

Leveraging Large Language Models with Power BI


September 27th, 2025

About Me

Experience

- 11+ years with Microsoft BI stack
- 8+ years with PowerPivot/Power BI
- 5+ years with Azure DevOps

Contact Me

 [John Kerski](#)

 [Blog](#)

Credentials

- MCSE: Productivity
- MS: PBI Data Analyst
- PMP



John Kerski



Slides:



Agenda

- The Challenge
- Scenarios
 - GitHub Copilot
 - Azure OpenAI
 - Copilot in Fabric
 - MCP
- Lessons Learned

The Challenge



The Challenge (cont.)



Scenario 1



Scenario

What was the table this was merged with?

What column was removed?

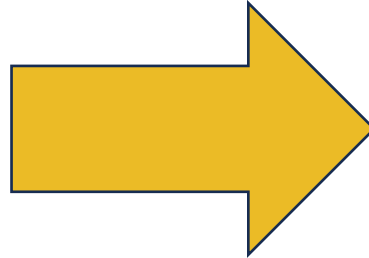
What column was added?

APPLIED STEPS

- Source
- Changed Type
- Split Column by Delimiter
- Changed Type1
- Added Custom
- Replaced Value
- Removed Columns
- Merged Queries
- Expanded DateDim
- Removed Columns1
- Renamed Columns
- Sorted Rows
- Removed Columns2
- Merged Queries1
- Expanded EyeColorDim
- Removed Columns3
- Merged Queries2
- Added Custom1
- Changed Type2
- Added Custom2
- Added Custom3
- Expanded AlignmentDim
- Renamed Columns2
- Removed Columns4
- Renamed Columns1
- Changed Type3
- ✕ Sorted Rows1

Comment Your Code

Manual Commenting Code



Prerequisites

- [GitHub Copilot](#)
- PBIP Format

GitHub CoPilot Prompts

You are an assistant to help Power Query developers comment their code. Please update each line of code by performing the following:

- 1) Insert a comment above the code explaining what that piece of code is doing.
- 2) Do not start the comment with the word Step or a number
- 3) Do not copy code into the comment.
- 4) Keep the comments to a maximum of 225 characters.

You are an assistant to help Power Query developers comment their code.

Please update each line of code by performing the following:

- 1) Update the variable name explaining what that piece of code is doing.
- 2) The variable name should always start with a verb in the past tense.
- 3) The variable name should have spaces between words.
- 4) Please keep the variable to a maximum of 50 characters.
- 5) The variable name should be wrapped in double quotes and preceded by the '#'

You are an assistant to help Power Query developers comment their code. Please update each line of code by performing the following:

- 1) Insert a comment above the code explaining what that piece of code is doing.
- 2) Do not start the comment with the word Step or a number
- 3) Do not copy code into the comment.
- 4) Keep the comments to a maximum of 225 characters.

Please also update each line of code by performing the following:

- 1) Update the variable name explaining what that piece of code is doing.
- 2) The variable name should always start with a verb in the past tense.
- 3) The variable name should have spaces between words.
- 4) Please keep the variable to a maximum of 50 characters.
- 5) The variable name should be wrapped in double quotes and preceded by the '#'

