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EXPERIMENT 3

AIM: To perform anova with sas platform

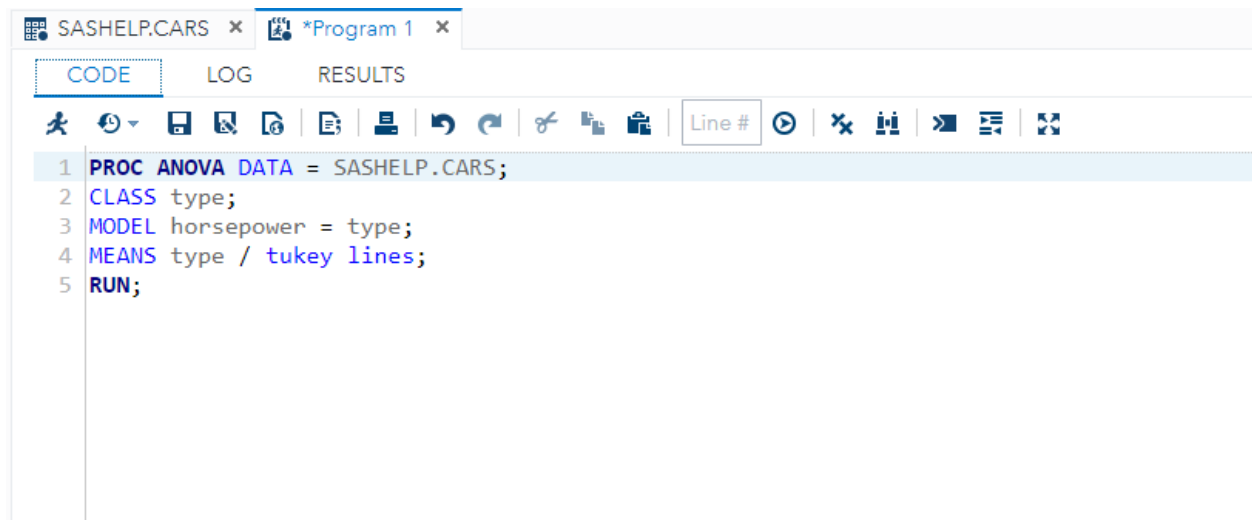
Procedure:

ANOVA stands for Analysis of Variance. In SAS it is done using PROC ANOVA. It performs analysis of data from a wide variety of experimental designs. In this process, a continuous response variable, known as a dependent variable, is measured under experimental conditions identified by classification variables, known as independent variables.

Consider the SASHELP.CARS dataset for one way anova test.

	Make	Model	Type	Origin	DriveTrain	MSRP	Inv
1	Acura	MDX	SUV	Asia	All	\$36,945	\$33
2	Acura	RSX Type S 2dr	Sedan	Asia	Front	\$23,820	\$21
3	Acura	TSX 4dr	Sedan	Asia	Front	\$26,990	\$24
4	Acura	TL 4dr	Sedan	Asia	Front	\$33,195	\$30
5	Acura	3.5 RL 4dr	Sedan	Asia	Front	\$43,755	\$39
6	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	\$46,100	\$41
7	Acura	NSX coupe 2dr manual S	Sports	Asia	Rear	\$89,765	\$79
8	Audi	A4 1.8T 4dr	Sedan	Europe	Front	\$25,940	\$23
9	Audi	A41.8T convertible 2dr	Sedan	Europe	Front	\$35,940	\$32
10	Audi	A4 3.0 4dr	Sedan	Europe	Front	\$31,840	\$28
11	Audi	A4 3.0 Quattro 4dr manual	Sedan	Europe	All	\$33,430	\$30
12	Audi	A4 3.0 Quattro 4dr auto	Sedan	Europe	All	\$34,480	\$31
13	Audi	A6 3.0 4dr	Sedan	Europe	Front	\$36,640	\$33
14	Audi	A6 3.0 Quattro 4dr	Sedan	Europe	All	\$39,640	\$35
15	Audi	A4 3.0 convertible 2dr	Sedan	Europe	Front	\$42,490	\$38

In the SASHELP.CARS dataset there is dependence between the variables car type and their horsepower. As the car type is a variable with categorical values, we take it as class variable and use both these variables in the MODEL.

