Kushal-COVID-19 FAQ Chatbot using PVA

Akshi Sharma

s.1001akshi@gmail.com

Introduction

This report is for the NLP project which was to make a chatbot on COVID-19 FAQ using Power Virtual Agents. Power Virtual Agents is offered by Microsoft and is under the Power Platform family which makes it extremely easy to integrate it with other platforms like Power Automate. Power automate gives the user the ability to automate the chatbot and make the chatbot more independent and efficient. Power Virtual Agents can be accessed via Microsoft Teams where the chatbots can be published among the organisation with utmost ease. The chatbot named “Kushal”- which is a Hindi word-has dual meaning. It means someone who is intelligent, tactful or an expert. It also implies being healthy or in a state of well-being, both physical and mental. Staying to the essence of its name Kushal is a chatbot that answers COVID-19 related common questions. The questions and answers used for training the chatbot were taken from the official website of the World Health Organisation.

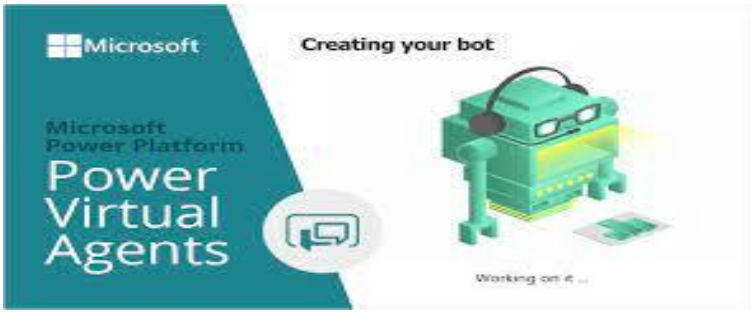
Project Topic

The chatbot was created to answer the frequently asked questions regarding Covid-19. Given the circumstances pandemic related questions are the most searched about. There are several sites and social networking platforms that have discussions on all topics related to Covid. Not all of them provide the right information but very often have opinions which can be biased. WHO is an international organisation and Has the most credible information so I chose to stick with it for all the information. There are a few topics like on mental health for which I have included other information than provided by the WHO.
Covid19 has become a living entity given its unstable nature. Not to forget the adverse effects it has had throughout the world. It is a vast subject the spectrum of which seemed beyond the reach of this project. I tried to add as many topics as possible albeit only a few questions per topic. Some of the topics included are:

- What is Covid-19
- Symptoms
- Masks
- Travelling
- Vaccines
- Mental Health Support
- Domestic Violence Support

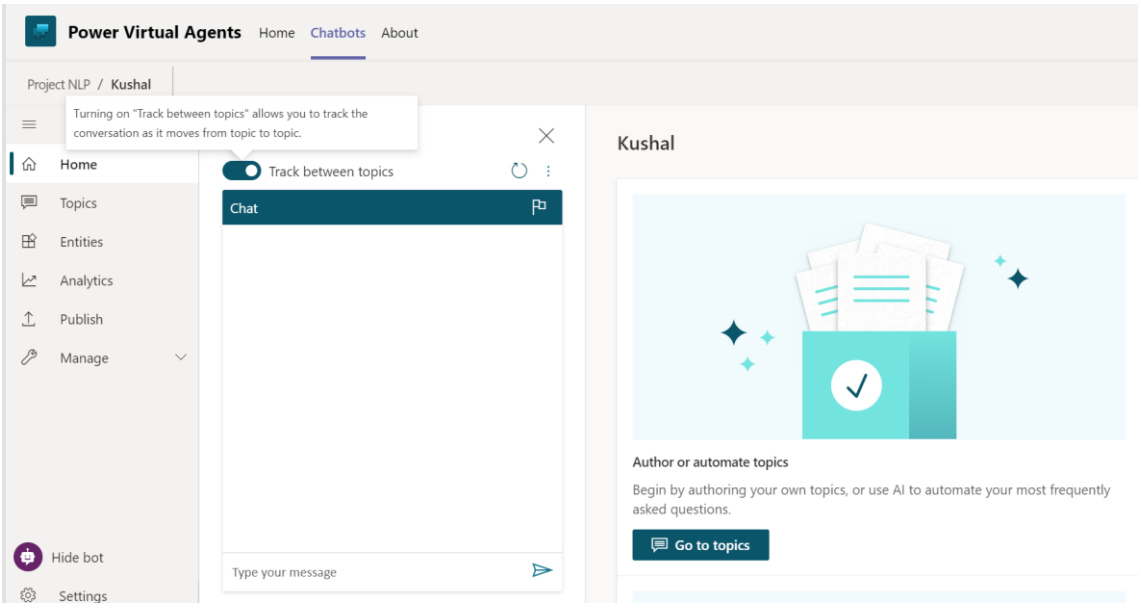
I tried to include as many questions per topic as possible.