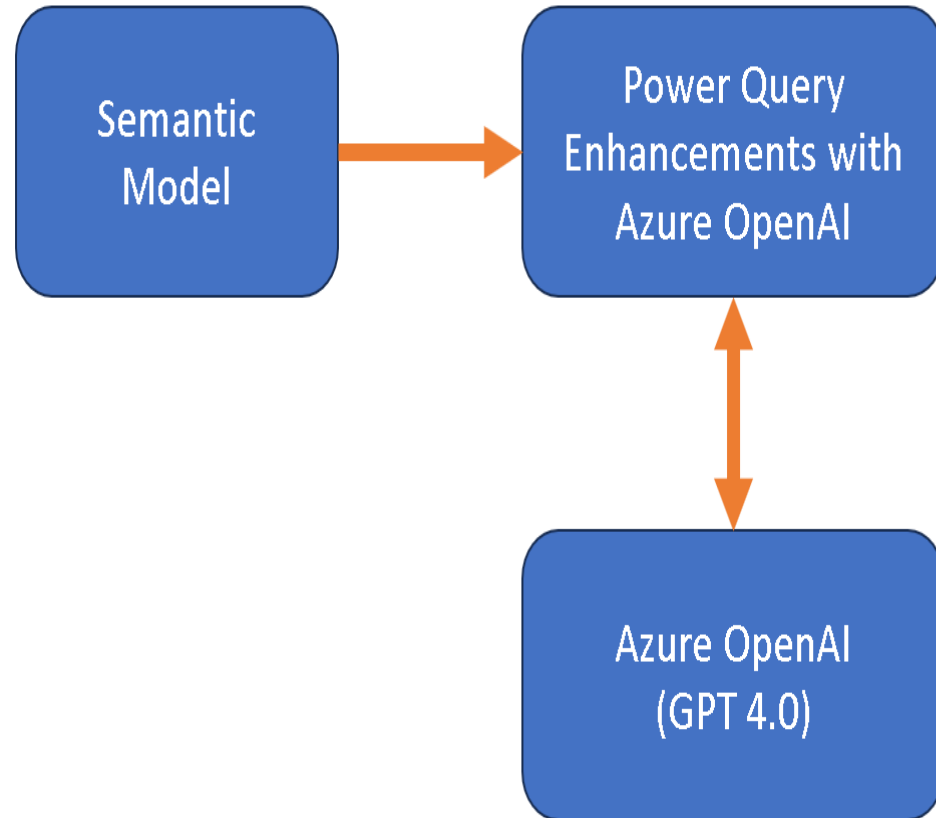
Scenario 2



Scenario 2 - Prerequisites

- Premium, Premium Per User or Fabric Workspace
 - Requires XMLA connection
- Azure OpenAI
 - A ChatGPT 4.0 model deployed. Instructions can be followed [at this link](#).
 - GCC
 - [Federal-Business-Applications/whitepapers/copilot at main · microsoft/Federal-Business-Applications \(github.com\)](#)

DEMO



Power Query Code Enhancements with a Large Language Model	
Please select the dataset name, then table name to see the commented code. Right click on the commented code and choose "Copy Value" to copy over to your dataset.	
Select Table	Select Enhancement Options
MarvelSource	<div>Additional Comments</div> <div>Additional Comments & Variable Name Changes</div>
Original Power Query Code	Additional Comments
let #Source = Csv.Document(Web.Contents(WebURL),[Delimiter=";", Columns=13, Encoding=65001, QuoteStyle=QuoteStyle.None]), #Promoted Headers = Table.PromoteHeaders(#Source, [PromoteAllScalars=true]), #Changed Type = Table.TransformColumnTypes(#Promoted Headers,{{"page_id", Int64.Type}, {"name", type text}, {"urlslug", type text}, {"ID", type text}, {"ALIGN", type text}, {"EYE", type text}, {"HAIR", type text}, {"SEX", type text}, {"GSM", type text}, {"ALIVE", type text}, {"APPEARANCES", Int64.Type}, {"FIRST APPEARANCE", type text}, {"Year", Int64.Type}}), in #Changed Type	let // This code is utilizing Power Query to import a CSV file from a specified web URL and parse it into a table structure. It also sets the n qualifying characters are used in the data. #Source = Csv.Document(Web.Contents(WebURL),[Delimiter=";", Columns=13, Encoding=65001, QuoteStyle=QuoteStyle.None]), // This code is promoting the first row of the table referenced as #Source to headers. The option 'PromoteAllScalars' set to true indic #Promoted Headers = Table.PromoteHeaders(#Source, [PromoteAllScalars=true]), // This code is transforming the data types of various columns within the table 'Promoted Headers'. Some columns are being converte #Changed Type = Table.TransformColumnTypes(#Promoted Headers,{{"page_id", Int64.Type}, {"name", type text}, {"urlslug", type t {"GSM", type text}, {"ALIVE", type text}, {"APPEARANCES", Int64.Type}, {"FIRST APPEARANCE", type text}, {"Year", Int64.Type}}), in #Changed Type

