Tutorial to create your own Custom Gen ai application using Large/Small Language models.

**Dated: 01/01/2025**

**Audience:**

Low Code Developers

AI Engineers

Business Enthusiast

Business Value: (Why Azure?)

1. You can use AI "in the wild" to perform tasks, but your data and activities are open for everyone to see/steal.
2. Azure provides a secure place to store data and use technology.
3. The space is tailored by the tools — technology, data, projects — you add to the environment.
4. That creates a customized place for you to work on your projects.
5. Azure is also an Enterprise Ready platform with various tools to tackle day-to-day challenges
6. Security First design principles-based cloud.
7. Pioneer in Responsible AI.

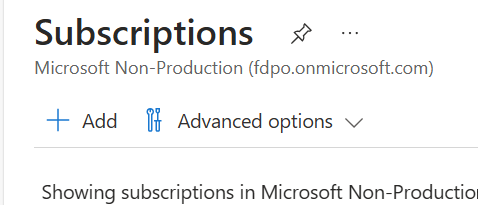
# Pre-requisite:

1. Azure Account:
   1. Go to [Create Your Azure Free Account Or Pay As You Go | Microsoft Azure](https://azure.microsoft.com/en-us/pricing/purchase-options/azure-account/search?ef_id=_k_Cj0KCQiA4L67BhDUARIsADWrl7GME8ptENo1g_wUZmoiK8TTB8MUwhyO8av58ujPf43C88hUwBDNs_0aAtUOEALw_wcB_k_&OCID=AIDcmm5edswduu_SEM__k_Cj0KCQiA4L67BhDUARIsADWrl7GME8ptENo1g_wUZmoiK8TTB8MUwhyO8av58ujPf43C88hUwBDNs_0aAtUOEALw_wcB_k_&gad_source=1&gclid=Cj0KCQiA4L67BhDUARIsADWrl7GME8ptENo1g_wUZmoiK8TTB8MUwhyO8av58ujPf43C88hUwBDNs_0aAtUOEALw_wcB)
2. Before getting Azure account, we need a email account either work based on outlook or Hotmail or other email providers.
3. Click Pay as you go or sign up for free account
4. Follow the instructions with your information and credit card details.
5. Once account is created, go to <https://portal.azure.com>
6. Login with your email used for signup.
7. On the search bar in the top type in: Subscriptions, if you type partial it will populate as well. Check the image below:

A screenshot of a computer

Description automatically generated

1. Select the subscriptions
2. Now Click Add in the subscriptions page, a sample image is provided below how you will see it.



1. Follow the instructions to create a subscription with Microsoft Azure plan and select your billing profile.
2. For Plan type select Microsoft Azure plan.
3. Choose a billing profile created from the above sign up.
4. Give a name to the subscription and complete the process.
5. Once subscription is ready then choose the subscription in the portal.
6. We are going to create 4 resources, those are:
   1. Resource Group
   2. Azure AI Foundry
   3. Azure Open AI Service
   4. Azure AI Service

Steps to Create Resources:

Now to create a resource group. Before creating a resource group pick a region to use like US central or East US etc. Resource group are logical separation provided in portal for us to organize resources or assets based on workload or functionality of workload.

Creating a Resource Group

1. Log into Azure Portal <https://portal.azure.com>, use the above email address which was used to create azure account.
2. In the home page if you see Resource group like below then select:

A group of blue cubes with black text

Description automatically generated

1. If there is no Resource group, then go to Search bar in the top center of the page and type Resource Group

A screenshot of a chat

Description automatically generated

1. Select Resource group
2. Now click Create button like below:

A blue plus and black text

Description automatically generated

1. Fill the details like subscription, which you can choose from list created above.

A screenshot of a computer

Description automatically generated

1. Provide a name, all in small letters without any spaces.
2. Select a region to use in the above I have selected Central US
3. Then click Review and Create at the bottom of the page

A screenshot of a computer

Description automatically generated

1. After validation it will show the page to create so click Create like below

A close up of a screen

Description automatically generated

1. Wait for the resource to create.
2. Now Go to home page and select the Resource group created above from the recent activity section, or Search for resource group that we created in the top search bar. Click into the resource group and should see empty one.

Now it’s time to create AI Foundry resources:

1. First we create Azure AI Foundry which is the interaction layer to create the gen ai application.
2. Click Create in the resource group selected like below:

A blue plus and a white background

Description automatically generated with medium confidence

1. On the search bar shown below type in Azure AI Foundry and should see a one in the list to choose from

A screenshot of a computer

Description automatically generated

1. Or press enter or click search button to find the resource.
2. Here is the resource to create:

A screenshot of a phone

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1. Now click create on the Azure AI foundry resource:

A screenshot of a phone

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1. Click Azure AI Foundry
2. In the next screen, choose the subscription, should be autopopulated.
3. Then fill the remaining details like Resource group, region to use, name for Azure AI foundry like below and leave the other in tact.

A screenshot of a computer

Description automatically generated

1. Click Review and Create on the bottom left of the page, once all the details are filled. For Resource group you can select the one created. Name is something we need to fill and friendly name will fill the name as name.
2. Wait for validation to complete and then click Create like below image:

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A white box with black text

Description automatically generated

1. Validation should be passed, if you are using a corporate tenant you might not have permission to create, in that case talk to the administrator who can help you create.
2. Wait for the resource to create.

A black text on a white background

Description automatically generated

1. Once the deployment is complete, here is what you will see in the screen:

A black text on a white background

Description automatically generated

1. Once the resource is created go back to Resource group. You can click the home link shown below:



1. Once in home page, select the resource group in recent list and go inside and should see the AI hub or AI foundry that we created above.

