	Europe	Rear	\$74,995	\$68,306	4.2	1
198	Jaguar	XK8 coupe 2dr	Sports	Europe	Rear	\$69,995	\$63,756	4.2	1
199	Jaguar	XK8 convertible 2dr	Sports	Europe	Rear	\$74,995	\$68,306	4.2	1
200	Jaguar	XKR coupe 2dr	Sports	Europe	Rear	\$81,995	\$74,676	4.2	1
201	Jaguar	XKR convertible 2dr	Sports	Europe	Rear	\$86,995	\$79,226	4.2	1
202	Jeep	Grand Cherokee Laredo	SUV	USA	Front	\$27,905	\$25,686	4.0	1
203	Jeep	Liberty Sport	SUV	USA	All	\$20,130	\$18,973	2.4	1
204	Jeep	Wrangler Sahara convertible 2dr	SUV	USA	All	\$25,520	\$23,275	4.0	1
205	Kia	Sorento LX	SUV	Asia	Front	\$19,635	\$18,630	3.5	1
206	Kia	Optima LX 4dr	Sedan	Asia	Front	\$16,040	\$14,910	2.4	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
207	Kia	Rio 4dr manual	Sedan	Asia	Front	\$10,280	\$9,875	1.6	-
208	Kia	Rio 4dr auto	Sedan	Asia	Front	\$11,155	\$10,705	1.6	-
209	Kia	Spectra 4dr	Sedan	Asia	Front	\$12,360	\$11,630	1.8	-
210	Kia	Spectra GS 4dr hatch	Sedan	Asia	Front	\$13,580	\$12,830	1.8	-
211	Kia	Spectra GSX 4dr hatch	Sedan	Asia	Front	\$14,630	\$13,790	1.8	-
212	Kia	Optima LX V6 4dr	Sedan	Asia	Front	\$18,435	\$16,850	2.7	-
213	Kia	Amanti 4dr	Sedan	Asia	Front	\$26,000	\$23,764	3.5	-
214	Kia	Sedona LX	Sedan	Asia	Front	\$20,615	\$19,400	3.5	-
215	Kia	Rio Cinco	Wagon	Asia	Front	\$11,905	\$11,410	1.6	-
216	Land Rover	Range Rover HSE	SUV	Europe	All	\$72,250	\$65,807	4.4	-
217	Land Rover	Discovery SE	SUV	Europe	All	\$39,250	\$35,777	4.6	-
218	Land Rover	Freelander SE	SUV	Europe	All	\$25,995	\$23,969	2.5	-
219	Lexus	GX 470	SUV	Asia	All	\$45,700	\$39,838	4.7	-
220	Lexus	LX 470	SUV	Asia	All	\$64,800	\$56,455	4.7	-
221	Lexus	RX 330	SUV	Asia	All	\$39,195	\$34,576	3.3	-
222	Lexus	ES 330 4dr	Sedan	Asia	Front	\$32,350	\$28,755	3.3	-
223	Lexus	IS 300 4dr manual	Sedan	Asia	Rear	\$31,045	\$27,404	3.0	-
224	Lexus	IS 300 4dr auto	Sedan	Asia	Rear	\$32,415	\$28,611	3.0	-
225	Lexus	GS 300 4dr	Sedan	Asia	Rear	\$41,010	\$36,196	3.0	-
226	Lexus	GS 430 4dr	Sedan	Asia	Rear	\$48,450	\$42,232	4.3	-
227	Lexus	LS 430 4dr	Sedan	Asia	Rear	\$55,750	\$48,583	4.3	-
228	Lexus	SC 430 convertible 2dr	Sports	Asia	Rear	\$63,200	\$55,063	4.3	-
229	Lexus	IS 300 SportCross	Wagon	Asia	Rear	\$32,455	\$28,647	3.0	-
230	Lincoln	Navigator Luxury	SUV	USA	All	\$52,775	\$46,360	5.4	-
231	Lincoln	Aviator Ultimate	SUV	USA	Front	\$42,915	\$39,443	4.6	-
232	Lincoln	LS V6 Luxury 4dr	Sedan	USA	Rear	\$32,495	\$29,969	3.0	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
233	Lincoln	LS V6 Premium 4dr	Sedan	USA	Rear	\$36,895	\$33,929	3.0	-
234	Lincoln	LS V8 Sport 4dr	Sedan	USA	Rear	\$40,095	\$36,809	3.9	-
235	Lincoln	LS V8 Ultimate 4dr	Sedan	USA	Rear	\$43,495	\$39,869	3.9	-
236	Lincoln	Town Car Signature 4dr	Sedan	USA	Rear	\$41,815	\$38,418	4.6	-
237	Lincoln	Town Car Ultimate 4dr	Sedan	USA	Rear	\$44,925	\$41,217	4.6	-
238	Lincoln	Town Car Ultimate L 4dr	Sedan	USA	Rear	\$50,470	\$46,208	4.6	-
239	MINI	Cooper	Sedan	Europe	Front	\$16,999	\$15,437	1.6	-
240	MINI	Cooper S	Sedan	Europe	Front	\$19,999	\$18,137	1.6	-
241	Mazda	Tribute DX 2.0	SUV	Asia	All	\$21,087	\$19,742	2.0	-
242	Mazda	Mazda3 i 4dr	Sedan	Asia	Front	\$15,500	\$14,525	2.0	-
243	Mazda	Mazda3 s 4dr	Sedan	Asia	Front	\$17,200	\$15,922	2.3	-
244	Mazda	Mazda6 i 4dr	Sedan	Asia	Front	\$19,270	\$17,817	2.3	-
245	Mazda	MPV ES	Sedan	Asia	Front	\$28,750	\$26,600	3.0	-
246	Mazda	MX-5 Miata convertible 2dr	Sports	Asia	Rear	\$22,388	\$20,701	1.8	-
247	Mazda	MX-5 Miata LS convertible 2dr	Sports	Asia	Rear	\$25,193	\$23,285	1.8	-
248	Mazda	RX-8 4dr automatic	Sports	Asia	Rear	\$25,700	\$23,794	1.3	-
249	Mazda	RX-8 4dr manual	Sports	Asia	Rear	\$27,200	\$25,179	1.3	-
250	Mazda	B2300 SX Regular Cab	Truck	Asia	Rear	\$14,840	\$14,070	2.3	-
251	Mazda	B4000 SE Cab Plus	Truck	Asia	All	\$22,350	\$20,482	4.0	-
252	Mercedes-Benz	G500	SUV	Europe	All	\$76,870	\$71,540	5.0	-
253	Mercedes-Benz	ML500	SUV	Europe	All	\$46,470	\$43,268	5.0	-
254	Mercedes-Benz	C230 Sport 2dr	Sedan	Europe	Rear	\$26,060	\$24,249	1.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
255	Mercedes-Benz	C320 Sport 2dr	Sedan	Europe	Rear	\$28,370	\$26,435	3.2	1
256	Mercedes-Benz	C240 4dr	Sedan	Europe	Rear	\$32,280	\$30,071	2.6	1
257	Mercedes-Benz	C240 4dr	Sedan	Europe	All	\$33,480	\$31,187	2.6	1
258	Mercedes-Benz	C320 Sport 4dr	Sedan	Europe	Rear	\$35,920	\$33,456	3.2	1
259	Mercedes-Benz	C320 4dr	Sedan	Europe	Rear	\$37,630	\$35,046	3.2	1
260	Mercedes-Benz	C320 4dr	Sedan	Europe	All	\$38,830	\$36,162	3.2	1
261	Mercedes-Benz	C32 AMG 4dr	Sedan	Europe	Rear	\$52,120	\$48,522	3.2	1
262	Mercedes-Benz	CL500 2dr	Sedan	Europe	Rear	\$94,820	\$88,324	5.0	1
263	Mercedes-Benz	CL600 2dr	Sedan	Europe	Rear	\$128,420	\$119,600	5.5	1
264	Mercedes-Benz	CLK320 coupe 2dr (convertible)	Sedan	Europe	Rear	\$45,707	\$41,966	3.2	1
265	Mercedes-Benz	CLK500 coupe 2dr (convertible)	Sedan	Europe	Rear	\$52,800	\$49,104	5.0	1
266	Mercedes-Benz	E320 4dr	Sedan	Europe	Rear	\$48,170	\$44,849	3.2	1
267	Mercedes-Benz	E500 4dr	Sedan	Europe	Rear	\$57,270	\$53,382	5.0	1
268	Mercedes-Benz	S430 4dr	Sedan	Europe	Rear	\$74,320	\$69,168	4.3	1
269	Mercedes-Benz	S500 4dr	Sedan	Europe	All	\$86,970	\$80,939	5.0	1
270	Mercedes-Benz	SL500 convertible 2dr	Sports	Europe	Rear	\$90,520	\$84,325	5.0	1
271	Mercedes-Benz	SL55 AMG 2dr	Sports	Europe	Rear	\$121,770	\$113,388	5.5	1
272	Mercedes-Benz	SL600 convertible 2dr	Sports	Europe	Rear	\$126,670	\$117,854	5.5	1
273	Mercedes-Benz	SLK230 convertible 2dr	Sports	Europe	Rear	\$40,320	\$37,548	2.3	1
274	Mercedes-Benz	SLK32 AMG 2dr	Sports	Europe	Rear	\$56,170	\$52,289	3.2	1
275	Mercedes-Benz	C240	Wagon	Europe	Rear	\$33,780	\$31,466	2.6	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
276	Mercedes-Benz	E320	Wagon	Europe	Rear	\$50,670	\$47,174	3.2	1
277	Mercedes-Benz	E500	Wagon	Europe	All	\$60,670	\$56,474	5.0	1
278	Mercury	Mountaineer	SUV	USA	Front	\$29,995	\$27,317	4.0	1
279	Mercury	Sable GS 4dr	Sedan	USA	Front	\$21,595	\$19,848	3.0	1
280	Mercury	Grand Marquis GS 4dr	Sedan	USA	Rear	\$24,695	\$23,217	4.6	1
281	Mercury	Grand Marquis LS Premium 4dr	Sedan	USA	Rear	\$29,595	\$27,148	4.6	1
282	Mercury	Sable LS Premium 4dr	Sedan	USA	Front	\$23,895	\$21,918	3.0	1
283	Mercury	Grand Marquis LS Ultimate 4dr	Sedan	USA	Rear	\$30,895	\$28,318	4.6	1
284	Mercury	Marauder 4dr	Sedan	USA	Rear	\$34,495	\$31,558	4.6	1
285	Mercury	Monterey Luxury	Sedan	USA	Front	\$33,995	\$30,846	4.2	1
286	Mercury	Sable GS	Wagon	USA	Front	\$22,595	\$20,748	3.0	1
287	Mitsubishi	Endeavor XLS	SUV	Asia	All	\$30,492	\$28,330	3.8	1
288	Mitsubishi	Montero XLS	SUV	Asia	All	\$33,112	\$30,763	3.8	1
289	Mitsubishi	Outlander LS	SUV	Asia	Front	\$18,892	\$17,569	2.4	1
290	Mitsubishi	Lancer ES 4dr	Sedan	Asia	Front	\$14,622	\$13,751	2.0	1
291	Mitsubishi	Lancer LS 4dr	Sedan	Asia	Front	\$16,722	\$15,718	2.0	1
292	Mitsubishi	Galant ES 2.4L 4dr	Sedan	Asia	Front	\$19,312	\$17,957	2.4	1
293	Mitsubishi	Lancer OZ Rally 4dr auto	Sedan	Asia	Front	\$17,232	\$16,196	2.0	1
294	Mitsubishi	Diamante LS 4dr	Sedan	Asia	Front	\$29,282	\$27,250	3.5	1
295	Mitsubishi	Galant GTS 4dr	Sedan	Asia	Front	\$25,700	\$23,883	3.8	1
296	Mitsubishi	Eclipse GTS 2dr	Sports	Asia	Front	\$25,092	\$23,456	3.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
297	Mitsubishi	Eclipse Spyder GT convertible 2dr	Sports	Asia	Front	\$26,992	\$25,218	3.0	1
298	Mitsubishi	Lancer Evolution 4dr	Sports	Asia	Front	\$29,562	\$27,466	2.0	1
299	Mitsubishi	Lancer Sportback LS	Wagon	Asia	Front	\$17,495	\$16,295	2.4	1
300	Nissan	Pathfinder Armada SE	SUV	Asia	Front	\$33,840	\$30,815	5.6	1
301	Nissan	Pathfinder SE	SUV	Asia	Front	\$27,339	\$25,972	3.5	1
302	Nissan	Xterra XE V6	SUV	Asia	Front	\$20,939	\$19,512	3.3	1
303	Nissan	Sentra 1.8 4dr	Sedan	Asia	Front	\$12,740	\$12,205	1.8	1
304	Nissan	Sentra 1.8 S 4dr	Sedan	Asia	Front	\$14,740	\$13,747	1.8	1
305	Nissan	Altima S 4dr	Sedan	Asia	Front	\$19,240	\$18,030	2.5	1
306	Nissan	Sentra SE-R 4dr	Sedan	Asia	Front	\$17,640	\$16,444	2.5	1
307	Nissan	Altima SE 4dr	Sedan	Asia	Front	\$23,290	\$21,580	3.5	1
308	Nissan	Maxima SE 4dr	Sedan	Asia	Front	\$27,490	\$25,182	3.5	1
309	Nissan	Maxima SL 4dr	Sedan	Asia	Front	\$29,440	\$26,966	3.5	1
310	Nissan	Quest S	Sedan	Asia	Front	\$24,780	\$22,958	3.5	1
311	Nissan	Quest SE	Sedan	Asia	Front	\$32,780	\$30,019	3.5	1
312	Nissan	350Z coupe 2dr	Sports	Asia	Rear	\$26,910	\$25,203	3.5	1
313	Nissan	350Z Enthusiast convertible 2dr	Sports	Asia	Rear	\$34,390	\$31,845	3.5	1
314	Nissan	Frontier King Cab XE V6	Truck	Asia	All	\$19,479	\$18,253	3.3	1
315	Nissan	Titan King Cab XE	Truck	Asia	All	\$26,650	\$24,926	5.6	1
316	Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	1
317	Oldsmobile	Alero GX 2dr	Sedan	USA	Front	\$18,825	\$17,642	2.2	1
318	Oldsmobile	Alero GLS 2dr	Sedan	USA	Front	\$23,675	\$21,485	3.4	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
319	Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	-
320	Pontiac	Aztek	SUV	USA	Front	\$21,595	\$19,810	3.4	-
321	Pontiac	Sunfire 1SA 2dr	Sedan	USA	Front	\$15,495	\$14,375	2.2	-
322	Pontiac	Grand Am GT 2dr	Sedan	USA	Front	\$22,450	\$20,595	3.4	-
323	Pontiac	Grand Prix GT1 4dr	Sedan	USA	Front	\$22,395	\$20,545	3.8	-
324	Pontiac	Sunfire 1SC 2dr	Sedan	USA	Front	\$17,735	\$16,369	2.2	-
325	Pontiac	Grand Prix GT2 4dr	Sedan	USA	Front	\$24,295	\$22,284	3.8	-
326	Pontiac	Bonneville GXP 4dr	Sedan	USA	Front	\$35,995	\$32,997	4.6	-
327	Pontiac	Montana	Sedan	USA	Front	\$23,845	\$21,644	3.4	-
328	Pontiac	Montana EWB	Sedan	USA	All	\$31,370	\$28,454	3.4	-
329	Pontiac	GTO 2dr	Sports	USA	Rear	\$33,500	\$30,710	5.7	-
330	Pontiac	Vibe	Wagon	USA	Rear	\$17,045	\$15,973	1.8	-
331	Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	-
332	Porsche	911 Carrera convertible 2dr (coupe)	Sports	Europe	Rear	\$79,165	\$69,229	3.6	-
333	Porsche	911 Carrera 4S coupe 2dr (convert)	Sports	Europe	All	\$84,165	\$72,206	3.6	-
334	Porsche	911 Targa coupe 2dr	Sports	Europe	Rear	\$76,765	\$67,128	3.6	-
335	Porsche	911 GT2 2dr	Sports	Europe	Rear	\$192,465	\$173,560	3.6	-
336	Porsche	Boxster convertible 2dr	Sports	Europe	Rear	\$43,365	\$37,886	2.7	-
337	Porsche	Boxster S convertible 2dr	Sports	Europe	Rear	\$52,365	\$45,766	3.2	-
338	Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	\$30,860	\$29,269	2.0	-
339	Saab	9-3 Aero 4dr	Sedan	Europe	Front	\$33,360	\$31,562	2.0	-
340	Saab	9-5 Arc 4dr	Sedan	Europe	Front	\$35,105	\$33,011	2.3	-
341	Saab	9-5 Aero 4dr	Sedan	Europe	Front	\$39,465	\$37,721	2.3	-
342	Saab	9-3 Arc convertible 2dr	Sedan	Europe	Front	\$40,670	\$38,520	2.0	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
343	Saab	9-3 Aero convertible 2dr	Sedan	Europe	Front	\$43,175	\$40,883	2.0	-
344	Saab	9-5 Aero	Wagon	Europe	Front	\$40,845	\$38,376	2.3	-
345	Saturn	VUE	SUV	USA	All	\$20,585	\$19,238	2.2	-
346	Saturn	Ion1 4dr	Sedan	USA	Front	\$10,995	\$10,319	2.2	-
347	Saturn	Ion2 4dr	Sedan	USA	Front	\$14,300	\$13,393	2.2	-
348	Saturn	Ion3 4dr	Sedan	USA	Front	\$15,825	\$14,811	2.2	-
349	Saturn	Ion2 quad coupe 2dr	Sedan	USA	Front	\$14,850	\$13,904	2.2	-
350	Saturn	Ion3 quad coupe 2dr	Sedan	USA	Front	\$16,350	\$15,299	2.2	-
351	Saturn	L300-2 4dr	Sedan	USA	Front	\$21,410	\$19,801	3.0	-
352	Saturn	L300 2	Wagon	USA	Front	\$23,560	\$21,779	2.2	-
353	Scion	xA 4dr hatch	Sedan	Asia	Front	\$12,965	\$12,340	1.5	-
354	Scion	xB	Wagon	Asia	Front	\$14,165	\$13,480	1.5	-
355	Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	\$19,945	\$18,399	2.5	-
356	Subaru	Legacy L 4dr	Sedan	Asia	All	\$20,445	\$18,713	2.5	-
357	Subaru	Legacy GT 4dr	Sedan	Asia	All	\$25,645	\$23,336	2.5	-
358	Subaru	Outback Limited Sedan 4dr	Sedan	Asia	All	\$27,145	\$24,687	2.5	-
359	Subaru	Outback H6 4dr	Sedan	Asia	All	\$29,345	\$26,660	3.0	-
360	Subaru	Outback H-6 VDC 4dr	Sedan	Asia	All	\$31,545	\$28,603	3.0	-
361	Subaru	Impreza WRX 4dr	Sports	Asia	All	\$25,045	\$23,022	2.0	-
362	Subaru	Impreza WRX STi 4dr	Sports	Asia	All	\$31,545	\$29,130	2.5	-
363	Subaru	Baja	Truck	Asia	All	\$24,520	\$22,304	2.5	-
364	Subaru	Forester X	Wagon	Asia	All	\$21,445	\$19,646	2.5	-
365	Subaru	Outback	Wagon	Asia	All	\$23,895	\$21,773	2.5	-
366	Suzuki	XL-7 EX	SUV	Asia	Front	\$23,699	\$22,307	2.7	-
367	Suzuki	Vitara LX	SUV	Asia	All	\$17,163	\$16,949	2.5	-
368	Suzuki	Aeno S 4dr	Sedan	Asia	Front	\$12,884	\$12,719	2.3	-
369	Suzuki	Aerio LX 4dr	Sedan	Asia	Front	\$14,500	\$14,317	2.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
370	Suzuki	Forenza S 4dr	Sedan	Asia	Front	\$12,269	\$12,116	2.0	-
371	Suzuki	Forenza EX 4dr	Sedan	Asia	Front	\$15,568	\$15,378	2.0	-
372	Suzuki	Verona LX 4dr	Sedan	Asia	Front	\$17,262	\$17,053	2.5	-
373	Suzuki	Aerio SX	Wagon	Asia	All	\$16,497	\$16,291	2.3	-
374	Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	\$20,510	\$18,926	1.5	-
375	Toyota	Sequoia SR5	SUV	Asia	All	\$35,695	\$31,827	4.7	-
376	Toyota	4Runner SR5 V6	SUV	Asia	Front	\$27,710	\$24,801	4.0	-
377	Toyota	Highlander V6	SUV	Asia	All	\$27,930	\$24,915	3.3	-
378	Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	-
379	Toyota	RAV4	SUV	Asia	All	\$20,290	\$18,553	2.4	-
380	Toyota	Corolla CE 4dr	Sedan	Asia	Front	\$14,085	\$13,065	1.8	-
381	Toyota	Corolla S 4dr	Sedan	Asia	Front	\$15,030	\$13,650	1.8	-
382	Toyota	Corolla LE 4dr	Sedan	Asia	Front	\$15,295	\$13,889	1.8	-
383	Toyota	Echo 2dr manual	Sedan	Asia	Front	\$10,760	\$10,144	1.5	-
384	Toyota	Echo 2dr auto	Sedan	Asia	Front	\$11,560	\$10,896	1.5	-
385	Toyota	Echo 4dr	Sedan	Asia	Front	\$11,290	\$10,642	1.5	-
386	Toyota	Camry LE 4dr	Sedan	Asia	Front	\$19,560	\$17,558	2.4	-
387	Toyota	Camry LE V6 4dr	Sedan	Asia	Front	\$22,775	\$20,325	3.0	-
388	Toyota	Camry Solara SE 2dr	Sedan	Asia	Front	\$19,635	\$17,722	2.4	-
389	Toyota	Camry Solara SE V6 2dr	Sedan	Asia	Front	\$21,965	\$19,819	3.3	-
390	Toyota	Avalon XL 4dr	Sedan	Asia	Front	\$26,560	\$23,693	3.0	-
391	Toyota	Camry XLE V6 4dr	Sedan	Asia	Front	\$25,920	\$23,125	3.0	-
392	Toyota	Camry Solara SLE V6 2dr	Sedan	Asia	Front	\$26,510	\$23,908	3.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
393	Toyota	Avalon XLS 4dr	Sedan	Asia	Front	\$30,920	\$27,271	3.0	1
394	Toyota	Sienna CE	Sedan	Asia	Front	\$23,495	\$21,198	3.3	1
395	Toyota	Sienna XLE Limited	Sedan	Asia	Front	\$28,800	\$25,690	3.3	1
396	Toyota	Celica GT-S 2dr	Sports	Asia	Front	\$22,570	\$20,363	1.8	1
397	Toyota	MR2 Spyder convertible 2dr	Sports	Asia	Rear	\$25,130	\$22,787	1.8	1
398	Toyota	Tacoma	Truck	Asia	Rear	\$12,800	\$11,879	2.4	1
399	Toyota	Tundra Regular Cab V6	Truck	Asia	Rear	\$16,495	\$14,978	3.4	1
400	Toyota	Tundra Access Cab V6 SR5	Truck	Asia	All	\$25,935	\$23,520	3.4	1
401	Toyota	Matrix XR	Wagon	Asia	Front	\$16,695	\$15,156	1.8	1
402	Volkswagen	Touareg V6	SUV	Europe	All	\$35,515	\$32,243	3.2	1
403	Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	\$18,715	\$17,478	2.0	1
404	Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	\$19,825	\$18,109	1.8	1
405	Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	\$21,055	\$19,638	1.9	1
406	Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	\$21,055	\$19,638	1.8	1
407	Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	\$23,785	\$21,686	2.8	1
408	Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	\$23,215	\$21,689	2.0	1
409	Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	\$23,955	\$21,898	1.8	1
410	Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	\$33,180	\$30,583	2.8	1
411	Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	\$39,235	\$36,052	4.0	1
412	Volkswagen	Phaeton 4dr	Sedan	Europe	Front	\$65,000	\$59,912	4.2	1
413	Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	\$75,000	\$69,130	6.0	1
414	Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
415	Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	\$24,955	\$22,801	1.8	4
416	Volkswagen	Passat W8	Wagon	Europe	Front	\$40,235	\$36,956	4.0	4
417	Volvo	XC90 T6	SUV	Europe	All	\$41,250	\$38,851	2.9	4
418	Volvo	S40 4dr	Sedan	Europe	Front	\$25,135	\$23,701	1.9	4
419	Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	4
420	Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	4
421	Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	4
422	Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	4
423	Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	4
424	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	4
425	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	4
426	Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	4
427	Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	4
428	Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	4



In [11]:

```
# use the sas.HTML method to render the LST which was returned as an HTML document
html_LST = sas.submitLST("proc print data=sashelp.cars; run;")
sas.HTML(html_LST['LST'])
```

The SAS System

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	4
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2.0	4
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	4
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	4
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	4
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	4

