Decision Management Community Challenge Nov-2025

"Advanced Website Design"

https://dmcommunity.org/challenge/challenge-nov-2025/

This challenge is an advanced version of last month's Challenge Oct-2025, when a freelance developer needs to design a website with as many features as possible, but also maximizing the total value of the selected features. Now we have several additional requirements:

- Features 3 and 4 can be chosen only together.
- Feature 2 cannot be combined with Feature 3.
- Only one of the features 8, 9, and 10 can be selected. Otherwise, the cost of each of these features will be increased by 10%.
- If 5 or more features are selected, 5% discount is provided.

We still need to offer a design that maximizes the total value while minimizing the total cost.

This solution simply expands my RuleSolver solution by two table in the problem definition. First, I added intermediate variables to be used for posting additional constraints:

Decision DefineAdditionalExpressions				
SolverDefineVariables				
Variable Name	**Method**	**Var**	**Oper**	**Var**
"Feature 2 plus Feature 3"	Variable Operator Variable	"Feature-2"	"+"	"Feature-3"
"Feature 8 plus Feature 9"	Variable Operator Variable	"Feature-8"	"+"	"Feature-9"
"Feature 8 plus Feature 9 plus Feature 10"	Variable Operator Variable	"Feature 8 plus Feature 9"	"+"	"Feature-10"

Then I posted 3 additional constraints:

Decision PostAdditionalConstraints				
SolverPostConstraints				
Constraint Name	**Constraint Type**	**Variable**	**Oper**	**Variable**
"Features 3 and 4 can be chosen only together"	Variable Operator Variable	"Feature-3"	"="	"Feature-4"
"Feature 2 cannot be combined with Feature 3"	Variable Operator Value	"Feature 2 plus Feature 3"	"<="	"1"
"Only one of the features 8, 9, and 10 can be selected"	Variable Operator Value	"Feature 8 plus Feature 9 plus Feature 10"	"<="	"1"

Hopefully, they are intuitive enough. To invoke them, we need to add two calls to the table “Define:

Decision Define
ActionExecute
Decision Tables
DefineFeatureVariables
DefineFeatureCoefficients
DefineObjectiveVariables
PostLimitConstraints
PostFeatureConstraints
DefineAdditionalExpressions
PostAdditionalConstraints

No other changes are required. Now the updated decision model will support initial and advanced constraints. Here are the results for the first test that maximizes the Total Value:

Feature-3[1]
Feature-4[1]
Feature-5[1]
Feature-6[1]
Feature-7[1]
Feature-10[1]
Total Features[6]
Total Cost[9000]
Total Value[16]
Feature 2 plus Feature 3[1]
Feature 8 plus Feature 9[0]
Feature 8 plus Feature 9 plus Feature 10[1]