

Leveraging Large Language Models with Power BI


August 15th, 2025

About Me

Experience

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

Contact Me

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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 '#'

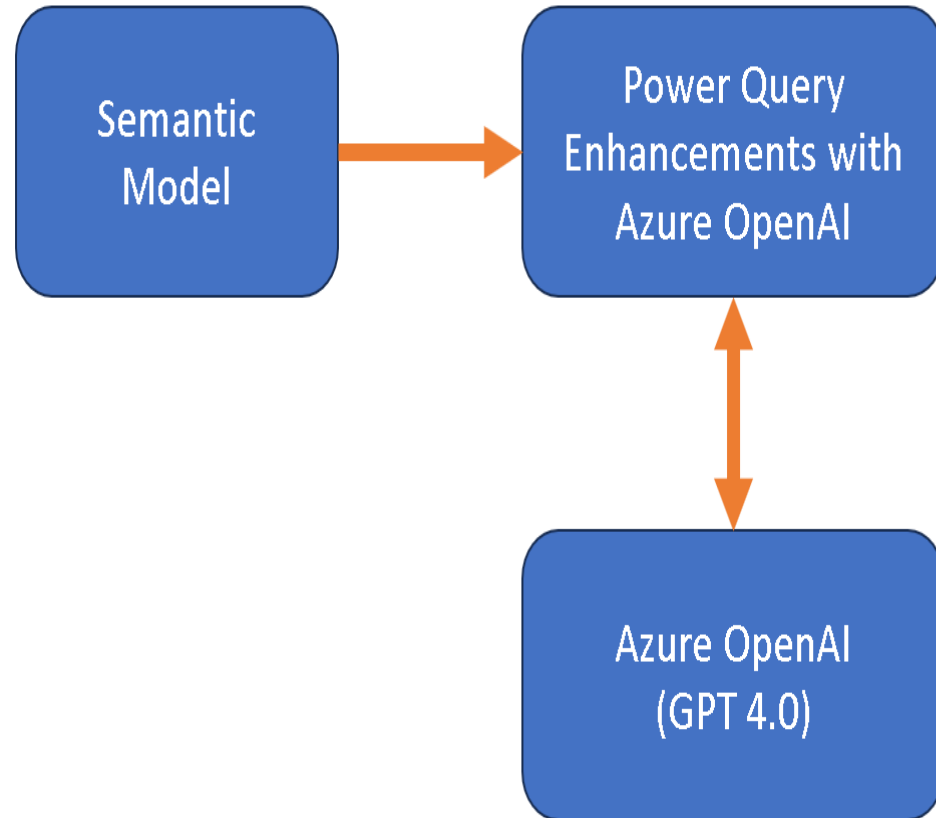
Scenario 2



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:

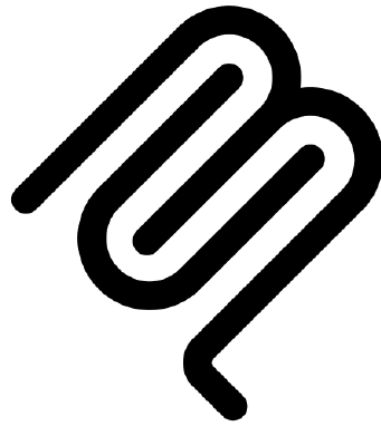
- 1) TestName - This should describe the test conducted and be less than 255 characters
- 2) ExpectedValue - The expected value for the test.
- 3) ActualValue - The actual value returned from the DAX query.
- 4) Passed - A boolean value that compares ExpectedValue and ActualValue