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	-
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	-
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3.0	-
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3.0	-
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3.0	-
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3.0	-
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3.0	-
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3.0	-
16	Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3.0	-
17	Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	-
18	Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	-
19	Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	-
20	Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	-
21	Audi	RS 6 4dr	Sports	Europe	Front	\$84,600	\$76,417	4.2	-
22	Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	-
23	Audi	TT 1.8 Quattro 2dr (convertible)	Sports	Europe	All	\$37,390	\$33,891	1.8	-
24	Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	-
25	Audi	A6 3.0 Avant Quattro	Wagon	Europe	All	\$40,840	\$37,060	3.0	-
26	Audi	S4 Avant Quattro	Wagon	Europe	All	\$49,090	\$44,446	4.2	-
27	BMW	X3 3.0i	SUV	Europe	All	\$37,000	\$33,873	3.0	-
28	BMW	X5 4.4i	SUV	Europe	All	\$52,195	\$47,720	4.4	-
29	BMW	325i 4dr	Sedan	Europe	Rear	\$28,495	\$26,155	2.5	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
30	BMW	325Ci 2dr	Sedan	Europe	Rear	\$30,795	\$28,245	2.5	1
31	BMW	325Ci convertible 2dr	Sedan	Europe	Rear	\$37,995	\$34,800	2.5	1
32	BMW	325xi 4dr	Sedan	Europe	All	\$30,245	\$27,745	2.5	1
33	BMW	330i 4dr	Sedan	Europe	Rear	\$35,495	\$32,525	3.0	1
34	BMW	330Ci 2dr	Sedan	Europe	Rear	\$36,995	\$33,890	3.0	1
35	BMW	330xi 4dr	Sedan	Europe	All	\$37,245	\$34,115	3.0	1
36	BMW	525i 4dr	Sedan	Europe	Rear	\$39,995	\$36,620	2.5	1
37	BMW	330Ci convertible 2dr	Sedan	Europe	Rear	\$44,295	\$40,530	3.0	1
38	BMW	530i 4dr	Sedan	Europe	Rear	\$44,995	\$41,170	3.0	1
39	BMW	545iA 4dr	Sedan	Europe	Rear	\$54,995	\$50,270	4.4	1
40	BMW	745i 4dr	Sedan	Europe	Rear	\$69,195	\$63,190	4.4	1
41	BMW	745Li 4dr	Sedan	Europe	Rear	\$73,195	\$66,830	4.4	1
42	BMW	M3 coupe 2dr	Sports	Europe	Rear	\$48,195	\$44,170	3.2	1
43	BMW	M3 convertible 2dr	Sports	Europe	Rear	\$56,595	\$51,815	3.2	1
44	BMW	Z4 convertible 2.5i 2dr	Sports	Europe	Rear	\$33,895	\$31,065	2.5	1
45	BMW	Z4 convertible 3.0i 2dr	Sports	Europe	Rear	\$41,045	\$37,575	3.0	1
46	BMW	325xi Sport	Wagon	Europe	All	\$32,845	\$30,110	2.5	1
47	Buick	Rainier	SUV	USA	All	\$37,895	\$34,357	4.2	1
48	Buick	Rendezvous CX	SUV	USA	Front	\$26,545	\$24,085	3.4	1
49	Buick	Century Custom 4dr	Sedan	USA	Front	\$22,180	\$20,351	3.1	1
50	Buick	LeSabre Custom 4dr	Sedan	USA	Front	\$26,470	\$24,282	3.8	1
51	Buick	Regal LS 4dr	Sedan	USA	Front	\$24,895	\$22,835	3.8	1
52	Buick	Regal GS 4dr	Sedan	USA	Front	\$28,345	\$26,047	3.8	1
53	Buick	LeSabre Limited 4dr	Sedan	USA	Front	\$32,245	\$29,566	3.8	1
54	Buick	Park Avenue 4dr	Sedan	USA	Front	\$35,545	\$32,244	3.8	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
55	Buick	Park Avenue Ultra 4dr	Sedan	USA	Front	\$40,720	\$36,927	3.8	-
56	Cadillac	Escalade	SUV	USA	Front	\$52,795	\$48,377	5.3	-
57	Cadillac	SRX V8	SUV	USA	Front	\$46,995	\$43,523	4.6	-
58	Cadillac	CTS VVT 4dr	Sedan	USA	Rear	\$30,835	\$28,575	3.6	-
59	Cadillac	Deville 4dr	Sedan	USA	Front	\$45,445	\$41,650	4.6	-
60	Cadillac	Deville DTS 4dr	Sedan	USA	Front	\$50,595	\$46,362	4.6	-
61	Cadillac	Seville SLS 4dr	Sedan	USA	Front	\$47,955	\$43,841	4.6	-
62	Cadillac	XLR convertible 2dr	Sports	USA	Rear	\$76,200	\$70,546	4.6	-
63	Cadillac	Escalade EXT	Truck	USA	All	\$52,975	\$48,541	6.0	-
64	Chevrolet	Suburban 1500 LT	SUV	USA	Front	\$42,735	\$37,422	5.3	-
65	Chevrolet	Tahoe LT	SUV	USA	All	\$41,465	\$36,287	5.3	-
66	Chevrolet	TrailBlazer LT	SUV	USA	Front	\$30,295	\$27,479	4.2	-
67	Chevrolet	Tracker	SUV	USA	Front	\$20,255	\$19,108	2.5	-
68	Chevrolet	Aveo 4dr	Sedan	USA	Front	\$11,690	\$10,965	1.6	-
69	Chevrolet	Aveo LS 4dr hatch	Sedan	USA	Front	\$12,585	\$11,802	1.6	-
70	Chevrolet	Cavalier 2dr	Sedan	USA	Front	\$14,610	\$13,697	2.2	-
71	Chevrolet	Cavalier 4dr	Sedan	USA	Front	\$14,810	\$13,884	2.2	-
72	Chevrolet	Cavalier LS 2dr	Sedan	USA	Front	\$16,385	\$15,357	2.2	-
73	Chevrolet	Impala 4dr	Sedan	USA	Front	\$21,900	\$20,095	3.4	-
74	Chevrolet	Malibu 4dr	Sedan	USA	Front	\$18,995	\$17,434	2.2	-
75	Chevrolet	Malibu LS 4dr	Sedan	USA	Front	\$20,370	\$18,639	3.5	-
76	Chevrolet	Monte Carlo LS 2dr	Sedan	USA	Front	\$21,825	\$20,026	3.4	-
77	Chevrolet	Impala LS 4dr	Sedan	USA	Front	\$25,000	\$22,931	3.8	-
78	Chevrolet	Impala SS 4dr	Sedan	USA	Front	\$27,995	\$25,672	3.8	-
79	Chevrolet	Malibu LT 4dr	Sedan	USA	Front	\$23,495	\$21,551	3.5	-
80	Chevrolet	Monte Carlo SS 2dr	Sedan	USA	Front	\$24,225	\$22,222	3.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
81	Chevrolet	Astro	Sedan	USA	All	\$26,395	\$23,954	4.3	-
82	Chevrolet	Venture LS	Sedan	USA	Front	\$27,020	\$24,518	3.4	-
83	Chevrolet	Corvette 2dr	Sports	USA	Rear	\$44,535	\$39,068	5.7	-
84	Chevrolet	Corvette convertible 2dr	Sports	USA	Rear	\$51,535	\$45,193	5.7	-
85	Chevrolet	Avalanche 1500	Truck	USA	All	\$36,100	\$31,689	5.3	-
86	Chevrolet	Colorado Z85	Truck	USA	All	\$18,760	\$17,070	2.8	-
87	Chevrolet	Silverado 1500 Regular Cab	Truck	USA	Rear	\$20,310	\$18,480	4.3	-
88	Chevrolet	Silverado SS	Truck	USA	All	\$40,340	\$35,399	6.0	-
89	Chevrolet	SSR	Truck	USA	Rear	\$41,995	\$39,306	5.3	-
90	Chevrolet	Malibu Maxx LS	Wagon	USA	Front	\$22,225	\$20,394	3.5	-
91	Chrysler	PT Cruiser 4dr	Sedan	USA	Front	\$17,985	\$16,919	2.4	-
92	Chrysler	PT Cruiser Limited 4dr	Sedan	USA	Front	\$22,000	\$20,573	2.4	-
93	Chrysler	Sebring 4dr	Sedan	USA	Front	\$19,090	\$17,805	2.4	-
94	Chrysler	Sebring Touring 4dr	Sedan	USA	Front	\$21,840	\$20,284	2.7	-
95	Chrysler	300M 4dr	Sedan	USA	Front	\$29,865	\$27,797	3.5	-
96	Chrysler	Concorde LX 4dr	Sedan	USA	Front	\$24,130	\$22,452	2.7	-
97	Chrysler	Concorde LXi 4dr	Sedan	USA	Front	\$26,860	\$24,909	3.5	-
98	Chrysler	PT Cruiser GT 4dr	Sedan	USA	Front	\$25,955	\$24,172	2.4	-
99	Chrysler	Sebring convertible 2dr	Sedan	USA	Front	\$25,215	\$23,451	2.4	-
100	Chrysler	300M Special Edition 4dr	Sedan	USA	Front	\$33,295	\$30,884	3.5	-
101	Chrysler	Sebring Limited convertible 2dr	Sedan	USA	Front	\$30,950	\$28,613	2.7	-
102	Chrysler	Town and Country LX	Sedan	USA	Front	\$27,490	\$25,371	3.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
103	Chrysler	Town and Country Limited	Sedan	USA	Front	\$38,380	\$35,063	3.8	1
104	Chrysler	Crossfire 2dr	Sports	USA	Rear	\$34,495	\$32,033	3.2	1
105	Chrysler	Pacifica	Wagon	USA	Rear	\$31,230	\$28,725	3.5	1
106	Dodge	Durango SLT	SUV	USA	All	\$32,235	\$29,472	4.7	1
107	Dodge	Neon SE 4dr	Sedan	USA	Front	\$13,670	\$12,849	2.0	1
108	Dodge	Neon SXT 4dr	Sedan	USA	Front	\$15,040	\$14,086	2.0	1
109	Dodge	Intrepid SE 4dr	Sedan	USA	Front	\$22,035	\$20,502	2.7	1
110	Dodge	Stratus SXT 4dr	Sedan	USA	Front	\$18,820	\$17,512	2.4	1
111	Dodge	Stratus SE 4dr	Sedan	USA	Front	\$20,220	\$18,821	2.4	1
112	Dodge	Intrepid ES 4dr	Sedan	USA	Front	\$24,885	\$23,058	3.5	1
113	Dodge	Caravan SE	Sedan	USA	Front	\$21,795	\$20,508	2.4	1
114	Dodge	Grand Caravan SXT	Sedan	USA	All	\$32,660	\$29,812	3.8	1
115	Dodge	Viper SRT-10 convertible 2dr	Sports	USA	Rear	\$81,795	\$74,451	8.3	10
116	Dodge	Dakota Regular Cab	Truck	USA	Rear	\$17,630	\$16,264	3.7	1
117	Dodge	Dakota Club Cab	Truck	USA	Rear	\$20,300	\$18,670	3.7	1
118	Dodge	Ram 1500 Regular Cab ST	Truck	USA	Rear	\$20,215	\$18,076	3.7	1
119	Ford	Excursion 6.8 XLT	SUV	USA	All	\$41,475	\$36,494	6.8	10
120	Ford	Expedition 4.6 XLT	SUV	USA	Front	\$34,560	\$30,468	4.6	1
121	Ford	Explorer XLT V6	SUV	USA	All	\$29,670	\$26,983	4.0	1
122	Ford	Escape XLS	SUV	USA	All	\$22,515	\$20,907	3.0	1
123	Ford	Focus ZX3 2dr hatch	Sedan	USA	Front	\$13,270	\$12,482	2.0	1
124	Ford	Focus LX 4dr	Sedan	USA	Front	\$13,730	\$12,906	2.0	1
125	Ford	Focus SE 4dr	Sedan	USA	Front	\$15,460	\$14,496	2.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
126	Ford	Focus ZX5 5dr	Sedan	USA	Front	\$15,580	\$14,607	2.0	-
127	Ford	Focus SVT 2dr	Sedan	USA	Front	\$19,135	\$17,878	2.0	-
128	Ford	Taurus LX 4dr	Sedan	USA	Front	\$20,320	\$18,881	3.0	-
129	Ford	Taurus SES Duratec 4dr	Sedan	USA	Front	\$22,735	\$20,857	3.0	-
130	Ford	Crown Victoria 4dr	Sedan	USA	Rear	\$24,345	\$22,856	4.6	-
131	Ford	Crown Victoria LX 4dr	Sedan	USA	Rear	\$27,370	\$25,105	4.6	-
132	Ford	Crown Victoria LX Sport 4dr	Sedan	USA	Rear	\$30,315	\$27,756	4.6	-
133	Ford	Freestar SE	Sedan	USA	Front	\$26,930	\$24,498	3.9	-
134	Ford	Mustang 2dr (convertible)	Sports	USA	Rear	\$18,345	\$16,943	3.8	-
135	Ford	Mustang GT Premium convertible 2dr	Sports	USA	Rear	\$29,380	\$26,875	4.6	-
136	Ford	Thunderbird Deluxe convert w/hardtop 2d	Sports	USA	Front	\$37,530	\$34,483	3.9	-
137	Ford	F-150 Regular Cab XL	Truck	USA	Rear	\$22,010	\$19,490	4.6	-
138	Ford	F-150 Supercab Lariat	Truck	USA	All	\$33,540	\$29,405	5.4	-
139	Ford	Ranger 2.3 XL Regular Cab	Truck	USA	Rear	\$14,385	\$13,717	2.3	-
140	Ford	Focus ZTW	Wagon	USA	Front	\$17,475	\$16,375	2.0	-
141	Ford	Taurus SE	Wagon	USA	Front	\$22,290	\$20,457	3.0	-
142	GMC	Envoy XUV SLE	SUV	USA	Front	\$31,890	\$28,922	4.2	-
143	GMC	Yukon 1500 SLE	SUV	USA	Front	\$35,725	\$31,361	4.8	-
144	GMC	Yukon XL 2500 SLT	SUV	USA	All	\$46,265	\$40,534	6.0	-
145	GMC	Safari SLE	Sedan	USA	Rear	\$25,640	\$23,215	4.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
146	GMC	Canyon Z85 SL Regular Cab	Truck	USA	Rear	\$16,530	\$14,877	2.8	-
147	GMC	Sierra Extended Cab 1500	Truck	USA	Rear	\$25,717	\$22,604	4.8	-
148	GMC	Sierra HD 2500	Truck	USA	All	\$29,322	\$25,759	6.0	-
149	GMC	Sonoma Crew Cab	Truck	USA	All	\$25,395	\$23,043	4.3	-
150	Honda	Civic Hybrid 4dr manual (gas/electric)	Hybrid	Asia	Front	\$20,140	\$18,451	1.4	-
151	Honda	Insight 2dr (gas/electric)	Hybrid	Asia	Front	\$19,110	\$17,911	2.0	-
152	Honda	Pilot LX	SUV	Asia	All	\$27,560	\$24,843	3.5	-
153	Honda	CR-V LX	SUV	Asia	All	\$19,860	\$18,419	2.4	-
154	Honda	Element LX	SUV	Asia	All	\$18,690	\$17,334	2.4	-
155	Honda	Civic DX 2dr	Sedan	Asia	Front	\$13,270	\$12,175	1.7	-
156	Honda	Civic HX 2dr	Sedan	Asia	Front	\$14,170	\$12,996	1.7	-
157	Honda	Civic LX 4dr	Sedan	Asia	Front	\$15,850	\$14,531	1.7	-
158	Honda	Accord LX 2dr	Sedan	Asia	Front	\$19,860	\$17,924	2.4	-
159	Honda	Accord EX 2dr	Sedan	Asia	Front	\$22,260	\$20,080	2.4	-
160	Honda	Civic EX 4dr	Sedan	Asia	Front	\$17,750	\$16,265	1.7	-
161	Honda	Civic Si 2dr hatch	Sedan	Asia	Front	\$19,490	\$17,849	2.0	-
162	Honda	Accord LX V6 4dr	Sedan	Asia	Front	\$23,760	\$21,428	3.0	-
163	Honda	Accord EX V6 2dr	Sedan	Asia	Front	\$26,960	\$24,304	3.0	-
164	Honda	Odyssey LX	Sedan	Asia	Front	\$24,950	\$22,498	3.5	-
165	Honda	Odyssey EX	Sedan	Asia	Front	\$27,450	\$24,744	3.5	-
166	Honda	S2000 convertible 2dr	Sports	Asia	Rear	\$33,260	\$29,965	2.2	-
167	Hummer	H2	SUV	USA	All	\$49,995	\$45,815	6.0	-
168	Hyundai	Santa Fe GLS	SUV	Asia	Front	\$21,589	\$20,201	2.7	-
169	Hyundai	Accent 2dr hatch	Sedan	Asia	Front	\$10,539	\$10,107	1.6	-
170	Hyundai	Accent GL 4dr	Sedan	Asia	Front	\$11,839	\$11,116	1.6	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
171	Hyundai	Accent GT 2dr hatch	Sedan	Asia	Front	\$11,939	\$11,209	1.6	-
172	Hyundai	Elantra GLS 4dr	Sedan	Asia	Front	\$13,839	\$12,781	2.0	-
173	Hyundai	Elantra GT 4dr	Sedan	Asia	Front	\$15,389	\$14,207	2.0	-
174	Hyundai	Elantra GT 4dr hatch	Sedan	Asia	Front	\$15,389	\$14,207	2.0	-
175	Hyundai	Sonata GLS 4dr	Sedan	Asia	Front	\$19,339	\$17,574	2.7	-
176	Hyundai	Sonata LX 4dr	Sedan	Asia	Front	\$20,339	\$18,380	2.7	-
177	Hyundai	XG350 4dr	Sedan	Asia	Front	\$24,589	\$22,055	3.5	-
178	Hyundai	XG350 L 4dr	Sedan	Asia	Front	\$26,189	\$23,486	3.5	-
179	Hyundai	Tiburon GT V6 2dr	Sports	Asia	Front	\$18,739	\$17,101	2.7	-
180	Infiniti	G35 4dr	Sedan	Asia	Rear	\$28,495	\$26,157	3.5	-
181	Infiniti	G35 Sport Coupe 2dr	Sedan	Asia	Rear	\$29,795	\$27,536	3.5	-
182	Infiniti	G35 4dr	Sedan	Asia	All	\$32,445	\$29,783	3.5	-
183	Infiniti	I35 4dr	Sedan	Asia	Front	\$31,145	\$28,320	3.5	-
184	Infiniti	M45 4dr	Sedan	Asia	Rear	\$42,845	\$38,792	4.5	-
185	Infiniti	Q45 Luxury 4dr	Sedan	Asia	Rear	\$52,545	\$47,575	4.5	-
186	Infiniti	FX35	Wagon	Asia	Rear	\$34,895	\$31,756	3.5	-
187	Infiniti	FX45	Wagon	Asia	All	\$36,395	\$33,121	4.5	-
188	Isuzu	Ascender S	SUV	Asia	All	\$31,849	\$29,977	4.2	-
189	Isuzu	Rodeo S	SUV	Asia	Front	\$20,449	\$19,261	3.2	-
190	Jaguar	X-Type 2.5 4dr	Sedan	Europe	All	\$29,995	\$27,355	2.5	-
191	Jaguar	X-Type 3.0 4dr	Sedan	Europe	All	\$33,995	\$30,995	3.0	-
192	Jaguar	S-Type 3.0 4dr	Sedan	Europe	Rear	\$43,895	\$40,004	3.0	-
193	Jaguar	S-Type 4.2 4dr	Sedan	Europe	Rear	\$49,995	\$45,556	4.2	-
194	Jaguar	S-Type R 4dr	Sedan	Europe	Rear	\$63,120	\$57,499	4.2	-
195	Jaguar	Vanden Plas 4dr	Sedan	Europe	Rear	\$68,995	\$62,846	4.2	-
196	Jaguar	XJ8 4dr	Sedan	Europe	Rear	\$59,995	\$54,656	4.2	-
197	Jaguar	XJR 4dr	Sedan	Europe	Rear	\$74,995	\$68,306	4.2	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
198	Jaguar	XK8 coupe 2dr	Sports	Europe	Rear	\$69,995	\$63,756	4.2	-
199	Jaguar	XK8 convertible 2dr	Sports	Europe	Rear	\$74,995	\$68,306	4.2	-
200	Jaguar	XKR coupe 2dr	Sports	Europe	Rear	\$81,995	\$74,676	4.2	-
201	Jaguar	XKR convertible 2dr	Sports	Europe	Rear	\$86,995	\$79,226	4.2	-
202	Jeep	Grand Cherokee Laredo	SUV	USA	Front	\$27,905	\$25,686	4.0	-
203	Jeep	Liberty Sport	SUV	USA	All	\$20,130	\$18,973	2.4	-
204	Jeep	Wrangler Sahara convertible 2dr	SUV	USA	All	\$25,520	\$23,275	4.0	-
205	Kia	Sorento LX	SUV	Asia	Front	\$19,635	\$18,630	3.5	-
206	Kia	Optima LX 4dr	Sedan	Asia	Front	\$16,040	\$14,910	2.4	-
207	Kia	Rio 4dr manual	Sedan	Asia	Front	\$10,280	\$9,875	1.6	-
208	Kia	Rio 4dr auto	Sedan	Asia	Front	\$11,155	\$10,705	1.6	-
209	Kia	Spectra 4dr	Sedan	Asia	Front	\$12,360	\$11,630	1.8	-
210	Kia	Spectra GS 4dr hatch	Sedan	Asia	Front	\$13,580	\$12,830	1.8	-
211	Kia	Spectra GSX 4dr hatch	Sedan	Asia	Front	\$14,630	\$13,790	1.8	-
212	Kia	Optima LX V6 4dr	Sedan	Asia	Front	\$18,435	\$16,850	2.7	-
213	Kia	Amanti 4dr	Sedan	Asia	Front	\$26,000	\$23,764	3.5	-
214	Kia	Sedona LX	Sedan	Asia	Front	\$20,615	\$19,400	3.5	-
215	Kia	Rio Cinco	Wagon	Asia	Front	\$11,905	\$11,410	1.6	-
216	Land Rover	Range Rover HSE	SUV	Europe	All	\$72,250	\$65,807	4.4	-
217	Land Rover	Discovery SE	SUV	Europe	All	\$39,250	\$35,777	4.6	-
218	Land Rover	Freelander SE	SUV	Europe	All	\$25,995	\$23,969	2.5	-
219	Lexus	GX 470	SUV	Asia	All	\$45,700	\$39,838	4.7	-
220	Lexus	LX 470	SUV	Asia	All	\$64,800	\$56,455	4.7	-
221	Lexus	RX 330	SUV	Asia	All	\$39,195	\$34,576	3.3	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
222	Lexus	ES 330 4dr	Sedan	Asia	Front	\$32,350	\$28,755	3.3	1
223	Lexus	IS 300 4dr manual	Sedan	Asia	Rear	\$31,045	\$27,404	3.0	1
224	Lexus	IS 300 4dr auto	Sedan	Asia	Rear	\$32,415	\$28,611	3.0	1
225	Lexus	GS 300 4dr	Sedan	Asia	Rear	\$41,010	\$36,196	3.0	1
226	Lexus	GS 430 4dr	Sedan	Asia	Rear	\$48,450	\$42,232	4.3	1
227	Lexus	LS 430 4dr	Sedan	Asia	Rear	\$55,750	\$48,583	4.3	1
228	Lexus	SC 430 convertible 2dr	Sports	Asia	Rear	\$63,200	\$55,063	4.3	1
229	Lexus	IS 300 SportCross	Wagon	Asia	Rear	\$32,455	\$28,647	3.0	1
230	Lincoln	Navigator Luxury	SUV	USA	All	\$52,775	\$46,360	5.4	1
231	Lincoln	Aviator Ultimate	SUV	USA	Front	\$42,915	\$39,443	4.6	1
232	Lincoln	LS V6 Luxury 4dr	Sedan	USA	Rear	\$32,495	\$29,969	3.0	1
233	Lincoln	LS V6 Premium 4dr	Sedan	USA	Rear	\$36,895	\$33,929	3.0	1
234	Lincoln	LS V8 Sport 4dr	Sedan	USA	Rear	\$40,095	\$36,809	3.9	1
235	Lincoln	LS V8 Ultimate 4dr	Sedan	USA	Rear	\$43,495	\$39,869	3.9	1
236	Lincoln	Town Car Signature 4dr	Sedan	USA	Rear	\$41,815	\$38,418	4.6	1
237	Lincoln	Town Car Ultimate 4dr	Sedan	USA	Rear	\$44,925	\$41,217	4.6	1
238	Lincoln	Town Car Ultimate L 4dr	Sedan	USA	Rear	\$50,470	\$46,208	4.6	1
239	MINI	Cooper	Sedan	Europe	Front	\$16,999	\$15,437	1.6	1
240	MINI	Cooper S	Sedan	Europe	Front	\$19,999	\$18,137	1.6	1
241	Mazda	Tribute DX 2.0	SUV	Asia	All	\$21,087	\$19,742	2.0	1
242	Mazda	Mazda3 i 4dr	Sedan	Asia	Front	\$15,500	\$14,525	2.0	1
243	Mazda	Mazda3 s 4dr	Sedan	Asia	Front	\$17,200	\$15,922	2.3	1
244	Mazda	Mazda6 i 4dr	Sedan	Asia	Front	\$19,270	\$17,817	2.3	1
245	Mazda	MPV ES	Sedan	Asia	Front	\$28,750	\$26,600	3.0	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
246	Mazda	MX-5 Miata convertible 2dr	Sports	Asia	Rear	\$22,388	\$20,701	1.8	1
247	Mazda	MX-5 Miata LS convertible 2dr	Sports	Asia	Rear	\$25,193	\$23,285	1.8	1
248	Mazda	RX-8 4dr automatic	Sports	Asia	Rear	\$25,700	\$23,794	1.3	1
249	Mazda	RX-8 4dr manual	Sports	Asia	Rear	\$27,200	\$25,179	1.3	1
250	Mazda	B2300 SX Regular Cab	Truck	Asia	Rear	\$14,840	\$14,070	2.3	1
251	Mazda	B4000 SE Cab Plus	Truck	Asia	All	\$22,350	\$20,482	4.0	1
252	Mercedes-Benz	G500	SUV	Europe	All	\$76,870	\$71,540	5.0	1
253	Mercedes-Benz	ML500	SUV	Europe	All	\$46,470	\$43,268	5.0	1
254	Mercedes-Benz	C230 Sport 2dr	Sedan	Europe	Rear	\$26,060	\$24,249	1.8	1
255	Mercedes-Benz	C320 Sport 2dr	Sedan	Europe	Rear	\$28,370	\$26,435	3.2	1
256	Mercedes-Benz	C240 4dr	Sedan	Europe	Rear	\$32,280	\$30,071	2.6	1
257	Mercedes-Benz	C240 4dr	Sedan	Europe	All	\$33,480	\$31,187	2.6	1
258	Mercedes-Benz	C320 Sport 4dr	Sedan	Europe	Rear	\$35,920	\$33,456	3.2	1
259	Mercedes-Benz	C320 4dr	Sedan	Europe	Rear	\$37,630	\$35,046	3.2	1
260	Mercedes-Benz	C320 4dr	Sedan	Europe	All	\$38,830	\$36,162	3.2	1
261	Mercedes-Benz	C32 AMG 4dr	Sedan	Europe	Rear	\$52,120	\$48,522	3.2	1
262	Mercedes-Benz	CL500 2dr	Sedan	Europe	Rear	\$94,820	\$88,324	5.0	1
263	Mercedes-Benz	CL600 2dr	Sedan	Europe	Rear	\$128,420	\$119,600	5.5	1
264	Mercedes-Benz	CLK320 coupe 2dr (convertible)	Sedan	Europe	Rear	\$45,707	\$41,966	3.2	1
265	Mercedes-Benz	CLK500 coupe 2dr (convertible)	Sedan	Europe	Rear	\$52,800	\$49,104	5.0	1
266	Mercedes-Benz	E320 4dr	Sedan	Europe	Rear	\$48,170	\$44,849	3.2	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
267	Mercedes-Benz	E500 4dr	Sedan	Europe	Rear	\$57,270	\$53,382	5.0	1
268	Mercedes-Benz	S430 4dr	Sedan	Europe	Rear	\$74,320	\$69,168	4.3	1
269	Mercedes-Benz	S500 4dr	Sedan	Europe	All	\$86,970	\$80,939	5.0	1
270	Mercedes-Benz	SL500 convertible 2dr	Sports	Europe	Rear	\$90,520	\$84,325	5.0	1
271	Mercedes-Benz	SL55 AMG 2dr	Sports	Europe	Rear	\$121,770	\$113,388	5.5	1
272	Mercedes-Benz	SL600 convertible 2dr	Sports	Europe	Rear	\$126,670	\$117,854	5.5	1
273	Mercedes-Benz	SLK230 convertible 2dr	Sports	Europe	Rear	\$40,320	\$37,548	2.3	1
274	Mercedes-Benz	SLK32 AMG 2dr	Sports	Europe	Rear	\$56,170	\$52,289	3.2	1
275	Mercedes-Benz	C240	Wagon	Europe	Rear	\$33,780	\$31,466	2.6	1
276	Mercedes-Benz	E320	Wagon	Europe	Rear	\$50,670	\$47,174	3.2	1
277	Mercedes-Benz	E500	Wagon	Europe	All	\$60,670	\$56,474	5.0	1
278	Mercury	Mountaineer	SUV	USA	Front	\$29,995	\$27,317	4.0	1
279	Mercury	Sable GS 4dr	Sedan	USA	Front	\$21,595	\$19,848	3.0	1
280	Mercury	Grand Marquis GS 4dr	Sedan	USA	Rear	\$24,695	\$23,217	4.6	1
281	Mercury	Grand Marquis LS Premium 4dr	Sedan	USA	Rear	\$29,595	\$27,148	4.6	1
282	Mercury	Sable LS Premium 4dr	Sedan	USA	Front	\$23,895	\$21,918	3.0	1
283	Mercury	Grand Marquis LS Ultimate 4dr	Sedan	USA	Rear	\$30,895	\$28,318	4.6	1
284	Mercury	Marauder 4dr	Sedan	USA	Rear	\$34,495	\$31,558	4.6	1
285	Mercury	Monterey Luxury	Sedan	USA	Front	\$33,995	\$30,846	4.2	1
286	Mercury	Sable GS	Wagon	USA	Front	\$22,595	\$20,748	3.0	1
287	Mitsubishi	Endeavor XLS	SUV	Asia	All	\$30,492	\$28,330	3.8	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
288	Mitsubishi	Montero XLS	SUV	Asia	All	\$33,112	\$30,763	3.8	1
289	Mitsubishi	Outlander LS	SUV	Asia	Front	\$18,892	\$17,569	2.4	1
290	Mitsubishi	Lancer ES 4dr	Sedan	Asia	Front	\$14,622	\$13,751	2.0	1
291	Mitsubishi	Lancer LS 4dr	Sedan	Asia	Front	\$16,722	\$15,718	2.0	1
292	Mitsubishi	Galant ES 2.4L 4dr	Sedan	Asia	Front	\$19,312	\$17,957	2.4	1
293	Mitsubishi	Lancer OZ Rally 4dr auto	Sedan	Asia	Front	\$17,232	\$16,196	2.0	1
294	Mitsubishi	Diamante LS 4dr	Sedan	Asia	Front	\$29,282	\$27,250	3.5	1
295	Mitsubishi	Galant GTS 4dr	Sedan	Asia	Front	\$25,700	\$23,883	3.8	1
296	Mitsubishi	Eclipse GTS 2dr	Sports	Asia	Front	\$25,092	\$23,456	3.0	1
297	Mitsubishi	Eclipse Spyder GT convertible 2dr	Sports	Asia	Front	\$26,992	\$25,218	3.0	1
298	Mitsubishi	Lancer Evolution 4dr	Sports	Asia	Front	\$29,562	\$27,466	2.0	1
299	Mitsubishi	Lancer Sportback LS	Wagon	Asia	Front	\$17,495	\$16,295	2.4	1
300	Nissan	Pathfinder Armada SE	SUV	Asia	Front	\$33,840	\$30,815	5.6	1
301	Nissan	Pathfinder SE	SUV	Asia	Front	\$27,339	\$25,972	3.5	1
302	Nissan	Xterra XE V6	SUV	Asia	Front	\$20,939	\$19,512	3.3	1
303	Nissan	Sentra 1.8 4dr	Sedan	Asia	Front	\$12,740	\$12,205	1.8	1
304	Nissan	Sentra 1.8 S 4dr	Sedan	Asia	Front	\$14,740	\$13,747	1.8	1
305	Nissan	Altima S 4dr	Sedan	Asia	Front	\$19,240	\$18,030	2.5	1
306	Nissan	Sentra SE-R 4dr	Sedan	Asia	Front	\$17,640	\$16,444	2.5	1
307	Nissan	Altima SE 4dr	Sedan	Asia	Front	\$23,290	\$21,580	3.5	1
308	Nissan	Maxima SE 4dr	Sedan	Asia	Front	\$27,490	\$25,182	3.5	1

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
309	Nissan	Maxima SL 4dr	Sedan	Asia	Front	\$29,440	\$26,966	3.5	-
310	Nissan	Quest S	Sedan	Asia	Front	\$24,780	\$22,958	3.5	-
311	Nissan	Quest SE	Sedan	Asia	Front	\$32,780	\$30,019	3.5	-
312	Nissan	350Z coupe 2dr	Sports	Asia	Rear	\$26,910	\$25,203	3.5	-
313	Nissan	350Z Enthusiast convertible 2dr	Sports	Asia	Rear	\$34,390	\$31,845	3.5	-
314	Nissan	Frontier King Cab XE V6	Truck	Asia	All	\$19,479	\$18,253	3.3	-
315	Nissan	Titan King Cab XE	Truck	Asia	All	\$26,650	\$24,926	5.6	-
316	Nissan	Murano SL	Wagon	Asia	Rear	\$28,739	\$27,300	3.5	-
317	Oldsmobile	Alero GX 2dr	Sedan	USA	Front	\$18,825	\$17,642	2.2	-
318	Oldsmobile	Alero GLS 2dr	Sedan	USA	Front	\$23,675	\$21,485	3.4	-
319	Oldsmobile	Silhouette GL	Sedan	USA	Front	\$28,790	\$26,120	3.4	-
320	Pontiac	Aztek	SUV	USA	Front	\$21,595	\$19,810	3.4	-
321	Pontiac	Sunfire 1SA 2dr	Sedan	USA	Front	\$15,495	\$14,375	2.2	-
322	Pontiac	Grand Am GT 2dr	Sedan	USA	Front	\$22,450	\$20,595	3.4	-
323	Pontiac	Grand Prix GT1 4dr	Sedan	USA	Front	\$22,395	\$20,545	3.8	-
324	Pontiac	Sunfire 1SC 2dr	Sedan	USA	Front	\$17,735	\$16,369	2.2	-
325	Pontiac	Grand Prix GT2 4dr	Sedan	USA	Front	\$24,295	\$22,284	3.8	-
326	Pontiac	Bonneville GXP 4dr	Sedan	USA	Front	\$35,995	\$32,997	4.6	-
327	Pontiac	Montana	Sedan	USA	Front	\$23,845	\$21,644	3.4	-
328	Pontiac	Montana EWB	Sedan	USA	All	\$31,370	\$28,454	3.4	-
329	Pontiac	GTO 2dr	Sports	USA	Rear	\$33,500	\$30,710	5.7	-
330	Pontiac	Vibe	Wagon	USA	Rear	\$17,045	\$15,973	1.8	-
331	Porsche	Cayenne S	SUV	Europe	All	\$56,665	\$49,865	4.5	-
332	Porsche	911 Carrera convertible 2dr (coupe)	Sports	Europe	Rear	\$79,165	\$69,229	3.6	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
333	Porsche	911 Carrera 4S coupe 2dr (convert)	Sports	Europe	All	\$84,165	\$72,206	3.6	-
334	Porsche	911 Targa coupe 2dr	Sports	Europe	Rear	\$76,765	\$67,128	3.6	-
335	Porsche	911 GT2 2dr	Sports	Europe	Rear	\$192,465	\$173,560	3.6	-
336	Porsche	Boxster convertible 2dr	Sports	Europe	Rear	\$43,365	\$37,886	2.7	-
337	Porsche	Boxster S convertible 2dr	Sports	Europe	Rear	\$52,365	\$45,766	3.2	-
338	Saab	9-3 Arc Sport 4dr	Sedan	Europe	Front	\$30,860	\$29,269	2.0	-
339	Saab	9-3 Aero 4dr	Sedan	Europe	Front	\$33,360	\$31,562	2.0	-
340	Saab	9-5 Arc 4dr	Sedan	Europe	Front	\$35,105	\$33,011	2.3	-
341	Saab	9-5 Aero 4dr	Sedan	Europe	Front	\$39,465	\$37,721	2.3	-
342	Saab	9-3 Arc convertible 2dr	Sedan	Europe	Front	\$40,670	\$38,520	2.0	-
343	Saab	9-3 Aero convertible 2dr	Sedan	Europe	Front	\$43,175	\$40,883	2.0	-
344	Saab	9-5 Aero	Wagon	Europe	Front	\$40,845	\$38,376	2.3	-
345	Saturn	VUE	SUV	USA	All	\$20,585	\$19,238	2.2	-
346	Saturn	Ion1 4dr	Sedan	USA	Front	\$10,995	\$10,319	2.2	-
347	Saturn	Ion2 4dr	Sedan	USA	Front	\$14,300	\$13,393	2.2	-
348	Saturn	Ion3 4dr	Sedan	USA	Front	\$15,825	\$14,811	2.2	-
349	Saturn	Ion2 quad coupe 2dr	Sedan	USA	Front	\$14,850	\$13,904	2.2	-
350	Saturn	Ion3 quad coupe 2dr	Sedan	USA	Front	\$16,350	\$15,299	2.2	-
351	Saturn	L300-2 4dr	Sedan	USA	Front	\$21,410	\$19,801	3.0	-
352	Saturn	L300 2	Wagon	USA	Front	\$23,560	\$21,779	2.2	-
353	Scion	xA 4dr hatch	Sedan	Asia	Front	\$12,965	\$12,340	1.5	-
354	Scion	xB	Wagon	Asia	Front	\$14,165	\$13,480	1.5	-
355	Subaru	Impreza 2.5 RS 4dr	Sedan	Asia	All	\$19,945	\$18,399	2.5	-
356	Subaru	Legacy L 4dr	Sedan	Asia	All	\$20,445	\$18,713	2.5	-
357	Subaru	Legacy GT 4dr	Sedan	Asia	All	\$25,645	\$23,336	2.5	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
358	Subaru	Outback Limited Sedan 4dr	Sedan	Asia	All	\$27,145	\$24,687	2.5	-
359	Subaru	Outback H6 4dr	Sedan	Asia	All	\$29,345	\$26,660	3.0	-
360	Subaru	Outback H-6 VDC 4dr	Sedan	Asia	All	\$31,545	\$28,603	3.0	-
361	Subaru	Impreza WRX 4dr	Sports	Asia	All	\$25,045	\$23,022	2.0	-
362	Subaru	Impreza WRX STi 4dr	Sports	Asia	All	\$31,545	\$29,130	2.5	-
363	Subaru	Baja	Truck	Asia	All	\$24,520	\$22,304	2.5	-
364	Subaru	Forester X	Wagon	Asia	All	\$21,445	\$19,646	2.5	-
365	Subaru	Outback	Wagon	Asia	All	\$23,895	\$21,773	2.5	-
366	Suzuki	XL-7 EX	SUV	Asia	Front	\$23,699	\$22,307	2.7	-
367	Suzuki	Vitara LX	SUV	Asia	All	\$17,163	\$16,949	2.5	-
368	Suzuki	Aeno S 4dr	Sedan	Asia	Front	\$12,884	\$12,719	2.3	-
369	Suzuki	Aerio LX 4dr	Sedan	Asia	Front	\$14,500	\$14,317	2.3	-
370	Suzuki	Forenza S 4dr	Sedan	Asia	Front	\$12,269	\$12,116	2.0	-
371	Suzuki	Forenza EX 4dr	Sedan	Asia	Front	\$15,568	\$15,378	2.0	-
372	Suzuki	Verona LX 4dr	Sedan	Asia	Front	\$17,262	\$17,053	2.5	-
373	Suzuki	Aerio SX	Wagon	Asia	All	\$16,497	\$16,291	2.3	-
374	Toyota	Prius 4dr (gas/electric)	Hybrid	Asia	Front	\$20,510	\$18,926	1.5	-
375	Toyota	Sequoia SR5	SUV	Asia	All	\$35,695	\$31,827	4.7	-
376	Toyota	4Runner SR5 V6	SUV	Asia	Front	\$27,710	\$24,801	4.0	-
377	Toyota	Highlander V6	SUV	Asia	All	\$27,930	\$24,915	3.3	-
378	Toyota	Land Cruiser	SUV	Asia	All	\$54,765	\$47,986	4.7	-
379	Toyota	RAV4	SUV	Asia	All	\$20,290	\$18,553	2.4	-
380	Toyota	Corolla CE 4dr	Sedan	Asia	Front	\$14,085	\$13,065	1.8	-
381	Toyota	Corolla S 4dr	Sedan	Asia	Front	\$15,030	\$13,650	1.8	-
382	Toyota	Corolla LE 4dr	Sedan	Asia	Front	\$15,295	\$13,889	1.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
383	Toyota	Echo 2dr manual	Sedan	Asia	Front	\$10,760	\$10,144	1.5	-
384	Toyota	Echo 2dr auto	Sedan	Asia	Front	\$11,560	\$10,896	1.5	-
385	Toyota	Echo 4dr	Sedan	Asia	Front	\$11,290	\$10,642	1.5	-
386	Toyota	Camry LE 4dr	Sedan	Asia	Front	\$19,560	\$17,558	2.4	-
387	Toyota	Camry LE V6 4dr	Sedan	Asia	Front	\$22,775	\$20,325	3.0	-
388	Toyota	Camry Solara SE 2dr	Sedan	Asia	Front	\$19,635	\$17,722	2.4	-
389	Toyota	Camry Solara SE V6 2dr	Sedan	Asia	Front	\$21,965	\$19,819	3.3	-
390	Toyota	Avalon XL 4dr	Sedan	Asia	Front	\$26,560	\$23,693	3.0	-
391	Toyota	Camry XLE V6 4dr	Sedan	Asia	Front	\$25,920	\$23,125	3.0	-
392	Toyota	Camry Solara SLE V6 2dr	Sedan	Asia	Front	\$26,510	\$23,908	3.3	-
393	Toyota	Avalon XLS 4dr	Sedan	Asia	Front	\$30,920	\$27,271	3.0	-
394	Toyota	Sienna CE	Sedan	Asia	Front	\$23,495	\$21,198	3.3	-
395	Toyota	Sienna XLE Limited	Sedan	Asia	Front	\$28,800	\$25,690	3.3	-
396	Toyota	Celica GT-S 2dr	Sports	Asia	Front	\$22,570	\$20,363	1.8	-
397	Toyota	MR2 Spyder convertible 2dr	Sports	Asia	Rear	\$25,130	\$22,787	1.8	-
398	Toyota	Tacoma	Truck	Asia	Rear	\$12,800	\$11,879	2.4	-
399	Toyota	Tundra Regular Cab V6	Truck	Asia	Rear	\$16,495	\$14,978	3.4	-
400	Toyota	Tundra Access Cab V6 SR5	Truck	Asia	All	\$25,935	\$23,520	3.4	-
401	Toyota	Matrix XR	Wagon	Asia	Front	\$16,695	\$15,156	1.8	-
402	Volkswagen	Touareg V6	SUV	Europe	All	\$35,515	\$32,243	3.2	-
403	Volkswagen	Golf GLS 4dr	Sedan	Europe	Front	\$18,715	\$17,478	2.0	-
404	Volkswagen	GTI 1.8T 2dr hatch	Sedan	Europe	Front	\$19,825	\$18,109	1.8	-

