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proc contents data=bio.auto_premiums;
run;

/* Grouped Scatterplot with loess smooth trend curves */
proc sgplot data=bio.auto_premiums;
loess x = experience y = premium / smooth = 0.5 group = gender;
run;

/* Analysis for males */
title "Analysis for Males" ;

/* Scatterplot with loess smooth curves */
proc sgplot data=bio.auto_premiums;
where gender = 0;
loess x = experience y = premium / smooth = 0.5 group = gender;
run;

/* Summary statistics for X and Y */
proc means data= bio.auto_premiums min Q1 median Q3 max mean std clm
maxdec=2;
where gender = 0;
var experience premium;
run;

/* Histogram with Normal and "Best Guess" density curves */
proc sgplot data=bio.auto_premiums;
where gender = 0;
histogram experience ;
density experience / type=normal;
density experience / type=kernel;
run;

proc sgplot data=bio.auto_premiums;
where gender = 0;
histogram premium ;
density premium / type=normal;
density premium / type=kernel;
run;

/* Boxplots */
proc sgplot data=bio.auto_premiums;
where gender = 0;
vbox experience ;
run;

proc sgplot data=bio.auto_premiums;
where gender = 0;
vbox premium ;
run;

/* QQ-Plots for X and Y */
proc univariate data=bio.auto_premiums;
where gender = 0;
qqplot experience / normal(mu = est sigma=est);
ods select qqplot;
run;

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proc univariate data=bio.auto_premiums;
where gender = 0;
qqplot premium / normal(mu = est sigma=est);
ods select qqplot;
run;

/* correlations between X and Y */
/* the fisher option gives confidence intervals for the
correlations and an alternative p-value using Fisher's method */
proc corr data=bio.auto_premiums pearson spearman fisher;
where gender = 0;
var experience premium ;
run;

/* Regression with confidence intervals for parameter estimates
with diagnostic panel "unpacked" into single larger graphs */
proc reg data=bio.auto_premiums plots=(diagnostics(unpack) fit residualplot
);
where gender = 0;
model premium = experience / clb;
run;
quit;

/* Analysis for Females */
title "Analysis for Females" ;

/* Scatterplot with loess smooth curves */
proc sgplot data=bio.auto_premiums;
where gender = 1;
loess x = experience y = premium / smooth = 0.5 group = gender;
run;

/* Summary statistics for X and Y */
proc means data= bio.auto_premiums min Q1 median Q3 max mean std clm
maxdec=2;
where gender = 1;
var experience premium;
run;

/* Histogram with Normal and "Best Guess" density curves */
proc sgplot data=bio.auto_premiums;
where gender = 1;
histogram experience ;
density experience / type=normal;
density experience / type=kernel;
run;

proc sgplot data=bio.auto_premiums;
where gender = 1;
histogram premium ;
density premium / type=normal;
density premium / type=kernel;
run;

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/* Boxplots */
proc sgplot data=bio.auto_premiums;
where gender = 1;
vbox experience ;
run;

proc sgplot data=bio.auto_premiums;
where gender = 1;
vbox premium ;
run;

/* QQ-Plots for X and Y */
proc univariate data=bio.auto_premiums;
where gender = 1;
qqplot experience / normal(mu = est sigma=est);
ods select qqplot;
run;

proc univariate data=bio.auto_premiums;
where gender = 1;
qqplot premium / normal(mu = est sigma=est);
ods select qqplot;
run;

/* correlations between X and Y */
/* the fisher option gives confidence intervals for the
correlations and an alternative p-value using Fisher's method */
proc corr data=bio.auto_premiums pearson spearman fisher;
where gender = 1;
var experience premium ;
run;

/* Regression with confidence intervals for parameter estimates
with diagnostic panel "unpacked" into single larger graphs */
proc reg data=bio.auto_premiums plots=(diagnostics(unpack) fit residualplot
);
where gender = 1;
model premium = experience / clb;
run;
quit;

```