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

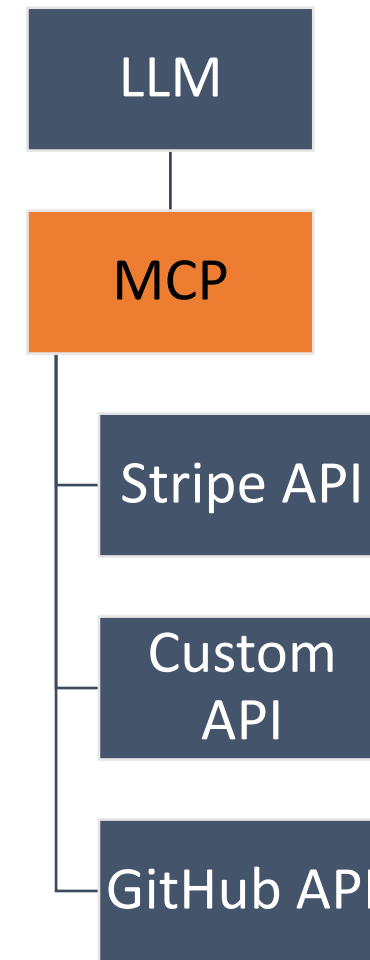
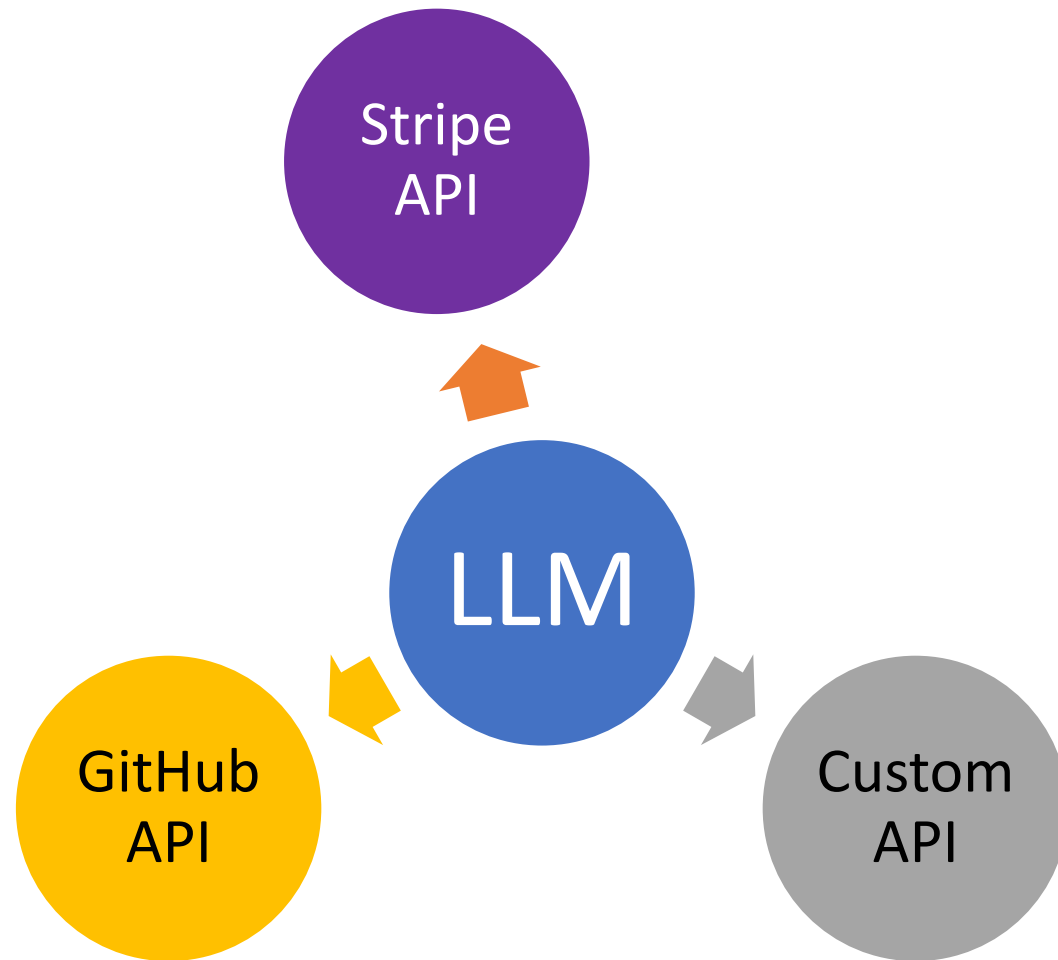
Generate a test case for each table that checks the table has more than zero rows using the COUNTROWS function. The output should contain following columns:

- 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

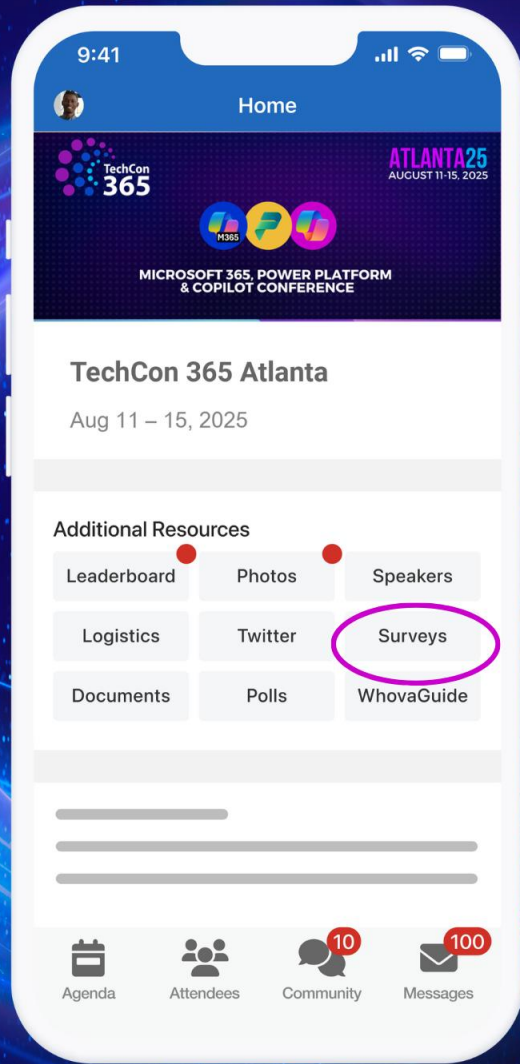
Strategies - [Greg Kamradt](#)

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?





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