Report

<https://github.com/kerski/pbi-pq-commenter-with-azure-openai/tree/main>

Scenario 3



Scenario 3 - Prerequisites

- [Enable Copilot in Fabric](#)

Prompts

Generate a test case for each measure with the following columns:

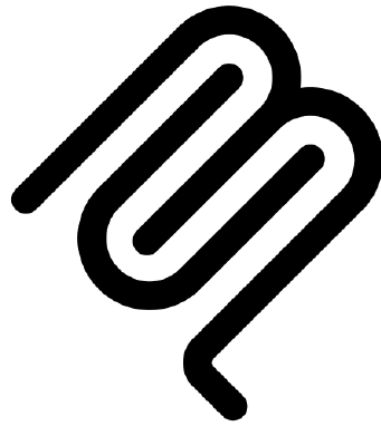
- 1) TestName - This should describe the test conducted and be less than 255 characters
- 2) ExpectedValue - The expected value for the test.
- 3) ActualValue - The actual value returned from the DAX query.
- 4) Passed - A boolean value that compares ExpectedValue and ActualValue

The test should compare a static value with the measure to see if they match.

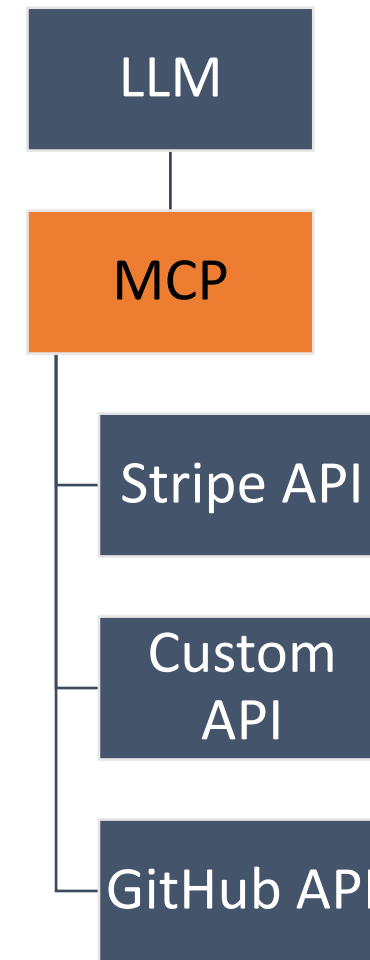
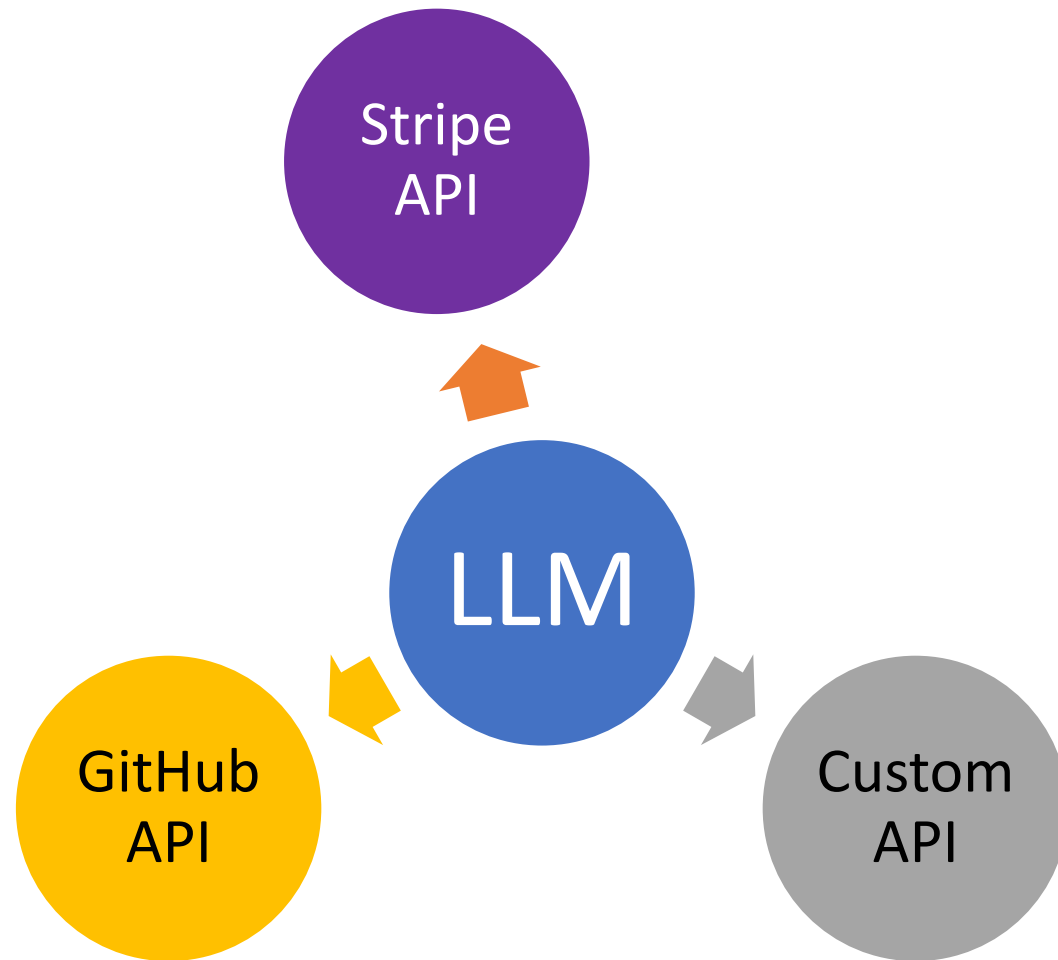
Generate a test case for each table that checks the table has more than zero rows using the COUNTROWS function. The output should contain following columns:

- 1) TestName - This should describe the test conducted and be less than 255 characters
- 2) ExpectedValue - The expected value for the test.
- 3) ActualValue - The actual value returned from the COUNTROWS function.
- 4) Passed - A boolean value that compares ExpectedValue and ActualValue

Scenario 4



Model Context Protocol (MCP)



MCP

- Microsoft
 - [A Model Context Protocol \(MCP\) server implementation for Microsoft Fabric Real-Time Intelligence \(RTI\).](#)
 - <https://github.com/MicrosoftDocs/mcp?tab=readme-ov-file#-microsoft-learn-docs-mcp-server>
- Community
 - [Microsoft Fabric Analytics MCP Server](#)
 - [DAX Formatter MCP Server](#)

Lessons Learned

Lessons Learned - Prompts

ChatGPT Prompt Engineering for Developers

You are an assistant to help Power Query developers comment their code.

Please take the code between the `` ` ` in the following:

- 1) Return a comment explaining what that piece of code is doing.,*
- 2) Do not start the comment with the word Step or a number,*
- 3) Do not copy code into the comment.*
- 4) Keep the comments to a maximum of 225 characters.*

`` [Code] ``



Set the premise



Indicate markers



Set boundaries

Lessons Learned (cont.)

Token Limits

- 1 token \sim 4 chars in English
 - By Model - [Microsoft Documentation](#)

8,000 Token Limit

Response M Code + Verbose Comments \sim 6,000 Tokens

Prompt + M Code \sim 3,000 Tokens

Strategies - [Greg Kamradt](#)

Security Considerations

- [Data, privacy, and security for Azure OpenAI Service](#)
- Protect the Key
 - [Vote Microsoft make this easier](#)
- Make this Easier
 - [Power Query Commenting with Co-Pilot/Large Language Models](#)

Questions?