Platform Used



About PVA

For this project I used a new feature called Power Virtual Agents which is offered by Microsoft. It is readily accessible through Teams application. The interface is extremely user friendly. PVA allows the user to create a chatbot without coding so that the focus is mainly on efficiency. It requires limited set-up, allowing the user to get started with bots quickly giving the ability to populate appropriate FAQ content, order topics and natural language queries.

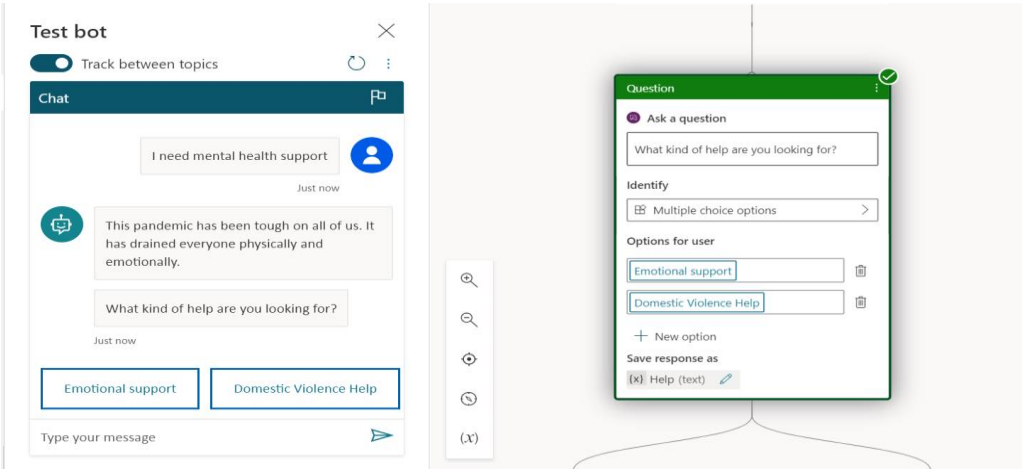


Various features in PVA

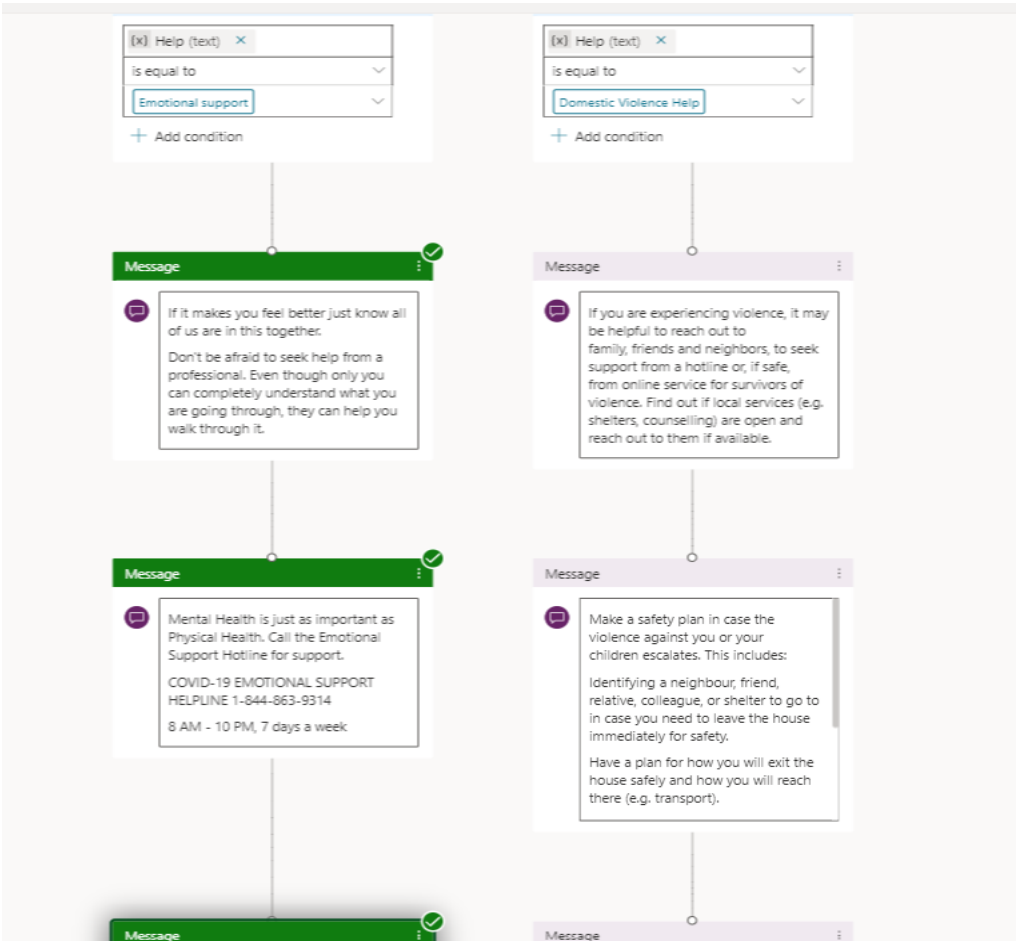
Features

