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Plots in SAS

Boxplot, Lollipop graph, Scatterplot, Survival plot
-SGPLOT, GCHART, SGPANEL, LIFETEST

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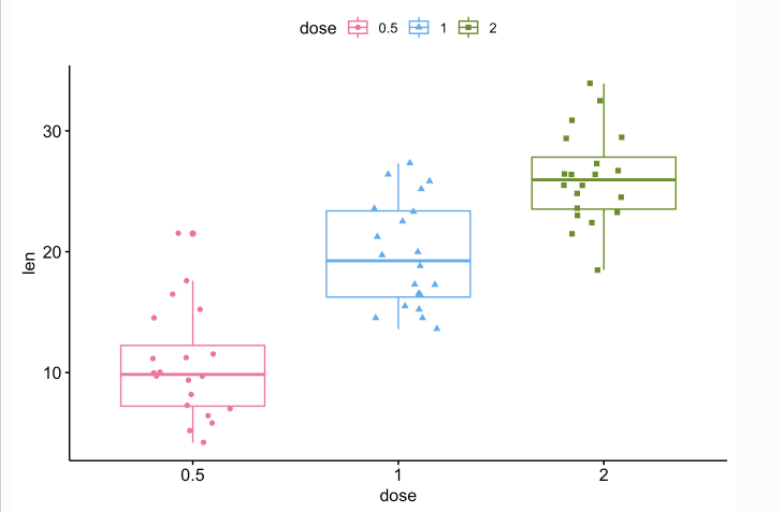
Boxplot

```
ggboxplot(toothdat, x = "dose", y = "len",
          color = "dose", palette =c("palevioletred2", "steelblue2", "olivedrab"),
          add = "jitter", shape = "dose")
```



```
ggboxplot(toothdat, x = "dose", y = "len",
