# Support Vector Regression

PRO   Build a boundary based statistical model to predict a continuous outcome as a function of multiple predictor variables. SVR is able to create much more flexible boundary shapes than the Regression Tree (Partition) method.

Support Vector Regression

Diabetes.jmp (Help > Sample Data Folder)

1. From an open JMP® table, select **Analyze > Predictive Modeling > Support Vector Machines.**
2. Add a continuous variable from **Select Columns** to the **Y, Response** role.
3. Add candidate predictor variables to the **X, Factor** role.
4. If desired, enter a validation column into the **Validation** role as shown in this example. Click **OK**.
5. The Model Launch control panel opens allowing a choice of a Kernal Function and associated options. Default settings were used for this example. Click **Go**.
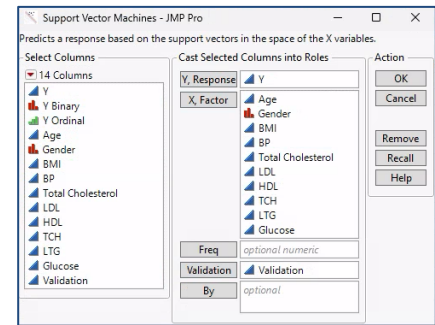

JMP displays:

- **Model Summary** detailing the performance of the model via metrics such as RASE and R-Squared. Here we see that the
  R-Squared is 89.6% - a rather good model at describing the outcome variable.

- **Actual by Predicted Plot** displaying the actual response values on the Y axis vs. the predicted response values on the X axis. This graph provides a graphical means to evaluate the predictive performance of the model, visualize the variation in the data around the fitted model, and identify outliers.
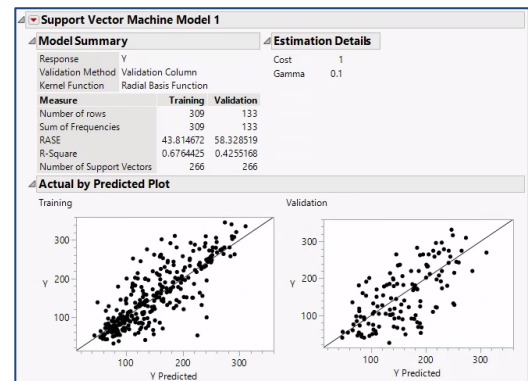
To visualize the model and the impact each factor has on the predicted response, launch the **Profiler** found under the red triangle. **Contour** and **Surface Profilers** are also available to visualization the relationship between pairs of the factors and the predicted response.

Additional options, such as **Residuals Plots**, **Save Predicteds**, **Save Prediction Formula**, and Publishing the **Prediction Formula** to the **Formula Depot** are accessible from the **red triangle**.
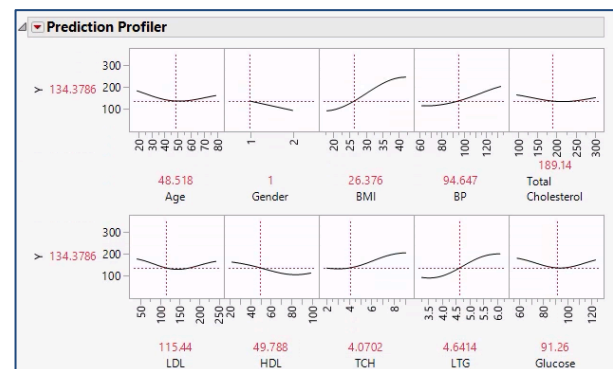
Visit **Predictive and Specialized Models > Support Vector Machines** in **JMP Help** to learn more.