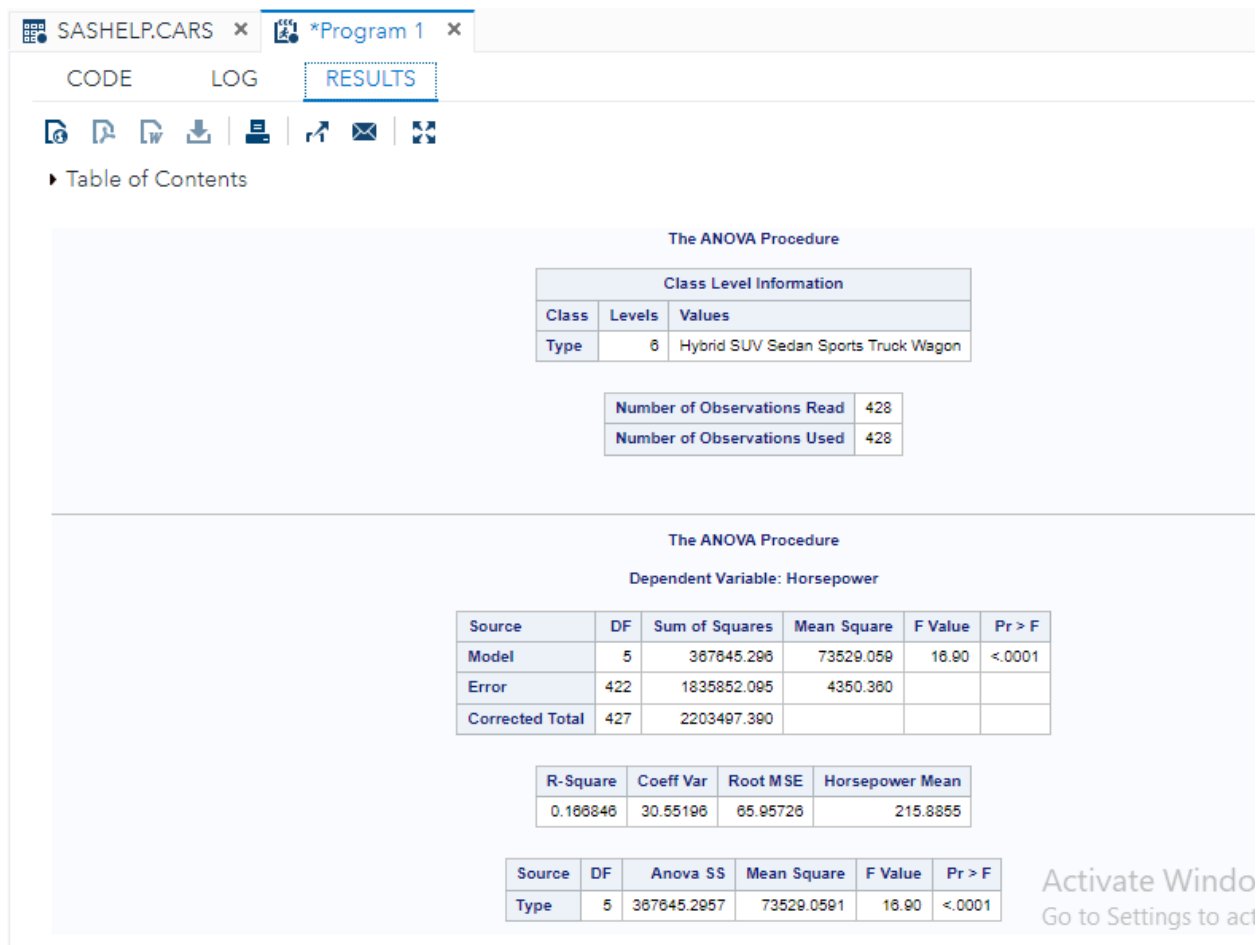


The screenshot shows the SAS Studio interface. At the top, there are two tabs: 'SASHELP.CARS' and '*Program 1'. Below the tabs are three main panes: 'CODE', 'LOG', and 'RESULTS'. The 'CODE' pane is active and contains the following SAS program:

```
1 PROC ANOVA DATA = SASHELP.CARS;  
2 CLASS type;  
3 MODEL horsepower = type;  
4 MEANS type / tukey lines;  
5 RUN;
```

Below the code editor is a toolbar with various icons for file operations (like save, open, print) and execution (like run, stop, refresh). A 'Line #' input field is also present in the toolbar.