          color = "dose", palette =c("palevioletred2", "steelblue2", "olivedrab"),
          add = "jitter", shape = "dose")
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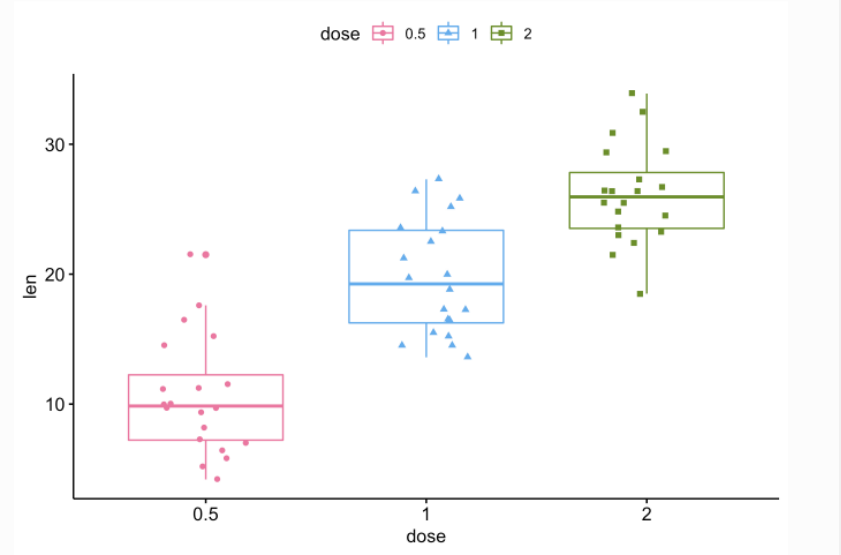

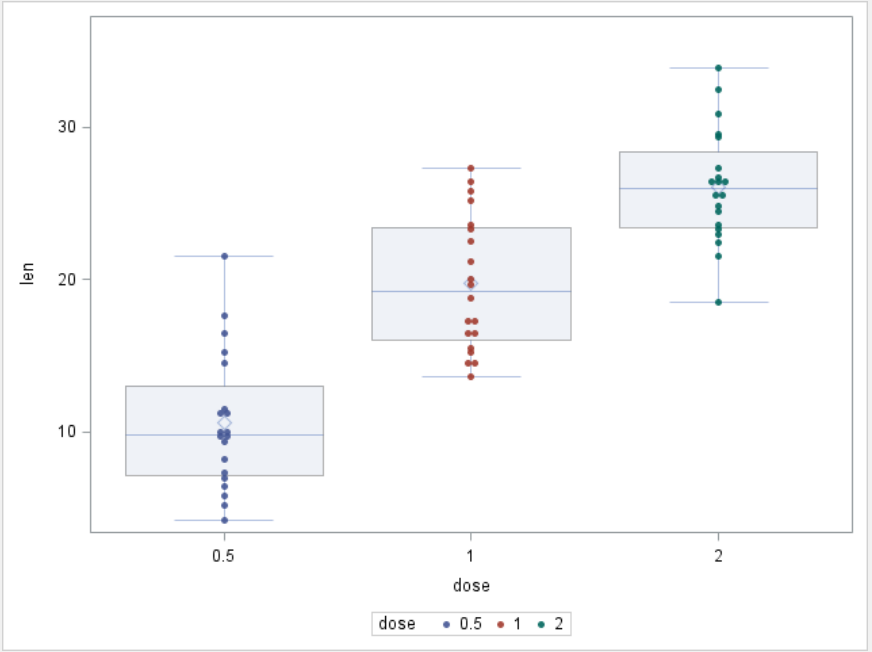


```
proc sgplot data=toothdat;
vbox len / category=dose boxwidth=0.8 transparency=0.7; *boxplot;
scatter  x=dose y=len / jitter transparency=0.1
         markerattrs=(symbol=CircleFilled size=5) group=dose; *scatterplot;
yaxis offsetmax=0.1;
run;
```