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinder
405	Volkswagen	Jetta GLS TDI 4dr	Sedan	Europe	Front	\$21,055	\$19,638	1.9	-
406	Volkswagen	New Beetle GLS 1.8T 2dr	Sedan	Europe	Front	\$21,055	\$19,638	1.8	-
407	Volkswagen	Jetta GLI VR6 4dr	Sedan	Europe	Front	\$23,785	\$21,686	2.8	-
408	Volkswagen	New Beetle GLS convertible 2dr	Sedan	Europe	Front	\$23,215	\$21,689	2.0	-
409	Volkswagen	Passat GLS 4dr	Sedan	Europe	Front	\$23,955	\$21,898	1.8	-
410	Volkswagen	Passat GLX V6 4MOTION 4dr	Sedan	Europe	Front	\$33,180	\$30,583	2.8	-
411	Volkswagen	Passat W8 4MOTION 4dr	Sedan	Europe	Front	\$39,235	\$36,052	4.0	-
412	Volkswagen	Phaeton 4dr	Sedan	Europe	Front	\$65,000	\$59,912	4.2	-
413	Volkswagen	Phaeton W12 4dr	Sedan	Europe	Front	\$75,000	\$69,130	6.0	12
414	Volkswagen	Jetta GL	Wagon	Europe	Front	\$19,005	\$17,427	2.0	-
415	Volkswagen	Passat GLS 1.8T	Wagon	Europe	Front	\$24,955	\$22,801	1.8	-
416	Volkswagen	Passat W8	Wagon	Europe	Front	\$40,235	\$36,956	4.0	-
417	Volvo	XC90 T6	SUV	Europe	All	\$41,250	\$38,851	2.9	-
418	Volvo	S40 4dr	Sedan	Europe	Front	\$25,135	\$23,701	1.9	-
419	Volvo	S60 2.5 4dr	Sedan	Europe	All	\$31,745	\$29,916	2.5	-
420	Volvo	S60 T5 4dr	Sedan	Europe	Front	\$34,845	\$32,902	2.3	-
421	Volvo	S60 R 4dr	Sedan	Europe	All	\$37,560	\$35,382	2.5	-
422	Volvo	S80 2.9 4dr	Sedan	Europe	Front	\$37,730	\$35,542	2.9	-
423	Volvo	S80 2.5T 4dr	Sedan	Europe	All	\$37,885	\$35,688	2.5	-
424	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	\$40,565	\$38,203	2.4	-
425	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	\$42,565	\$40,083	2.3	-
426	Volvo	S80 T6 4dr	Sedan	Europe	Front	\$45,210	\$42,573	2.9	-
427	Volvo	V40	Wagon	Europe	Front	\$26,135	\$24,641	1.9	-
428	Volvo	XC70	Wagon	Europe	All	\$35,145	\$33,112	2.5	-

```
-----  
TypeError Traceback (most recent call last)  
<ipython-input-11-2e5d53352193> in <module>  
      1 # use the sas.HTML method to render the LST which was returned as an HTML docume  
nt  
      2 html_LST = sas.submitLST("proc print data=sashelp.cars; run;")  
----> 3 sas.HTML(html_LST['LST'])  
  
TypeError: 'NoneType' object is not subscriptable
```

In [12]:

```
# First 5 obs  
cars.head()
```

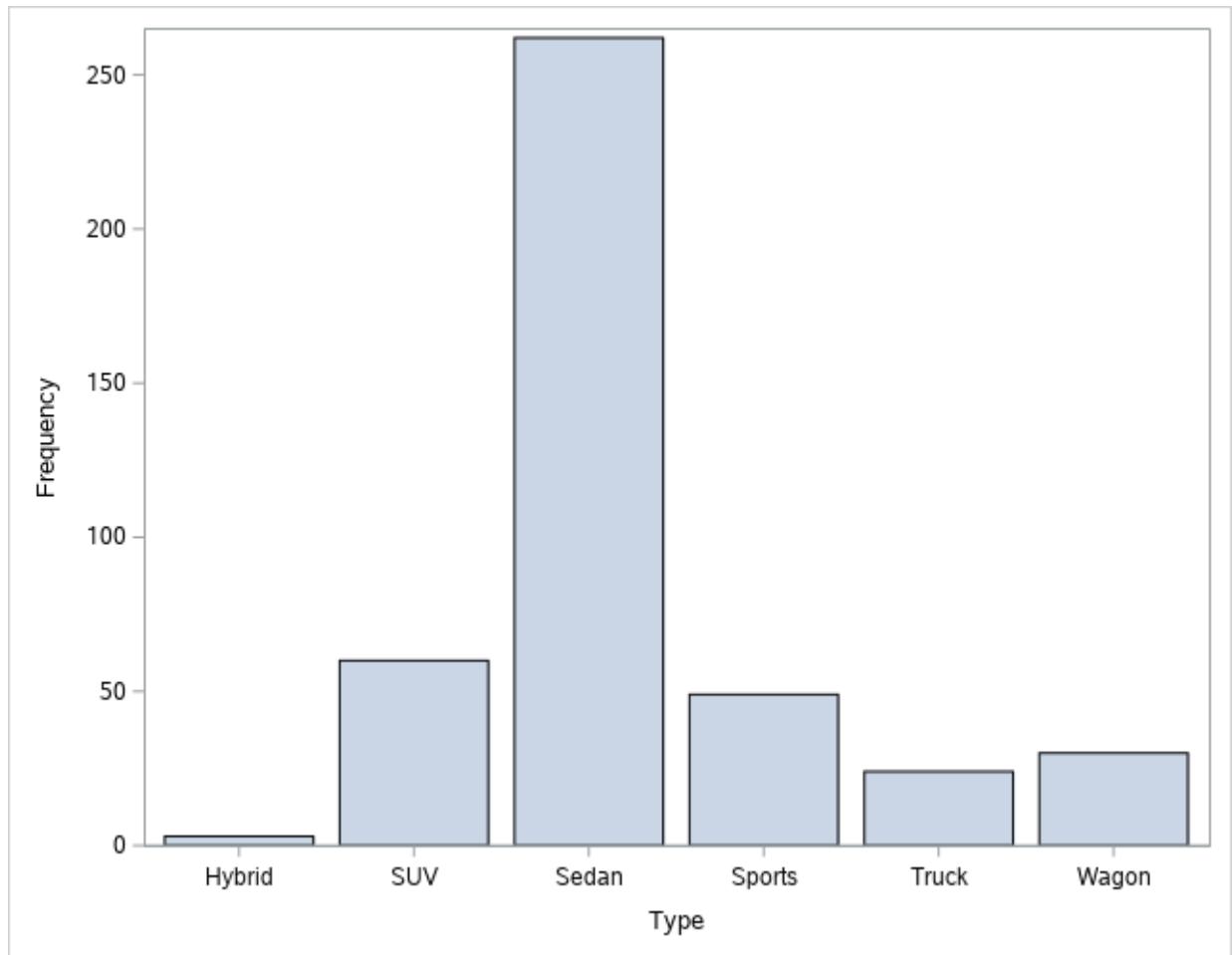
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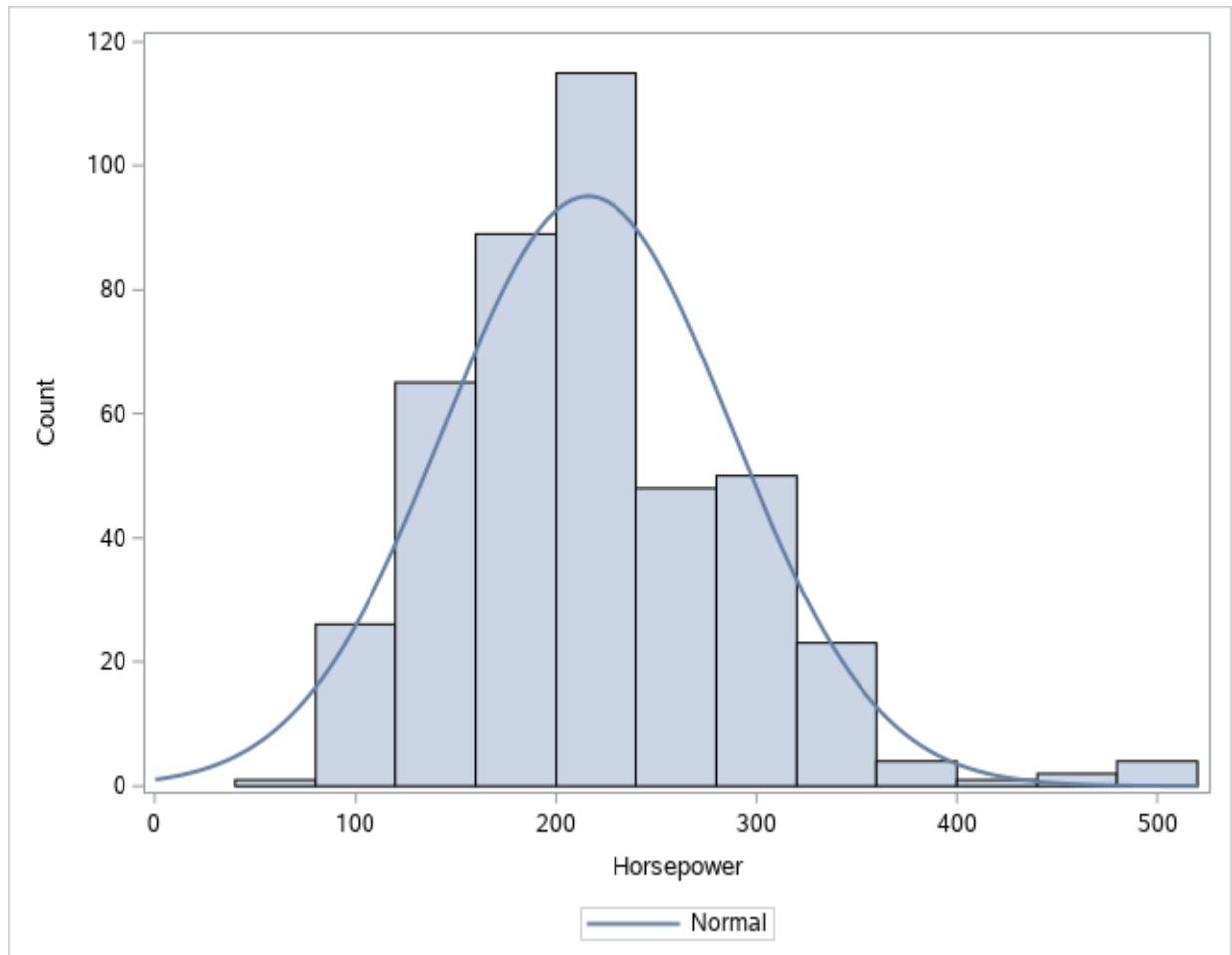
MPG_	Obs	Make	Model	Type	Origin	Train	Drive		Engine		
							er	MPG_City	Highway	Weight	Wheelbase
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	
17		23	4451	106	189						
2	Acura	RSX	Type S	2dr Sedan	Asia	Front	\$23,820	\$21,761	2.0	4	200
24		31	2778	101	172						
3	Acura	TSX	4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200
22		29	3230	105	183						
4	Acura	TL	4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270
20		28	3575	108	186						
5	Acura	3.5 RL	4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225
18		24	3880	115	197						

In [13]:

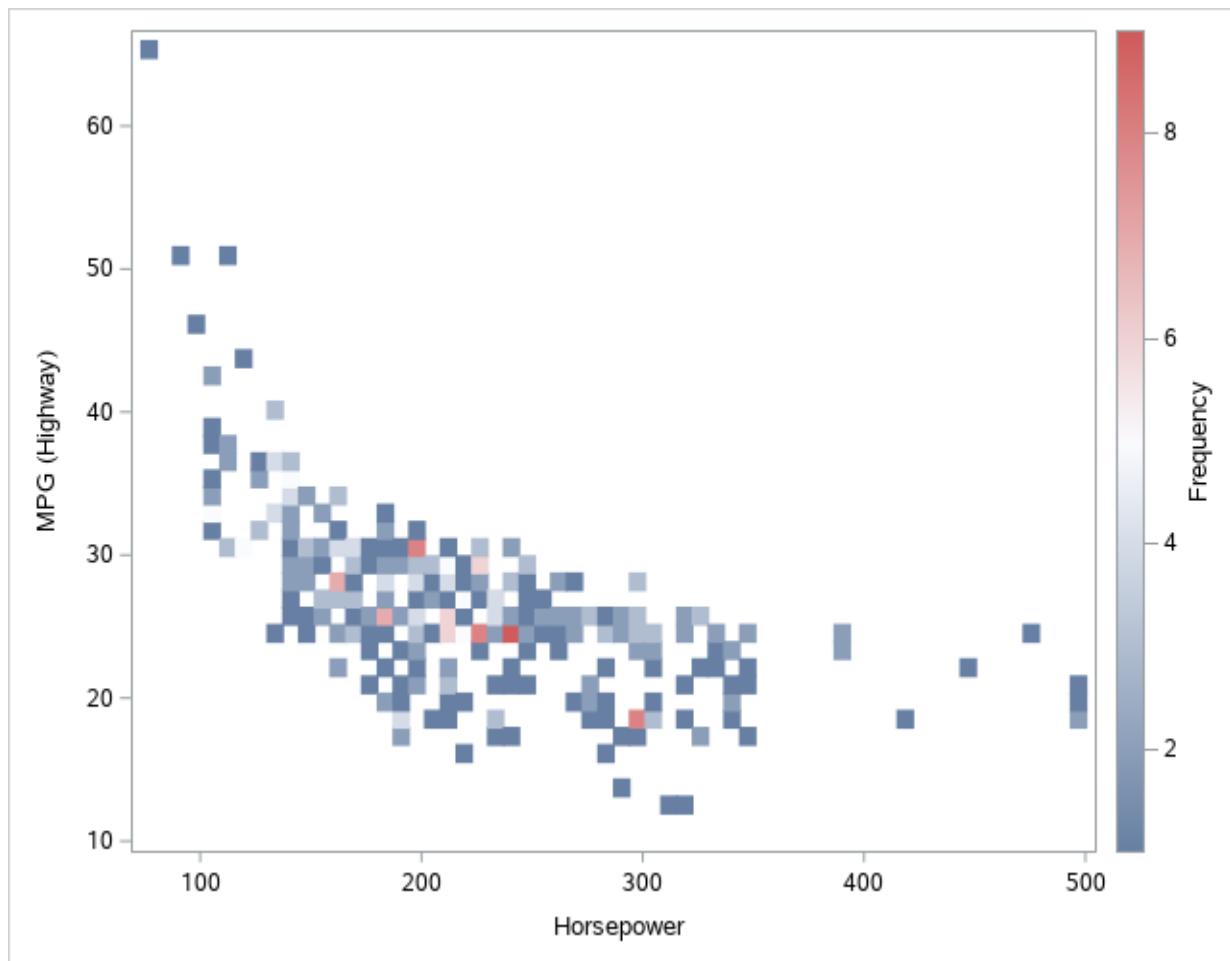
```
cars.bar('Type')
```



In [14]:
cars.hist('Horsepower')



In [15]:
cars.heatmap('Horsepower', 'MPG_Highway')



In [16]:

```
# Show SAS code

sas.teach_me_SAS(True)
cars.heatmap('Horsepower','MPG_Highway')
sas.teach_me_SAS(False)
```

```
proc sgplot data=sashelp.'cars'n ;
    heatmap x='Horsepower'n y='MPG_Highway'n;;
run;
title;
```

In [17]:

```
# runs as PROC MEANS on the dataset
cars.describe()
```

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The MEANS Procedure

Variable	Label	N	Median	Mean	Std Dev
Minimum	25th Pctl	50th Pctl	Miss		
MSRP		428	27635	32775	19432
10280	20330	27635			
Invoice		428	25295	30015	17642
9875.000000	18851	25295			

SAS_PY

EngineSize	Engine Size (L)	428	0	3.000000	3.196729	1.108595
1.300000	2.350000	3.000000				
Cylinders		426	2	6.000000	5.807512	1.558443
3.000000	4.000000	6.000000				
Horsepower		428	0	210.000000	215.885514	71.836032
73.000000	165.000000	210.000000				
MPG_City	MPG (City)	428	0	19.000000	20.060748	5.238218
10.000000	17.000000	19.000000				
MPG_Highway	MPG (Highway)	428	0	26.000000	26.843458	5.741201
12.000000	24.000000	26.000000				
Weight	Weight (LBS)	428	0	3474.500000	3577.953271	758.983215
1850.000000	3103.000000	3474.500000				
Wheelbase	Wheelbase (IN)	428	0	107.000000	108.154206	8.311813
89.000000	103.000000	107.000000				
Length	Length (IN)	428	0	187.000000	186.362150	14.357991
143.000000	178.000000	187.000000				

	Variable	Label	75th Pctl	
Maximum				

192465	MSRP			39215
173560	Invoice			35733
8.300000	EngineSize	Engine Size (L)		3.900000
2.000000	Cylinders			6.000000
0.000000	Horsepower			255.000000
0.000000	MPG_City	MPG (City)		21.500000
6.000000	MPG_Highway	MPG (Highway)		29.000000
0.000000	Weight	Weight (LBS)		3978.500000
4.000000	Wheelbase	Wheelbase (IN)		112.000000
8.000000	Length	Length (IN)		194.000000

In [18]:

```
%%SAS sas
PROC MEANS DATA=sashelp.cars;
VAR _numeric_;
OUTPUT OUT=stats;
RUN;
```

Out[18]: The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
----------	-------	---	------	---------	---------	---------

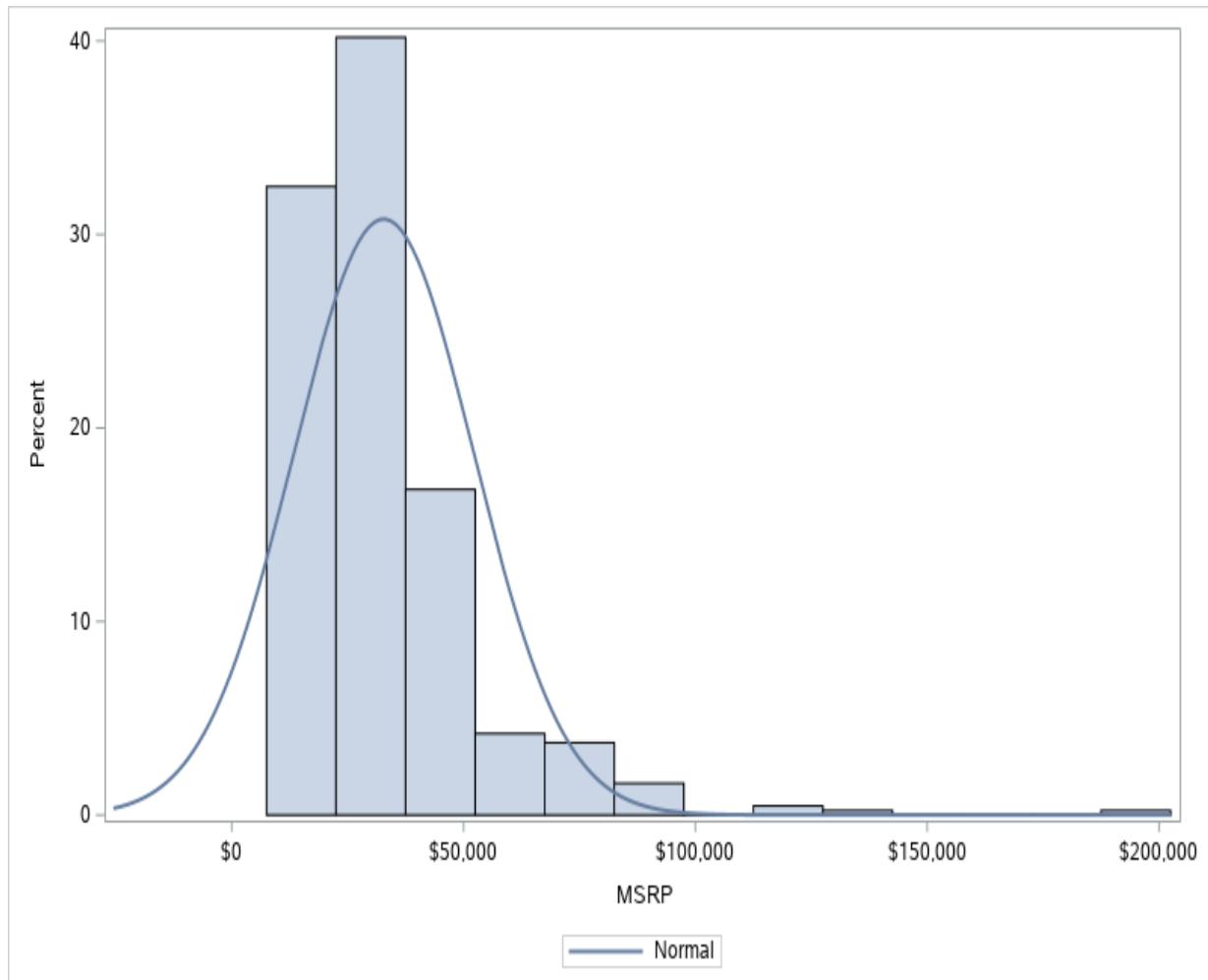
Variable	Label	N	Mean	Std Dev	Minimum	Maximum
MSRP Invoice EngineSize Cylinders Horsepower MPG_City MPG_Highway Weight Wheelbase Length	Engine Size (L)	428	32774.86	19431.72	10280.00	192465.00
		428	30014.70	17642.12	9875.00	173560.00
		428	3.1967290	1.1085947	1.3000000	8.3000000
		426	5.8075117	1.5584426	3.0000000	12.0000000
		428	215.8855140	71.8360316	73.0000000	500.0000000
		428	20.0607477	5.2382176	10.0000000	60.0000000
		428	26.8434579	5.7412007	12.0000000	66.0000000
		428	3577.95	758.9832146	1850.00	7190.00
		428	108.1542056	8.3118130	89.0000000	144.0000000
		428	186.3621495	14.3579913	143.0000000	238.0000000

In [19]:

```
%%SAS sas
proc means data=sashelp.cars;
run;
ods graphics / height=500 width=800;
proc sgplot data=sashelp.cars;
histogram msrp;
density msrp;
run;
```

Out[19]: The MEANS Procedure

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
MSRP Invoice EngineSize Cylinders Horsepower MPG_City MPG_Highway Weight Wheelbase Length	Engine Size (L)	428	32774.86	19431.72	10280.00	192465.00
		428	30014.70	17642.12	9875.00	173560.00
		428	3.1967290	1.1085947	1.3000000	8.3000000
		426	5.8075117	1.5584426	3.0000000	12.0000000
		428	215.8855140	71.8360316	73.0000000	500.0000000
		428	20.0607477	5.2382176	10.0000000	60.0000000
		428	26.8434579	5.7412007	12.0000000	66.0000000
		428	3577.95	758.9832146	1850.00	7190.00
		428	108.1542056	8.3118130	89.0000000	144.0000000
		428	186.3621495	14.3579913	143.0000000	238.0000000



```
In [20]: cars.info()
```

The info method only works with Pandas results

```
In [21]: # Sort
cars.sort(by = 'Horsepower', out = 'cars_copy')
print(sas.lastlog())
```

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```
273      ;*'/*';*/
274      data _null_; e = exist("sashelp.'cars'n");
275      v = exist("sashelp.'cars'n", 'VIEW');
276      if e or v then e = 1;
277      te='TABLE_EXISTS='; put te e;run;
TABLE_EXISTS= 1
278
279
280      ;*'/*';*/
281
```

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```
282
283      %put E3969440A681A2408885998500000024;
```

E3969440A681A2408885998500000024
284

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```
285      ;*' ;*/;  
286      proc sort data=sashelp.'cars'n  out='cars_copy'n    ;  
287      by Horsepower;run  
288      ;  
289  
290      ;*' ;*/;
```

291
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```
292  
293      %put E3969440A681A2408885998500000025;  
E3969440A681A2408885998500000025  
294
```

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```
295      ;*' ;*/;  
296      data _null_; e = exist("user.'cars_copy'n");  
297      v = exist("user.'cars_copy'n", 'VIEW');  
298      if e or v then e = 1;  
299      te='TABLE_EXISTS='; put te e;run;  
TABLE_EXISTS= 0  
300  
301  
302      ;*' ;*/;  
303
```

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```
304  
305      %put E3969440A681A2408885998500000026;  
E3969440A681A2408885998500000026  
306
```

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```
307      ;*' ;*/;  
308      data _null_; e = exist("WORK.'cars_copy'n");  
309      v = exist("WORK.'cars_copy'n", 'VIEW');  
310      if e or v then e = 1;  
311      te='TABLE_EXISTS='; put te e;run;  
TABLE_EXISTS= 1  
312  
313  
314      ;*' ;*/;  
315
```

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```
316  
317      %put E3969440A681A2408885998500000027;  
E3969440A681A2408885998500000027
```

318

In [22]:

```
cars_copy = sas.sasdata(table='cars_copy', libref='work', results='text')
cars_copy.head(10)
```

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	M	D											
E	H	P	r										
n	C	o	i										
g	y	r	v										
I	i	l	e	o	e								
n	n	i	e	G	i	w	e	L	M	r	T		
v	e	n	p	-	g	e	l	e	o	T	i	r	M
o	S	d	o	C	h	i	b	n	d	y	g	a	S
i	i	e	w	i	w	g	a	g	e	p	i	i	R
c	z	r	e	t	a	h	s	t	l	e	n	n	P
e	e	s	r	y	y	t	e	h					
	1	Honda	Insight	2dr	(gas/electric)					Hybrid	Asia	Front	\$19,110
\$17,911	2.0	3	73	60	66	1850	95	155					
	2	Honda	Civic Hybrid	4dr	manual	(gas/electric)				Hybrid	Asia	Front	\$20,140
\$18,451	1.4	4	93	46	51	2732	103	175					
	3	Volkswagen	Jetta GLS	TDI	4dr					Sedan	Europe	Front	\$21,055
\$19,638	1.9	4	100	38	46	3003	99	172					
	4	Chevrolet	Aveo	4dr						Sedan	USA	Front	\$11,690
\$10,965	1.6	4	103	28	34	2370	98	167					
	5	Chevrolet	Aveo LS	4dr	hatch					Sedan	USA	Front	\$12,585
\$11,802	1.6	4	103	28	34	2348	98	153					
	6	Hyundai	Accent	2dr	hatch					Sedan	Asia	Front	\$10,539
\$10,107	1.6	4	103	29	33	2255	96	167					
	7	Hyundai	Accent GL	4dr						Sedan	Asia	Front	\$11,839
\$11,116	1.6	4	103	29	33	2290	96	167					
	8	Hyundai	Accent GT	2dr	hatch					Sedan	Asia	Front	\$11,939
\$11,209	1.6	4	103	29	33	2339	96	167					
	9	Kia	Rio	4dr	manual					Sedan	Asia	Front	\$10,280
\$9,875	1.6	4	104	26	33	2403	95	167					
	10	Kia	Rio	4dr	auto					Sedan	Asia	Front	\$11,155
\$10,705	1.6	4	104	25	32	2458	95	167					

In [23]:

```
# convert to pandas dataframe format

df = cars.to_df_DISK(dtype=str)
df.dtypes
```

	Make	object
Model	object	
Type	object	

```
Origin          object
DriveTrain     object
MSRP           object
Invoice         object
EngineSize     object
Cylinders      object
Horsepower     object
MPG_City       object
MPG_Highway    object
Weight          object
Wheelbase       object
Length          object
dtype: object
```

In [24]:

`df.head()`

Out[24]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_C
0	Acura	MDX	SUV	Asia	All	36945	33337	3.5	6	265	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	23820	21761	2	4	200	
2	Acura	TSX 4dr	Sedan	Asia	Front	26990	24647	2.4	4	200	
3	Acura	TL 4dr	Sedan	Asia	Front	33195	30299	3.2	6	270	
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	43755	39014	3.5	6	225	

◀ ▶

In [25]:

`df.describe()`

Out[25]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower
count	428	428	428	428	428	428	428	428	426	428
unique	38	425	6	3	3	410	425	43	7	110
top	Toyota	C320 4dr	Sedan	Asia	Front	31545	14207	3	6	200
freq	28	2	262	158	226	2	2	42	190	17

◀ ▶

In [26]:

`df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 428 entries, 0 to 427
Data columns (total 15 columns):
 #   Column        Non-Null Count  Dtype  
 ---  --  
 0   Make          428 non-null    object 
 1   Model         428 non-null    object 
 2   Type          428 non-null    object 
 3   Origin         428 non-null    object 
 4   DriveTrain    428 non-null    object 
 5   Year          428 non-null    int64  
 6   OriginName    428 non-null    object 
 7   OriginDesc    428 non-null    object 
 8   OriginLat     428 non-null    float64
 9   OriginLong    428 non-null    float64
 10  OriginCountry 428 non-null    object 
 11  Name           428 non-null    object 
 12  FuelType      428 non-null    object 
 13  FuelCity      428 non-null    float64
 14  FuelHwy       428 non-null    float64
 15  Cylinders     428 non-null    int64 
```

```

5   MSRP          428 non-null    object
6   Invoice        428 non-null    object
7   EngineSize     428 non-null    object
8   Cylinders      426 non-null    object
9   Horsepower     428 non-null    object
10  MPG_City       428 non-null    object
11  MPG_Highway   428 non-null    object
12  Weight         428 non-null    object
13  Wheelbase      428 non-null    object
14  Length          428 non-null    object
dtypes: object(15)
memory usage: 50.3+ KB

```

transfer data between SAS Data Sets and Pandas Data Frames

In [27]:

```
# sd2df() is an alias for sasdata2dataframe()
df2 = sas.sd2df(table='cars',libref='sashelp')
df2.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 428 entries, 0 to 427
Data columns (total 15 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   Make         428 non-null    object  
 1   Model        428 non-null    object  
 2   Type          428 non-null    object  
 3   Origin        428 non-null    object  
 4   DriveTrain    428 non-null    object  
 5   MSRP          428 non-null    float64 
 6   Invoice        428 non-null    float64 
 7   EngineSize     428 non-null    float64 
 8   Cylinders      426 non-null    float64 
 9   Horsepower     428 non-null    float64 
 10  MPG_City       428 non-null    float64 
 11  MPG_Highway   428 non-null    float64 
 12  Weight         428 non-null    float64 
 13  Wheelbase      428 non-null    float64 
 14  Length          428 non-null    float64 
dtypes: float64(10), object(5)
memory usage: 50.3+ KB

```

In [28]:

```
# vlist=list(df2.columns) # Using columns with dataframe object
# vlist=list(df2.columns.values) # column.values method returns an array of index
vlist=list(df2.columns.values.tolist()) # Using tolist() method with values with given
                                         # index
vlist
```

Out[28]:

```

['Make',
 'Model',
 'Type',
 'Origin',
 'DriveTrain',
 'MSRP',
 'Invoice',
 'EngineSize',
 'Cylinders',
 'Horsepower',
 'MPG_City',
 'MPG_Highway',
 'Weight',
 'Length',
 'Weight',
 'Type',
 'Origin',
 'DriveTrain',
 'MSRP',
 'Invoice',
 'EngineSize',
 'Cylinders',
 'Horsepower',
 'MPG_City',
 'MPG_Highway',
 'Weight',
 'Length']

```

```
'Wheelbase',
'Length']
```

In [29]:

```
df2.describe()
```

Out[29]:

	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway
count	428.000000	428.000000	428.000000	426.000000	428.000000	428.000000	428.000000
mean	32774.855140	30014.700935	3.196729	5.807512	215.885514	20.060748	26.843458
std	19431.716674	17642.117750	1.108595	1.558443	71.836032	5.238218	5.741201
min	10280.000000	9875.000000	1.300000	3.000000	73.000000	10.000000	12.000000
25%	20334.250000	18866.000000	2.375000	4.000000	165.000000	17.000000	24.000000
50%	27635.000000	25294.500000	3.000000	6.000000	210.000000	19.000000	26.000000
75%	39205.000000	35710.250000	3.900000	6.000000	255.000000	21.250000	29.000000
max	192465.000000	173560.000000	8.300000	12.000000	500.000000	60.000000	66.000000

In [30]:

```
cars_gp = df2.groupby(['Make','Model','Type','Origin', 'DriveTrain']).agg(['count', 'sum', 'mean', 'min', 'max'])
print(cars_gp)
```

Make	Model	Type	Origin	DriveTrain	MSRP		
					count	std	mean
Acura	3.5 RL 4dr	Sedan	Asia	Front	1	NaN	43755.0
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	1	NaN	46100.0
	MDX	SUV	Asia	All	1	NaN	36945.0
	NSX coupe 2dr manual S	Sports	Asia	Rear	1	NaN	89765.0
	RSX Type S 2dr	Sedan	Asia	Front	1	NaN	23820.0
...				
Volvo	S80 2.9 4dr	Sedan	Europe	Front	1	NaN	37730.0
	S80 T6 4dr	Sedan	Europe	Front	1	NaN	45210.0
	V40	Wagon	Europe	Front	1	NaN	26135.0
	XC70	Wagon	Europe	All	1	NaN	35145.0
	XC90 T6	SUV	Europe	All	1	NaN	41250.0
...				
Make	Model	Type	Origin	DriveTrain	min		
					43755.0	43755.0	43755.0
Acura	3.5 RL 4dr	Sedan	Asia	Front	43755.0	43755.0	43755.0
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	46100.0	46100.0	46100.0
	MDX	SUV	Asia	All	36945.0	36945.0	36945.0
	NSX coupe 2dr manual S	Sports	Asia	Rear	89765.0	89765.0	89765.0
	RSX Type S 2dr	Sedan	Asia	Front	23820.0	23820.0	23820.0
...				
Volvo	S80 2.9 4dr	Sedan	Europe	Front	37730.0	37730.0	37730.0
	S80 T6 4dr	Sedan	Europe	Front	45210.0	45210.0	45210.0
	V40	Wagon	Europe	Front	26135.0	26135.0	26135.0
	XC70	Wagon	Europe	All	35145.0	35145.0	35145.0
	XC90 T6	SUV	Europe	All	41250.0	41250.0	41250.0
...				
Make	Model	Type	Origin	DriveTrain	Invoice		
					count	std	mean
Acura	3.5 RL 4dr	Sedan	Asia	Front	1	NaN	39014.0
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	1	NaN	41100.0

MDX	SUV	Asia	All	1	NaN	33337.0			
NSX coupe 2dr manual S	Sports	Asia	Rear	1	NaN	79978.0			
RSX Type S 2dr	Sedan	Asia	Front	1	NaN	21761.0			
...						
Volvo S80 2.9 4dr	Sedan	Europe	Front	1	NaN	35542.0			
S80 T6 4dr	Sedan	Europe	Front	1	NaN	42573.0			
V40	Wagon	Europe	Front	1	NaN	24641.0			
XC70	Wagon	Europe	All	1	NaN	33112.0			
XC90 T6	SUV	Europe	All	1	NaN	38851.0			

Make	Model	Type	Origin	DriveTrain	min	max	...	\\
Acura	3.5 RL 4dr	Sedan	Asia	Front	39014.0	39014.0	...	
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	41100.0	41100.0	...	
	MDX	SUV	Asia	All	33337.0	33337.0	...	
	NSX coupe 2dr manual S	Sports	Asia	Rear	79978.0	79978.0	...	
	RSX Type S 2dr	Sedan	Asia	Front	21761.0	21761.0	...	
...					
Volvo	S80 2.9 4dr	Sedan	Europe	Front	35542.0	35542.0	...	
	S80 T6 4dr	Sedan	Europe	Front	42573.0	42573.0	...	
	V40	Wagon	Europe	Front	24641.0	24641.0	...	
	XC70	Wagon	Europe	All	33112.0	33112.0	...	
	XC90 T6	SUV	Europe	All	38851.0	38851.0	...	

Make	Model	Type	Origin	DriveTrain	Wheelbase	count	std	mean	\\
Acura	3.5 RL 4dr	Sedan	Asia	Front	1	NaN	115.0		
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	1	NaN	115.0		
	MDX	SUV	Asia	All	1	NaN	106.0		
	NSX coupe 2dr manual S	Sports	Asia	Rear	1	NaN	100.0		
	RSX Type S 2dr	Sedan	Asia	Front	1	NaN	101.0		
...					
Volvo	S80 2.9 4dr	Sedan	Europe	Front	1	NaN	110.0		
	S80 T6 4dr	Sedan	Europe	Front	1	NaN	110.0		
	V40	Wagon	Europe	Front	1	NaN	101.0		
	XC70	Wagon	Europe	All	1	NaN	109.0		
	XC90 T6	SUV	Europe	All	1	NaN	113.0		

Make	Model	Type	Origin	DriveTrain	Length	count	\\	
					min	max		
Acura	3.5 RL 4dr	Sedan	Asia	Front	115.0	115.0	1	
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	115.0	115.0	1	
	MDX	SUV	Asia	All	106.0	106.0	1	
	NSX coupe 2dr manual S	Sports	Asia	Rear	100.0	100.0	1	
	RSX Type S 2dr	Sedan	Asia	Front	101.0	101.0	1	
...					
Volvo	S80 2.9 4dr	Sedan	Europe	Front	110.0	110.0	1	
	S80 T6 4dr	Sedan	Europe	Front	110.0	110.0	1	
	V40	Wagon	Europe	Front	101.0	101.0	1	
	XC70	Wagon	Europe	All	109.0	109.0	1	
	XC90 T6	SUV	Europe	All	113.0	113.0	1	

Make	Model	Type	Origin	DriveTrain	std	mean	min	\\
Acura	3.5 RL 4dr	Sedan	Asia	Front	NaN	197.0	197.0	
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	NaN	197.0	197.0	
	MDX	SUV	Asia	All	NaN	189.0	189.0	
	NSX coupe 2dr manual S	Sports	Asia	Rear	NaN	174.0	174.0	
	RSX Type S 2dr	Sedan	Asia	Front	NaN	172.0	172.0	
...					
Volvo	S80 2.9 4dr	Sedan	Europe	Front	NaN	190.0	190.0	

S80 T6 4dr	Sedan	Europe	Front	NaN	190.0	190.0
V40	Wagon	Europe	Front	NaN	180.0	180.0
XC70	Wagon	Europe	All	NaN	186.0	186.0
XC90 T6	SUV	Europe	All	NaN	189.0	189.0

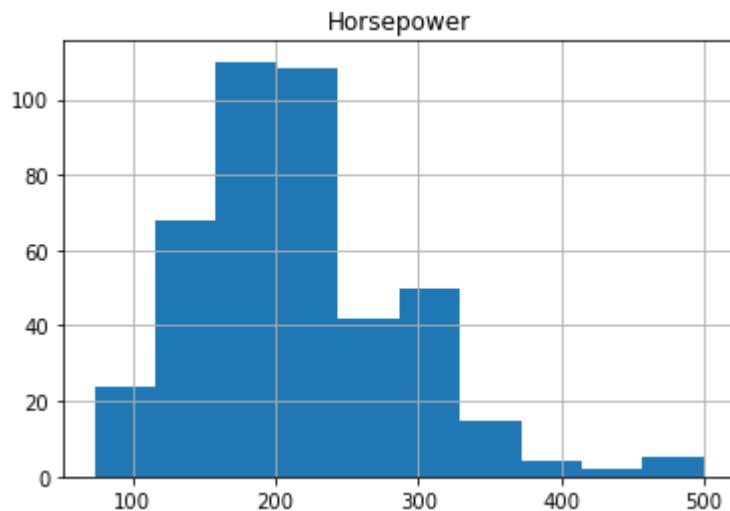
Make	Model	Type	Origin	DriveTrain	max
Acura	3.5 RL 4dr	Sedan	Asia	Front	197.0
	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	197.0
	MDX	SUV	Asia	All	189.0
	NSX coupe 2dr manual S	Sports	Asia	Rear	174.0
	RSX Type S 2dr	Sedan	Asia	Front	172.0
...					...
Volvo	S80 2.9 4dr	Sedan	Europe	Front	190.0
	S80 T6 4dr	Sedan	Europe	Front	190.0
	V40	Wagon	Europe	Front	180.0
	XC70	Wagon	Europe	All	186.0
	XC90 T6	SUV	Europe	All	189.0

[428 rows x 50 columns]

In [31]:

```
df2.hist('Horsepower')
```

Out[31]: array([[<AxesSubplot:title={'center':'Horsepower'}>]], dtype=object)

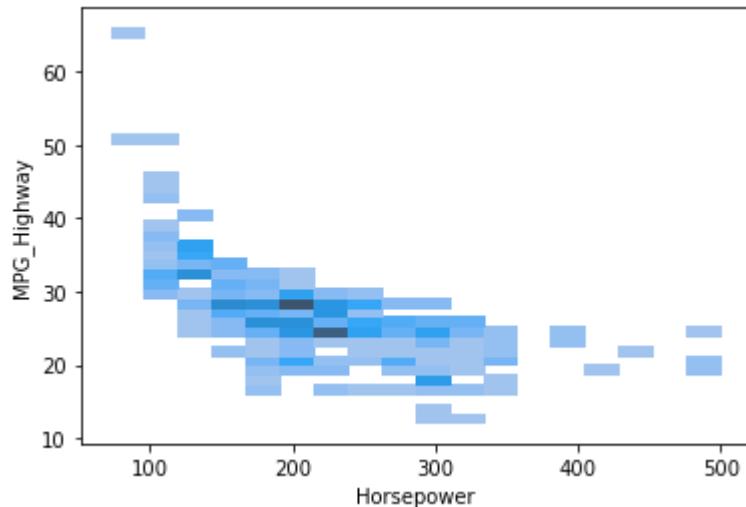


In [32]:

```
import pandas as pd
import seaborn as sns
# import matplotlib.pyplot as plt

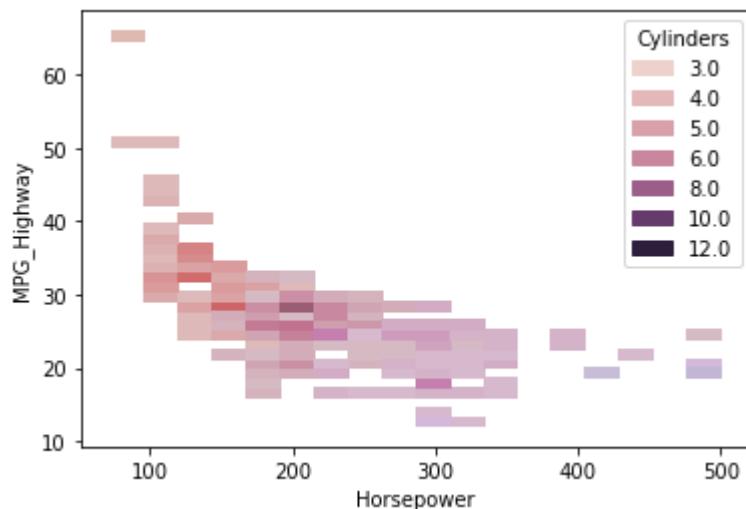
sns.histplot(df2, x="Horsepower", y="MPG_Highway")
```

Out[32]: <AxesSubplot:xlabel='Horsepower', ylabel='MPG_Highway'>



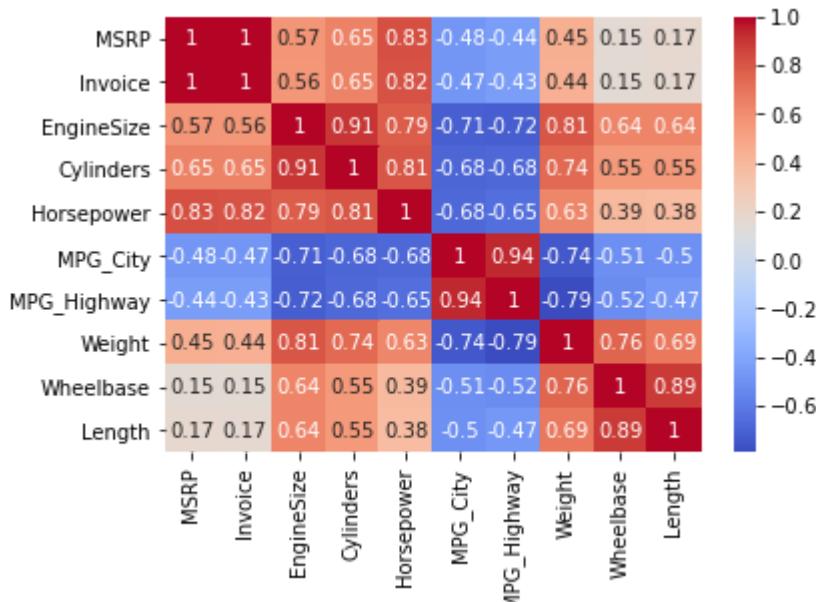
In [33]: `sns.histplot(df2, x="Horsepower", y="MPG_Highway", hue="Cylinders")`

Out[33]: <AxesSubplot:xlabel='Horsepower', ylabel='MPG_Highway'>



In [34]: `sns.heatmap(df2.corr(), annot = True, fmt='.2g', cmap= 'coolwarm')`

Out[34]: <AxesSubplot:>



In [35]:

```
# From Pandas Dataframe to a SAS dataset
import pandas as pd
cal_hse_df = pd.read_csv('https://dl.google.com/mlcc/mledu-datasets/california_housing_sasdf = sas.df2sd(df=cal_hse_df, table= 'sas_cal_hse', libref='work')
```

In [36]:

```
# Check if 'sas_cal_hse' is correctly created
print(sas.lastlog())
```

83

The SAS System

Wednesday, June 8, 2022 04:35:00 PM

```

517      ;*';*";*/;
518
519      data _null_; retain libref; retain cobs 1;
520      set sashelp.vlibnam end=last;
521      if cobs EQ 1 then
522          put "LIBREFSSTART=";
523      cobs = 2;
524      if libref NE libname then
525          put %upcase("lib=") libname %upcase('libEND=');
526      libref = libname;
527      if last then
528          put "LIBREFSEND=";
529      run;
LIBREFSSTART=
LIB=WORK LIBEND=
LIB=MAPS LIBEND=
LIB=SASDATA LIBEND=
LIB=STPSAMP LIBEND=
LIB=SASHHELP LIBEND=
LIB=MAPSSAS LIBEND=
LIB=MAPSGFK LIBEND=
LIB=SASUSER LIBEND=
LIBREFSEND=
530
531
532      ;*';*";*/;
533
```

84

The SAS System

Wednesday, June 8, 2022 04:35:00 PM

```
534
535      %put E3969440A681A2408885998500000041;
E3969440A681A2408885998500000041
536
```

85 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```
537      data work.'sas_cal_hse'n;
538      length 'longitude'n 8 'latitude'n 8 'housing_median_age'n 8 'total_rooms'n 8
'total_bedrooms'n 8 'population'n 8
538      ! 'households'n 8 'median_income'n 8 'median_house_value'n 8;
539      infile datalines delimiter='03'x STOPOVER;
540      input @;
541      if _infile_ = '' then delete;
542      else do;
543          input 'longitude'n 'latitude'n 'housing_median_age'n 'total_rooms'n 'total_b
edrooms'n 'population'n 'households'n
543          ! 'median_income'n 'median_house_value'n ;
544          ;
545      end;
546      datalines4;
```

86 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```
17610      ;;;
17611      ;;;
17612
```

87 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```
17613      ;*';*";*/;
17614      quit;
17615
17616      ;*';*";*/;
17617
```

88 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```
17618
17619      %put E3969440A681A2408885998500000042;
E3969440A681A2408885998500000042
17620
```

89 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```
17621      ;*';*";*/;
17622      data _null_; e = exist("work.'sas_cal_hse'n");
17623      v = exist("work.'sas_cal_hse'n", 'VIEW');
17624      if e or v then e = 1;
17625      te='TABLE_EXISTS='; put te e;run;
TABLE_EXISTS= 1
17626
17627
17628      ;*';*";*/;
17629
```

90 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```

17630
17631      %put E3969440A681A2408885998500000043;
E3969440A681A2408885998500000043
17632

91                                         The SAS System
Wednesday, June  8, 2022 04:35:00 PM

17633      ;*';*";*/;
17634      %let engine=BAD;
17635      proc sql;
17635      !      select distinct engine into :engine from sashelp.VLIBNAM where libna
me = 'WORK';
17635      !
17636      ;%put engstart=&engine engend=;
engstart=V9      engend=
17636      quit;
17637
17638      ;*';*";*/;
17639

```

```

92                                         The SAS System
Wednesday, June  8, 2022 04:35:00 PM

```

```

17640
17641      %put E3969440A681A2408885998500000044;
E3969440A681A2408885998500000044
17642

```

In [37]:

```
# Submit and show OUTPUT
sas_code = ''' proc print data=work.sas_cal_hse (obs=5);run; quit; '''
sas.submitLST(sas_code, method='listorlog')
```

Obs	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households
1	-114.31	34.19	15	5612	1283	1015	472
2	-114.47	34.40	19	7650	1901	1129	463
3	-114.56	33.69	17	720	174	333	117
4	-114.57	33.64	14	1501	337	515	226
5	-114.57	33.57	20	1454	326	624	262



In [38]:

```
type(sasdf)
```

Out[38]: saspy.sasdata.SASdata

In [39]:

```
sasdf.head()
```

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	med
0	-114.31	34.19	15.0	5612.0	1283.0	1015.0	472.0	

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	households	med
1	-114.47	34.40	19.0	7650.0	1901.0	1129.0	463.0	
2	-114.56	33.69	17.0	720.0	174.0	333.0	117.0	
3	-114.57	33.64	14.0	1501.0	337.0	515.0	226.0	
4	-114.57	33.57	20.0	1454.0	326.0	624.0	262.0	



SASstat object

In [40]:

```
stat = sas.sasstat()
# run a regression
stat_results = stat.reg(model='horsepower = Cylinders EngineSize', data=cars)
```

In [41]:

```
# check all SASresults object
dir(stat_results)
```

Out[41]:

```
['ANOVA',
 'COOKSDPLOT',
 'DFBETASPANEL',
 'DFFITS PLOT',
 'DIAGNOSTICSPANEL',
 'FITSTATISTICS',
 'LOG',
 'NOBS',
 'OBSERVEDBYPREDICTED',
 'PARAMETERESTIMATES',
 'QQPLOT',
 'RESIDUALBOXPLOT',
 'RESIDUALBYPREDICTED',
 'RESIDUALHISTOGRAM',
 'RESIDUALPLOT',
 'RFPLOT',
 'RSTUDENTBYLEVERAGE',
 'RSTUDENTBYPREDICTED']
```

In [42]:

```
stat_results.ANOVA
```

Out[42]:

	Source	DF	SS	MS	FValue	ProbF
0	Model	2.0	1.487804e+06	743901.866012	440.192215	4.296828e-104
1	Error	423.0	7.148479e+05	1689.947803	NaN	NaN
2	Corrected Total	425.0	2.202652e+06	NaN	NaN	NaN

In [43]:

```
# display All models
stat_results.ALL()
```

	Source	DF	SS	MS	FValue	ProbF
0	Model	2.0	1.487804e+06	743901.866012	440.192215	4.296828e-104

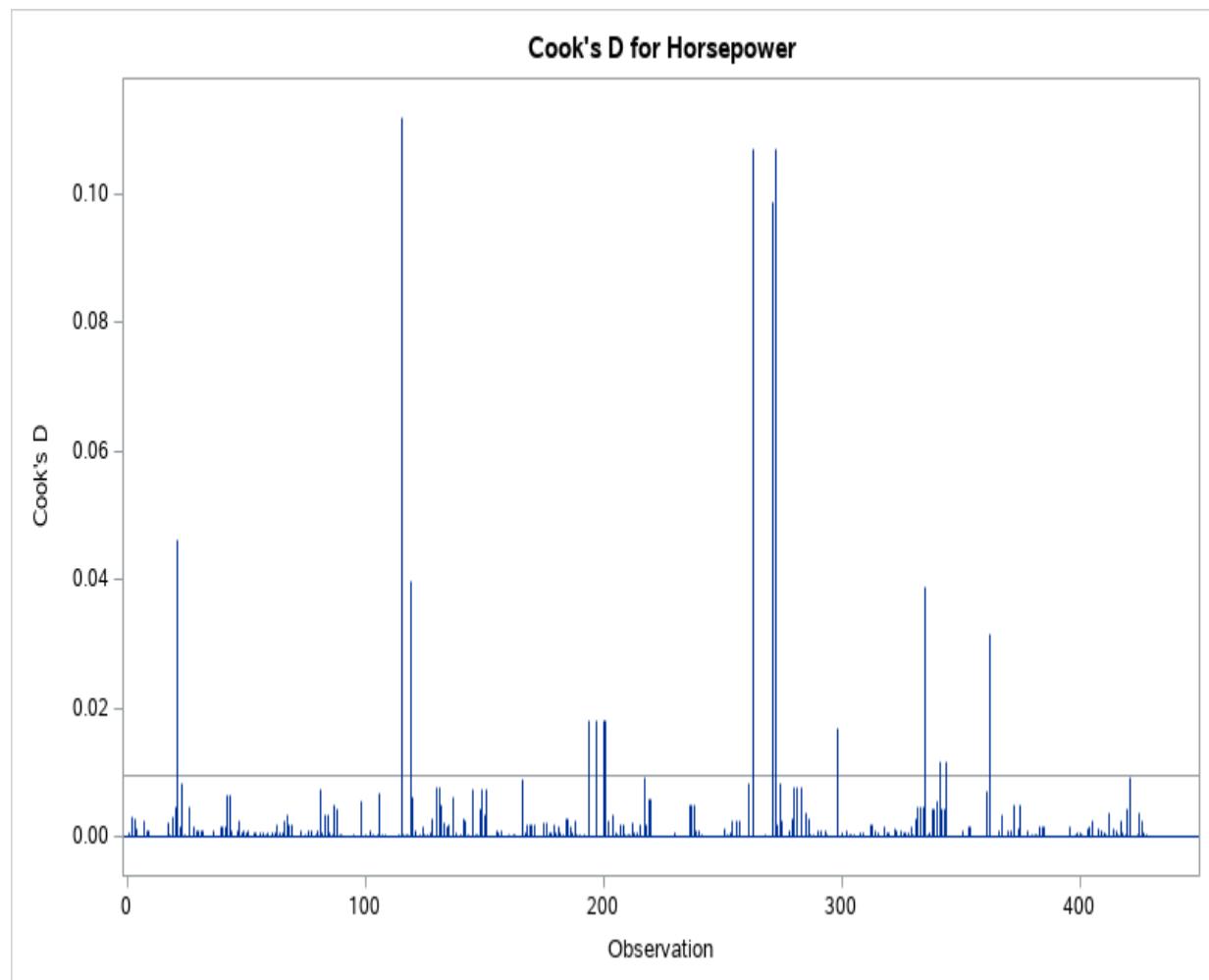
Source	DF	SS	MS	FValue	ProbF
1	Error	423.0	7.148479e+05	1689.947803	NaN
2	Corrected Total	425.0	2.202652e+06	NaN	NaN

COOKSDPLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

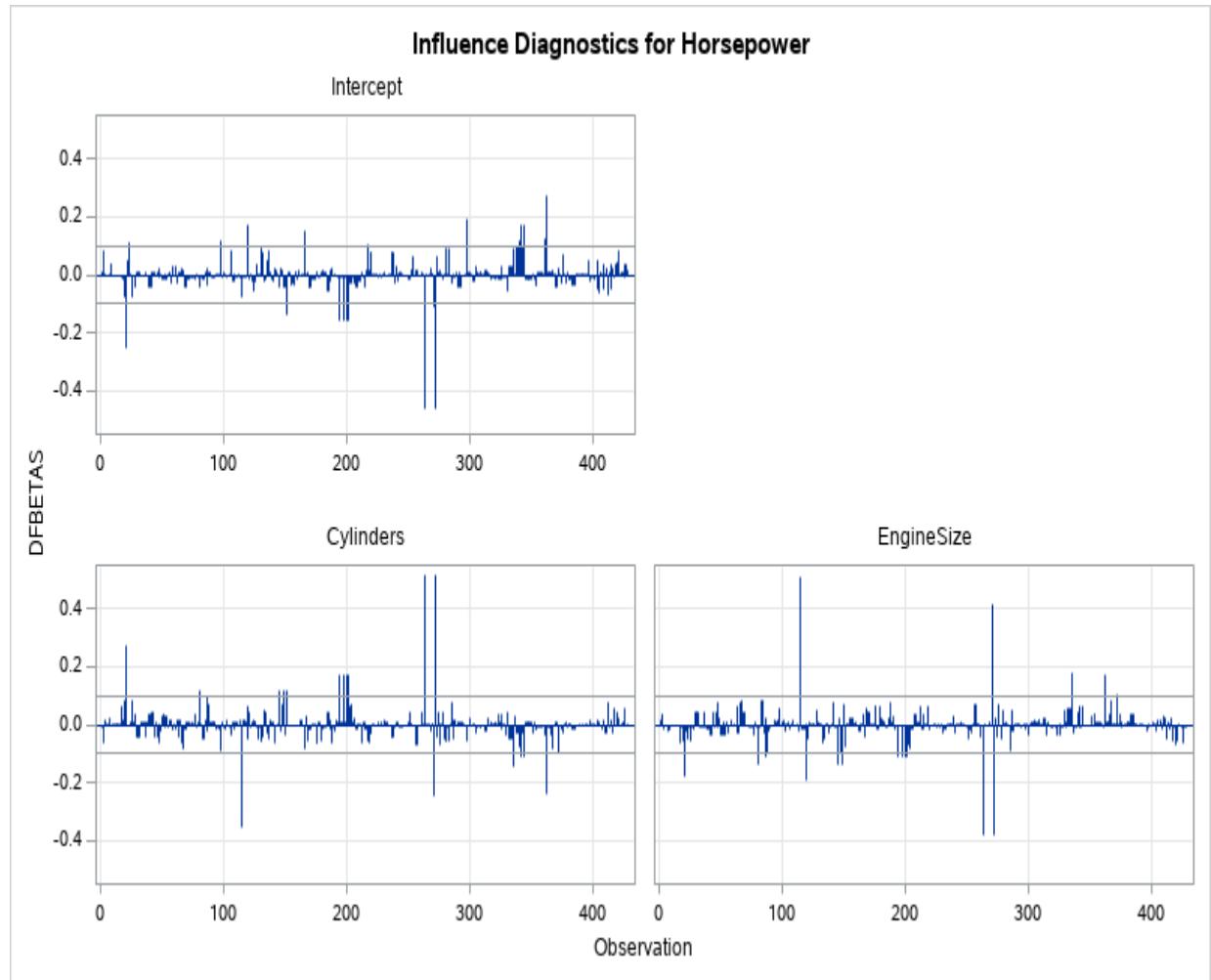


DFBETASPANEL

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

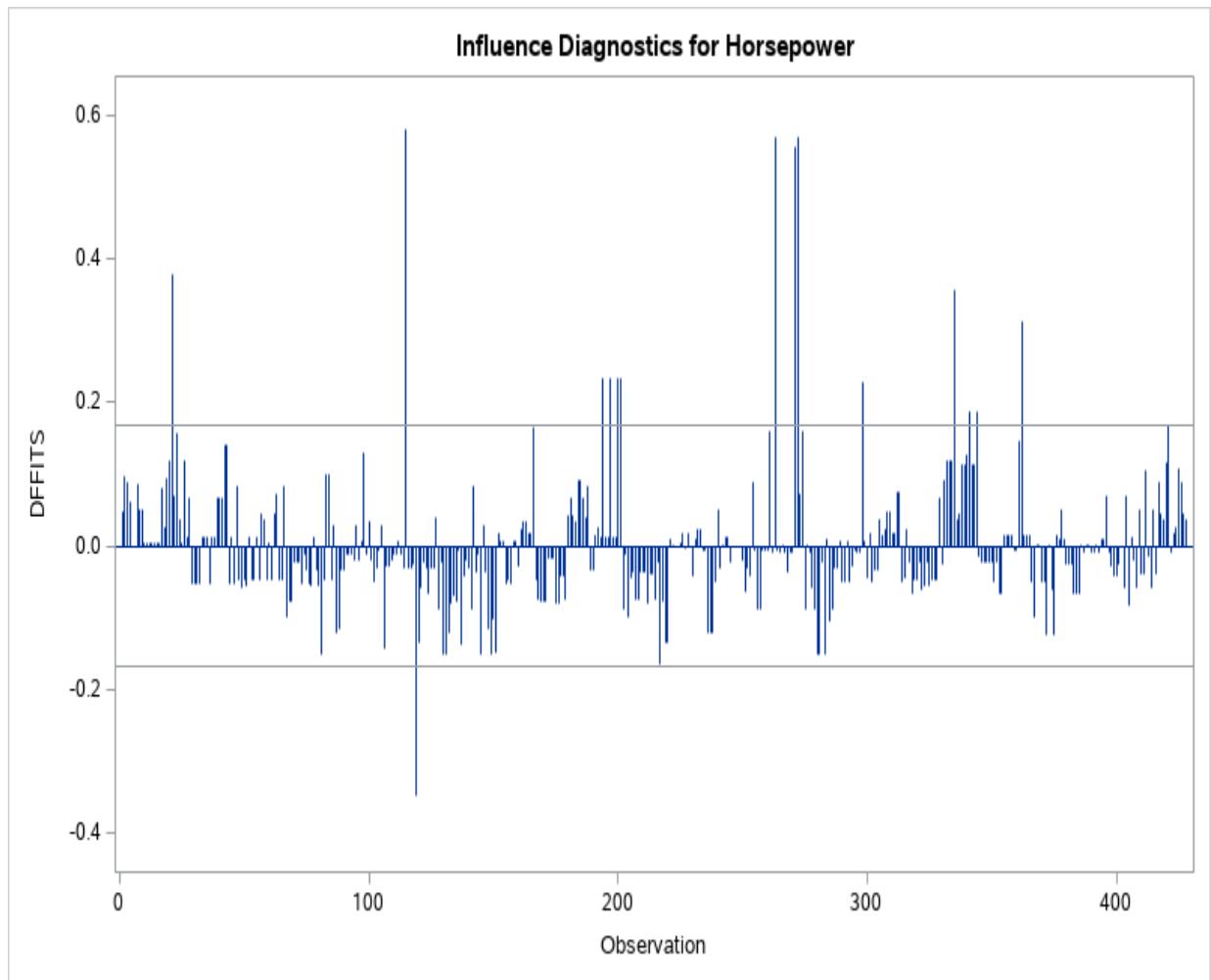


DFFITS PLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

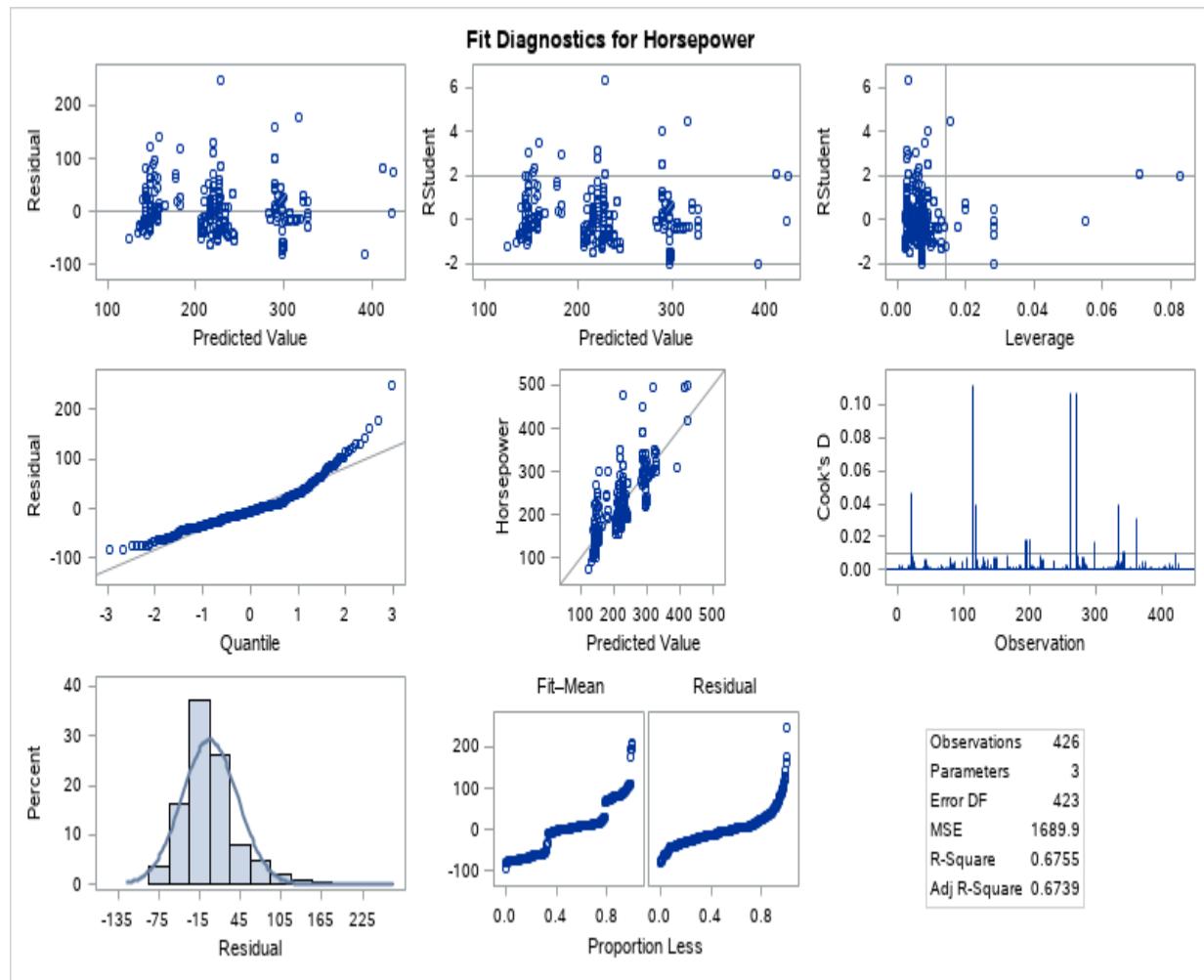


DIAGNOSTICSPANEL

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower



	Label1	cValue1	nValue1	Label2	cValue2	nValue2
0	Root MSE	41.10897	41.108975	R-Square	0.6755	0.675460
1	Dependent Mean	215.87793	215.877934	Adj R-Sq	0.6739	0.673926
2	Coeff Var	19.04269	19.042694		NaN	0.000000

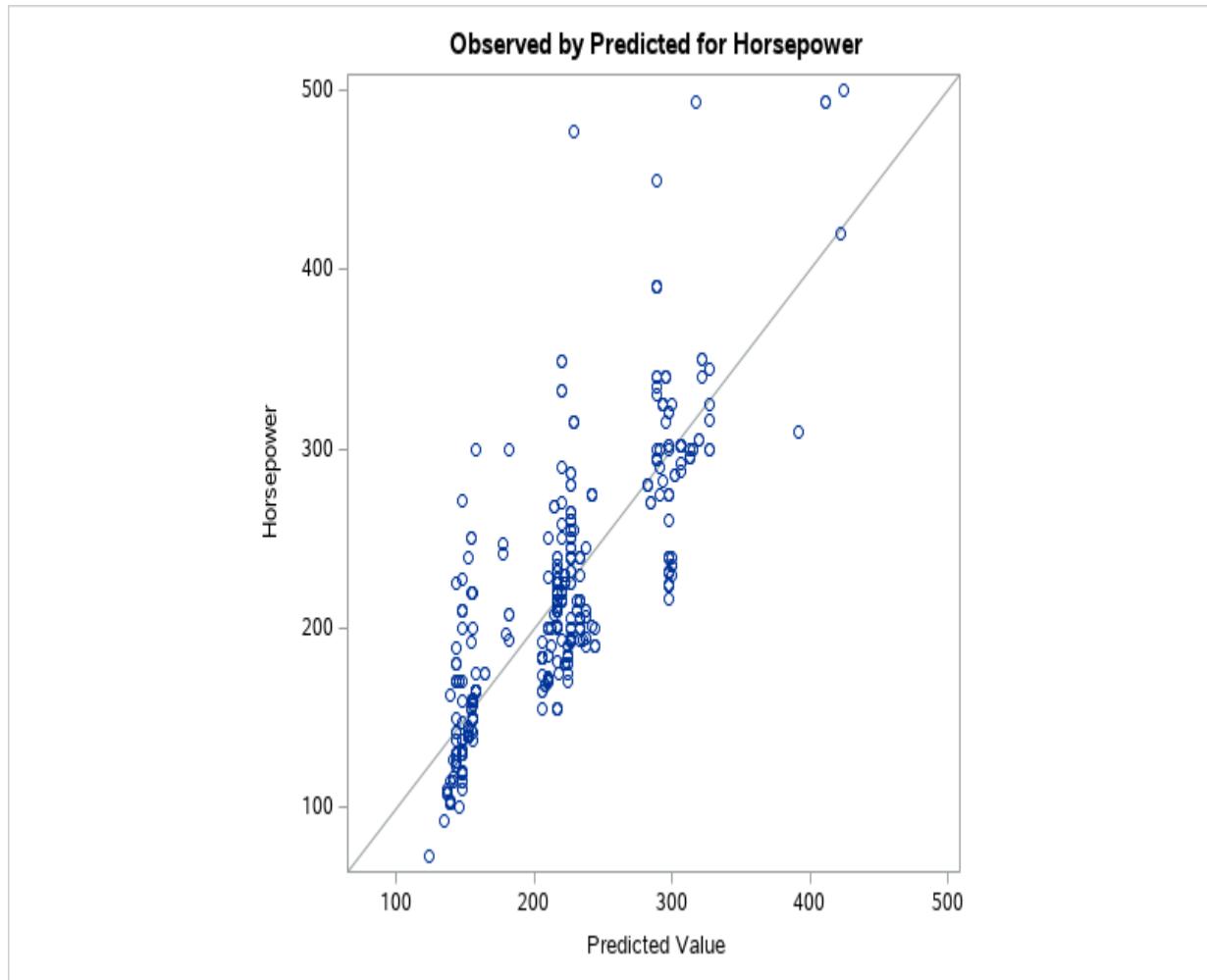
	N	NObsRead	NObsUsed	SumFreqsRead	SumFreqsUsed	NObsMiss
0	428.0	428.0	426.0	428.0	426.0	2.0
1	426.0	428.0	426.0	428.0	426.0	2.0
2	2.0	428.0	426.0	428.0	426.0	2.0

OBSERVED BY PREDICTED

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower



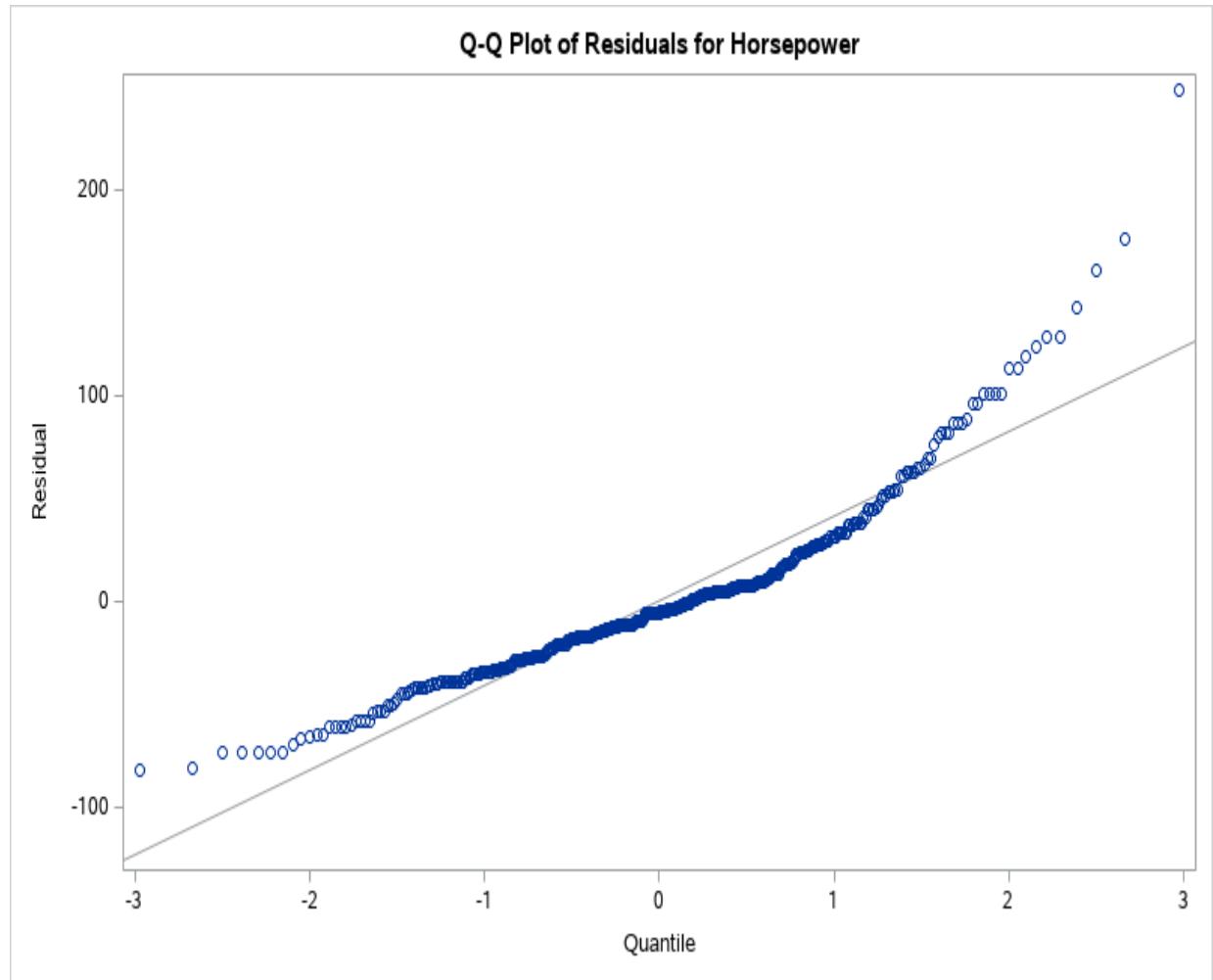
	Variable	DF	Estimate	StdErr	tValue	Pr> t	Label
0	Intercept	1.0	9.766817	8.023541	1.217270	2.241801e-01	Intercept
1	Cylinders	1.0	23.702956	3.054032	7.761202	6.382821e-14	NaN
2	EngineSize	1.0	21.354879	4.313046	4.951229	1.067389e-06	Engine Size (L)

QQPLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

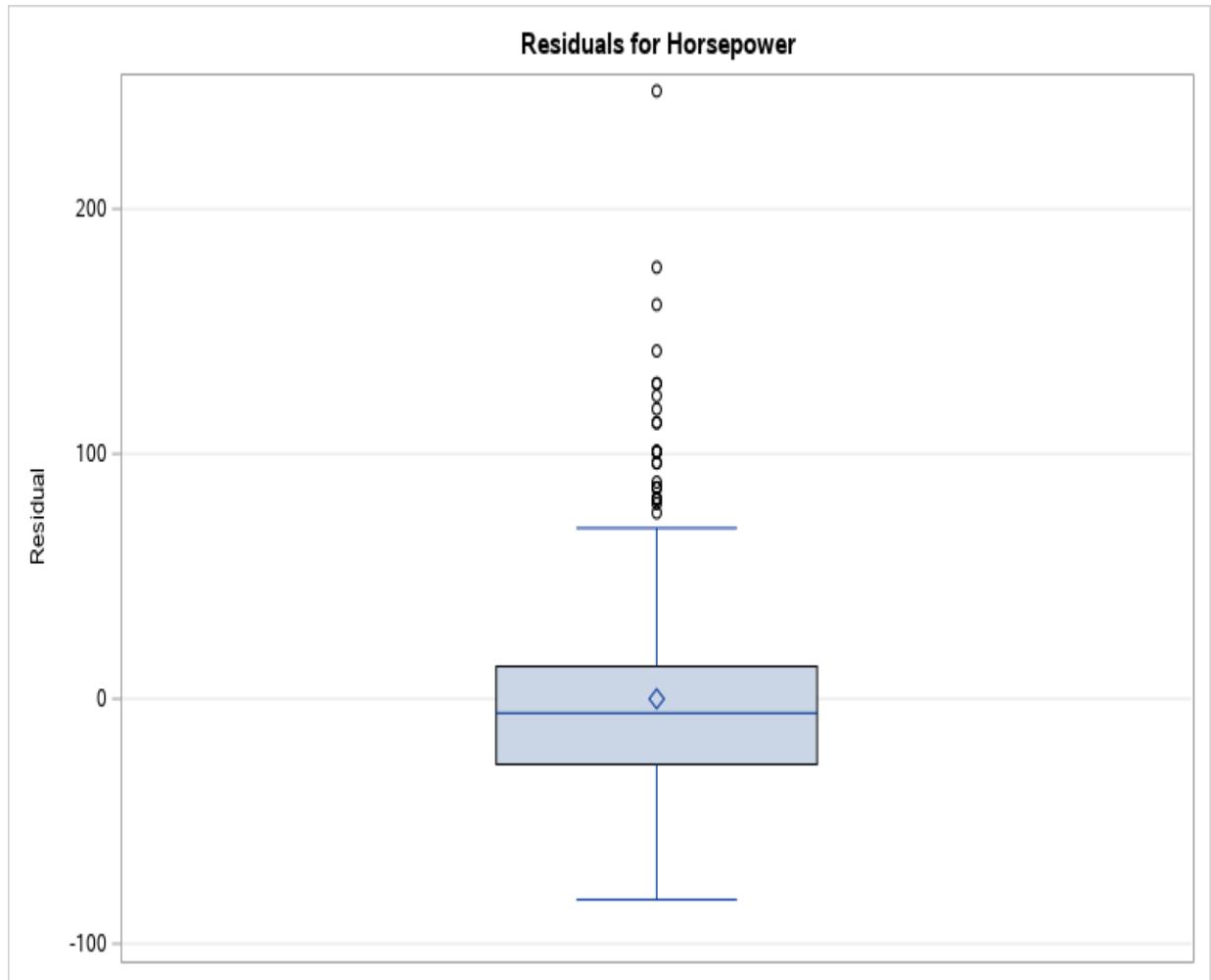


RESIDUALBOXPLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

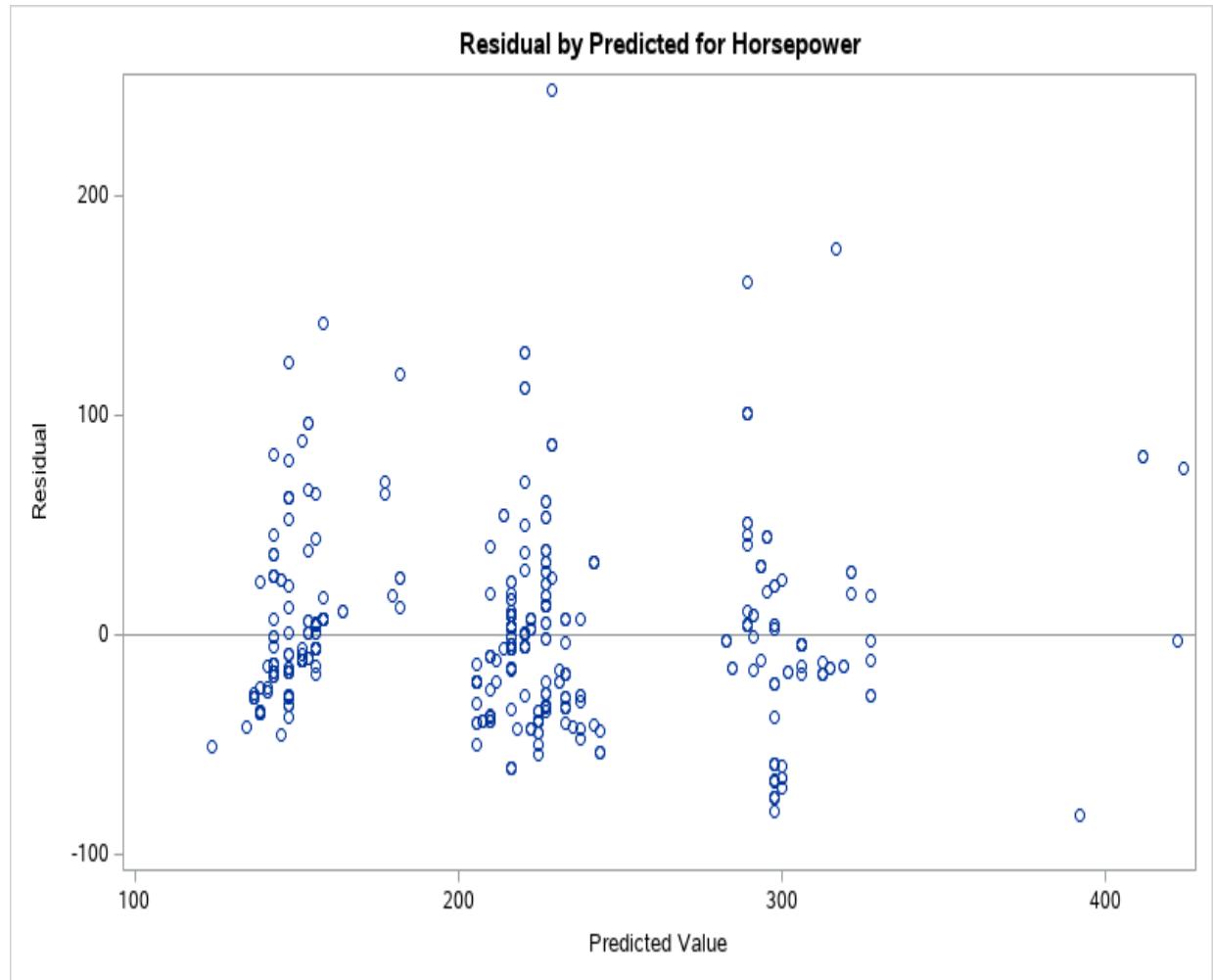


RESIDUALBYPREDICTED

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

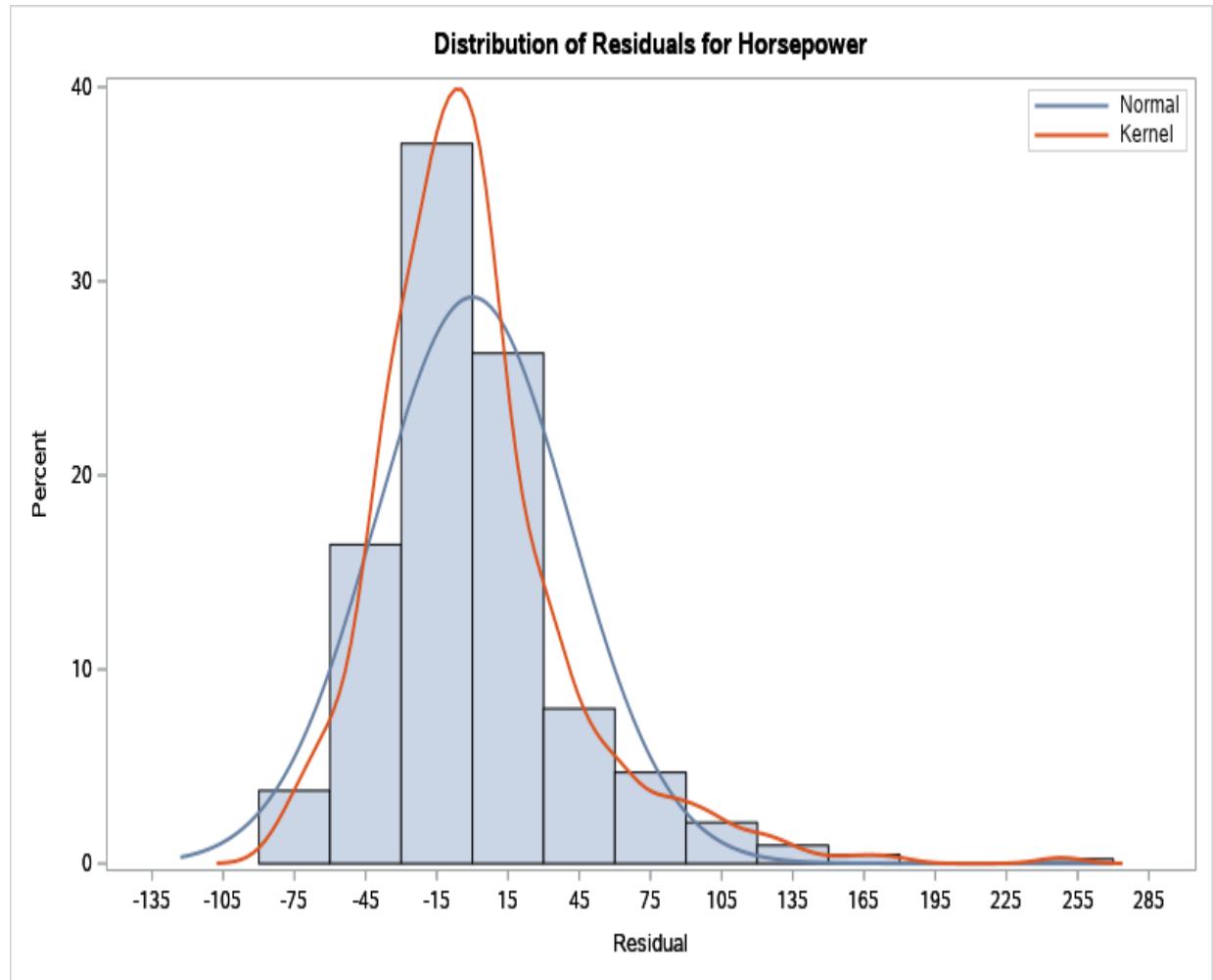


RESIDUALHISTOGRAM

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

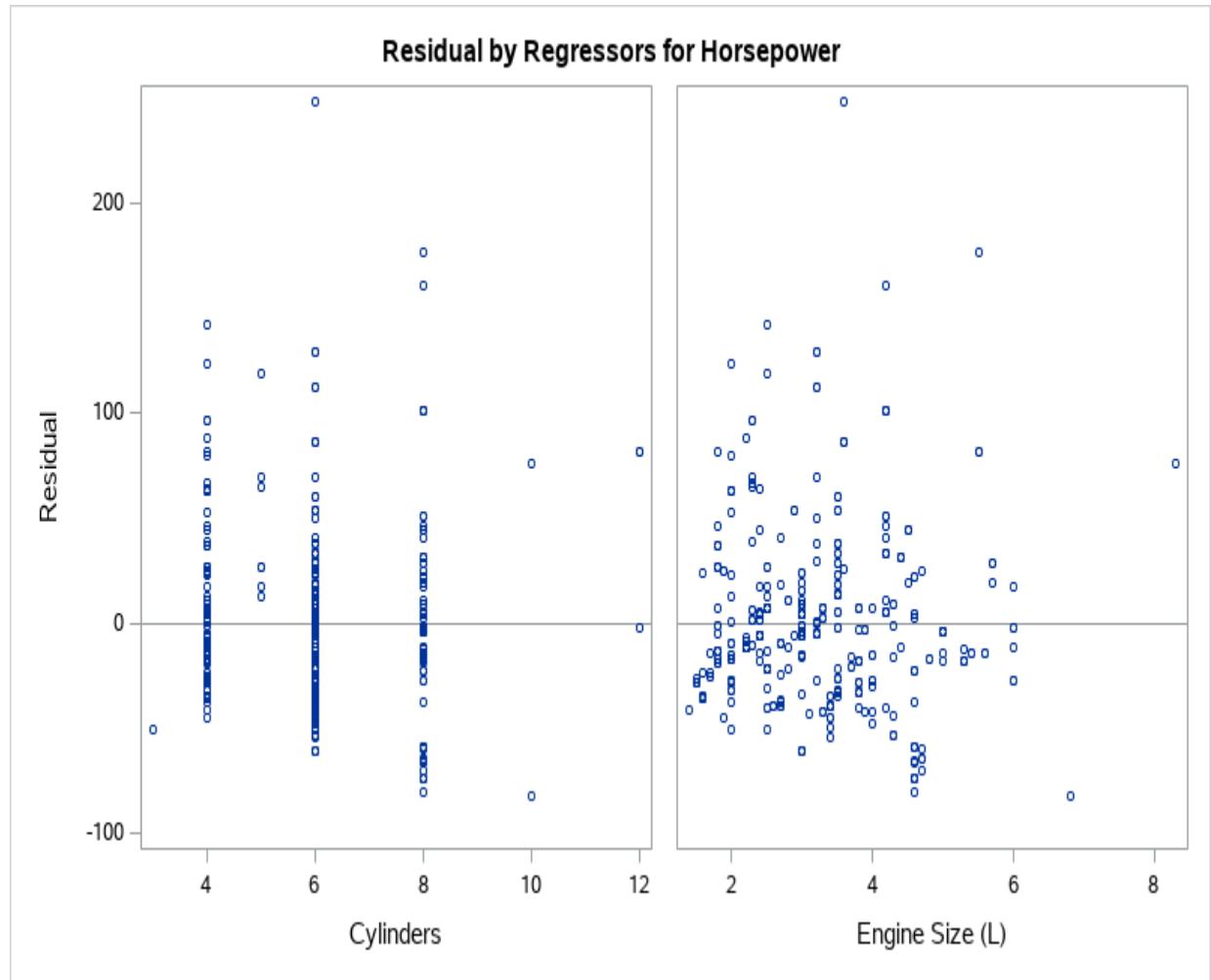


RESIDUALPLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

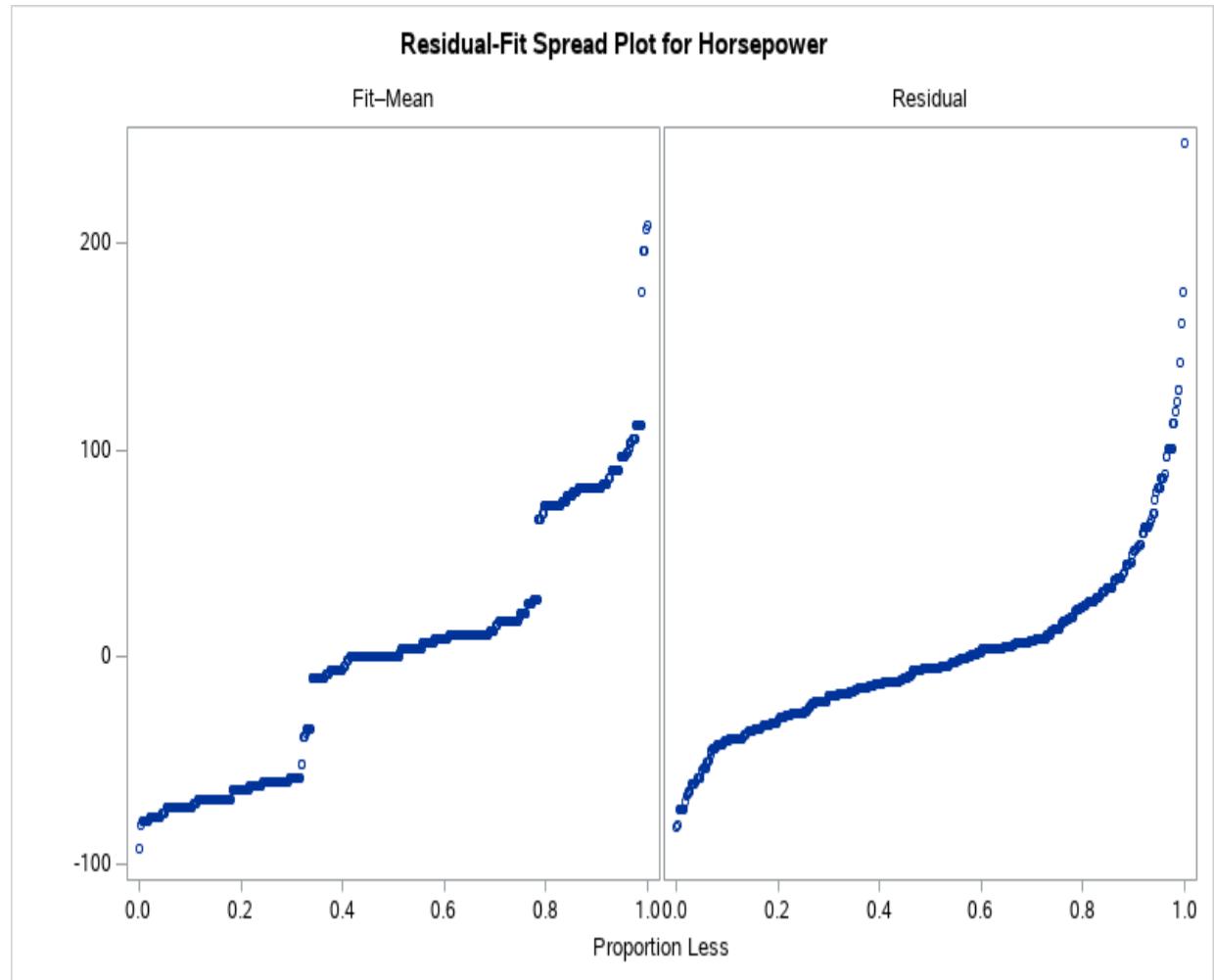


RFPLOT

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

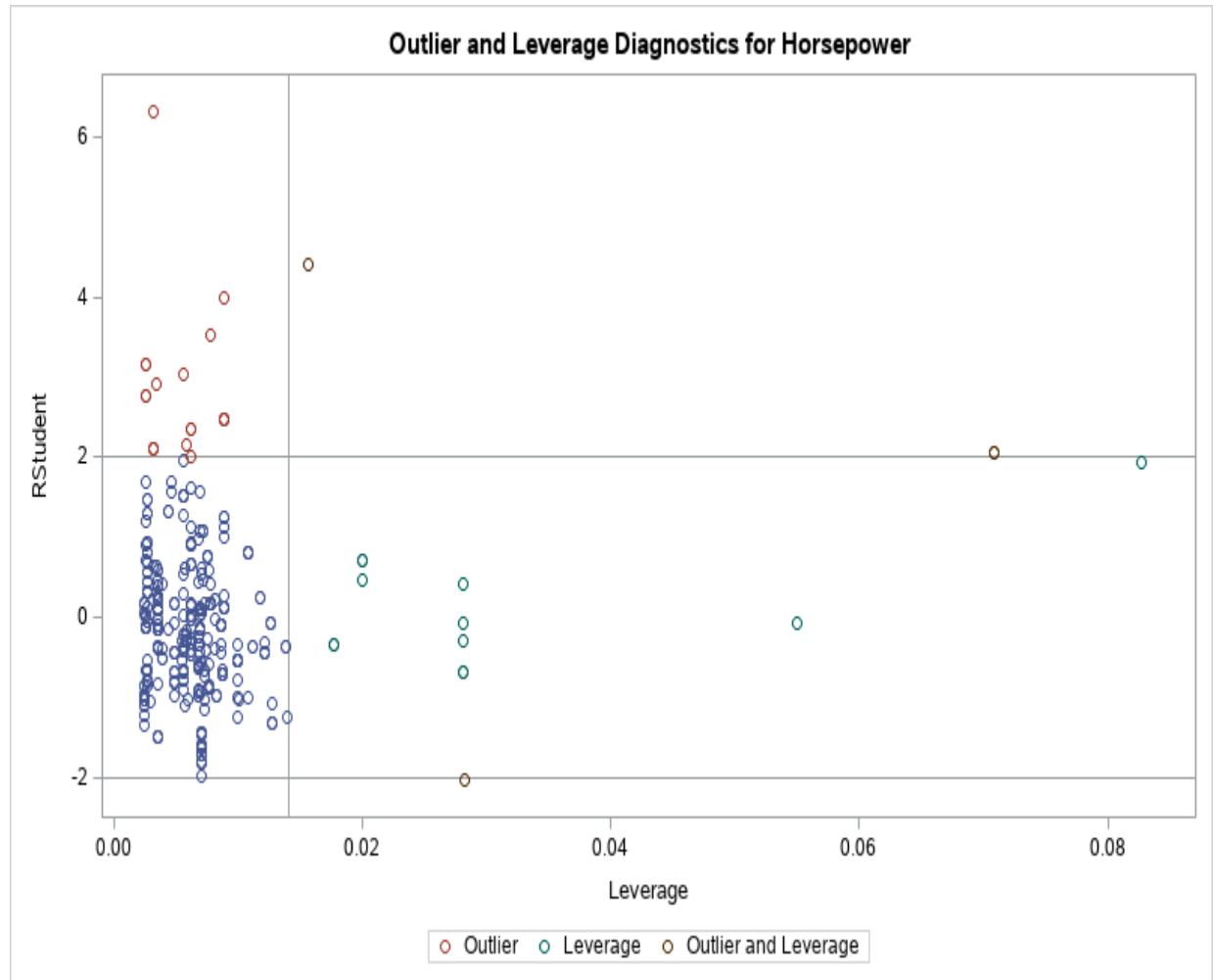


RSTUDENTBYLEVERAGE

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower

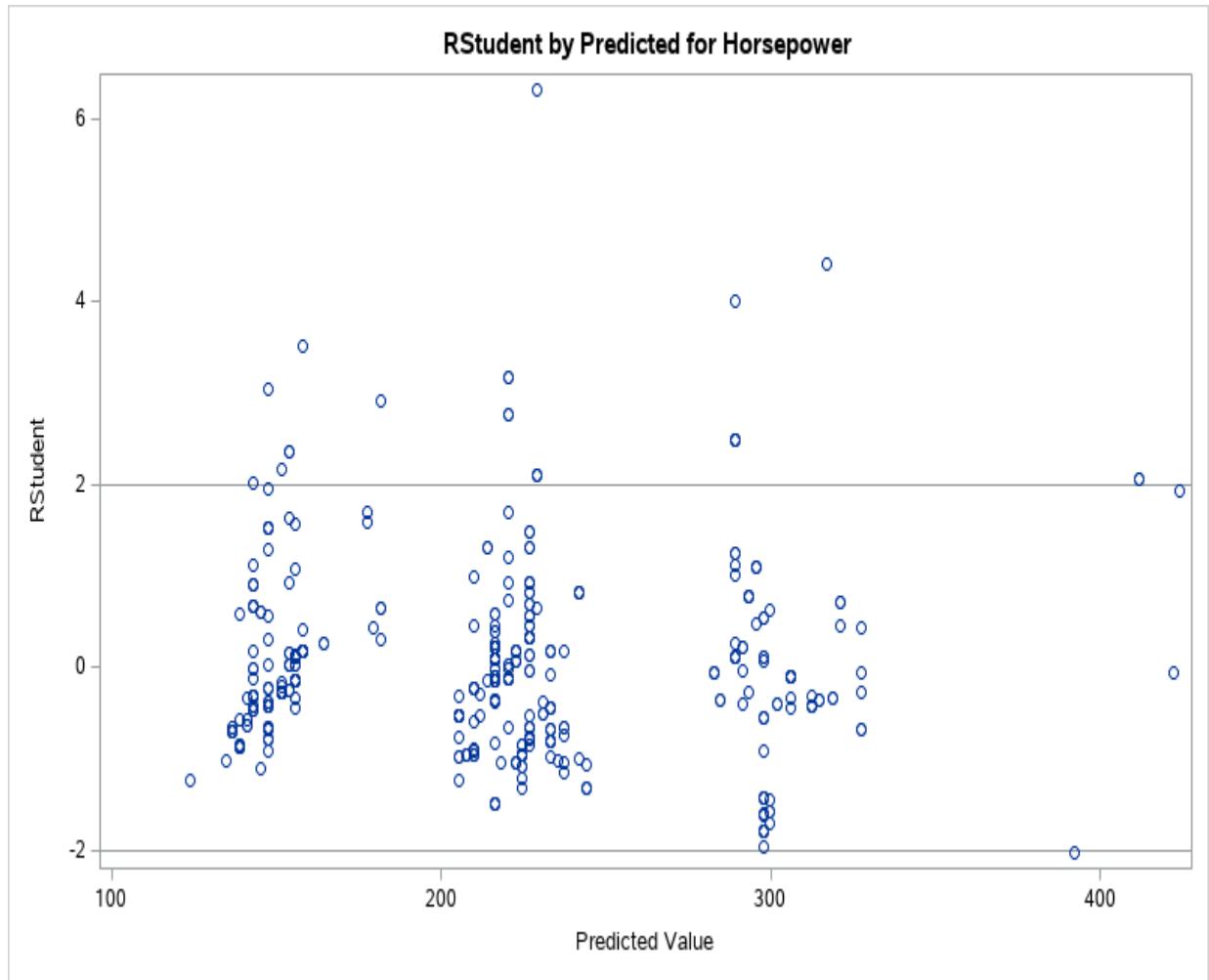


RSTUDENTBYPREDICTED

The REG Procedure

Model: MODEL1

Dependent Variable: Horsepower



Econometrics and Time Series Analysis (ETS object)

In [44]:

```
ets = sas.sasets()  
ets_results = ets.timeid(id='horsepower', data=cars)  
dir(ets_results)
```

Out[44]:

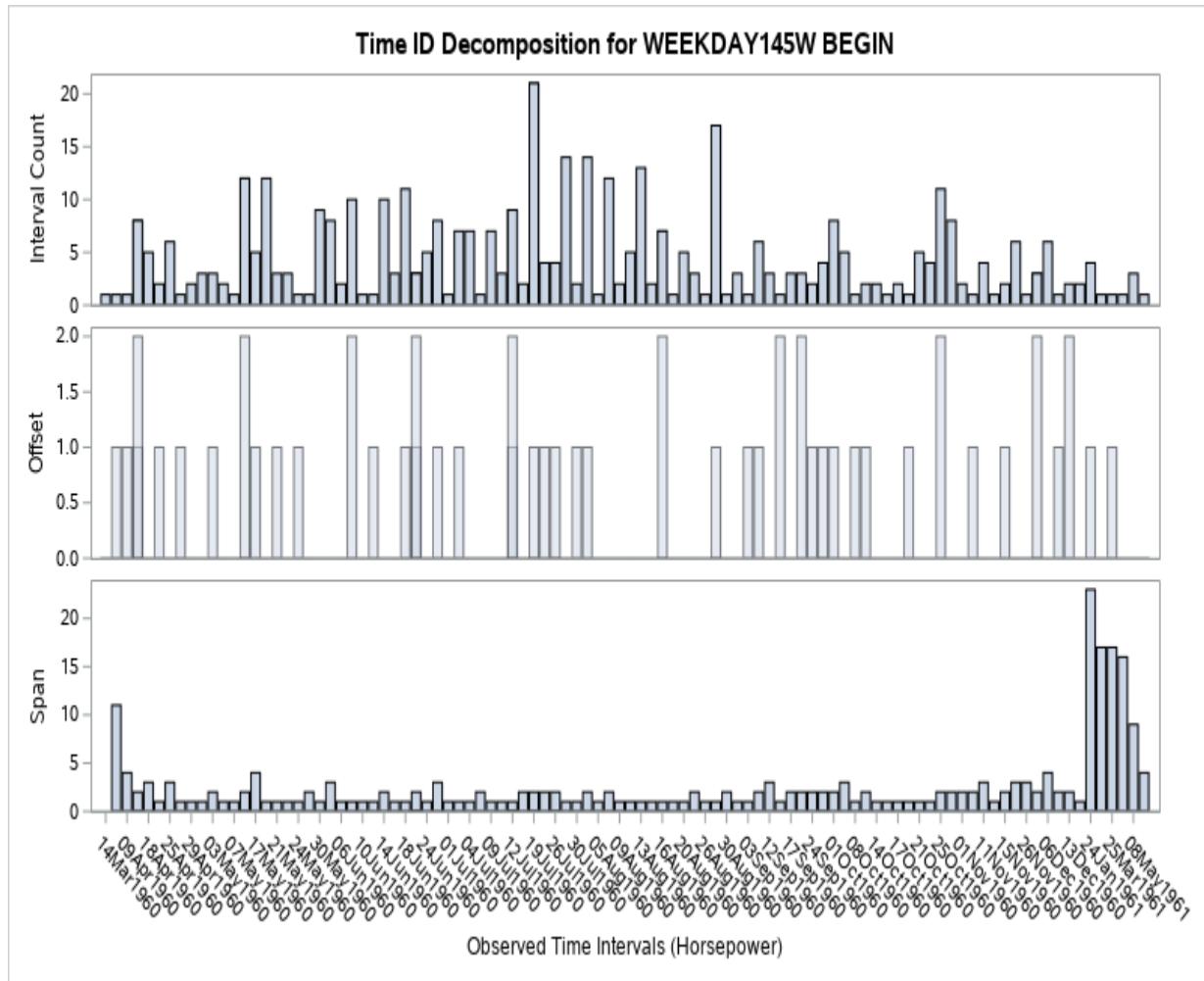
```
['DECOMPOSITIONPLOT',  
 'INTERVALCOUNTSCOMPONENTPLOT',  
 'LOG',  
 'OFFSETCOMPONENTPLOT',  
 'SPANCOMPONENTPLOT',  
 'VALUESPLOT']
```

In [45]:

```
ets_results.ALL()
```

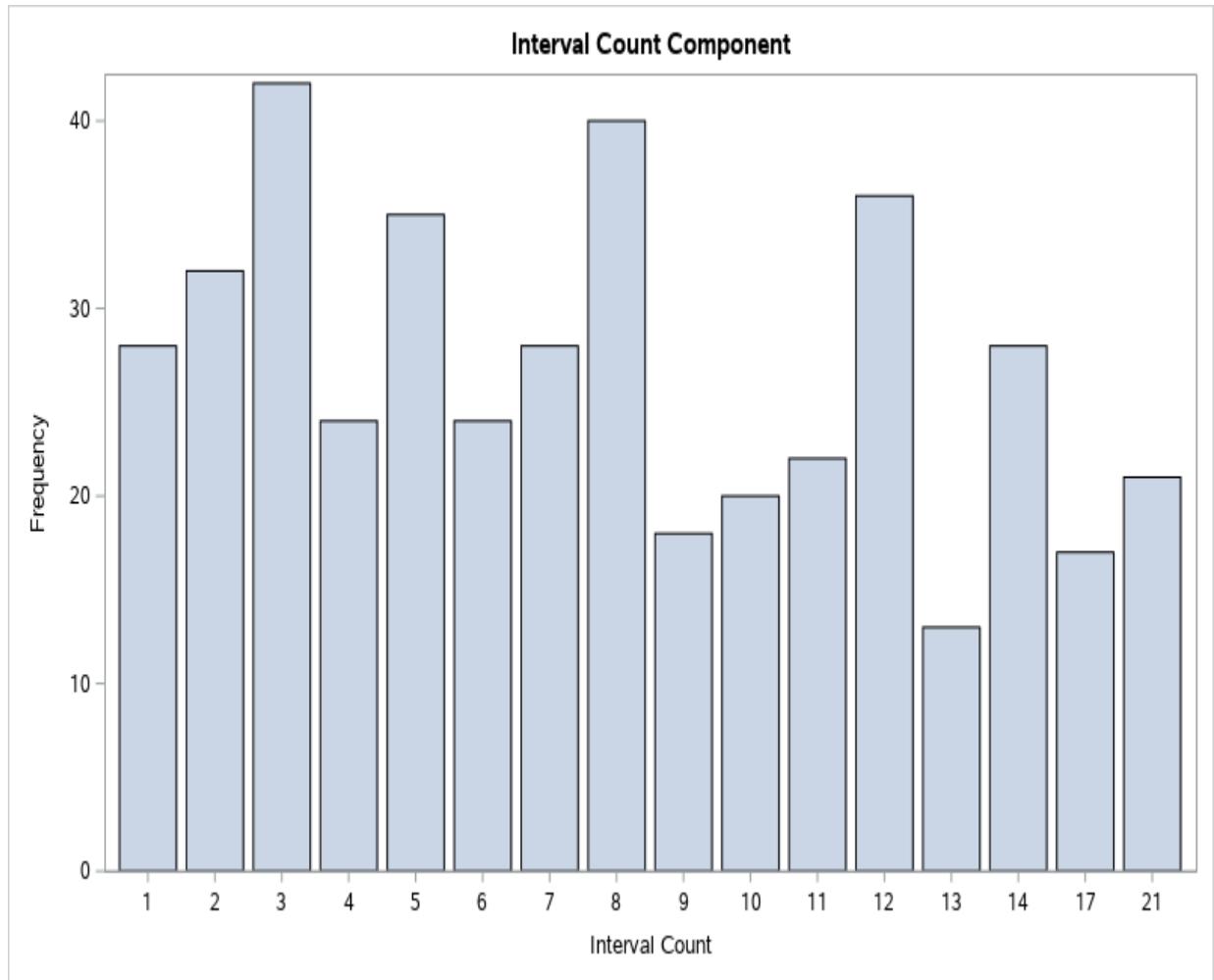
DECOMPOSITIONPLOT

The TIMEID Procedure



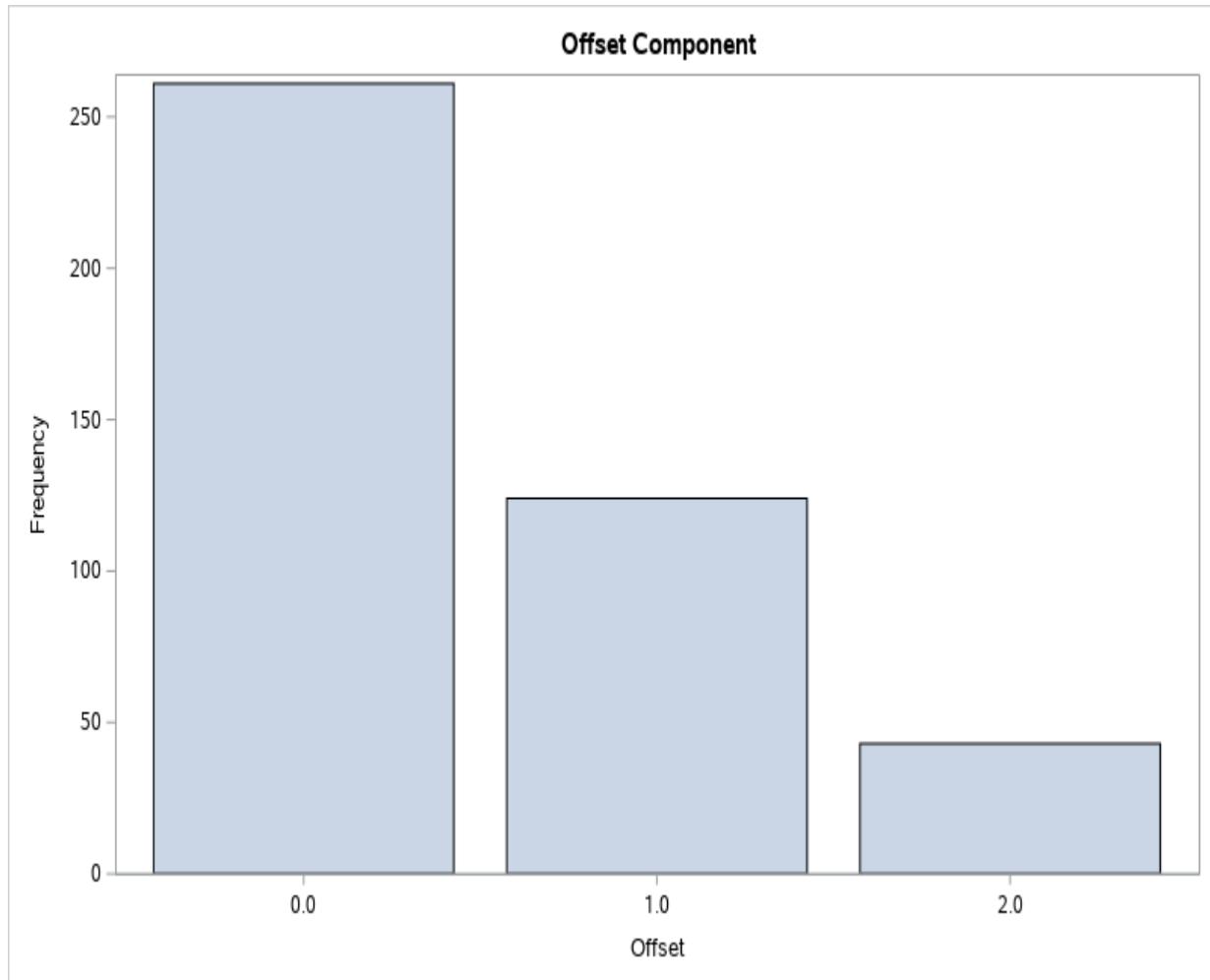
INTERVALCOUNTSCOMPONENTPLOT

The **TIMEID** Procedure



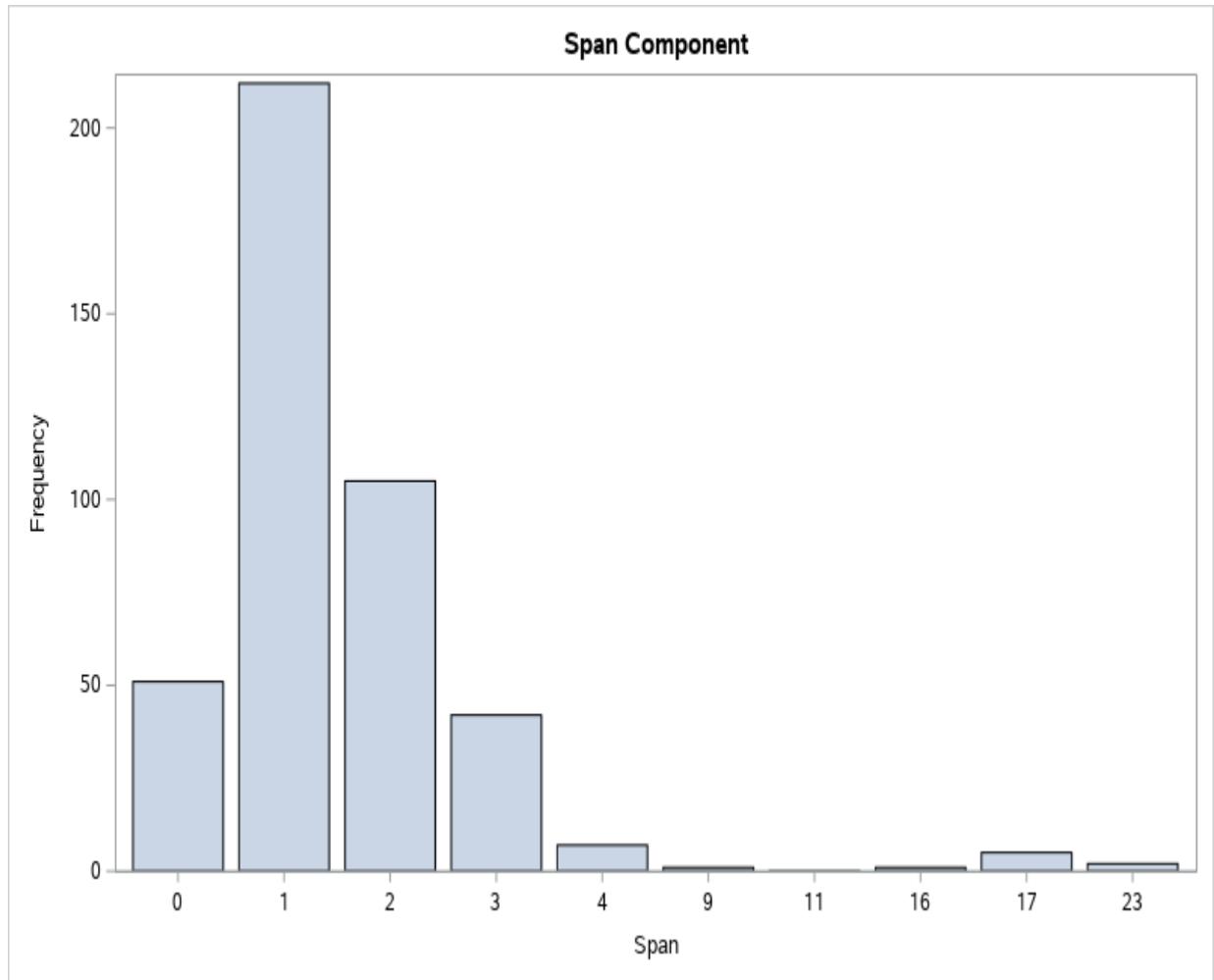
OFFSETCOMPONENTPLOT

The TIMEID Procedure



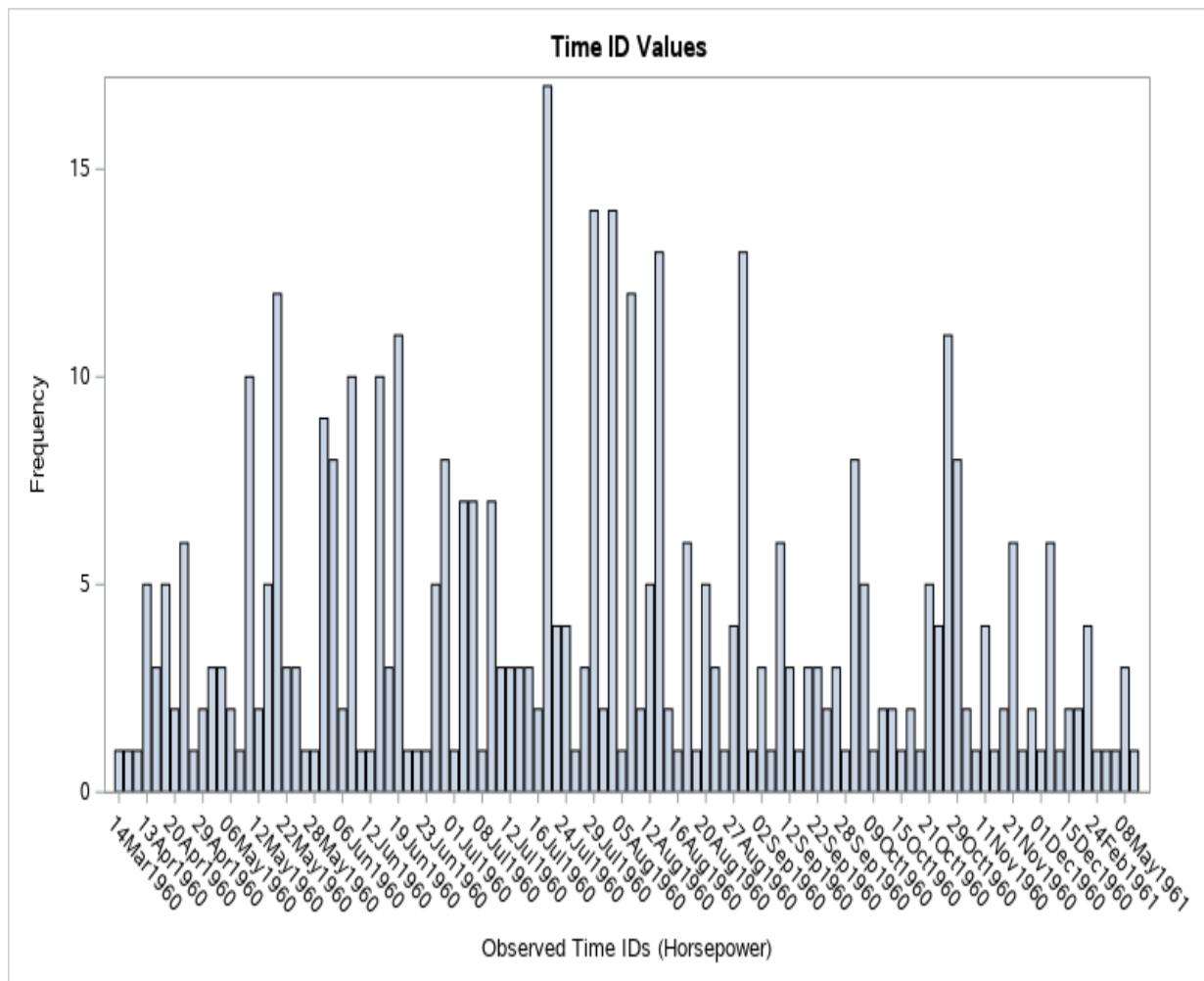
SPANCOMPONENTPLOT

The TIMEID Procedure



VALUESPLOT

The TIMEID Procedure



Machine Learning with SASPy

```
import saspy
sas = saspy.SASsession()
sas
```

In [46]:

```
#sas.saslib('myLib', "'c:\\\\Users\\\\Public\\\\SASPy Works In Progress'")
#print(sas.saslog())
```

In [47]:

```
# From Pandas Dataframe to a SAS dataset
import pandas as pd
census_df = pd.read_csv('http://www.creditriskanalytics.net/uploads/1/9/5/1/19511601/hm'
census_df.head(10)
```

Out[47]:

	BAD	LOAN	MORTDUE	VALUE	REASON	JOB	YOJ	DEROG	DELINQ	CLAGE	NINQ	CLN
0	1	1100	25860.0	39025.0	Homelmp	Other	10.5	0.0	0.0	94.366667	1.0	9
1	1	1300	70053.0	68400.0	Homelmp	Other	7.0	0.0	2.0	121.833333	0.0	14
2	1	1500	13500.0	16700.0	Homelmp	Other	4.0	0.0	0.0	149.466667	1.0	10
3	1	1500	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Na
4	0	1700	97800.0	112000.0	Homelmp	Office	3.0	0.0	0.0	93.333333	0.0	14

	BAD	LOAN	MORTDUE	VALUE	REASON	JOB	YOJ	DEROG	DELINQ	CLAGE	NINQ	CLN
5	1	1700	30548.0	40320.0	Homelmp	Other	9.0	0.0	0.0	101.466002	1.0	8
6	1	1800	48649.0	57037.0	Homelmp	Other	5.0	3.0	2.0	77.100000	1.0	17
7	1	1800	28502.0	43034.0	Homelmp	Other	11.0	0.0	0.0	88.766030	0.0	8
8	1	2000	32700.0	46740.0	Homelmp	Other	3.0	0.0	2.0	216.933333	1.0	12
9	1	2000	NaN	62250.0	Homelmp	Sales	16.0	0.0	0.0	115.800000	0.0	13

A data dictionary is provided below:

Column Description
 BAD 1 = client defaulted, 0 = loan repaid
 LOAN Amount of the loan request
 MORTDUE Amount due on existing mortgage
 VALUE Value of current property
 REASON DebtCon = Debt Consolidation, Homelmp = Home Improvement
 JOB Client's occupational category
 YOJ Years at present job
 DEROG Number of derogatory reports
 DELINQ Number of delinquent credit lines
 CLAGE Age of oldest trade line in months
 NINQ Number of recent credit lines
 CLNO Number of credit lines
 DEBTINC Debt-to-income ratio

In [48]:

```
census_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5960 entries, 0 to 5959
Data columns (total 13 columns):
 #   Column    Non-Null Count  Dtype  
 ---  --          --          --    
 0   BAD        5960 non-null   int64  
 1   LOAN       5960 non-null   int64  
 2   MORTDUE    5442 non-null   float64 
 3   VALUE      5848 non-null   float64 
 4   REASON     5708 non-null   object  
 5   JOB         5681 non-null   object  
 6   YOJ         5445 non-null   float64 
 7   DEROG       5252 non-null   float64 
 8   DELINQ      5380 non-null   float64 
 9   CLAGE       5652 non-null   float64 
 10  NINQ        5450 non-null   float64 
 11  CLNO        5738 non-null   float64 
 12  DEBTINC     4693 non-null   float64 
dtypes: float64(9), int64(2), object(2)
memory usage: 605.4+ KB
```

In [49]:

```
# how many missing values are in each column
census_df.isnull().sum()
```

Out[49]:

BAD	0
LOAN	0
MORTDUE	518
VALUE	112
REASON	252
JOB	279
YOJ	515
DEROG	708
DELINQ	580
CLAGE	308
NINQ	510

```
CLNO      222
DEBTINC   1267
dtype: int64
```

In [50]:

```
# send back to SAS
sasdf = sas.df2sd(df=census_df, table= 'sas_census', libref='work')
```

In [51]:

```
%%SAS sas
ods output Members=Members;
proc datasets library=work memtype=data;
run;
quit;
```

Out[51]:

	Directory
Libref	WORK
Engine	V9
Physical Name	/saswork/SAS_workA77E00019655_odaws02-usw2-2.oda.sas.com/SAS_work7BFD00019655_odaws02-usw2-2.oda.sas.com
Filename	/saswork/SAS_workA77E00019655_odaws02-usw2-2.oda.sas.com/SAS_work7BFD00019655_odaws02-usw2-2.oda.sas.com
Inode Number	1409290464
Access Permission	rwx-----
Owner Name	u61624884
File Size	4KB
File Size (bytes)	4096

#	Name	Member Type	File Size	Last Modified
1	CARS_COPY	DATA	256KB	06/08/2022 16:39:24
2	SAS_CAL_HSE	DATA	1MB	06/08/2022 16:39:47
3	SAS_CENSUS	DATA	768KB	06/08/2022 16:40:18
4	STATS	DATA	256KB	06/08/2022 16:39:21
5	_REG0001FILELIST	DATA	256KB	06/08/2022 16:39:52
6	_REG0001PROPERTIES	DATA	256KB	06/08/2022 16:39:52
7	_TIM0002FILELIST	DATA	256KB	06/08/2022 16:40:10
8	_TIM0002PROPERTIES	DATA	256KB	06/08/2022 16:40:10
9	__JUPYTERSASKERNEL__	DATA	256KB	06/08/2022 16:40:19

In [52]:

```
sasdf.columnInfo()
```

Out[52]:

	Member	Num	Variable	Type	Len	Pos
0	WORK.SAS_CENSUS	1.0	BAD	Num	8.0	0.0
1	WORK.SAS_CENSUS	10.0	CLAGE	Num	8.0	56.0
2	WORK.SAS_CENSUS	12.0	CLNO	Num	8.0	72.0
3	WORK.SAS_CENSUS	13.0	DEBTINC	Num	8.0	80.0
4	WORK.SAS_CENSUS	9.0	DELINQ	Num	8.0	48.0
5	WORK.SAS_CENSUS	8.0	DEROG	Num	8.0	40.0
6	WORK.SAS_CENSUS	6.0	JOB	Char	7.0	95.0
7	WORK.SAS_CENSUS	2.0	LOAN	Num	8.0	8.0
8	WORK.SAS_CENSUS	3.0	MORTDUE	Num	8.0	16.0
9	WORK.SAS_CENSUS	11.0	NINQ	Num	8.0	64.0
10	WORK.SAS_CENSUS	5.0	REASON	Char	7.0	88.0
11	WORK.SAS_CENSUS	4.0	VALUE	Num	8.0	24.0
12	WORK.SAS_CENSUS	7.0	YOJ	Num	8.0	32.0

In [53]:

`sasdf.head()`

Out[53]:

	BAD	LOAN	MORTDUE	VALUE	REASON	JOB	YOJ	DEROG	DELINQ	CLAGE	NINQ	CLN
0	1.0	1100.0	25860.0	39025.0	Homelmp	Other	10.5	0.0	0.0	94.366667	1.0	5
1	1.0	1300.0	70053.0	68400.0	Homelmp	Other	7.0	0.0	2.0	121.833333	0.0	14
2	1.0	1500.0	13500.0	16700.0	Homelmp	Other	4.0	0.0	0.0	149.466667	1.0	10
3	1.0	1500.0	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	0.0	1700.0	97800.0	112000.0	Homelmp	Office	3.0	0.0	0.0	93.333333	0.0	14

Exploring and Visualizing Data

In [54]:

`sasdf.describe()`

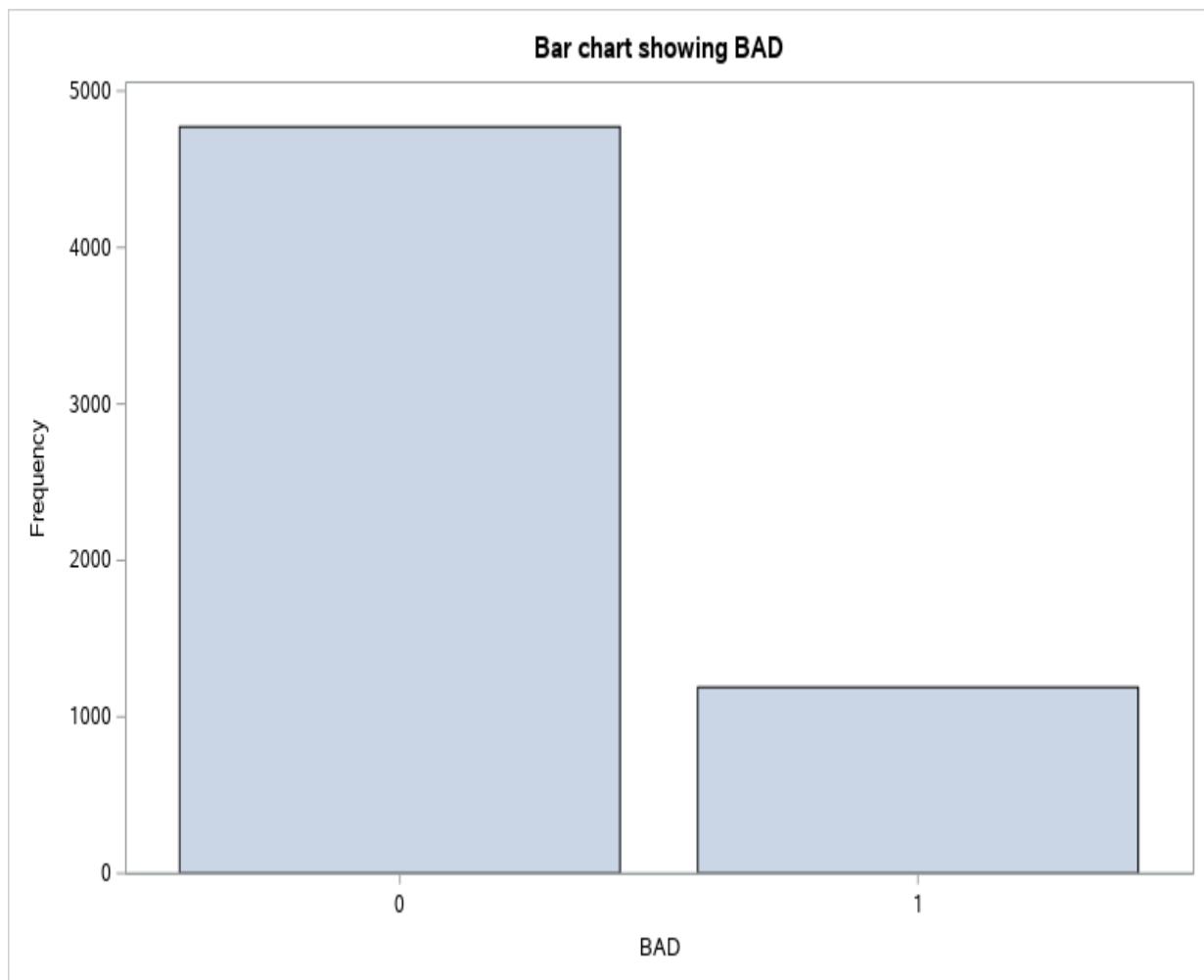
Out[54]:

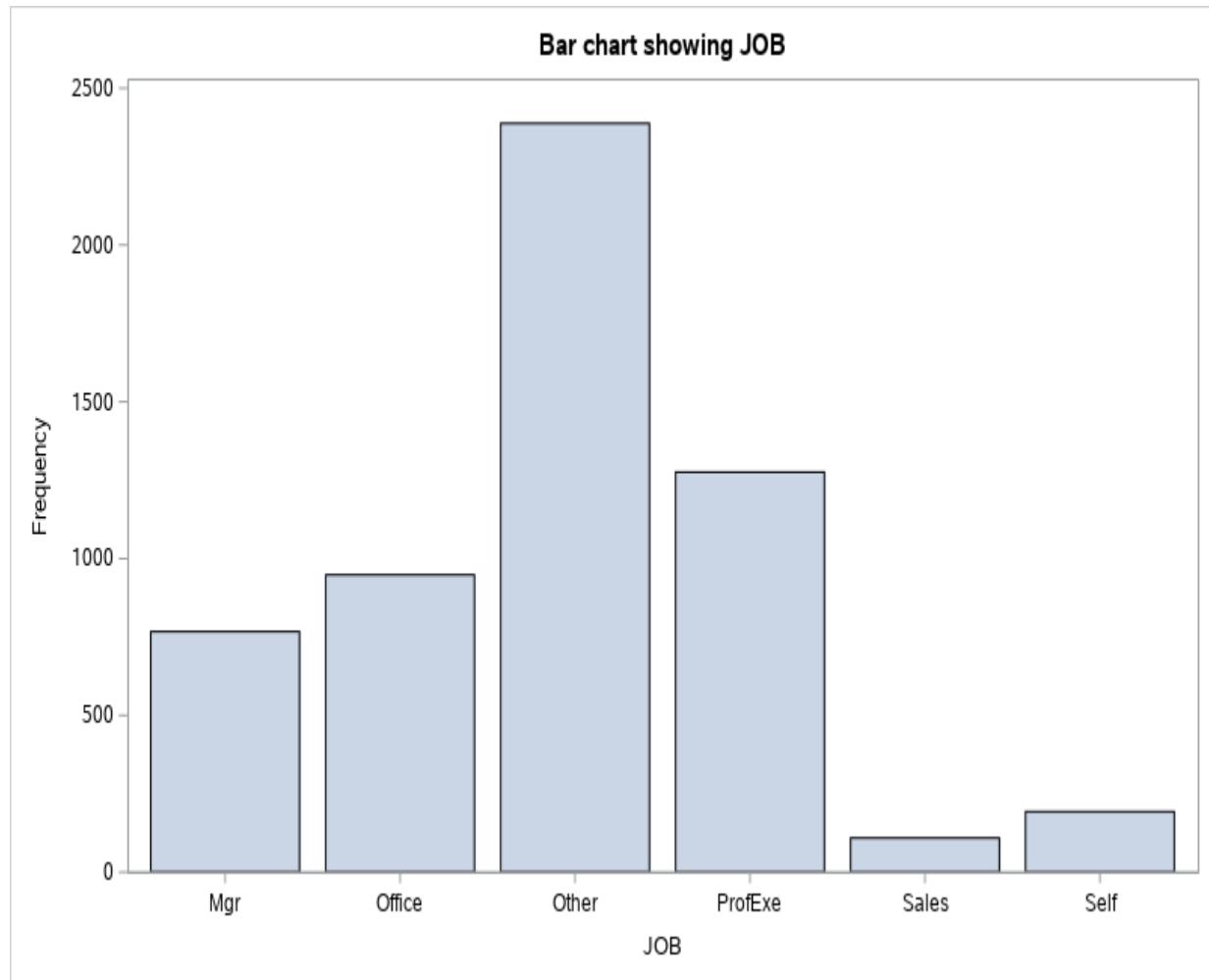
	Variable	N	NMiss	Median		Mean	StdDev	Min	P25
0	BAD	5960.0	0.0	0.000000		0.199497	0.399656	0.000000	0.000000
1	LOAN	5960.0	0.0	16300.000000		18607.969799	11207.480417	1100.000000	11100.000000
2	MORTDUE	5442.0	518.0	65019.000000		73760.817200	44457.609458	2063.000000	46268.000000
3	VALUE	5848.0	112.0	89235.500000		101776.048741	57385.775334	8000.000000	66069.000000
4	YOJ	5445.0	515.0	7.000000		8.922268	7.573982	0.000000	3.000000
5	DEROG	5252.0	708.0	0.000000		0.254570	0.846047	0.000000	0.000000

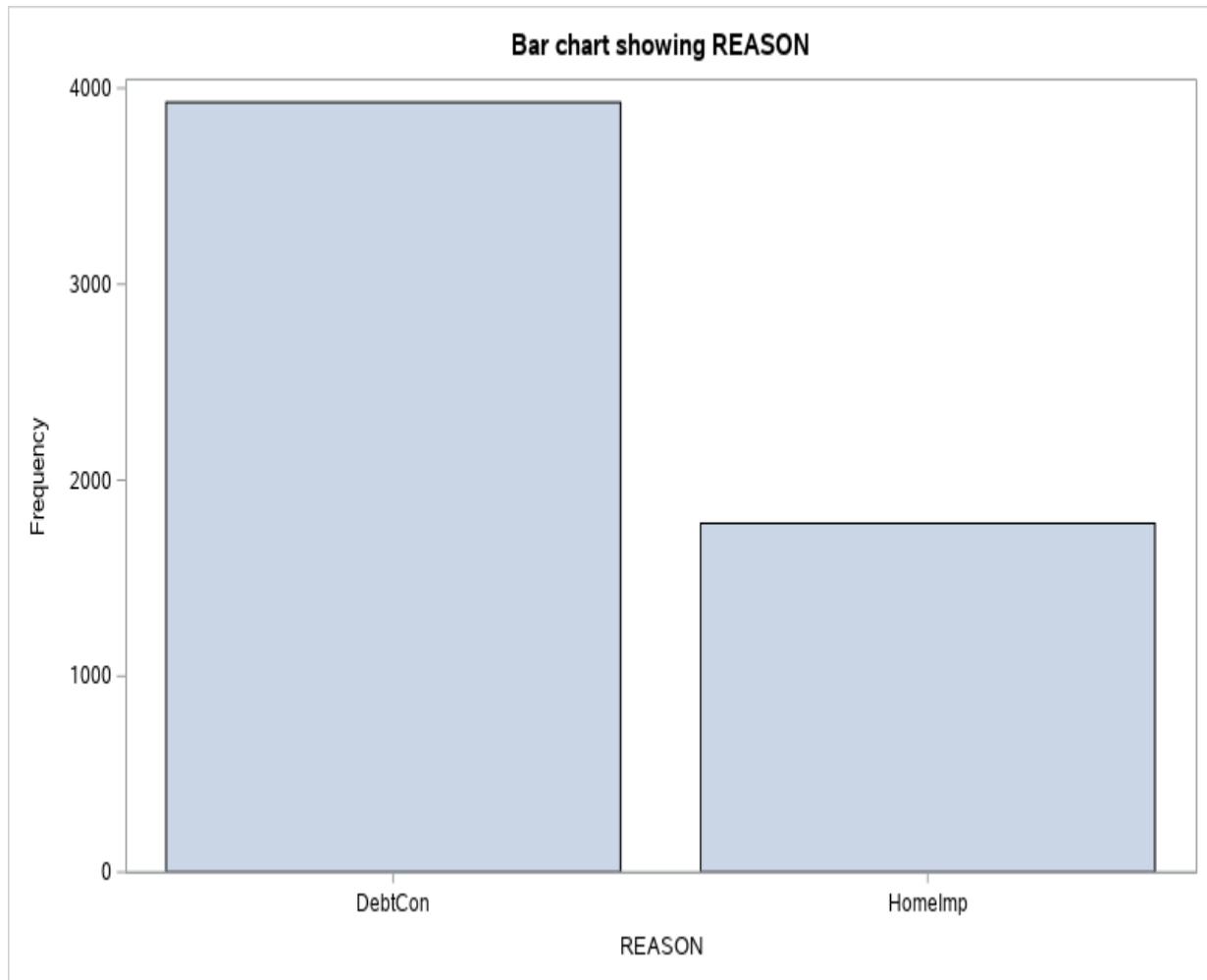
	Variable	N	NMiss	Median	Mean	StdDev	Min	P25
6	DELINQ	5380.0	580.0	0.000000	0.449442	1.127266	0.000000	0.000000
7	CLAGE	5652.0	308.0	173.466667	179.766275	85.810092	0.000000	115.103197
8	NINQ	5450.0	510.0	1.000000	1.186055	1.728675	0.000000	0.000000
9	CLNO	5738.0	222.0	20.000000	21.296096	10.138933	0.000000	15.000000
10	DEBTINC	4693.0	1267.0	34.818262	33.779915	8.601746	0.524499	29.140031

In [55]:

```
for col in ['bad', 'job', 'reason']:
    sasdf.bar(col, title='Bar chart showing '+ col.upper())
```

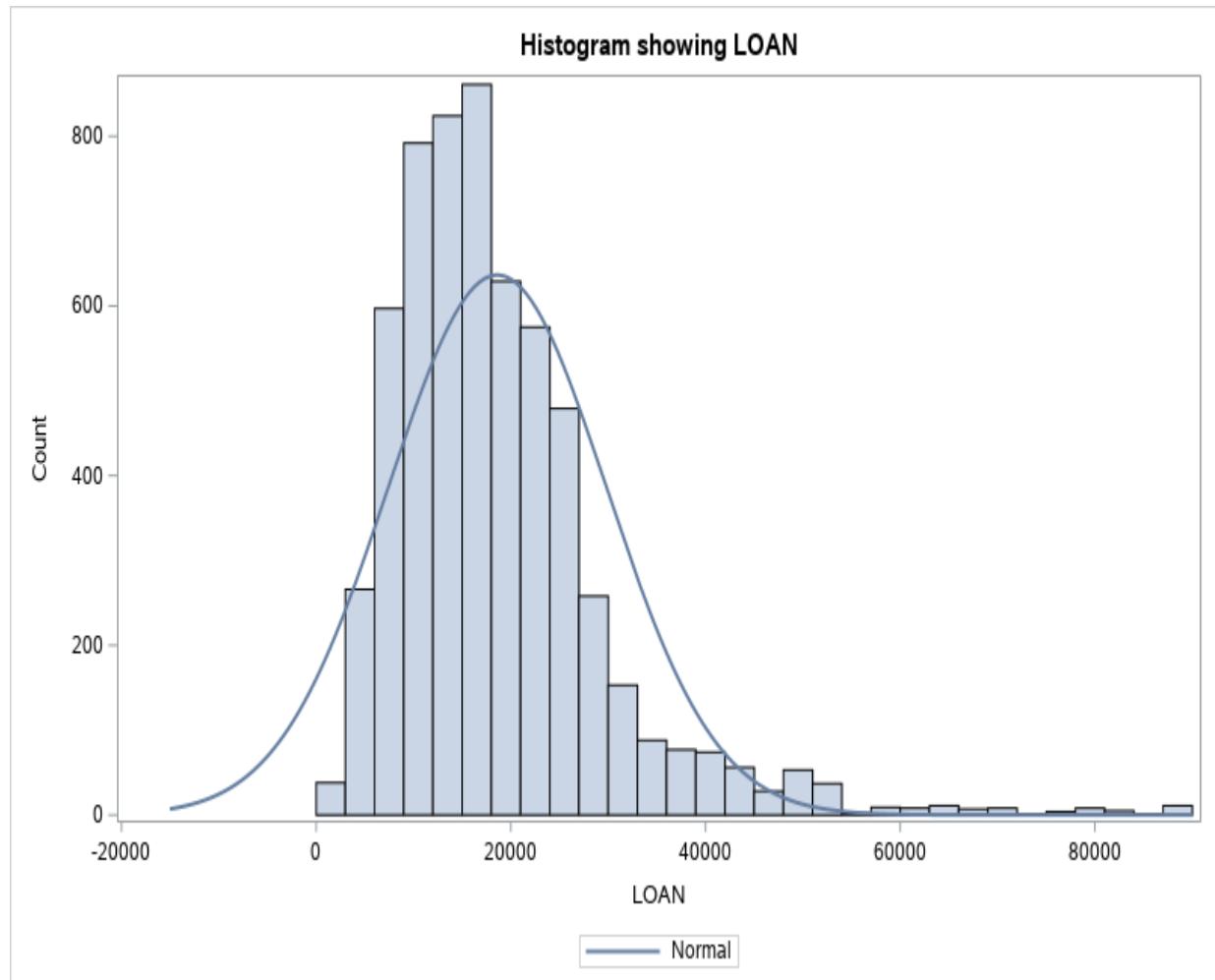


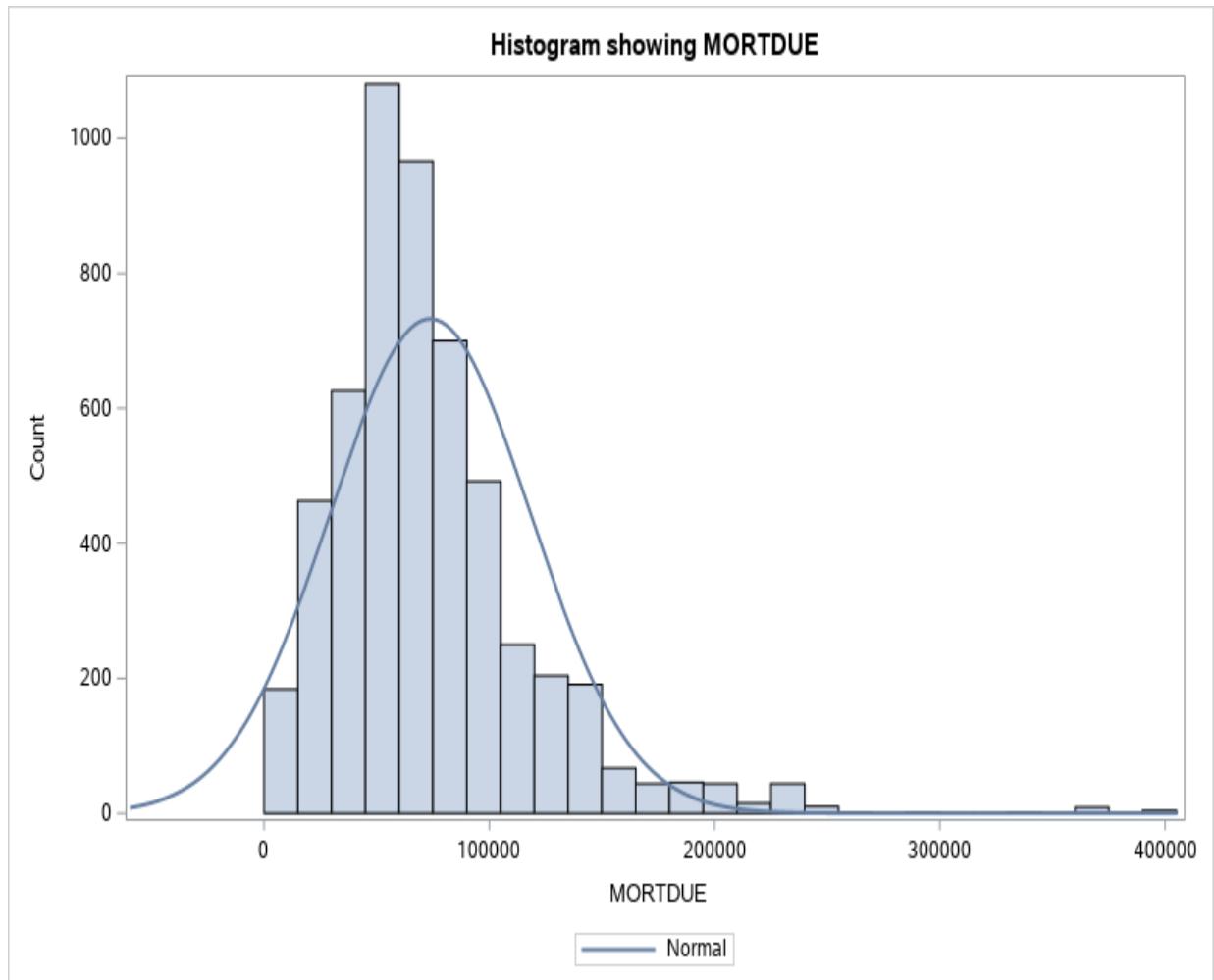


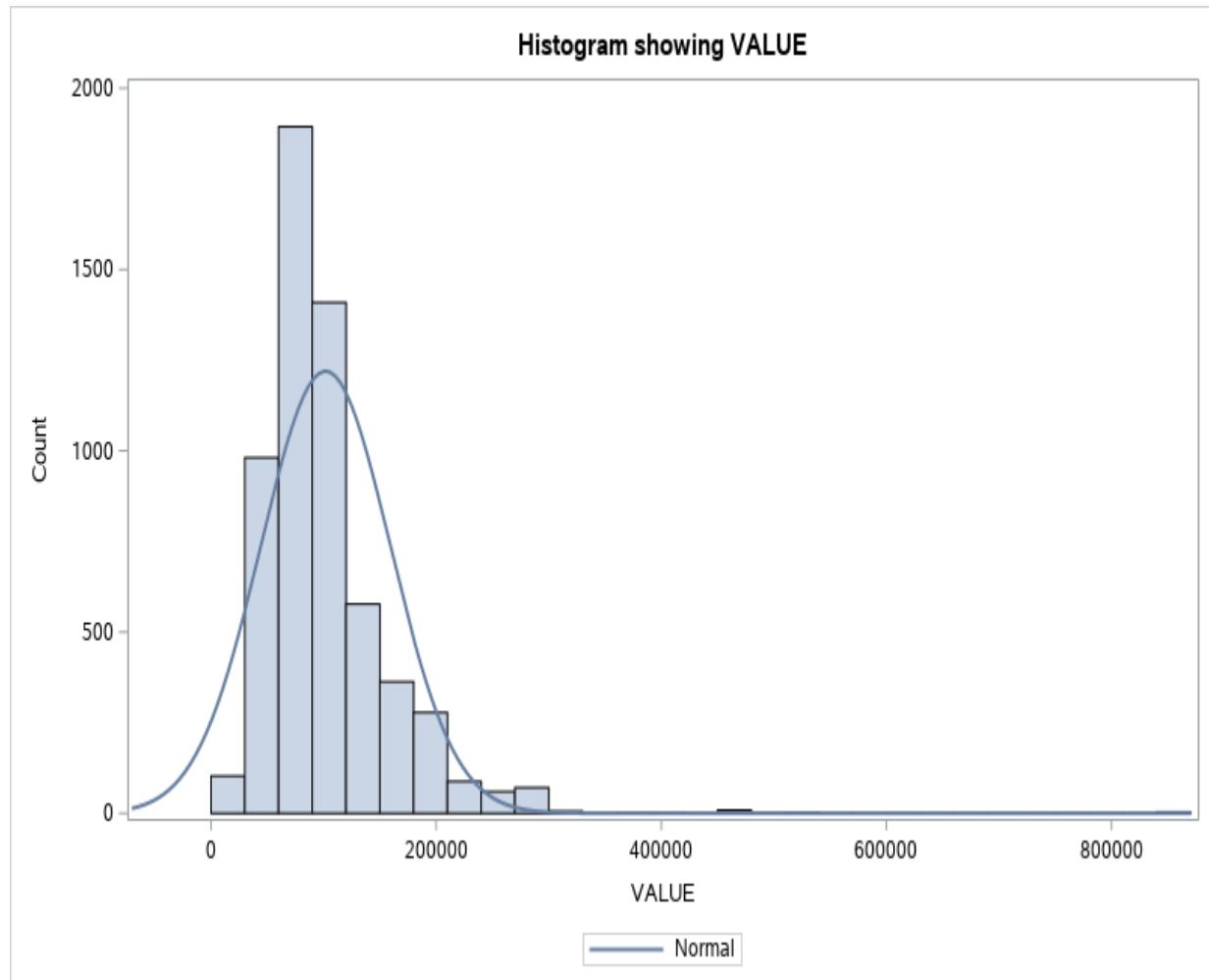


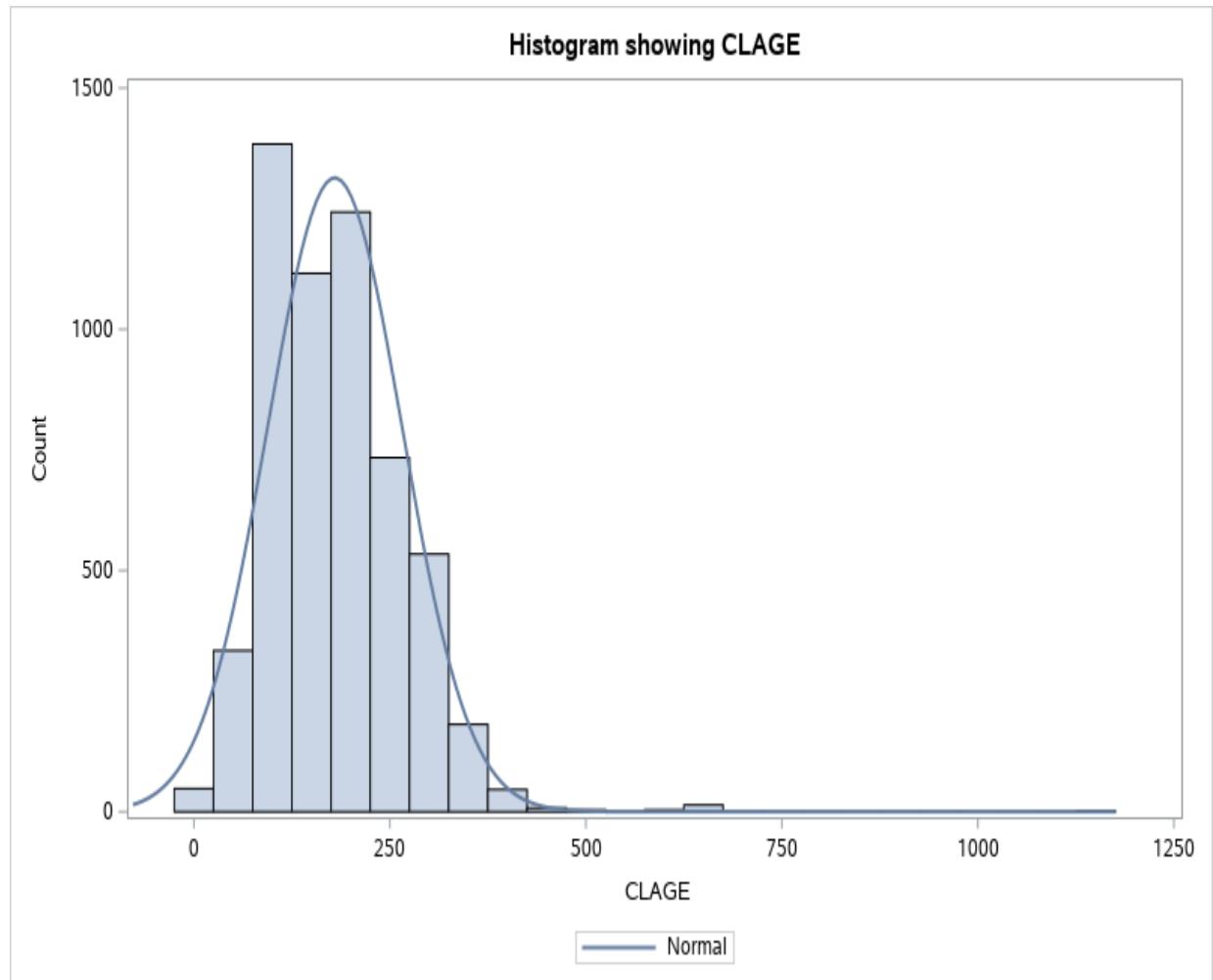
In [56]:

```
for col in ['loan','mortdue', 'value','clage']:
    sasdf.hist(col, title='Histogram showing '+col.upper())
```



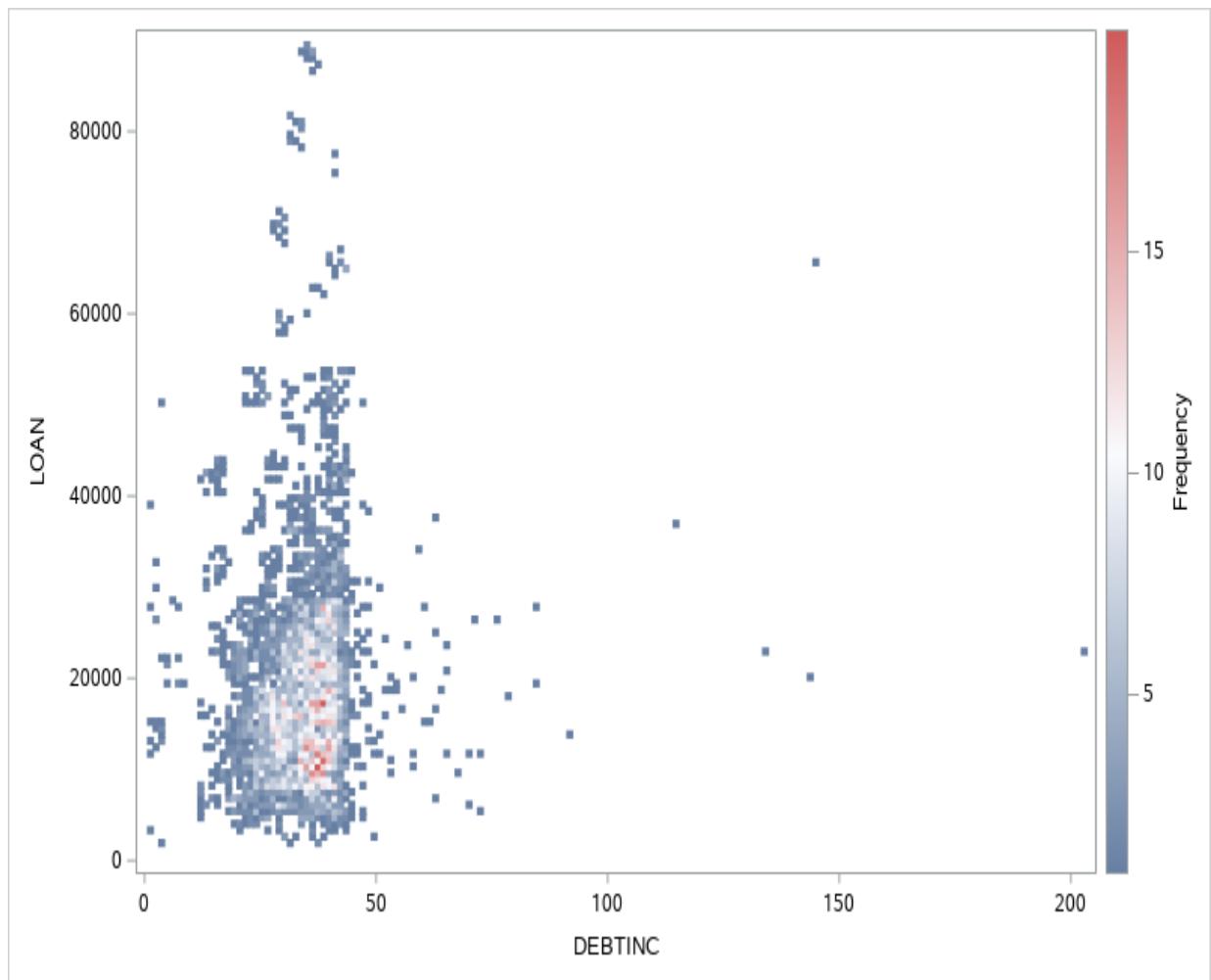






In [57]:

```
# Is there a relationship between Debt-to-Income Ratio and the amount of the requested  
sasdf.heatmap('DEBTINC', 'LOAN')
```



Running SAS Code

In [58]:

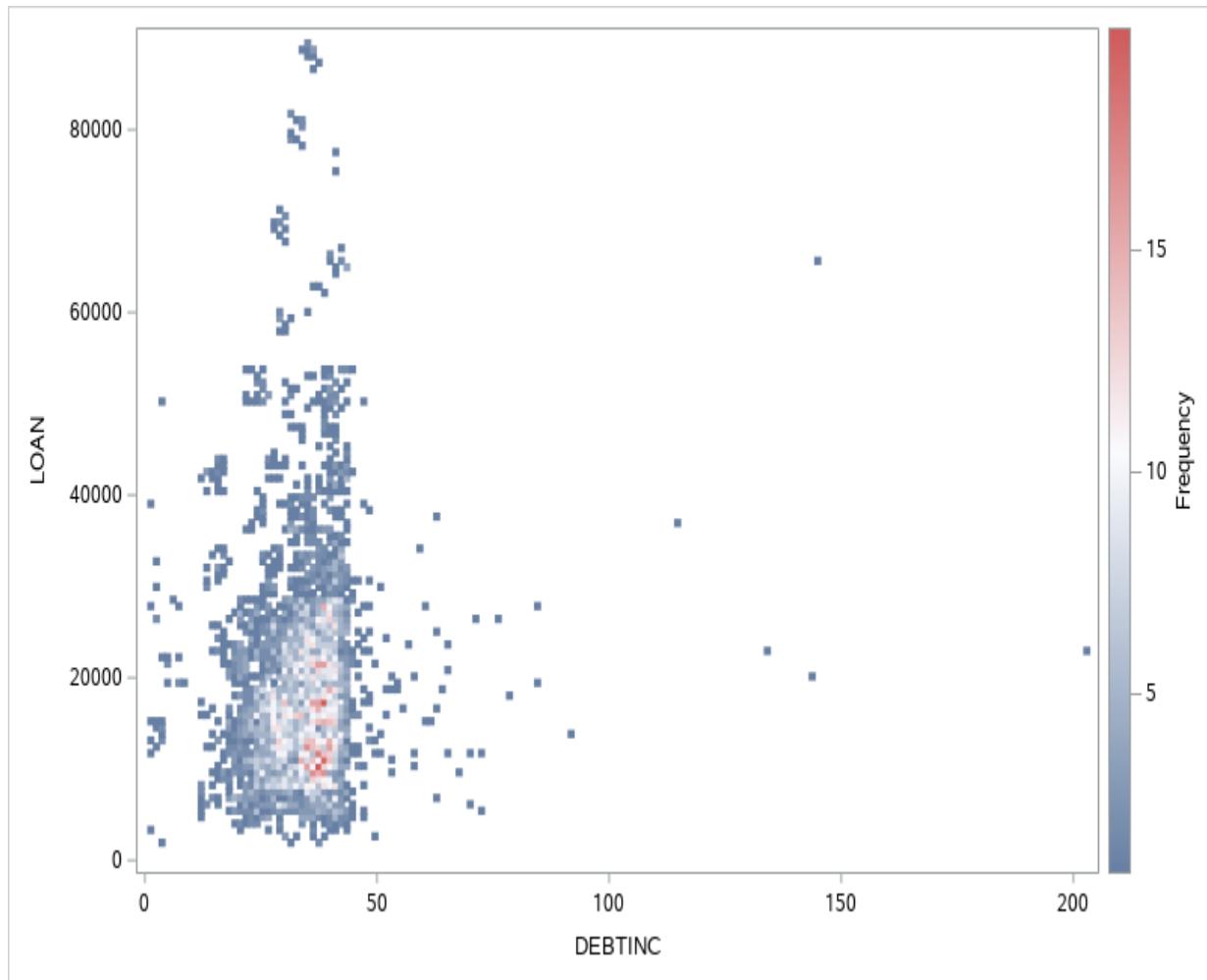
```
sas.teach_me_SAS(True)
sasdf.heatmap('DEBTINC', 'LOAN')
sas.teach_me_SAS(False)
```

```
proc sgplot data=work.'sas_census'n ;
    heatmap x='DEBTINC'n y='LOAN'n;;
run;
title;
```

In [59]:

```
%%SAS sas
proc sgplot data=work.'sas_census'n ;
heatmap x='DEBTINC'n y='LOAN'n;;
run;
title;
```

Out[59]:



Cleanig missing data

In [60]:

```
sasdf.impute({'MEDIAN':[ 'LOAN', 'MORTDUE', 'VALUE', 'YOJ', 'DEROG', 'CLAGE', 'NINQ', 'PERS'],
sasdf.add_vars({'JOB':'COALESCEC(JOB, "Other")'})
sasdf.add_vars({'REASON': 'COALESCEC(REASON, "DebtCon")'})}
```

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25181

```
25182      data work.'sas_census'n ; set work.'sas_census'n ;
25183      JOB = COALESCEC(JOB, "Other");
25184      ; run;
```

25185

25186

25187

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25203

```
25204      data work.'sas_census'n ; set work.'sas_census'n ;
```

```
25205      REASON = COALESCEC(REASON, "DebtCon");
25206      ; run;
25207
25208
25209
```

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Split data into training and testing

In [61]:

```
sasdf.partition(fraction=.7)
sasdf.head()
```

Out[61]:

	REASON	JOB	BAD	LOAN	MORTDUE	VALUE	YOJ	DEROG	DELINQ	CLAGE	NINQ	CLN
0	Homelmp	Other	1.0	1100.0	25860.0	39025.0	10.5	0.0	0.0	94.366667	1.0	9
1	Homelmp	Other	1.0	1300.0	70053.0	68400.0	7.0	0.0	2.0	121.833333	0.0	14
2	Homelmp	Other	1.0	1500.0	13500.0	16700.0	4.0	0.0	0.0	149.466667	1.0	10
3	DebtCon	Other	1.0	1500.0	65019.0	89235.5	7.0	0.0	0.0	173.466700	1.0	20
4	Homelmp	Office	0.0	1700.0	97800.0	112000.0	3.0	0.0	0.0	93.333333	0.0	14

In [62]:

```
# create some variable names to represent our various inputs
# Target
t = 'BAD'
# Class Variables
var_class = ['REASON', 'JOB', 'BAD']
# Interval Variables
var_interval = ['LOAN', 'MORTDUE', 'VALUE', 'YOJ', 'DEROG', 'DELINQ', 'CLAGE', 'NINQ',
# Input Variables
var_inputs = ['REASON', 'JOB', 'LOAN', 'MORTDUE', 'VALUE', 'YOJ', 'DEROG', 'DELINQ', 'CLN']
```

Getting Started Building SAS Models

In [63]:

```
stat=sas.sasstat() # create a Logistic regression and a decision tree
ml=sas.sasm1()    # create a random forest.
```

SAS Logistic Regression - use PROC HPLOGISTIC to create a logistic regression

In [64]:

```
hplogistic_model = stat.hplogistic(data=sasdf,
                                    cls=var_class,
                                    model="bad(event='1')= reason job YOJ loan mortdue v
out = 'work.log_score predicted=Pred',
id = ["_PartInd_", "BAD"],
partition="rolevar=_partind_(TRAIN='1' VALIDATE='0')"

print(sas.lastlog())
```

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```

25328      ;*'";*/;
25329      %macro proccall(d);
25330      proc hpl logistic data=work.'sas_census'n    ;
25331      class REASON JOB BAD;
25332      model bad(event='1')= reason job YOJ loan mortdue value debtinc clage;
25333      output out= work.log_score predicted=Pred;
25334      id _PartInd_ BAD;
25335      partition rolevar=_partind_(TRAIN='1' VALIDATE='0');;
25336      run; quit; %mend;
25337      %mangobj(hpl0003,hpl logistic,'sas_census'n);
25341
25342      ;*'";*/;
25343

