Establish and Maintain Sensible Business with Decision Table

Written Date : June 11, 2013

Let's take a look at the following cases:

1. Buying a contract phone is more expensive than buying a full-price phone.
2. Buying a CPU/Motherboard combo is more expensive than buying them separately.
3. The discount for frequent flyers who made an early reservation is less than for frequent flyers who made a late reservation.

Weird? Absurd business logic is often introduced due to the increasing complexity of business operations. To make the business logic rational, it is important to apply strategic decision-making skills. A decision table can help here.

Case Study - Airline Discount

Airfare pricing is a very complicated system. Many factors, and the possible combinations of these factors, can affect the fare. Without a thoughtful analysis of all factors, it is difficult to implement a pricing structure that is beneficial to both the customer and the airline. As an airline, QAL is facing this problem.

QAL has long been documenting and managing its airfare pricing structure with document files. Updates were made to the documents for any changes to the policy.

The operations manager of QAL thinks that there must be certain rules conflicting with each other. He wants to study the current policy but finds it nearly impossible because the policy document has become very long, with regulations and rules listed in a disorganized manner. Let's take a look at the document:

Airfare

1. Infant passengers (under two years old) are offered an 80% discount on domestic flights.
2. Infant passengers (under two years old) are offered a 70% discount on international flights.
3. Youth passengers (between two and sixteen years old) are offered a 10% discount for any destination.
4. Frequent flyers enjoy a 20% discount.
5. For international flights, passengers are offered a 15% discount if they travel during the off-season.

6. There is no discount for international flights, except when the passenger is an infant or is traveling during the off-season.
7. Passengers who make a reservation five months before their journey are offered a 10% discount.
8. Frequent flyers enjoy a 15% discount for making a reservation five months before their journey.
9. The discount amounts are cumulative.
10. The maximum discount for infant passengers is 80%.
11. The maximum discount for non-infant passengers is 20%.

...

To find the problematic policy, he decided to represent the rules in a decision table. Here is the decision table he developed:

	Rules							
Conditions	1	2	3	4	5	6	7	8
C1. Infant passengers (age: < 2)	Y	Y						
C2. Youth passengers (age: 2 to 16)			Y	Y				
C3. Frequent flyers					Y	Y		
C4. Domestic flights	Y							
C5. International flighers		Y						Y
C6. Early reservation				Y		Y	Y	
C7. Off-season traveling								Y
Actions	1	2	3	4	5	6	7	8
A1. Offer 10% discounts			X				X	
A2. Offer 15% discounts						X		X
A3. Offer 20% discounts				X	X			
A4. Offer 70% discounts		X						
A5. Offer 80% discounts	X							

By studying the fifth and sixth rules, he discovered that a frequent flyer who made an early reservation would receive a 15% discount, while a frequent flyer who made a late reservation would receive 5% more, which does not make sense. So, he refined the policy, reviewed the changes he made by comparing the rules, and finally updated the information system with this change.

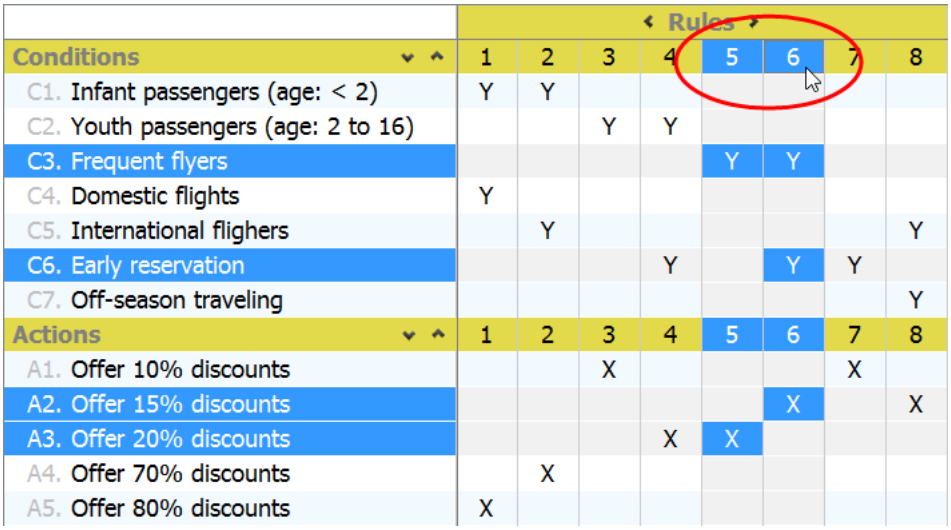
Try It Out

1. Download the decision table sample project.
2. Start Visual Paradigm and open the downloaded project file.

3. Open the decision table.

	Rules							
Conditions	1	2	3	4	5	6	7	8
C1. Infant passengers (age: < 2)	Y	Y						
C2. Youth passengers (age: 2 to 16)			Y	Y				
C3. Frequent flyers					Y	Y		
C4. Domestic flights	Y							
C5. International flighers		Y						Y
C6. Early reservation				Y		Y	Y	
C7. Off-season traveling								Y
Actions	1	2	3	4	5	6	7	8
A1. Offer 10% discounts			X				X	
A2. Offer 15% discounts						X		X
A3. Offer 20% discounts				X	X			
A4. Offer 70% discounts		X						
A5. Offer 80% discounts	X							

4. Click on the column header of rule 5. Drag to rule 6 to perform a multiple selection.



5. By studying these business rules, you can easily find the problem: frequent flyers who make an early reservation enjoy less of a discount than frequent flyers who make a late reservation.

6. Let's correct the business decisions by updating the business actions. Offer a 15% discount to general frequent flyers and 20% to frequent flyers who make an early reservation.

	Rules							
Conditions	1	2	3	4	5	6	7	8
C1. Infant passengers (age: < 2)	Y	Y						
C2. Youth passengers (age: 2 to 16)			Y	Y				
C3. **Frequent flyers**					**Y**	**Y**		
C4. Domestic flights	Y							
C5. International flighers		Y						Y
C6. **Early reservation**				Y		**Y**	Y	
C7. Off-season traveling								Y
Actions	1	2	3	4	5	6	7	8
A1. Offer 10% discounts			X				X	
A2. Offer 15% discounts					X			X
A3. Offer 20% discounts				X		X		
A4. Offer 70% discounts		X						
A5. Offer 80% discounts	X							

Conclusion

A decision table helps to convert complex business rules into an easy-to-read format. Readers can look up and consider the business decisions without difficulty. When multiple rules are placed adjacent to each other, conditions and actions can be easily compared. Nonsensical rules can be figured out and rectified easily and accurately.

Resources

1. Airfare-Decision-Table.vpp

Related Links

- Tutorial - Business Logic Discovery with Decision Table
- Tutorial - Align Business Goal and Business Logic with Decision Table
- Tutorial - Decision Table in Action
- Article - Decision Table Explained

Visual Paradigm home page
(https://www.visual-paradigm.com/)

Visual Paradigm tutorials
(https://www.visual-paradigm.com/tutorials/)