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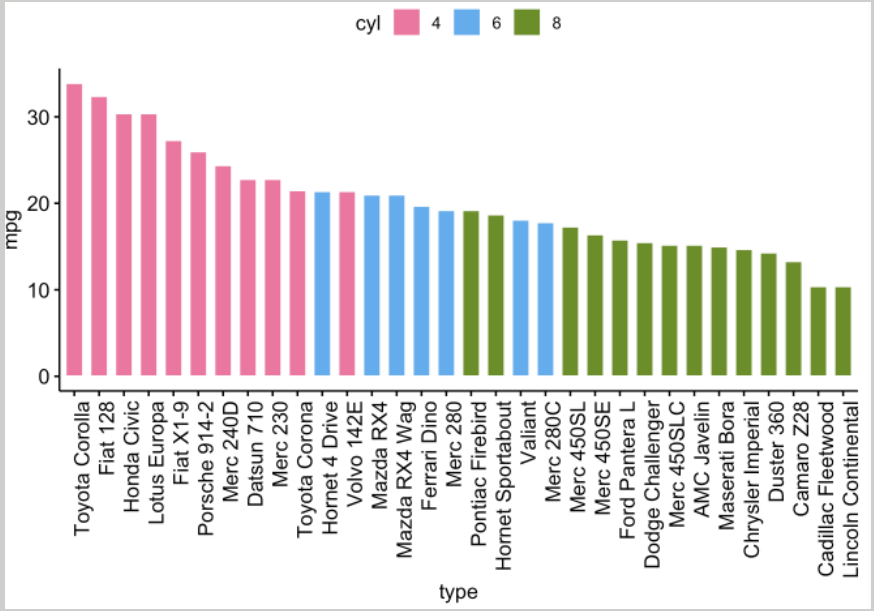
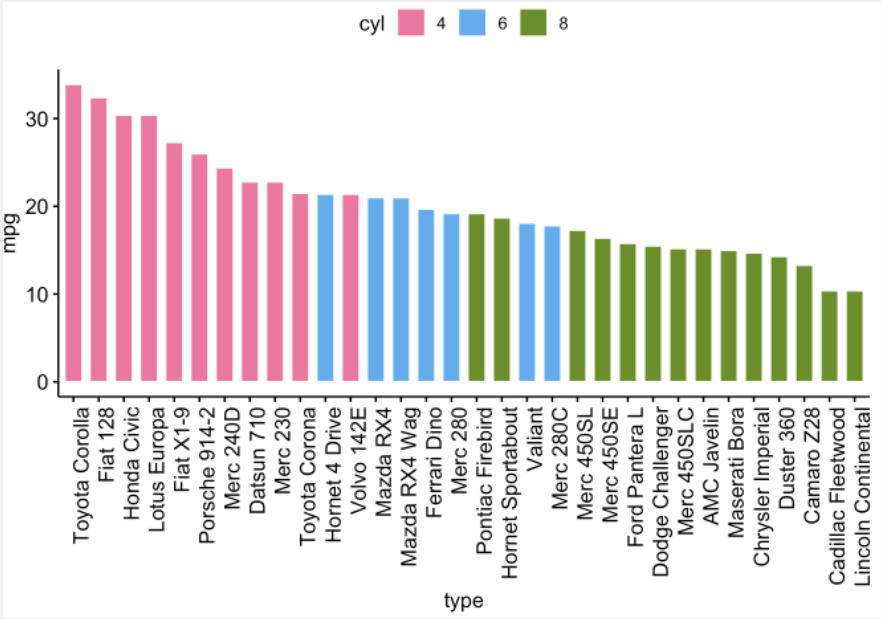
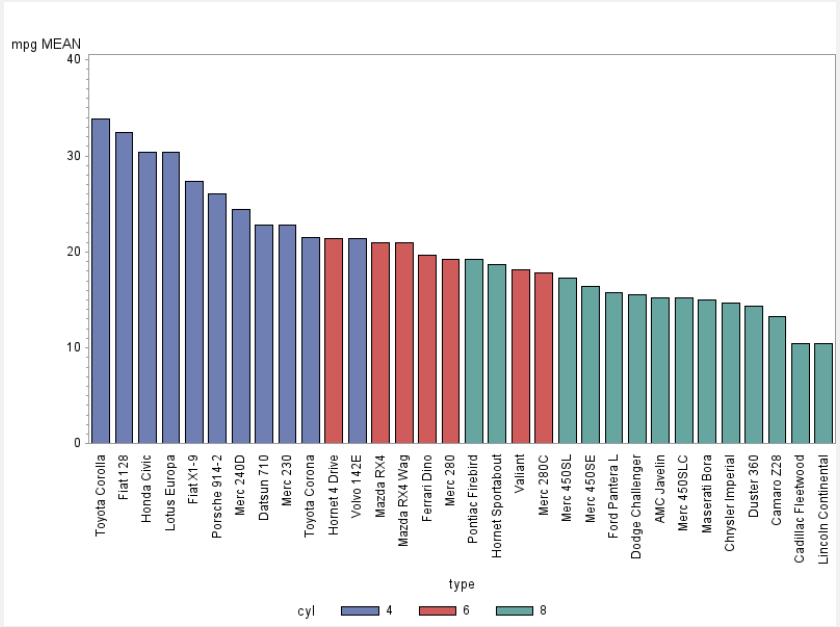
Bar graphs








```
axis1 value=(a=90 width=0.5);
goptions reset=all;
proc gchart data=mtdat2;
vbar type/type=mean sumvar=mpg descending subgroup=cyl patternid=group gspace=0 space=1;
run;
```

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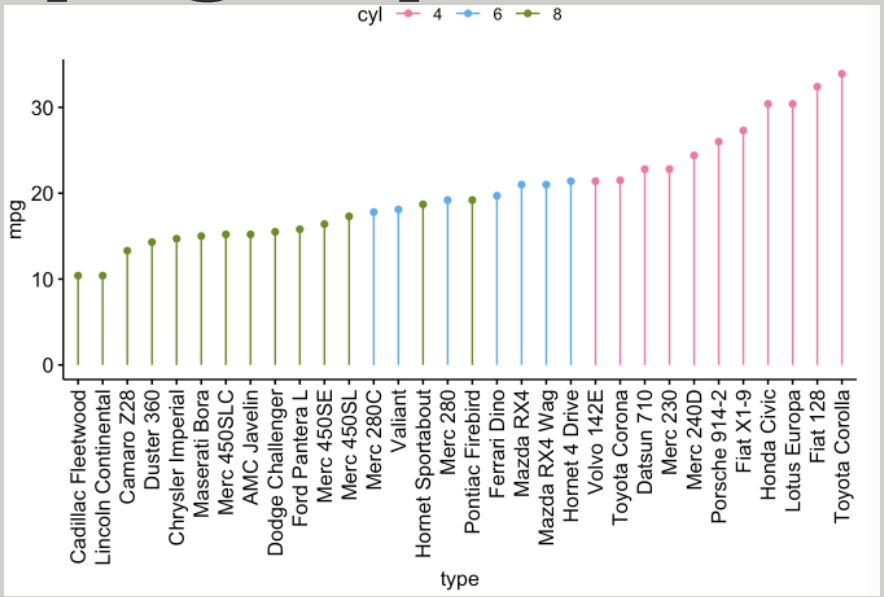
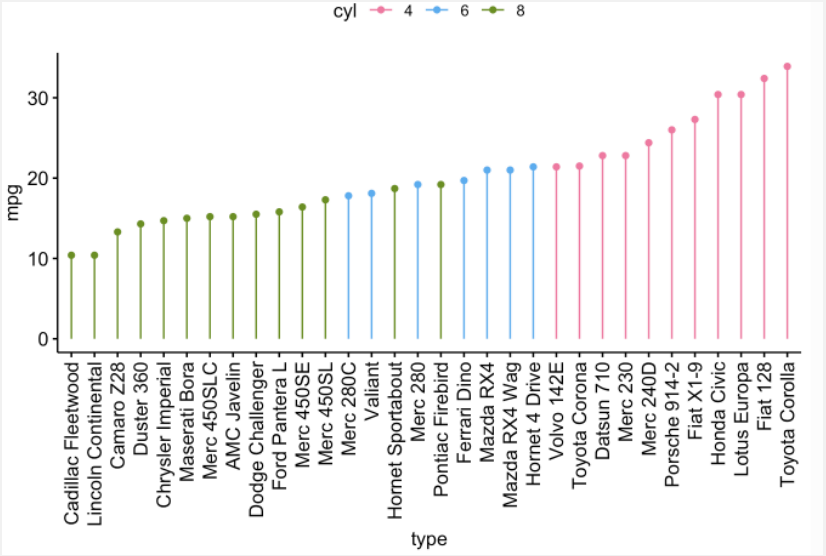
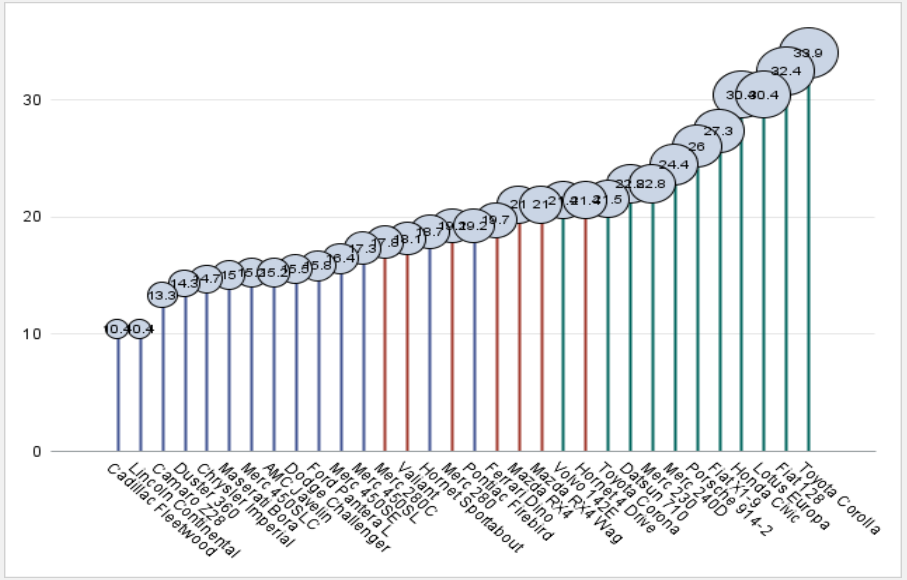