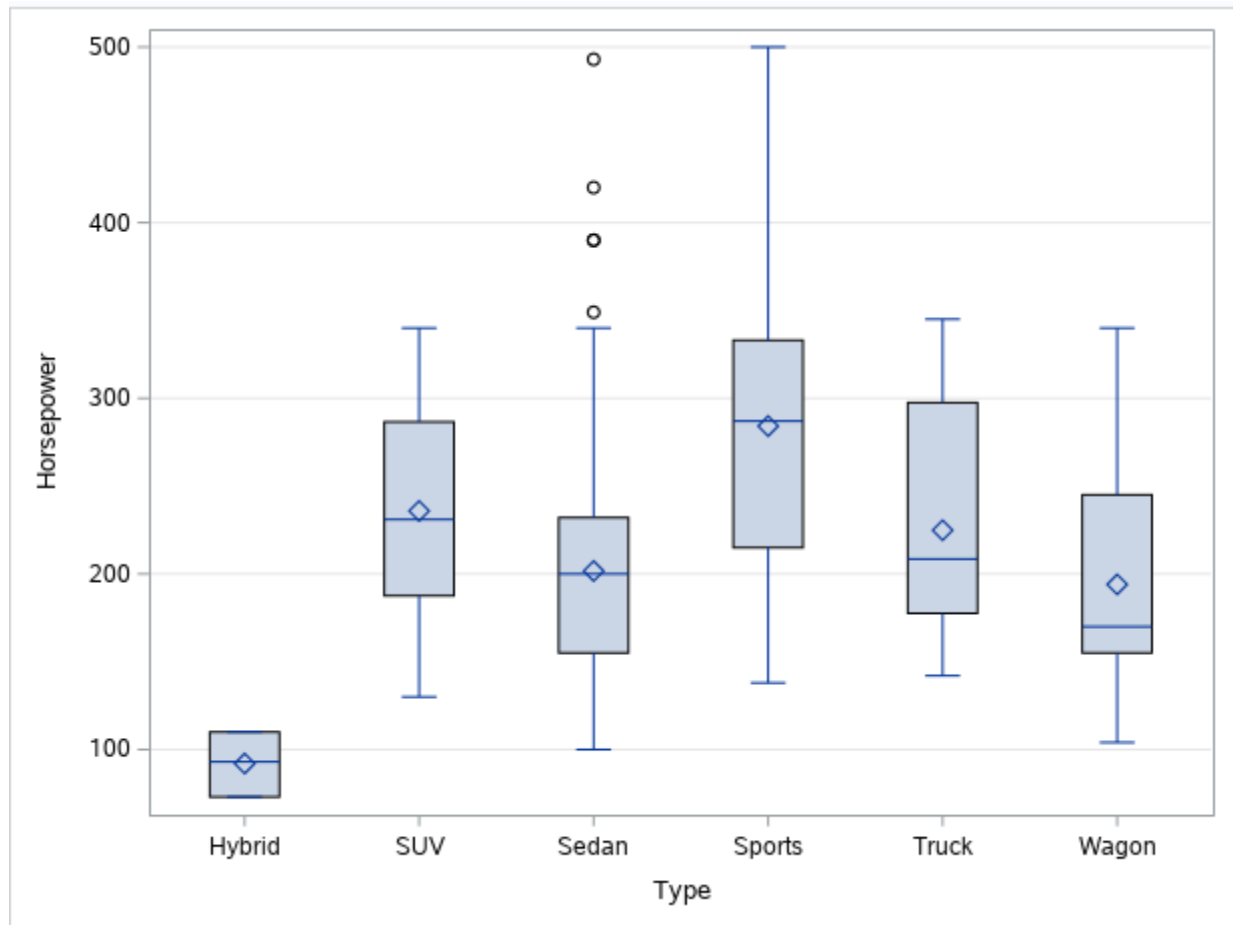
When the above code is executed, we get the following result –



In the above result

The overall F-value is 16.90 and P-value is <.0001 So the P-value is less than 0.5 so it rejects null hypothesis

Box plot



Conclusion:

In the anova basically compare the means of 2 different groups. From the above result of anova test is reveals that there is statically significant difference in their means.