🧠 Power BI DAX Formula Masterplan — Tannu's Teaching Workflow

Yeh document DAX formulas sikhaane ka complete workflow hai, specially designed for tutors like Tannu jo Excel ke expert hain aur ab Power BI ke formulas systematically aur logically explain karna chahte hain.

# 📌 Step-by-Step Teaching Flow

1. 1. DAX Introduction — DAX kya hota hai, kyu use hota hai, aur Excel se kaise different hai.
2. 2. Data Model Setup — Tables ka relationship setup hona chahiye (Star Schema preferred).
3. 3. Measure vs Calculated Column — Dono mein farq kya hai aur use case kab kaunsa use karna hai.
4. 4. Syntax Structure — Har DAX formula ka general structure (FunctionName = FUNCTION\_NAME(Arguments)).
5. 5. Filter Context Concept — Slicers & Visual filters ka effect DAX pe kaise padta hai.
6. 6. Aggregation Functions — SUM, AVERAGE, MIN, MAX, COUNT, DISTINCTCOUNT, etc.
7. 7. Logical Functions — IF, SWITCH, AND, OR, NOT.
8. 8. Text Functions — CONCATENATE, LEFT, RIGHT, MID, LEN, UPPER, LOWER, etc.
9. 9. Date & Time Functions — TODAY, NOW, YEAR, MONTH, DATEDIFF, SAMEPERIODLASTYEAR, etc.
10. 10. Time Intelligence Functions — TOTALYTD, DATESYTD, PREVIOUSMONTH, PARALLELPERIOD, etc.
11. 11. Filter Functions — CALCULATE, FILTER, ALL, ALLEXCEPT, REMOVEFILTERS.
12. 12. Relationship & Context Functions — RELATED, RELATEDTABLE, USERELATIONSHIP.
13. 13. Ranking & Row Functions — RANKX, EARLIER, VALUES, SELECTEDVALUE.
14. 14. Advanced — Variables (VAR), Nested formulas, Debugging using tooltips & cards.

# 📊 DAX Formulas by Category (With Syntax)

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| --- | --- | --- |
| Category | Function Name | Syntax / Use |
| Aggregation | SUM | SUM(Table[Column]) |
| Aggregation | AVERAGE | AVERAGE(Table[Column]) |
| Aggregation | COUNT | COUNT(Table[Column]) |
| Aggregation | DISTINCTCOUNT | DISTINCTCOUNT(Table[Column]) |
| Logical | IF | IF(condition, true\_result, false\_result) |
| Logical | SWITCH | SWITCH(expression, value1, result1, ..., else\_result) |
| Text | CONCATENATE | CONCATENATE(Table[Column1], Table[Column2]) |
| Text | LEFT | LEFT(Table[Column], number\_of\_characters) |
| Date & Time | YEAR | YEAR(Table[Date]) |
| Date & Time | DATEDIFF | DATEDIFF(StartDate, EndDate, Interval) |
| Time Intelligence | TOTALYTD | TOTALYTD(SUM(Table[Amount]), Table[Date]) |
| Time Intelligence | SAMEPERIODLASTYEAR | SAMEPERIODLASTYEAR(Table[Date]) |
| Filter | CALCULATE | CALCULATE(Expression, Filters...) |
| Filter | ALL | ALL(Table) |
| Filter | ALLEXCEPT | ALLEXCEPT(Table, Table[Column]) |
| Relationship | RELATED | RELATED(RelatedTable[Column]) |
| Relationship | RELATEDTABLE | RELATEDTABLE(RelatedTable) |
| Ranking | RANKX | RANKX(ALL(Table), Expression, , DESC) |
| Row Context | EARLIER | EARLIER(Column, [N]) |
| Context | SELECTEDVALUE | SELECTEDVALUE(Table[Column]) |

# 🎯 Final Tips for Teaching DAX

✅ Excel ke examples leke DAX explain karo taaki learners ko comfort zone mile.  
✅ Har formula ke liye ek use-case chart ya table bana ke sikhao.  
✅ Pehle basic aggregation sikhake gradually advanced jao (FILTER, CALCULATE, VAR).  
✅ Time Intelligence formulas sirf tab sikhana jab model mein proper Date Table ho.