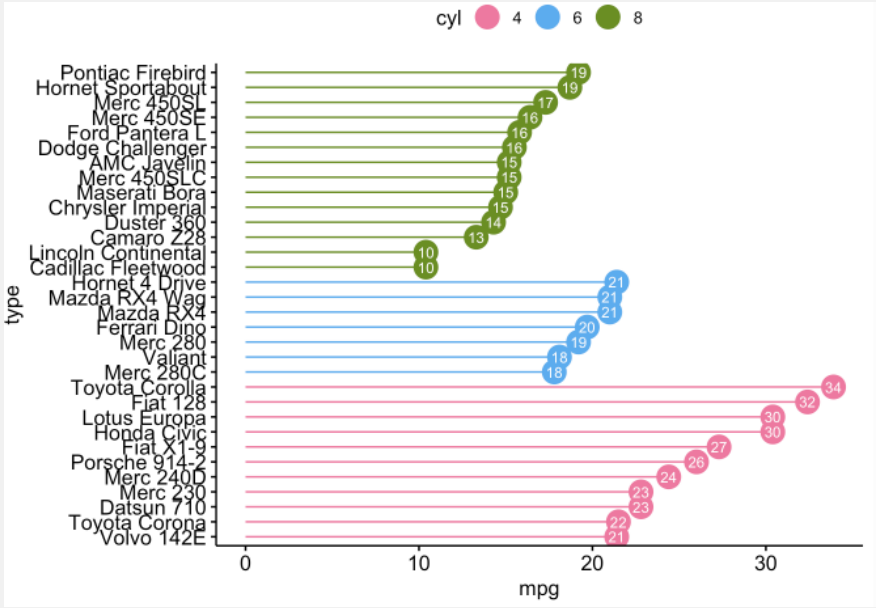
Lollipop graph

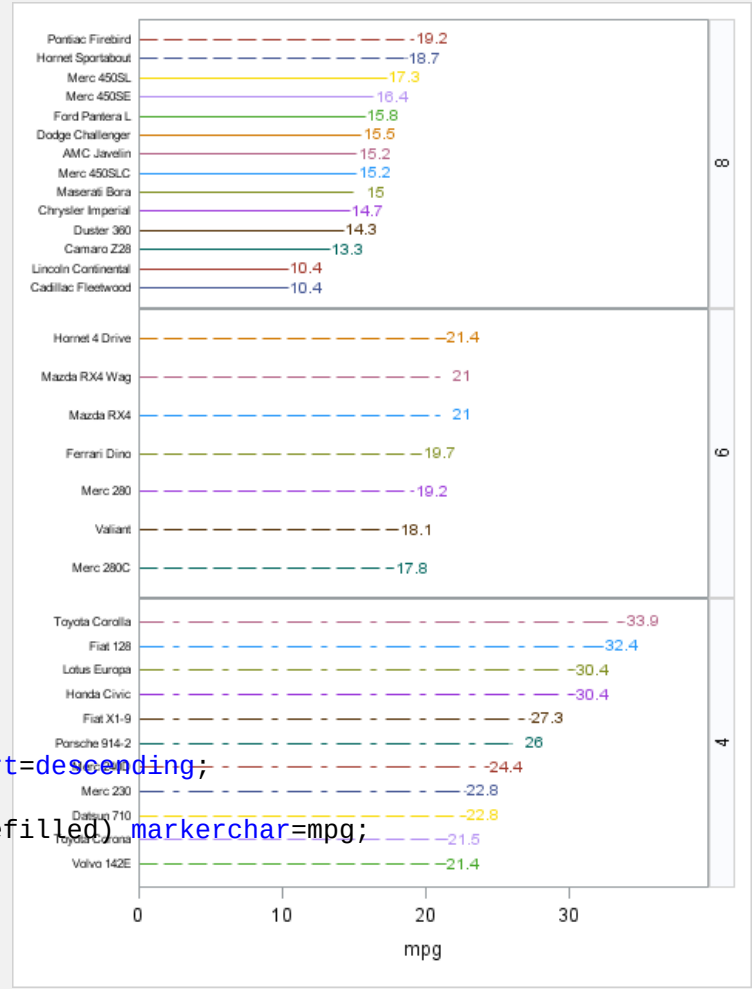







```
proc sort data=mtdat;
by mpg;
run;
proc sgplot data=mtdat noautolegend noborder;
needle x=type y=mpg / group=cyl lineattrs=(thickness=2) baselineattrs=(thickness=0);
bubble x=type y=mpg size=mpg/bradiusmin=8 datalabel datalabelpos=center;
xaxis display=(nolabel noticks);
yaxis offsetmin=0 display=(nolabel noticks noline) grid;
run;
```






```
data test;
set test;
zero=0; run;
proc sgpanel data=test;