It has specific sections for creating ***topics*** of conversation, ***entities*** in the sense of characteristics of elements of the conversation and has an ever-ready ***test bot*** feature available. Test bot feature also has the option to track the topics which basically allows us to see the flow of conversation within one topic. We also have the option of tracking the variables in the conversation.

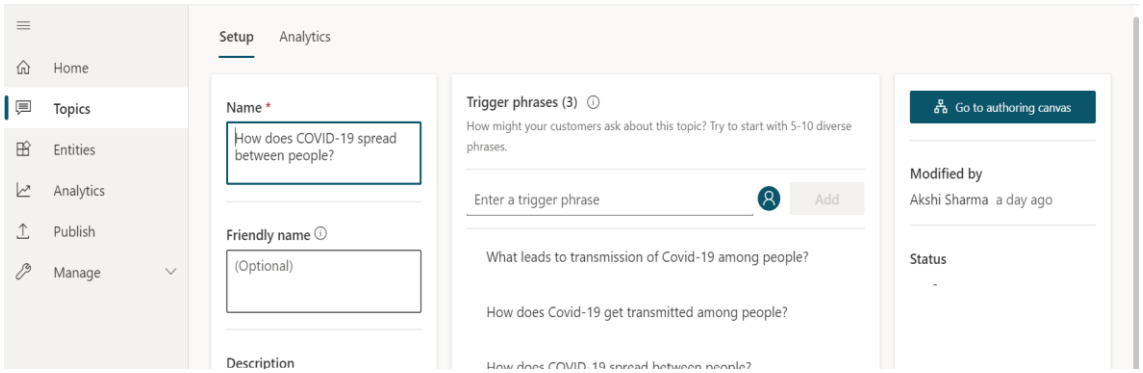
Every topic follows a tree like structure which allows the creator to understand the conversation. It also provides us with the ability to see the several directions the conversation can go. The tree structure creates an ease of manoeuvring between the links. The nodes can be easily manipulated by creating connections between different segments.



