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**Sub: Business Analytics**

### **Experiment 1**

**Aim:** To import an appropriate dataset of your choice, Filter/clean the data by removing missing values /outliers. Do appropriate transformations to add meaningful columns. Export it to a pdf file.

**Theory:** SAS OnDemand is a cloud-based service that provides access to SAS software over the internet. The syntax used in SAS OnDemand is essentially the same as the syntax used in the desktop version of SAS, with a few minor differences to account for the cloud-based environment. The syntax includes the use of DATA and PROC steps, LIBNAME and FILENAME statements, SAS macros, and code submission through various interfaces.

#### **Code:**

```
FILENAME REFFILE '/home/u63311610/CARS.csv';
```

```
PROC IMPORT DATAFILE=REFFILE  
    DBMS=CSV  
    OUT=Car;  
    GETNAMES=YES;  
RUN;
```

```
PROC CONTENTS DATA=Car; RUN;  
proc print DATA=Car;  
title 'Car';  
run;
```

```
proc sgplot data=Car;  
    vbox Horsepower;  
run;
```

```
data new_data;  
    set Car;  
    if Horsepower >400 then delete;  
run;  
proc print DATA=new_data;  
title 'Car';  
run;
```

```
ods pdf file="/home/u63311610/car.pdf";

title "First 10 Observations of Car";
proc print data=new_data (obs=10) noobs;
run;
ods pdf close;
```

## Output:

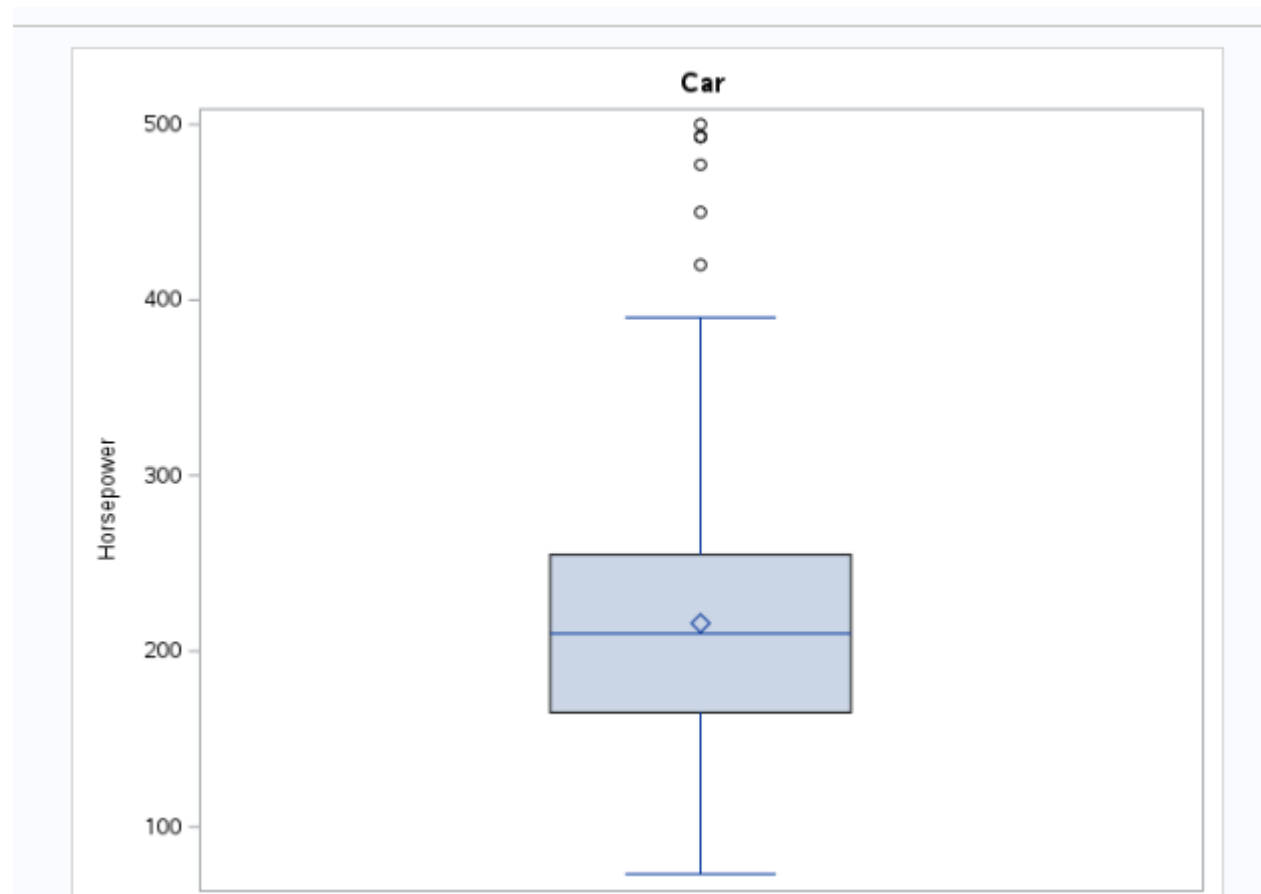
### Importing a datafile:

Alphabetic List of Variables and Attributes					
#	Variable	Type	Len	Format	Informat
9	Cylinders	Num	8	BEST12.	BEST32.
5	DriveTrain	Char	5	\$5.	\$5.
8	EngineSize	Num	8	BEST12.	BEST32.
10	Horsepower	Num	8	BEST12.	BEST32.
7	Invoice	Char	9	\$9.	\$9.
15	Length	Num	8	BEST12.	BEST32.
11	MPG_City	Num	8	BEST12.	BEST32.
12	MPG_Highway	Num	8	BEST12.	BEST32.
6	MSRP	Char	9	\$9.	\$9.
1	Make	Char	5	\$5.	\$5.
2	Model	Char	30	\$30.	\$30.
4	Origin	Char	6	\$6.	\$6.
3	Type	Char	6	\$6.	\$6.
13	Weight	Num	8	BEST12.	BEST32.
14	Wheelbase	Num	8	BEST12.	BEST32.

Car

Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Length
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451	106	16
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2	4	200	24	31	2778	101	17
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200	22	29	3230	105	16
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270	20	28	3575	108	16
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880	115	16
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893	115	16
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153	100	17
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252	104	17
9	Audi	A4 1.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638	105	16
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3	6	220	20	28	3462	104	17
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3	6	220	17	26	3583	104	17
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3	6	220	18	25	3627	104	17
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3	6	220	20	27	3561	109	16

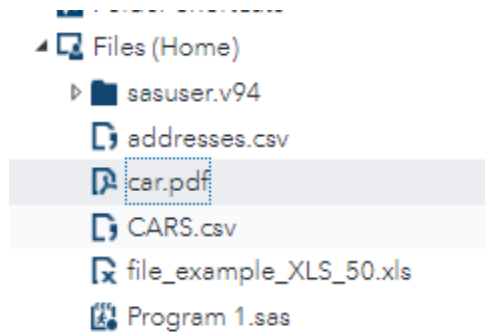
## Identifying Outliers using Box plot in HoresPower variable



## Removing Outliers:

Car															
Obs	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Length
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451	108	189
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2	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	188
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880	115	197
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893	115	197
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153	100	174
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252	104	179
9	Audi	A4 1.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638	105	180
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3	6	220	20	28	3462	104	179
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30,366	3	6	220	17	26	3583	104	179
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31,388	3	6	220	18	25	3627	104	179
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33,129	3	6	220	20	27	3561	109	192
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35,992	3	6	220	18	25	3880	109	192
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38,325	3	6	220	20	27	3814	105	180
16	Audi	A4 3.0 Quattro convertible 2dr	Sedan	Europe	All	\$44,240	\$40,075	3	6	220	18	25	4013	105	180
17	Audi	A6 2.7 Turbo Quattro 4dr	Sedan	Europe	All	\$42,840	\$38,840	2.7	6	250	18	25	3836	109	192
18	Audi	A6 4.2 Quattro 4dr	Sedan	Europe	All	\$49,690	\$44,936	4.2	8	300	17	24	4024	109	193
19	Audi	A8 L Quattro 4dr	Sedan	Europe	All	\$69,190	\$64,740	4.2	8	330	17	24	4399	121	204
20	Audi	S4 Quattro 4dr	Sedan	Europe	All	\$48,040	\$43,556	4.2	8	340	14	20	3825	104	179
21	Audi	TT 1.8 convertible 2dr (coupe)	Sports	Europe	Front	\$35,940	\$32,512	1.8	4	180	20	28	3131	95	159
22	Audi	TT 1.8 Quattro 2dr (convertibl	Sports	Europe	All	\$37,390	\$33,891	1.8	4	225	20	28	2921	96	159
23	Audi	TT 3.2 coupe 2dr (convertible)	Sports	Europe	All	\$40,590	\$36,739	3.2	6	250	21	29	3351	96	159
24	Audi	A8 3.0 Quattro	Sedan	Europe	All	\$49,640	\$44,936	4.2	8	300	17	24	4024	109	193

## Saving First 10 observation of new table in pdf



First 10 Observations of Car

Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	Engine Size	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase	Length
Acura	MDX	SUV	Asia	All	\$36,945	\$33,337	3.5	6	265	17	23	4451	108	189
Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21,761	2	4	200	24	31	2778	101	172
Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24,647	2.4	4	200	22	29	3230	105	183
Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30,299	3.2	6	270	20	28	3575	108	188
Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39,014	3.5	6	225	18	24	3880	115	197
Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41,100	3.5	6	225	18	24	3893	115	197
Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79,978	3.2	6	290	17	24	3153	100	174
Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23,508	1.8	4	170	22	31	3252	104	179
Audi	A4 1.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32,506	1.8	4	170	23	30	3638	105	180
Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28,846	3	6	220	20	28	3462	104	179

**Conclusion:** In conclusion, SAS offers several methods to import data from Excel and CSV files, including the Import Wizard, PROC IMPORT, and DDE. It is important to ensure that the data is correctly formatted and pre-processed prior to import, and users should be aware of the limitations of the Excel file format. Similarly, when importing CSV files, proper formatting, and encoding should be considered. By following these best practices, users can ensure that their data is accurately and efficiently analyzed in SAS.