panelby cyl/ layout=rowlattice novarname uniscale=column sort=descending;
highlow y=type low=zero high=mpg / group=type;
scatter y=type x=mpg / group=type markerattrs=(symbol=circlefilled) markerchar=mpg;
colaxis offsetmin=0;
rowaxis display=(nolabel noticks) valueattrs=(size=6);
run;
```

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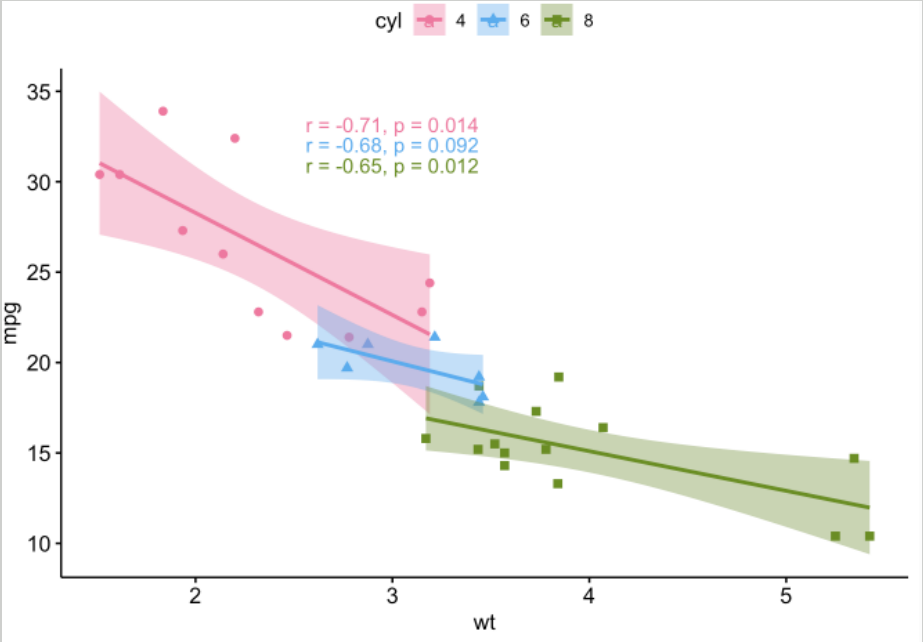
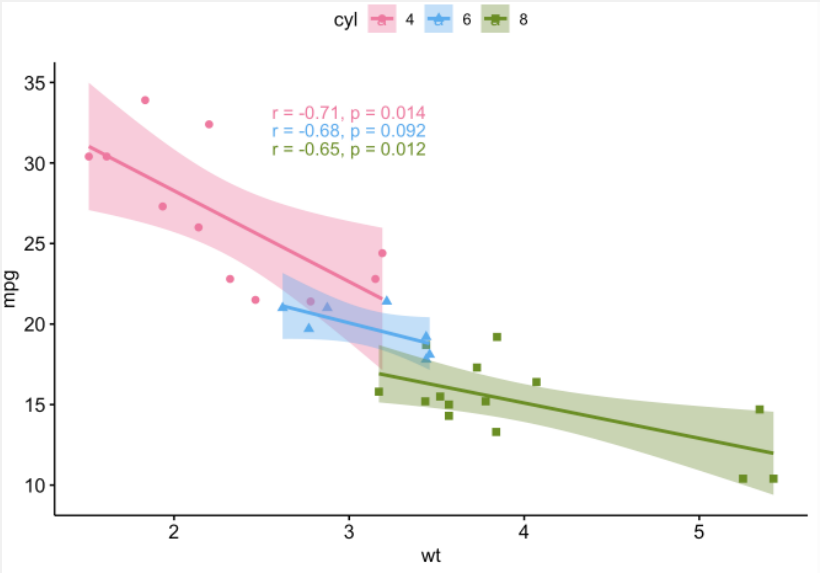
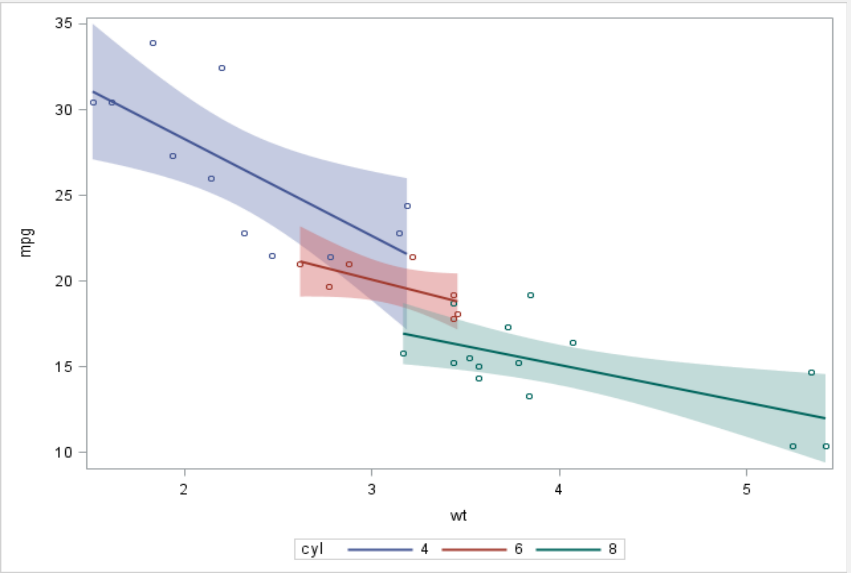
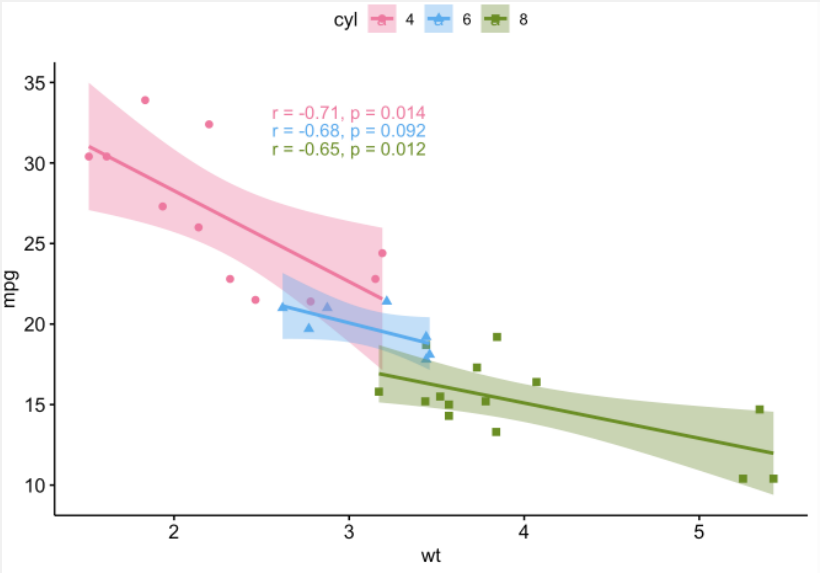
Scatterplot

