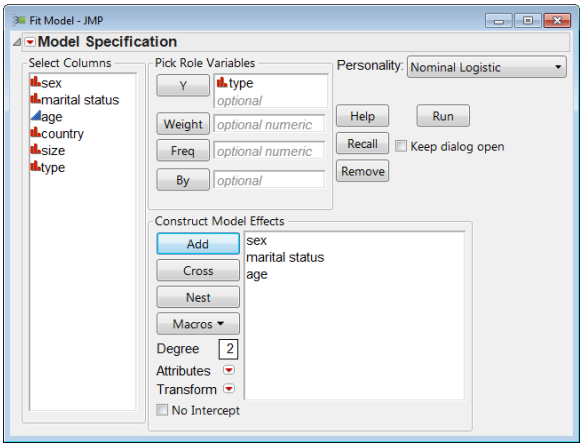
Multiple Logistic Regression

Multiple logistic regression is used to predict the probability of the occurrence of an event using more than one explanatory variable.

Multiple Logistic Regression Using Fit Model

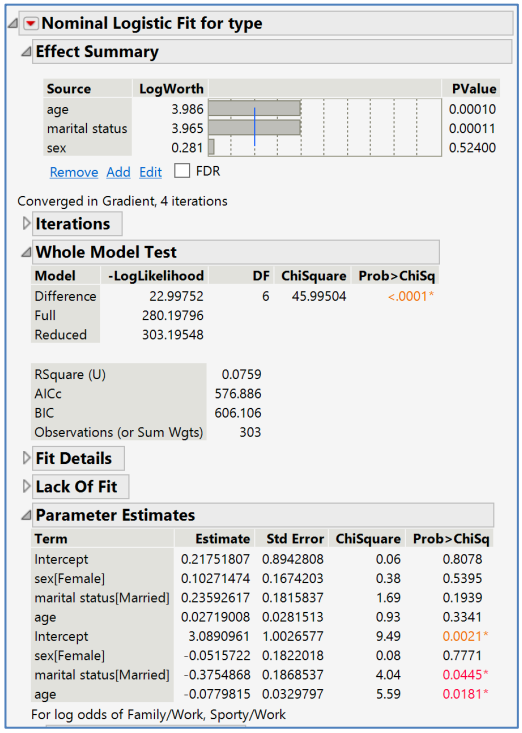
Car Poll.jmp (Help > Sample Data Library)



1. From an open JMP® data table, select **Analyze > Fit Model**.
2. Click on a categorical variable from **Select Columns**, and click **Y** (nominal variables have red bars, ordinal variables have green bars).
3. Choose explanatory variables from **Select Columns**, and click **Add**.
4. Click **Run Model**.

By default, JMP will provide the following results:

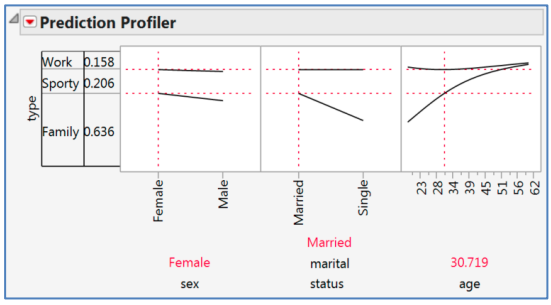
- The Iterations history (not shown).
- The Whole Model Test.
- Lack of Fit (not shown).
- Parameter Estimates for the model.
- Effect Likelihood Ratio Tests (not shown).



Tips:

- When the response is ordinal, an ordinal logistic model will be fit. When the response is nominal, as in this example, a nominal logistic model will be fit.
- To save the predicted probabilities to the data table, click on the **top red triangle**, select **Save Probability Formula**.
- To fit a model for grouped or summarized data, use **Freq** in the **Fit Model Specification** window - specify the variable that contains the frequency (count) for each level of the response.
- To view the effect of an explanatory variable on the predicted probabilities, click on the **top red triangle** and select **Profiler**.

  In the **Prediction Profiler**, click and drag the vertical red line for a variable to change the level or value. The predicted probabilities are displayed.



Note: For more details on logistic regression, see the book ***Fitting Linear Models*** (under **Help > Books**) or search for "multiple logistic regression" in the JMP Help.