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/* Correlation Analysis */

ods pdf file='H:\_SAS\Mod15_Ex1_Corr.pdf' notoc;

/* Scatterplot with line and LOESS curve */
title "Scatterplot with line and LOESS curve";
proc sgplot data=bio.babycrying_IQ;
scatter y=IQ x=crycount;
loess y=IQ x=crycount / smooth=0.5;
loess y=IQ x=crycount / smooth=1;
run;
title;

/* Histogram for IQ with normal overlay and "best guess" overlay */
title "Histogram with Normal and best guess overlay";
proc sgplot data=bio.babycrying_IQ;
histogram IQ ;
density IQ / type=normal;
density IQ / type=kernel;
run;

/* Histogram for cry count with normal overlay and "best guess" overlay */
proc sgplot data=bio.babycrying_IQ;
histogram crycount ;
density crycount / type=normal;
density crycount / type=kernel;
run;
title;

/* QQplots for IQ and cry count with normal reference line */
ods graphics on;
title 'QQ-plots using PROC UNIVARIATE';
proc univariate data=bio.babycrying_IQ noprint;
var IQ crycount;
qqplot IQ crycount / normal(mu=est sigma=est);
run;
ods graphics off;
title;

/* Correlations (Pearson's and Spearman's) with p-values and all plots */
ods graphics on;
title "Pearson's and Spearman's Correlation";
proc corr data=bio.babycrying_IQ pearson spearman plots=ALL;
var IQ crycount;
run;
ods graphics off;
ods pdf close;
title;

ods pdf notoc;

```