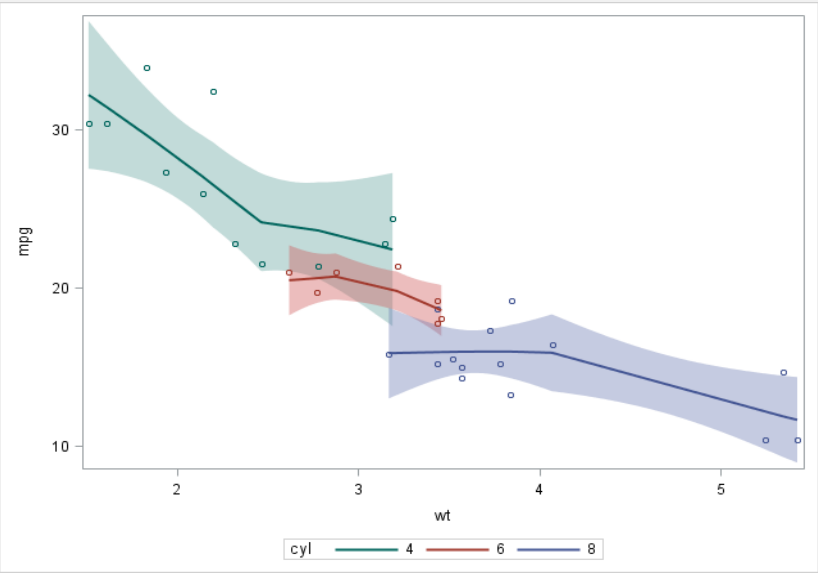




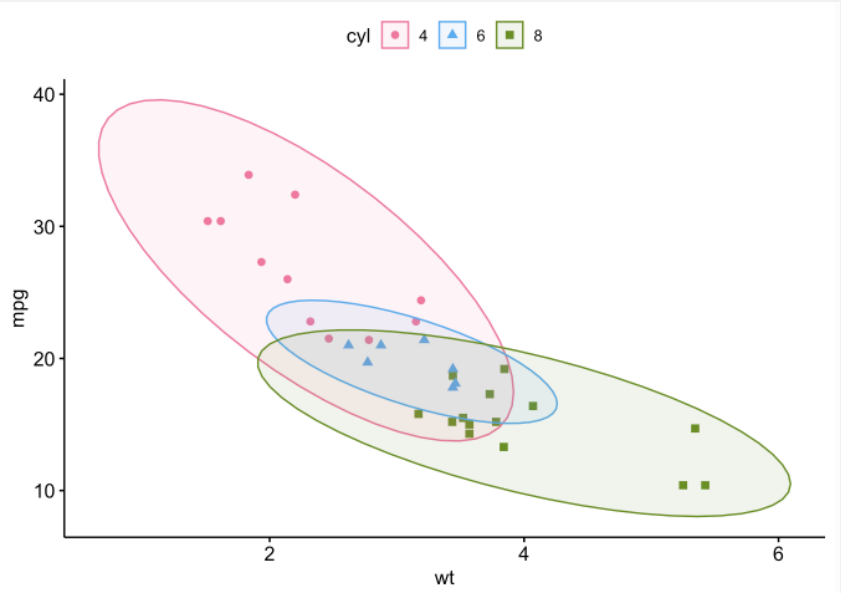


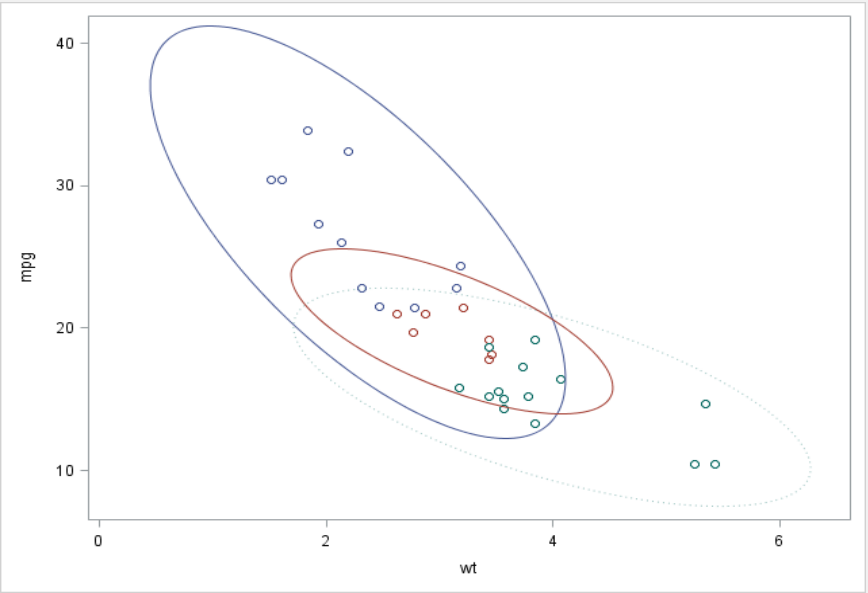

```
proc sgplot data=mtdat;
reg  y=mpg x=wt /clm group=cyl clmtransparency=0.6 markerattrs=(size=5);
run;
```






```
proc sgplot data=mtdat;
loess y=mpg x=wt /clm group=cyl degree=1 markerattrs=(size=5) CLMTRANSPARENCY=0.6;
run;
```






```
data test; set mtdat;
if cyl="4" then do; mpg_4=mpg; wt_4=wt; end;
if cyl="6" then do; mpg_6=mpg; wt_6=wt; end;
if cyl="8" then do; mpg_8=mpg; wt_8=wt; end;    run;
