Creating a Validation Column (Holdout Sample)

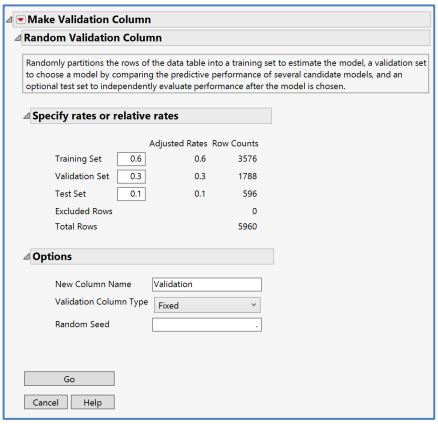
Use to subset the data into a set used to build a model (training) and a set used to evaluate a model's predictive performance (validation). If multiple models are fit, the best performer on the validation data is often the one chosen. At times, a third set is used (test) to evaluate the chosen model's predictive performance on new data. This is considered to be a more accurate means to evaluate a model's future performance as the test set was neither used in the model building nor selection process.

Using a validation column is particularly useful in building models that have a tendency to overfit the data. Some modeling platforms in JMP provide the option to specify the validation portion when fitting the model and thus creating a validation column is not necessary.

JMP PRO Creating a Validation Column (Train, Validate, Test) in JMP Pro

1. From an open JMP data table, select **Analyze > Predictive Modeling > Make Validation Column**.
2. Stratification, Grouping, and Cutpoint columns can be used to tailor the partitioning. If a simple validation column is desired, Click **OK**.
3. In the resulting window, enter values (counts or proportions) indicating how the data will be allocated to the training, validation and test sets. Choose a Random Seed in order to reproduce the same random assignment if desired. Click **OK.**

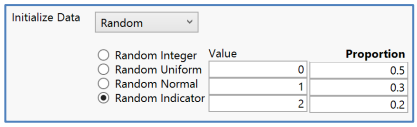
   A new column is created, populated with the values 0, 1, and 2 in the proportions (or counts) specified.

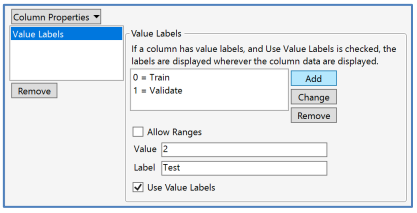


- 3,576 (60%) of the observations (Training set) will be used to build (train) the model.
- 1,758 (30%) of the observations (Validation set) will be used to validate and select the best model.
- 596 (10%) of the observations (Test set) will be used to test the chosen model's performance on new data.

Creating a Validation Column in JMP

1. From an open JMP data table, select **New Column** from the **Cols** menu.
2. In the resulting **New Column** window, change the **Column Name** to *Validation*.
3. Next to **Initialize Data**, click on the arrow and select **Random**.
4. Select **Random Indicator**. Type in the desired proportions. Here we chose 50% 0s (train), 30% 1s (validate) and 20% 2s (test).
5. To display the labels Train, Validate and Test rather than 0, 1 and 2, right click on the column and select **Column Properties > Value Labels** Enter the **value** and the desired **label** and click **Add** one value at a time.
6. Click **Apply** to view the new column in the data table (to verify that the column will be created as desired). Then click **OK** to create the column.





Visit **Predictive and Specialized Models > Make Validation Column** in **JMP Help** to learn more.