

GPT-o1 Mini - Problem 5

For the following dataset

Project	Production Cost	Pct Savings	1 - % Saved	Index
P1	100	0.1	0.9	1
P2	100	0.05	0.95	2
P3	100	0.2	0.8	3
P4	100	0.1	0.9	4
P5	100	0.1	0.9	5

create a DAX measure that fulfills the following requirements

Scenario Overview:

You start with a Production Cost of \$100.

Projects get implemented, and each project realizes a certain percentage of cost savings.

The cost is adjusted after each project, where the next project's savings are applied to the remaining cost, not the initial \$100.

For example:

Project 1 (P1) realizes a 10% savings, so the new production cost becomes \$90.

Project 2 (P2) applies a 5% savings to the reduced cost of \$90, not the original \$100, resulting in a new cost of \$85.50.

Goal:

You want a DAX measure that dynamically calculates the cost after savings per project. Each project's savings percentage should be applied to the remaining cost after the previous project's savings have been applied.

To calculate the cumulative adjusted production cost after each project's savings are applied, you can create a DAX measure that computes the product of the "1 - % Saved" values up to the current project. Here's how you can define the measure:

DAX

```
Adjusted Cost =  
VAR InitialCost = MAX('YourTableName'[Production Cost])  
VAR CurrentIndex = MAX('YourTableName'[Index])  
VAR AdjustedSavings =  
    CALCULATE(  
        PRODUCT('YourTableName'[1 - % Saved]),  
        FILTER(  
            ALL('YourTableName'),  
            'YourTableName'[Index] <= CurrentIndex  
        )  
    )  
RETURN  
    InitialCost * AdjustedSavings
```

Explanation:

- 1 **InitialCost:** Retrieves the initial production cost, which is assumed to be constant at \$100.
- 2 **CurrentIndex:** Gets the current project's index to determine which projects to include in the calculation.
- 3 **AdjustedSavings:** Calculates the cumulative product of the "1 - % Saved" values for all projects up to the current one.
- 4 **RETURN:** Multiplies the initial cost by the cumulative savings factor to get the adjusted cost.

Example Calculation:

For Project 3 (P3):

- 1 **Projects up to P3:** P1, P2, P3
- 2 **Cumulative Savings Factor:**
 - 3 P1: 0.9
 - 4 P2: 0.95
 - 5 P3: 0.8
 - 6 Cumulative Product: $0.9 * 0.95 * 0.8 = 0.684$
- 7 **Adjusted Cost:** $100 * 0.684 = \$68.40$

Note: Replace 'YourTableName' with the actual name of your table in the dataset.