proc sgplot data=test noautolegend;
scatter  y=mpg x=wt /group=cyl jitter;
ellipse y=mpg_4 x=wt_4 ;
ellipse y=mpg_6 x=wt_6 ;
ellipse y=mpg_8 x=wt_8 /lineattrs=(pattern=dot) TRANSPARENCY=0.6;
run;
```

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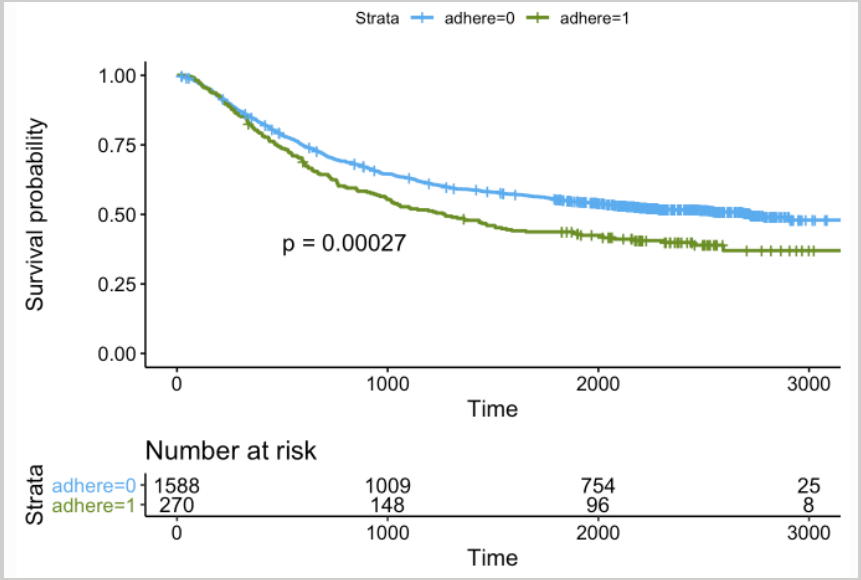
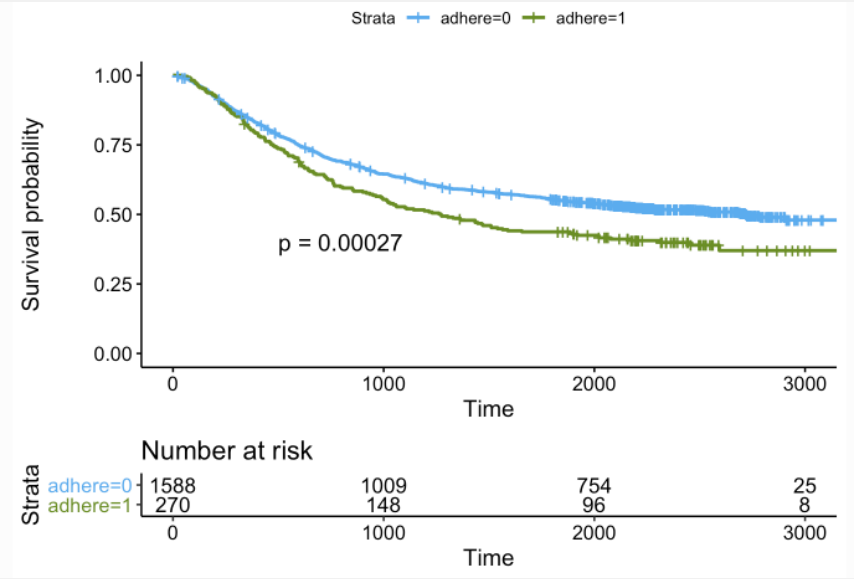
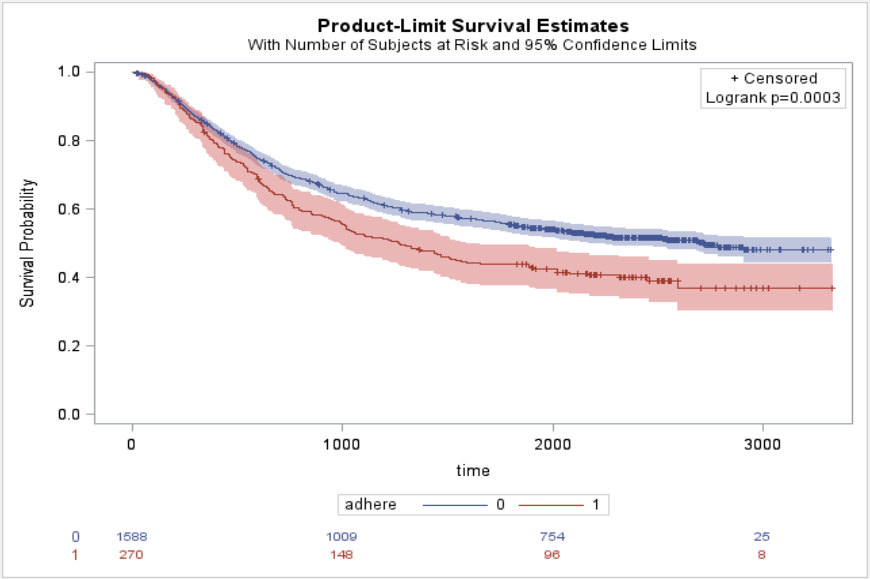
Survival plot








```
proc lifetest data=colon plot=survival(cl atrisk(outside) test);
time time*status(0); /*put the censor value in the bracket*/
   strata adhere/ test=logrank;
run;
```

Reference:

- R plot: https://wcm-computing-club.github.io/file_slides/201904_Cooley_Visualization_in_R.html#introduction
- Violin plot: https://blogs.sas.com/content/graphicallyspeaking/2012/10/30/violin-plots/#prettyPhoto
- Lollipop chart: https://blogs.sas.com/content/graphicallyspeaking/2017/07/24/lollipop-charts/#prettyPhoto
- Ellipse: https://blogs.sas.com/content/iml/2014/07/21/add-prediction-ellipse.html

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