Demo: Performing a Post Hoc Pairwise Comparison Using the One-Way ANOVA Task

You already determined from a significant overall ANOVA result that at least one heating quality was different. Use the One-Way ANOVA task to produce comparison information to determine which pairs are significantly different from each other in their mean sale prices.

1. In the Navigation pane, select **Tasks and Utilities**.
2. Expand **Tasks**.
3. Expand **Statistics** and open the **One-Way ANOVA** task.
4. Select the **stat1.ameshousing3** table.
5. Assign **SalePrice** to the Dependent variable role.
6. Assign **Heating_QC** to the Categorical variable role.
7. On the OPTIONS tab, under HOMOGENEITY OF VARIANCE, use the Test drop-dwon list to select **None**, and clear the check box for **Welch's variance-weighted ANOVA**.
8. Under COMPARISONS, use the Comparisons method drop-down list to select **Tukey**, if not already selected.
9. Under PLOTS, use the Display plots drop-down list to select the **Selected plots** option, and then select only the **LS-mean difference plot**.
10. Click **Run**.

Generated Code

```
Title;
ods noproctitle;
ods graphics / imagemap=on;

proc glm data=STAT1.AMESHOUSING3 plots(only);
   class Heating_QC;
   model SalePrice=Heating_QC;
   lsmeans Heating_QC / adjust=tukey pdiff alpha=.05 plots=(diffplot);
run;
quit;
```

One-Way ANOVA Using Dunnett's Method

To produce output for multiple comparison methods, you can run the tasks separately.

1. Modify the existing task to use Dunnett's method. On the OPTIONS tab, under COMPARISONS, select **Dunnett two-tail** as the Comparisons method, and select **TA** as the Control level.
2. Under PLOTS, use the Display plots drop-down list to select **Default plots**.
3. Click **Run**.

Generated Code

```
Title;
ods noproctitle;
ods graphics / imagemap=on;

proc glm data=STAT1.AMESHOUSING3;
        class Heating_QC;
        model SalePrice=Heating_QC;
        lsmeans Heating_QC / adjust=dunnett pdiff=control('TA') alpha=.05;
```

```
        run;
quit;
```

NOTE: Typically, only one type of multiple comparison method would be used, and SAS Studio conducts one comparison method at a time. You can edit the generated code manually to include multiple comparison statements. In the code window, click **Edit** to add the code for the second comparison method. The following edited code provides comparison information using both Tukey's HSD Test and Dunnett's method:

```
Title;
ods noproctitle;
ods graphics / imagemap=on;

proc glm data=STAT1.AMESHOUSING3 plots(only);
   class Heating_QC;
   model SalePrice=Heating_QC;
   lsmeans Heating_QC / adjust=tukey pdiff alpha=.05 plots=(diffplot);
   lsmeans Heating_QC / adjust=dunnett pdiff=control('TA')
    alpha=.05 plots=(controlplot);
run;
quit;
```