A screenshot of a computer

Description automatically generated

Now it’s time to create Azure Open AI resource.

1. Click on the Create on the resource group: 
2. On the Search bar type: Azure Openai, and select azure openai in the list and press enter or click search button and here is what you should see:

A screenshot of a phone

Description automatically generated

1. Click Create on the resource page
2. Below are sample screen shot shown how to fill the page:

A screenshot of a computer

Description automatically generated

1. Provide a Name for the resource, has to be unique and also select Central US for region, in the above example I choose Japan east since I don’t have quota in other regions. But for your training please Select Central US or a region in US.
2. Click Next
3. Keep Clicking Next on the other few pages until Final validation and then click Create as shown below

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1. Wait for the resource to be created.

A black and white text

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1. Resource creation usually takes like 2 to 5 minutes.
2. Once completed, here is what will be seen in the screen:

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1. Now lets create Azure AI Search.
2. Go back to Home and select the Resource group:

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1. Click the WIMEPTraining Resource group and you will see all the resource that we created until now.

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Create Azure AI Search Resource:

1. Now click Create on the top of the resource group page: 
2. In the search bar type Azure AI Search.

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1. Scroll down until we see Azure AI Search as below image:

A screenshot of a phone

Description automatically generated

1. Then click Create and choose Azure AI Services. If you can see the AI Search on under the search bar click Azure Services only and should popup.

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Description automatically generated

1. From the above image, please give a name for the search services under Name\* section.
2. Then in the Pricing tier choose Basic.
3. Click the check box for the terms and conditions.
4. Then Click Review and Create
5. A screenshot of a computer

   Description automatically generatedWait for validation to complete and then click Create like below

A close up of a search engine

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1. Wait for deployment to be completed

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1. Now we have created all the resources needed to start our development journey.
2. Next Section is on how to create the application. For creating a generative ai application we need to get a pdf document. This could be any one we can use to ask or chat with the pdf document.
3. Time to grab the pdf document. Once you have the document follow the instructions below.
4. Now Go back to home and resource group and should see all the resources

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# Create Generative AI Application – No Code.

1. Click on WIMEPAIHub or the name of the Azure AI hub or foundry resource created.
2. Click Launch AI foundry:

A close-up of a white background

Description automatically generated

1. Will take you to a new tab, which is the user interface, we are going to use for our application development.
2. First create a Project name as below:

A screenshot of a project

Description automatically generated

1. Wait for the project to created.
2. Next on the left Menu click on Chat playground
3. Click on Try Chat Playground as below

A screenshot of a chat

Description automatically generated

1. Now click Create deployment as below:

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Description automatically generated

1. Now Select GPT 4o as the model:

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Description automatically generated

1. Select gpt-4o and then confirm.
2. Now select the model details as below image:

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Description automatically generated

1. Select Deployment Type: Global deployment
2. And Make sure the Tokens per Minute Rate Limit to 450K, move the slider to the end.
3. Then Click Connect and Deploy and wait for the process to complete.
4. Now on the left menu select playgrounds and should see the below screen.

A screenshot of a chat play

Description automatically generated

1. You can see the above gpt-4o in deployment.
2. Now we are going into Add your data, expand the data.
3. Click on Add new data source: A close-up of a sign

   Description automatically generated
4. Now follow the instructions on the guided step by step screen.
5. First select the data source as upload files.
6. Select the PDF file to upload like the below image:

A screenshot of a computer

Description automatically generated

1. Click Next
2. Now give a index name, then select the Azure AI Search resource

A screenshot of a computer

Description automatically generated

1. Select the AI Search service and click Connect if doesn’t show in the list. If the list shows then select that resource.

A screenshot of a computer

Description automatically generated

1. Click Add connection, once the connection is added, then only the drop down will show.
2. Now you select the AI Search

A screenshot of a computer

Description automatically generated

1. Make sure you choose the right AI search we created in the above deployment
2. Leave the other settings as is. Make sure vector index name is populated like above image.
3. Click Next
4. Leave the settings as is, nothing to change here

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1. Click Next.
2. Validate all the settings are correct and Click Create Vector Index:

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1. Wait for the process to complete might take 10 to 20 minutes:

A screenshot of a data source

Description automatically generated

1. Status can also be seen in the screen as above.
2. Once the index is created, we can update the Model instruction as below screen:

A screenshot of a computer

Description automatically generated

1. Once completed we should be able to see the index listed as below

A screenshot of a computer

Description automatically generated

1. Here is what we need to add: You are an AI assistant that helps people find information, Only answer from the data source provided.
2. Next on the Chat section try to ask questions. Now it’s time to ask various different questions and observe the answers.
3. Questions: how do Wisconsin manufacturers see the business climate?
4. Here is the results:

A screenshot of a computer

Description automatically generated

1. As you can see the response is based on the document we uploaded.
2. So the output will have less hallucination, also we are adding new memory to the model in runtime.
3. There is no training happening to send the data into model’s existing memory.
4. This provides trust to use the existing model and leverage company specific data to respond to queries or questions.
5. Based on the above process we can create and build so many different use cases. Here is also the basis to create AI Agents that can also automate process by taking decisions. Decisions can be leveraged using large language or small language models.
6. Try asking various questions, which is also called prompt.
7. We can also provide instructions to model to behave in a certain way.

Conclusion

Now that we are able to create a simple generative ai application for manufacturing customers. There might be lots of documentation and processes in manufacturing so that we can enable them to provide answers quicker and provide instructions on specific tasks. It’s huge time savings and can increase productivity and reduce downtime.