```

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```

25344
25345      %put E3969440A681A2408885998500000160;
E3969440A681A2408885998500000160
25346

```

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```

25347      ;*'";*/;
25348
25349      data _null_;
25350      set _hpl0003filelist(where=(length(method)>1)) end=last;
25351      if _n_=1 then put "METHLIST=";
25352      put %upcase("meth=") method %upcase("methEND=");
25353      if last then put "METHLISTEND=";
25354      run;
METHLIST=
METH=CLASSLEVELS METHEND=
METH=CONVERGENCESTATUS METHEND=
METH=DATAACCESSINFO METHEND=
METH=DIMENSIONS METHEND=
METH=FITSTATISTICS METHEND=
METH=GLOBALTESTS METHEND=
METH=ITERHISTORY METHEND=
METH=MODELINFO METHEND=
METH=NOBS METHEND=
METH=PARAMETERESTIMATES METHEND=
METH=PARTFITSTATS METHEND=
METH=PERFORMANCEINFO METHEND=
METH=RESPONSEPROFILE METHEND=
METHLISTEND=
25355
25356
25357      ;*'";*/;
25358

```

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```

25359
25360      %put E3969440A681A2408885998500000161;
E3969440A681A2408885998500000161
25361

```

In [65]: `dir(hplogistic_model)`

Out[65]:

```
[ 'CLASSLEVELS',
  'CONVERGENCESTATUS',
  'DATAACCESSINFO',
  'DIMENSIONS',
  'FITSTATISTICS',
  'GLOBALTESTS',
  'ITERHISTORY',
  'LOG',
  'MODELINFO',
  'NOBS',
  'PARAMETERESTIMATES',
  'PARTFITSTATS',
  'PERFORMANCEINFO',
  'RESPONSEPROFILE' ]
```

In [66]: `hplogistic_model.ALL()`

	Class	Levels	Values		
0	REASON	2.0	DebtCon	HomeImp	
1	JOB	6.0	Mgr	Office	Other
Reason Status Separation					
0	Convergence criterion (GCONV=1E-8) satisfied.			0.0	0.0
	Engine	Data	Path	Role	
0	V9	WORK.SAS_CENSUS	On Client	Input	
1	V9	WORK.LOG_SCORE	On Client	Output	
	Descr	Value			
0	Columns in X	15.0			
1	Number of Effects	9.0			
2	Max Effect Columns	6.0			
3	Rank of Cross-product Matrix	13.0			
4	Parameters in Optimization	13.0			
	Descr	Training	Validation		
0	-2 Log Likelihood	3812.905205	1699.360137		
1	AIC (smaller is better)	3838.905205	1725.360137		
2	AICC (smaller is better)	3838.992747	1725.565323		
3	BIC (smaller is better)	3921.275165	1796.715225		
	Test	ChiSq	DF	ProbChiSq	
0	Likelihood Ratio	319.39781	12.0	3.932787e-61	

Iteration	Evaluations	Objective	Change	MaxGradient
0	0.0	4.0	0.462264	NaN
1	1.0	2.0	0.456987	5.276824e-03
2	2.0	2.0	0.456964	2.298002e-05
3	3.0	2.0	0.456964	7.087499e-10

	Descr	Value
0	Data Source	WORK.SAS_CENSUS
1	Response Variable	BAD
2	Class Parameterization	GLM
3	Distribution	Binary
4	Link Function	Logit
5	Optimization Technique	Newton-Raphson with Ridging

	Label	N	Training	Validation	NobsRead	NobsUsed	SumFreqsRead	SumFreqsUsed
0	Number of Observations Read	5960.0	4172.0	1788.0	5960.0	5960.0	5960.0	5960.0
1	Number of Observations Used	5960.0	4172.0	1788.0	5960.0	5960.0	5960.0	5960.0

	Effect	Parameter	REASON	JOB	Estimate	StdErr	DF	tValue	Probt
0	Intercept	Intercept	NaN	NaN	-1.509586	0.333502	NaN	-4.526465	5.997863e-06
1	REASON	REASON DebtCon	DebtCon	NaN	-0.128853	0.091647	NaN	-1.405977	1.597310e-01
2	REASON	REASON HomelImp	HomelImp	NaN	0.000000	NaN	NaN	NaN	NaN
3	JOB	JOB Mgr	NaN	Mgr	-0.315160	0.233205	NaN	-1.351430	1.765576e-01
4	JOB	JOB Office	NaN	Office	-1.228535	0.242232	NaN	-5.071726	3.942246e-07
5	JOB	JOB Other	NaN	Other	-0.517786	0.218512	NaN	-2.369598	1.780745e-02
6	JOB	JOB ProfExe	NaN	ProfExe	-0.657795	0.226923	NaN	-2.898763	3.746382e-03
7	JOB	JOB Sales	NaN	Sales	0.034034	0.339042	NaN	0.100382	9.200412e-01
8	JOB	JOB Self	NaN	Self	0.000000	NaN	NaN	NaN	NaN
9	YOJ	YOJ	NaN	NaN	-0.007107	0.006227	NaN	-1.141303	2.537438e-01

	Effect	Parameter	REASON	JOB	Estimate	StdErr	DF	tValue	Probt
10	LOAN	LOAN	NaN	NaN	-0.000018	0.000004	NaN	-3.939326	8.171100e-05
11	MORTDUE	MORTDUE	NaN	NaN	-0.000005	0.000002	NaN	-2.939941	3.282745e-03
12	VALUE	VALUE	NaN	NaN	0.000002	0.000001	NaN	1.765930	7.740759e-02
13	DEBTINC	DEBTINC	NaN	NaN	0.064387	0.006837	NaN	9.417801	4.606354e-21
14	CLAGE	CLAGE	NaN	NaN	-0.005666	0.000582	NaN	-9.738463	2.066553e-22

	Statistic	Training	Validation
0	Area under the ROCC	0.698625	0.682927
1	Average Square Error	0.143628	0.149819
2	Hosmer-Lemeshow Test	0.000044	0.000364
3	Misclassification Error	0.188399	0.199664
4	R-Square	0.073700	0.066963
5	Max-rescaled R-Square	0.117245	0.104742
6	McFadden's R-Square	0.077293	0.067969
7	Mean Difference	0.083867	0.083973
8	Somers' D	0.397250	0.365854
9	True Negative Fraction	0.998509	0.997179
10	True Positive Fraction	0.046398	0.045946

	Descr	Value	nValue
0	Execution Mode	Single-Machine	NaN
1	Number of Threads	2	2.0

	OrderedValue	BAD	Outcome	Count	Training	Validation
0	1.0	0.0	0	4771.0	3353.0	1418.0
1	2.0	1.0	1	1189.0	819.0	370.0

SAS Decision Tree

In [67]:

```
# code= 'trescore.sas',
hpsplit_model = stat.hpsplit(data=sasdf,
                               cls=var_class,
                               model="bad(event='1')= reason job YOJ loan mortdue value d
                               procopts='assignmissing=similar',
```

```

        out = 'work.dt_score',
        id = "_PartInd_",
        partition="rolevar=_partind_(TRAIN='1' VALIDATE='0');");
print(sas.lastlog())
#dir(hpsplit_model)

```

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```

26275      ;*';*";*/;
26276      %macro proccall(d);
26277      proc hpsplit data=work.'sas_census'n plot=all assignmissing=similar ;
26278      class REASON JOB BAD;
26279      model bad(event='1')= reason job YOJ loan mortdue value debtinc clage;
26280      output out= work.dt_score;
26281      id _PartInd_;
26282      partition rolevar=_partind_(TRAIN='1' VALIDATE='0');;
26283      run; quit; %mend;
26284      %mangobj(hps0004,hpsplit,'sas_census'n);
26290
26291      ;*';*";*/;
26292

```

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```

26293
26294      %put E3969440A681A2408885998500000227;
E3969440A681A2408885998500000227
26295

```

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```

26296      ;*';*";*/;
26297
26298      data _null_;
26299      set _hps0004filelist(where=(length(method)>1)) end=last;
26300      if _n_=1 then put "METHLIST=";
26301      put %upcase("meth=") method %upcase("methEND=");
26302      if last then put "METHLISTEND=";
26303      run;
METHLIST=
METH=CONFUSIONMATRIX METHEND=
METH=DATAACCESSINFO METHEND=
METH=MODELINFO METHEND=
METH=NOBS METHEND=
METH=PERFORMANCEINFO METHEND=
METH=PRUNINGPLOT METHEND=
METH=ROC PLOT METHEND=
METH=TREE PERFORMANCE METHEND=
METH=VARIMPORTANCE METHEND=
METH=WHOLETREE PLOT METHEND=
METH=ZOOMEDTREE PLOT METHEND=
METHLISTEND=
26304
26305
26306      ;*';*";*/;
26307

```

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26308

```
26309      %put E3969440A681A2408885998500000228;
E3969440A681A2408885998500000228
26310
```

In [68]:

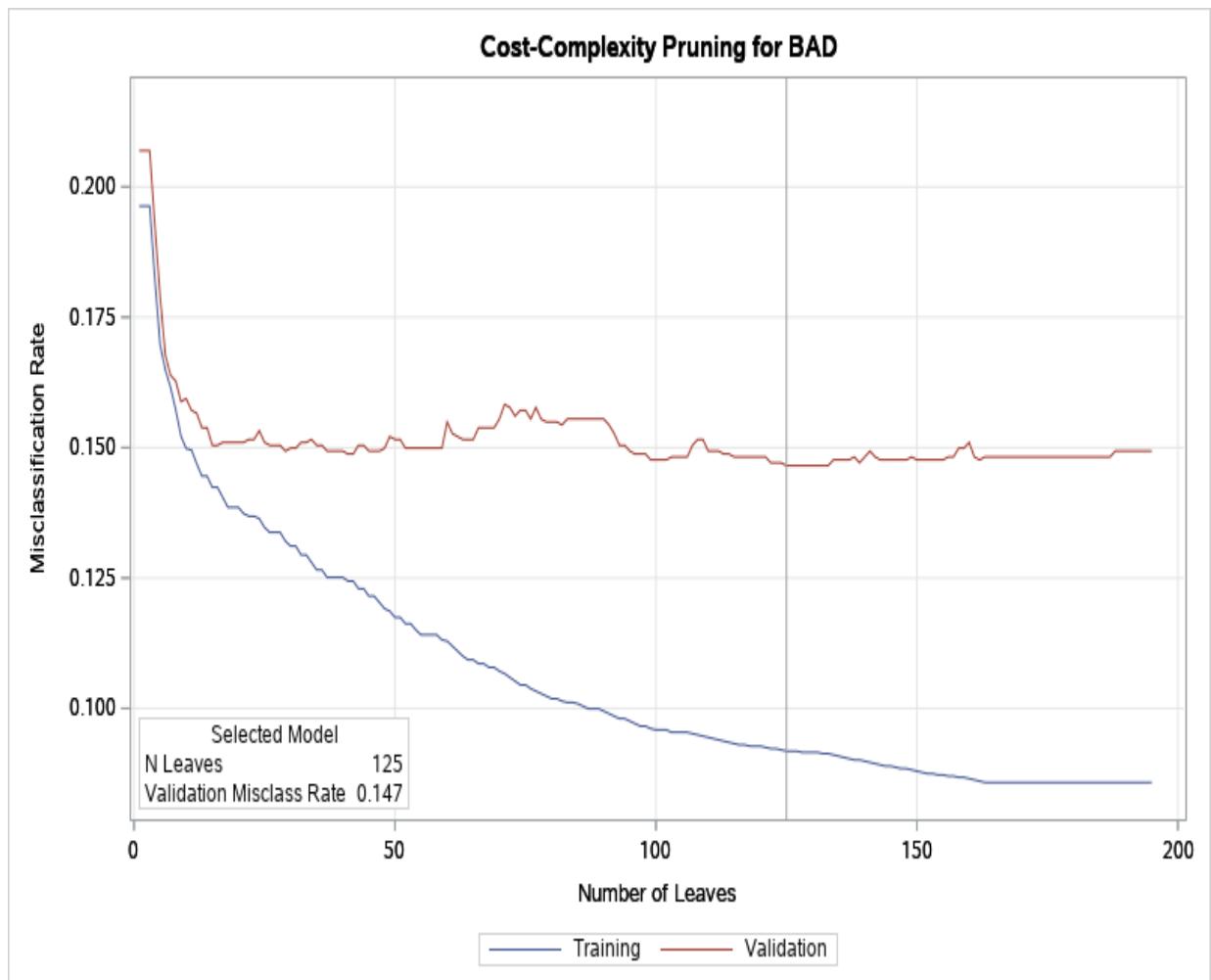
```
hpsplit_model.ALL()
```

	Partition	ActualValue	Predicted1	Predicted2	LevelMisclassRate		
0	Training	0	3280.0	73.0	0.021772		
1	Training	1	310.0	509.0	0.378510		
2	Validation	0	1346.0	72.0	0.050776		
3	Validation	1	190.0	180.0	0.513514		
	Engine	Data	Path	Role			
0	V9	WORK.SAS_CENSUS	On Client	Input			
1	V9	WORK.DT_SCORE	On Client	Output			
	Description	TextValue					
0	Split Criterion Used	Entropy					
1	Pruning Method	Cost-Complexity					
2	Subtree Evaluation Criterion	Cost-Complexity					
3	Number of Branches	2					
4	Maximum Tree Depth Requested	10					
5	Maximum Tree Depth Achieved	10					
6	Tree Depth	10					
7	Number of Leaves Before Pruning	195					
8	Number of Leaves After Pruning	125					
9	Model Event Level	1					
	Label	N	NObsRead	NObsUsed	SumFreqsUsed	TrainingNObsUsed	TrainingSumFreqsUse
0	Number of Observations Read	5960.0	5960.0	5960.0	5960.0	4172.0	4172.
1	Number of Observations Used	5960.0	5960.0	5960.0	5960.0	4172.0	4172.
2	Number of Training Observations Used	4172.0	5960.0	5960.0	5960.0	4172.0	4172.

Label	N	NObsRead	NObsUsed	SumFreqsUsed	TrainingNObsUsed	TrainingSumFreqsUse
Number of Validation Observations Used	1788.0	5960.0	5960.0	5960.0	4172.0	4172.
<hr/>						
0 Execution Mode	Single-Machine	NaN				
1 Number of Threads		2	2.0			

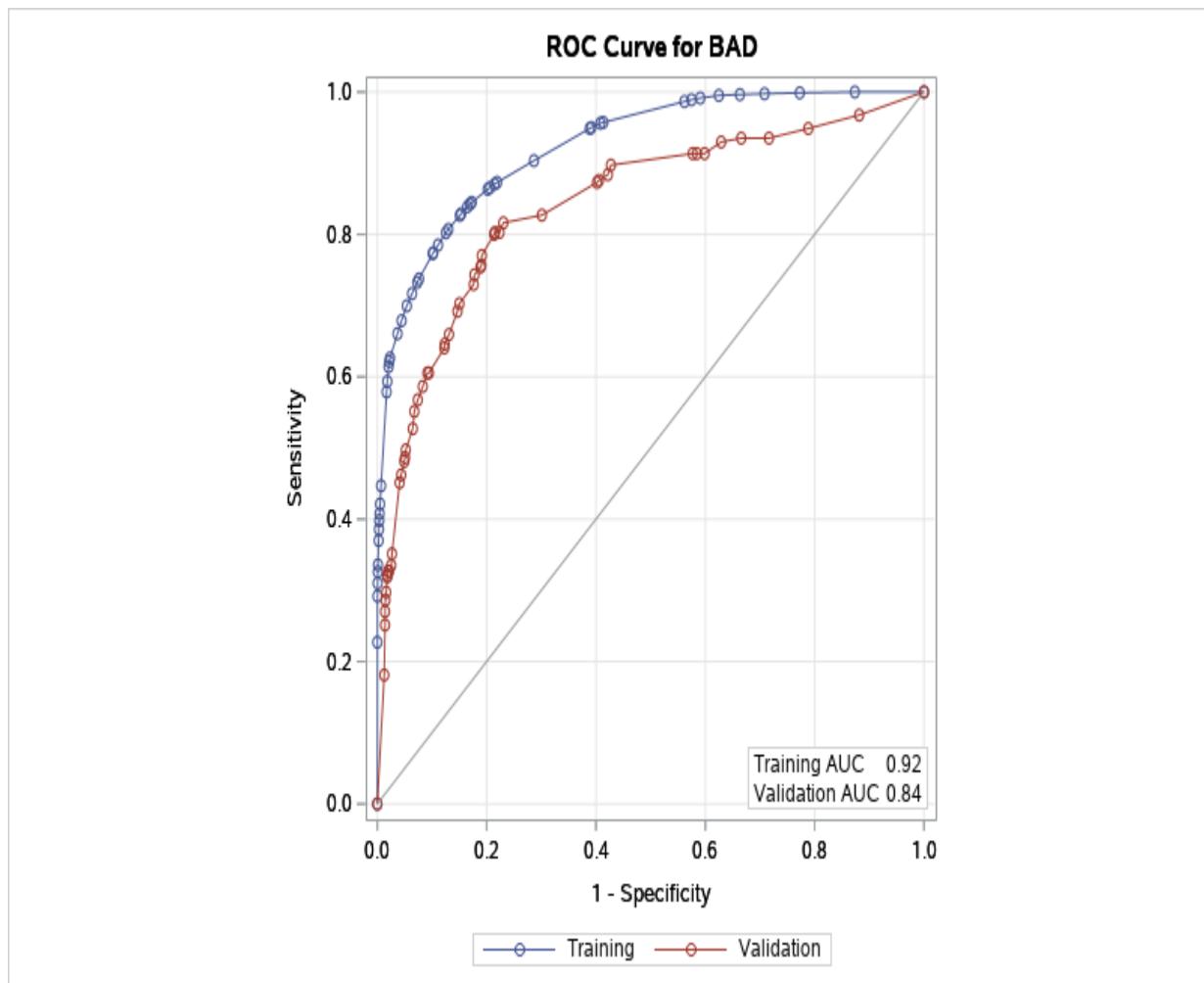
PRUNINGPLOT

The HPSPLIT Procedure



ROC PLOT

The HPSPLIT Procedure

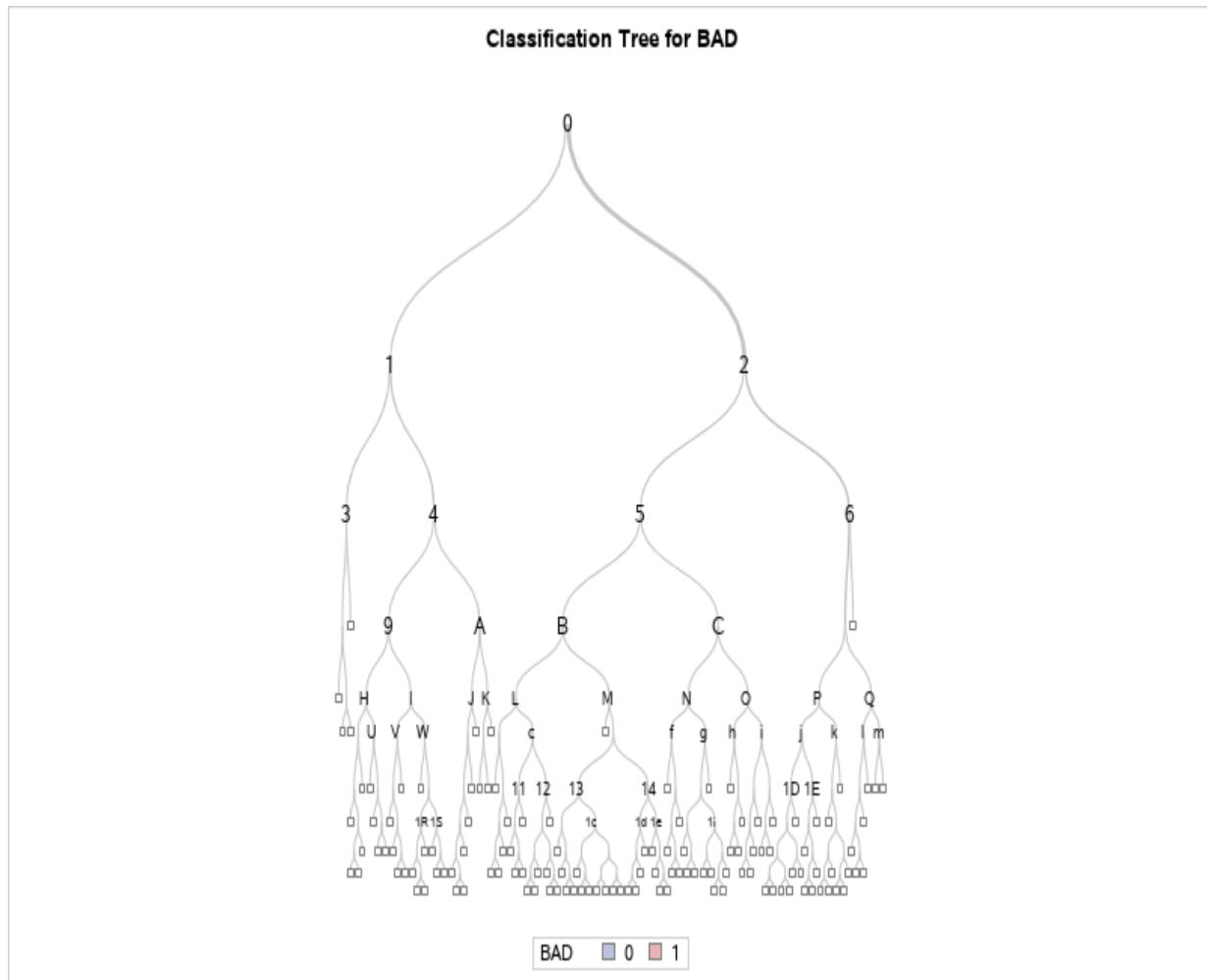


	DataSet	NumLeaves	ASE	MiscRate	Sensitivity	Specificity	Entropy	Gini	RSS
0	Training	125.0	0.072550	0.091802	0.621490	0.978228	0.350387	0.145100	605.356023 0.
1	Validation	125.0	0.113895	0.146532	0.486486	0.949224	0.437062	0.186698	407.289394 0.

	Variable	RelativeImportance	SSEImportance	ValidRellImport	ValidSSEImport	ImportanceRatio	Co
0	DEBTINC	1.000000	18.162096	1.000000	12.466592	1.000000	-
1	LOAN	0.444212	8.067814	0.368181	4.589966	0.828842	-
2	MORTDUE	0.416584	7.566034	0.361124	4.501989	0.866871	-
3	CLAGE	0.526280	9.558347	0.360169	4.490080	0.684368	-
4	VALUE	0.420415	7.635625	0.281751	3.512472	0.670172	-
5	YOJ	0.336294	6.107799	0.220699	2.751369	0.656270	-
6	JOB	0.427279	7.760274	0.218264	2.721008	0.510824	-
7	REASON	0.188351	3.420855	0.165806	2.067040	0.880303	-

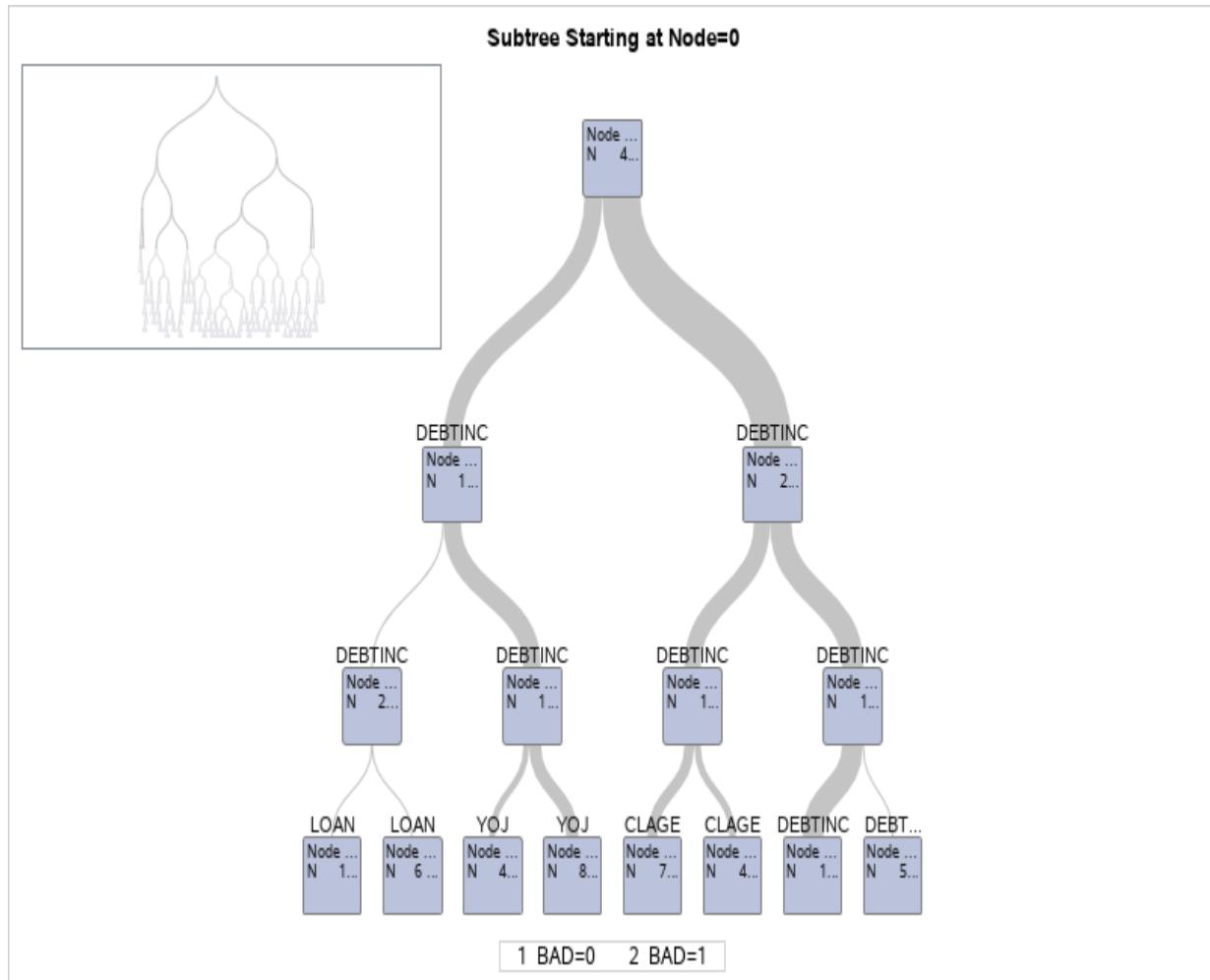
WHOLETREEPLOT

The HPSPLIT Procedure



ZOOMEDTREEPLOT

The HPSPLIT Procedure



SAS Random Forest Model - use PROC HPFOREST to create a random forest model

In [69]:

```
hpforest_model = ml.hpforest(data=sasdf,
                               input=var_inputs
                               ,target="BAD /level = binary",
                               score = "out = work.forest_score",
                               id = "_PartInd_",
                               partition="rolevar=_partind_(TRAIN='1' VALIDATE='0');");
print(sas.lastlog())
```

C:\Users\avitr\anaconda3\lib\site-packages\saspy\sasproccommons.py:697: UserWarning: The following 1 statements are invalid and will be ignored:

```
{'partition'}
warnings.warn(
```

572

The SAS System

Wednesday, June 8, 2022 04:35:00 PM

```
26856 ;*';*";*/;
26857 %macro proccall(d);
26858 proc hpforest data=work.'sas_census'n    ;
26859   input REASON JOB LOAN MORTDUE VALUE YOJ DEROG DELINQ CLAGE NINQ CLNO DEBTINC;
26860   target BAD /level = binary;
26861   score out = work.forest_score;
26862   id _PartInd_;
```

```

26863      run; quit; %mend;
26864      %mangobj(hpf0005,hpforest,'sas_census'n);
26868
26869      ;*' ;*" ;*/ ;
26870

```

573 The SAS System
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```

26871
26872      %put E3969440A681A2408885998500000268;
E3969440A681A2408885998500000268
26873

```

574 The SAS System
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```

26874      ;*' ;*" ;*/ ;
26875
26876      data _null_;
26877      set _hpf0005filelist(where=(length(method)>1)) end=last;
26878      if _n_=1 then put "METHLIST=";
26879      put %upcase("meth=") method %upcase("methEND=");
26880      if last then put "METHLISTEND=";
26881      run;
METHLIST=
METH=BASELINE METHEND=
METH=DATAACCESSINFO METHEND=
METH=FITSTATISTICS METHEND=
METH=MODELINFO METHEND=
METH=NOBS METHEND=
METH=PERFORMANCEINFO METHEND=
METH=VARIABLEIMPORTANCE METHEND=
METHLISTEND=
26882
26883
26884      ;*' ;*" ;*/ ;
26885

```

575 The SAS System
Wednesday, June 8, 2022 04:35:00 PM

```

26886
26887      %put E3969440A681A2408885998500000269;
E3969440A681A2408885998500000269
26888

```

In [70]: `dir(hpforest_model)`

Out[70]: `['BASELINE',
'DATAACCESSINFO',
'FITSTATISTICS',
'LOG',
'MODELINFO',
'NOBS',
'PERFORMANCEINFO',
'VARIABLEIMPORTANCE']`

In [71]: `hpforest_model.ALL()`

Statistic	Value
-----------	-------

	Statistic	Value
0	Average Square Error	0.159698
1	Misclassification Rate	0.199497
2	Log Loss	0.499704

	Engine	Data	Path	Role
0	V9	WORK.SAS_CENSUS	On Client	Input
1	V9	WORK.FOREST_SCORE	On Client	Output

	NTrees	NLeaves	PredAll	PredOob	MiscAll	MiscOob	LogLossAll	LogLossOob
0	1.0	472.0	0.054319	0.118979	0.059228	0.125000	1.026559	2.510952
1	2.0	990.0	0.033047	0.122885	0.051510	0.132983	0.239674	2.511338
2	3.0	1471.0	0.024805	0.111194	0.025168	0.126569	0.104232	2.086895
3	4.0	2017.0	0.020419	0.103740	0.023826	0.121891	0.073993	1.765277
4	5.0	2534.0	0.018789	0.097533	0.014933	0.118359	0.072681	1.499165
...
95	96.0	47658.0	0.011909	0.059760	0.001510	0.083221	0.067190	0.201932
96	97.0	48170.0	0.011885	0.059649	0.001342	0.082718	0.067102	0.201480
97	98.0	48661.0	0.011869	0.059558	0.001510	0.082886	0.067046	0.201164
98	99.0	49151.0	0.011860	0.059523	0.001510	0.081711	0.067068	0.201154
99	100.0	49621.0	0.011863	0.059469	0.001510	0.081544	0.067090	0.200999

100 rows × 8 columns

	Parameter	Setting	Default
0	Variables to Try	3.00000	(Default)
1	Maximum Trees	100.00000	(Default)
2	Actual Trees	100.00000	NaN
3	Inbag Fraction	0.60000	(Default)
4	Prune Fraction	0.00000	(Default)
5	Prune Threshold	0.10000	(Default)
6	Leaf Fraction	0.00001	(Default)
7	Leaf Size Setting	1.00000	(Default)
8	Leaf Size Used	1.00000	NaN
9	Category Bins	30.00000	(Default)
10	Interval Bins	100.00000	NaN
11	Minimum Category Size	5.00000	(Default)

	Parameter	Setting	Default
12	Node Size	1000000.00000	(Default)
13	Maximum Depth	20.00000	(Default)
14	Alpha	1.00000	(Default)
15	Exhaustive	5000.00000	(Default)
16	Rows of Sequence to Skip	5.00000	(Default)
17	Split Criterion	NaN	Gini
18	Preselection Method	NaN	Loh
19	Missing Value Handling	NaN	Valid value

	Type	N
0	Number of Observations Read	5960.0
1	Number of Observations Used	5960.0

	Descr	Value	nValue
0	Execution Mode	Single-Machine	NaN
1	Number of Threads	2	2.0

	Variable	NRules	Gini	Margin	GiniOOB	MarginOOB
0	DEBTINC	5256.0	0.081576	0.163153	0.058440	0.138941
1	DELINQ	2172.0	0.030070	0.060140	0.021862	0.051895
2	DEROG	1391.0	0.019099	0.038198	0.013798	0.032813
3	JOB	1543.0	0.005342	0.010684	0.000093	0.008170
4	REASON	1095.0	0.002656	0.005311	-0.000076	0.002445
5	CLAGE	5604.0	0.031974	0.063948	-0.002439	0.029107
6	LOAN	4376.0	0.024093	0.048187	-0.003222	0.020328
7	NINQ	4609.0	0.015403	0.030806	-0.003994	0.011968
8	MORTDUE	4747.0	0.022016	0.044032	-0.005006	0.016480
9	CLNO	6790.0	0.028079	0.056159	-0.006107	0.021462
10	VALUE	5927.0	0.027034	0.054068	-0.007170	0.019804
11	YOJ	6011.0	0.022660	0.045320	-0.008404	0.014678

In []:

In []:

In [72]:

```
# Disconnect the session  
#sas.disconnect()
```

In [73]:

```
# # Reconnect the session  
# https://sassoftware.github.io/saspy/advanced-topics.html#disconnecting-from-an-iom-se  
#sas.reconuri
```

In [74]:

```
# Finish the sas session  
#sas._endsas()
```

Reference

- Example saspy notebook showing the python interface to SAS
- A Complete Introduction to SASPy and Jupyter Notebooks
- A Basic Introduction to SASPy and Jupyter Notebooks
- Everything is better with friends: Executing SAS® code in Python scripts with SASPy - Comparing SAS® and Python – A Coder’s Perspective, Daniel R. Bretheim -SASPy for Machine Learning

In []: