Adding Power to Excel Logical Formulas, Part II: SWITCH

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My last *RCM Advisor* article introduced a new Excel function called IFS, a simpler way to deal with complex conditional logic. This issue introduces another new Excel logical function, SWITCH. The SWITCH function is a simple way to evaluate one logical test against multiple potential results. Similar to the IFS function, SWITCH evaluates the logic in order, so be careful to arrange your formula in the order you want Excel to test.

SWITCH Syntax

The syntax of SWITCH is =SWITCH(value to test, value to match1, value to return1, value to match2, value to return2, etc., value to return if there is no match). Excel accepts up to 126 combinations of values to match and values to return. For an example, consider Figure 1.

Column A has a list of dates. Column B uses the WEEKDAY function to calculate the weekday of the respective date in

FIGURE 1

◢	A	B	C	D
1	Date	Weekday Function	SWITCH	Nested IFS
2	7/26/2019	5	Friday	Friday
3	7/27/2019	6	Weekend	Weekend
4	7/28/2019	7	Weekend	Weekend
5	7/29/2019	1	Monday	Monday
6	7/30/2019	2	Tuesday	Tuesday
7	7/31/2019	3	Wednesday	Wednesday
8	8/1/2019	4	Thursday	Thursday
9	8/2/2019	5	Friday	Friday
10	8/3/2019	6	Weekend	Weekend
11	8/4/2019	7	Weekend	Weekend
12	8/5/2019	1	Monday	Monday

Column A. For example, the formula in cell B2 is =WEEKDAY(A2,2). The 2 tells the weekday function that the week starts on Monday. July 26, 2019, was a Friday, or five days after Monday, July 22, so column B is 5.

Column C and Column D are two ways to convert the WEEKDAY function to the name of the weekday, or to convert the 5 in cell B2 into the word "Friday." Column C uses the new SWITCH formula. The formula in cell C2 is

> =SWITCH(WEEKDAY(A2, 2),1,"Monday," 2, "Tuesday," 3, "Wednesday," 4, "Thursday," 5, "Friday," "Weekend").

The first piece of the SWITCH formula is the value to test, WEEKDAY(A2, 2). The WEEKDAY formula returns a number from 1 to 7 corresponding to the day of the week. Again, the 2 at the end of the WEEKDAY formula tells Excel to start the week on Monday.

The rest of the SWITCH formula tells Excel what to do with the results of the WEEKDAY(A2, 2) calculation. If the WEEKDAY calculation returns 1, cell C2 will return "Monday." If WEEKDAY returns 2, cell C2 will return "Tuesday," and so on. Now notice the end of the formula in cell C2, highlighted in bold here:

> =SWITCH(WEEKDAY(A2, 2),1,"Monday," 2, "Tuesday," 3, "Wednesday," 4, "Thursday," 5, "Friday," **"Weekend"**)

If the WEEKDAY formula returns a number from 1 to 5, the SWITCH function returns the respective day of the week from Monday to Friday. If there is no match (WEEKDAY is greater than 5), the SWITCH formula returns "Weekend." This is the magic of setting WEEKDAY to 2, starting the week on Monday. If the week starts on Monday, we know that anything greater than 5 is either Saturday or Sunday, a weekend.

Compare the relative simplicity of the formula in cell C2 with the formula in cell D2,

> =IF(WEEKDAY(A2,2) = 1, "Monday," IF(WEEKDAY(A2,2) = 2, "Tuesday," IF(WEEKDAY(A2,2) = 3, "Wednesday," IF(WEEKDAY(A2,2) = 4, "Thursday," IF(WEEKDAY(A2,2) = 5, "Friday," "Weekend")))))

Look at all those IF(WEEKDAY(A2,2) components in that

formula, and all the parentheses at the end. The longer the formula, the more potential for errors in your formula. SWITCH is much more compact and easier to read because SWITCH looks at one formula and function, while IF allows different formulas and/or functions in each piece of the equation.

The addition of IFS and SWITCH can make your formulas easier to read, easier to maintain, and easier to troubleshoot.

If you have a basic, simple formula, IF continues to work just fine. If you need more complexity, try IFS and SWITCH. ■

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CHBME QUIZ QUESTIONS ■ ■ ■ ■ ■

You can earn 1.0 credit toward your CHBME by answering quiz questions in each issue of *RCM Advisor*.

1. According to the Medical Group Management Association (MGMA), when a claim is denied, the cost to rework is _____.
   A. $15   C. $25
   B. $20   D. $30

2. "Bots" is short for:
   A. Botulism
   B. Business Optimization Training
   C. Robotic Process Automaton

3. You can use bots to perform background tasks like processing text files.
   A. True   B. False

4. Nearly _____ of providers reported that they could not collect balances of $1,000 or more in 30 days.
   A. 15%   C. 70%
   B. 50%   D. 80%

5. The Centers for Medicare and Medicaid Services (CMS) made the formal shift to the use of MBIs in Medicare claims and transactions. MBI stands for:
   A. Medicare Beneficiary Identifiers
   B. Medicare Benefit Information
   C. Medicine Business Infographic

6. How many characters are the new MBI numbers?
   A. 10   C. 15
   B. 11   D. 16

7. Which front-end process can automation streamline?
   A. Patient data validation
   B. Insurance discovery
   C. Patient financial standing assessment
   D. Payment prediction
   E. All the above

8. Under the third-party directive, patients have the right to ask a healthcare provider, billing company, etc. to send a copy of the patient's records to a third party designated by the patient.
   A. True   B. False

9. Excel accepts up to 130 combinations of values to match and values to return.
   A. True   B. False

10. Underpayments result in a _____ loss of net revenue for your average practice client.
   A. 4%   C. 6%
   B. 5%   D. 7%

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