

Decision Model for DMCommunity Challenge “Recreational Fee”

Problem

The problem was [formulated](#) as follows:

A city has created a decision table to determine appropriate usage fees for its recreational facilities based on length of usage and when the usage occurs:

What recreational fee should be charged for use of facilities?	When does the usage occur?			
How long is the usage?		weekday	weekend during off hours	weekend during peak hours
	< 1 hour	\$2	\$3	\$8
	1-2 hours	\$3	\$5	\$10
	> 2 hours	\$5	\$8	\$15

The city also has the following behavioral business rule:

A senior citizen must not be charged a recreational fee for use of facilities.

OpenRules-based Solution

At a very the high-level the goal “Recreational Fee” can be defined by the following decision table:

DecisionTable DefineRecreationalFee		
If	Then	Message
Special Authorization	Recreational Fee	Explanation
TRUE	Special Recreational Fee	Special Recreational Fee has been applied
FALSE	Regular Recreational Fee	Regular Recreational Fee has been applied

As we can see, it depends on 3 sub-goals: Special Authorization, Special Recreational Fee, and Regular Recreational Fee.

The sub-goal “Regular Recreational Fee” can be defined by this decision table:

DecisionTable DefineRegularRecreationalFee		
If	If	Then
Facility Usage In Hours	Usage Period	Regular Recreational Fee
< 1	Weekday	\$2
< 1	Weekend Off Hours	\$3
< 1	Weekend Peak Hours	\$8
[1..2]	Weekday	\$3
[1..2]	Weekend Off Hours	\$5
[1..2]	Weekend Peak Hours	\$10
> 2	Weekday	\$5
> 2	Weekend Off Hours	\$8
>2	Weekend Peak Hours	\$15

The sub-goals “Special Authorization” and “Special Recreational Fee” can be defined by this decision table:

DecisionTable DefineSpecialRecreationalFee		
If	Then	Then
Senior Citizen	Special Authorization	Special Recreational Fee
TRUE	TRUE	0
	FALSE	0

Of course, this table can be expanded to cover more complex special authorization logic. To complete this decision model, I just put all used decision variables in the Glossary:

Glossary glossary		
Variable	Business Concept	Attribute
Name	Customer	name
Special Authorization		specialAuthorization
Senior Citizen		seniorCitizen
Usage Period	Usage	usagePeriod
Facility Usage In Hours		facilityUsageInHours
Recreational Fee		recreationalFee
Special Recreational Fee		specialRecreationalFee
Regular Recreational Fee		regularRecreationalFee

Of course, I've created several test-cases in Excel. Then OpenRules successfully found all dependencies between the decision tables and produced the expected results.