In manufacturing and supply chain environments, maintaining optimal stock levels is critical.To address this, we’ll explore building a **Material Procurement Copilot** that leverages **Anthropic Claude** to assess real-time inventory data from **Dataverse**. This copilot will analyze stock levels and reorder thresholds, providing actionable insights to help identify materials that need timely procurement.

**Technologies Involved**

1. **Microsoft Copilot Studio**: The platform to design and manage the conversational flow, adaptive card interface, and data retrieval from Dataverse.
2. **Anthropic Claude**: Claude will process and analyze selected material data from Dataverse, generating recommendations for procurement.
3. **Dataverse**: Stores the inventory data, including **Material Name**, **Current Stocks**, and **Reorder Levels**, serving as the central data source for material status and procurement needs.

**Overall Flow**

* + **User Selects Materials**:The process begins when the user initiates the copilot. An adaptive card is displayed, allowing the user to select materials from a list.
  + **Data Retrieval from Dataverse**: Based on the selected materials, the copilot fetches data from Dataverse, specifically the **Material Name**, **Current Stocks**, and **Reorder Levels** fields.
  + **Claude Analysis**:Using Anthropic Claude, the copilot analyzes the material data. The model reviews current stock levels against reorder thresholds to determine if procurement is necessary.
  + **Results Displayed**:The copilot displays a list of materials that need replenishment. Users receive clear recommendations on which items to prioritize for procurement.

Step 1 : Get the Anthropic Claude Keys

So as to work with Anthropic claude LLMs, we need to create an API key. For this head over to <https://console.anthropic.com/settings/keys> and Click on Create Key

1.png

Save the key as we will use it to creation connection from Copilot.

2.png

Step 2 : Create a custom connector for Anthropic Claude

Head over to Power automate(https://make.powerautomate.com/) and select Custom Connector so that we can use this custom connector from within Copilot to issue POST requests to Anthropic Claude

3.png

From New Connector , select Create from Blank

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Specify the connector name and click on Continue

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Code:Click on Swagger editor and paste the below swagger definition to the left pane . This will define the connector methods and behaviour. Finally click on Create Connector.

6.png

Step 3 : Create and Populate the dataverse table

We have created the table Raw Material Stocks and added the **Material Name**, **Current Stocks**, and **Reorder Levels**, which will serve as the central data source for material status and procurement needs.

7.png

Step 4 : Creating the Copilot in Copilot Studio

Head over to <https://copilotstudio.microsoft.com/> and click on “Create”

This will provide us the option to create a copilot based on an existing template on create a blank copilot from scratch, Lets select “New copilot”

8.png

This will take us to the page where we can

1. Describe the copilot functionality and provide any specific instructions to the copilot.
2. Once done, click on “Create” to provision the copilot.

9.png

## Step 4: Enable Generative selection of topics

The copilot is now created. We can then make the needed configuration changes

1. Click on “Edit”, edit the copilot details like name, icon and description.
2. Click on “Settings” to enable the Generative selection of topics so that without relying on triggers, the topics will be auto selected based on user conversation resulting in a much smoother user experience

10.png

To enable the automatic detection of topics from user interaction:

1. Click on Generative AI
2. Select “Generative(preview)”
3. Select “High – More precise” for Content moderation
4. Click on “Save” to update the settings
5. Click on Close icon to go back to the home page of this custom copilot

11.png

Step 5 : Create Topics

Now let’s go ahead and create the topics that will automatically redirect the conversation flow to appropriate topics based on the question user posts.

1. Click on “Topics” from the navigation menu.

To add the topic, we can either go with the option to create a blank topic or use Copilot to create the topic with initial set of prepopulated conversation nodes based on the topic description that we provide.

1. Let’s Click on “Add a Topic” and
2. Select “Create from description with Copilot”.

12.png

Let’s provide the below topic description details in the pop up that opened when we clicked the Add topic button previously.

Then, Click on Create, which will provision the topic skeleton based on the provided description.

13.png

Thus we have the basic topic called , Procurement Analysis, created with an automatic trigger. As the first step lets add an adaptive card that will ask the user for which materials they would like to do the procurement analysis.

14.png

Code : Add the below adaptive card schema to the node properties

15.png

The user selected material details will be saved in the adaptive card output variable : selectedMaterials.

16.png

Now lets add the dataverse connector action which can be used to fetch the records from the Raw Materials dataverse table.

17.png

We will configure the connector by specifying the Environment and table name. Also specify the table columns that we would like to retrieve as part of the connector output

18.png

The returned table data will be stored in the rawMaterials variable which we will use for further processing

19.png

The output of the Dataverse Table Connector(rawMaterials) will contain lots of system columns as well . We will need to format the table to filter and ensure only the needed columns are present.

Code : To do this let’s initialize a variable(filteredStockDetails) to hold the output of Dataverse connector and add the below formula which will filter the output to create a subset of the table and store it in the variable. It does this by looping through the previous Dataverse connector output and fetching only the columns that we have mentioned in the expression.

20.png

If we were to test and output this variable value in the test pane, we will get the output filtered variable value as below

21.png

We will do one more formatting of this output to serialize this json into a readable format <Material Name>: <Current Stock Levels>:<Reorder Levels>

Code : To do this, lets add another variable and set its formula to

22.png

Now we will add custom connector that we had created earlier so that we can invoke the Anthropic Claude LLM . Search for the connector by name and select the custom connector.

24.png

Mention the Anthropic API key which we had saved earlier so that the connector can authorize the connection.

25.png

We will now configure the connector by adding the below values to the connector fields

|  |  |
| --- | --- |
| Key | Value |
| Anthropic-version | 2023-06-01 |
| model | claude-3-5-sonnet-20240620 |

Code : “ We will use the below formula in the message field which will contain the Prompt to be sent to the Claude LLM

25\_1.png

Code : The output response from Anthropic Claude will be saved in the variable OutputResponse. We will add the message node and use the below expression to fetch the generative AI response from the OutputResponse variable and show It back to the user.

26.png

Thus we have completed the creation of the Procurement Analyzer Copilot, lets see it in action

Test the Copilot

We will initiate the conversation and select the materials from the adaptive card that we would like to analyse.

27.png

Clicking on Check Stock Levels , will invoke the Anthropic Claude LLM and provide us back with the stock analysis information which will lead to procurement decisions