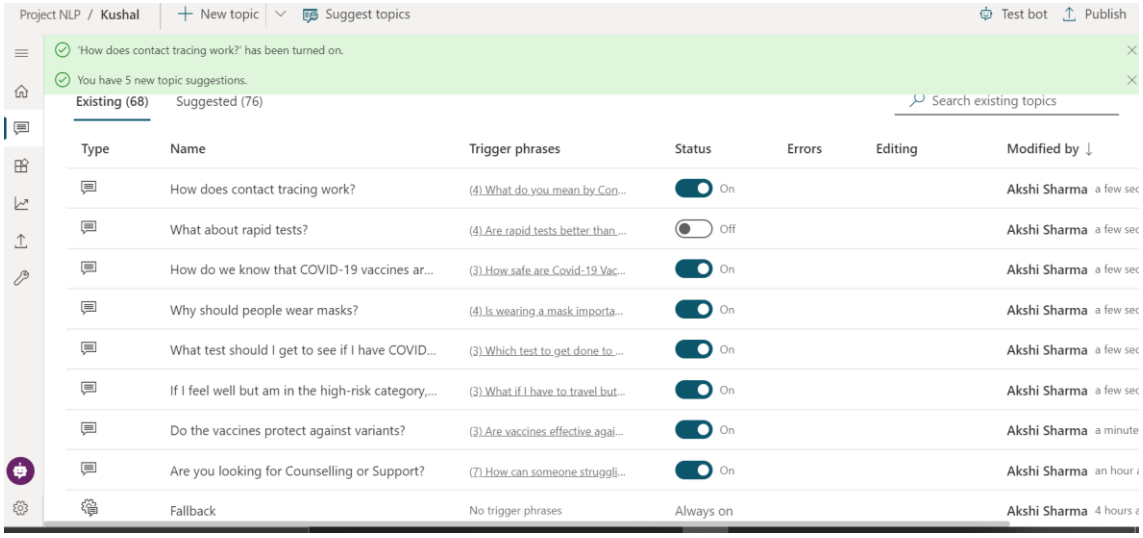
Tracking between topics and the tree structure of the flow



The topics require trigger questions that help the chatbot understand which topic the conversation is about. Each topic can be given 8-10 trigger questions or more.

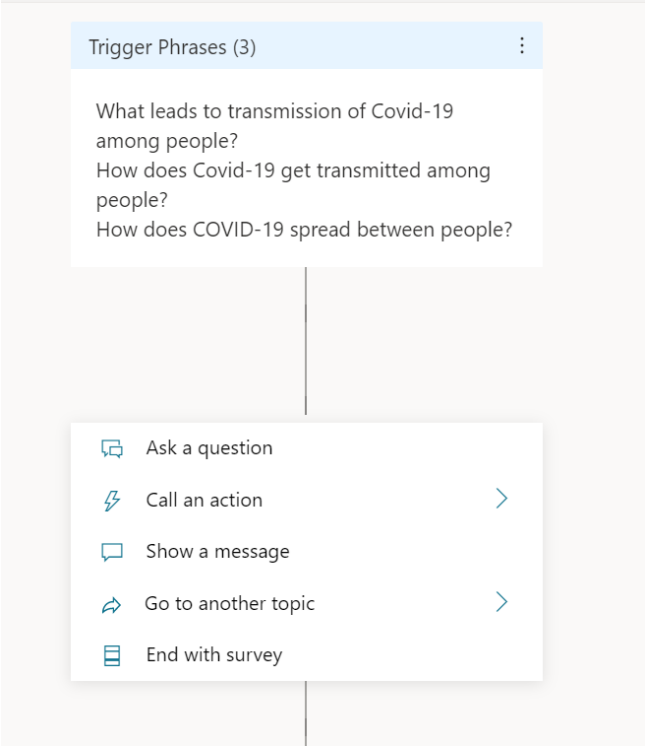


Editing trigger phrases



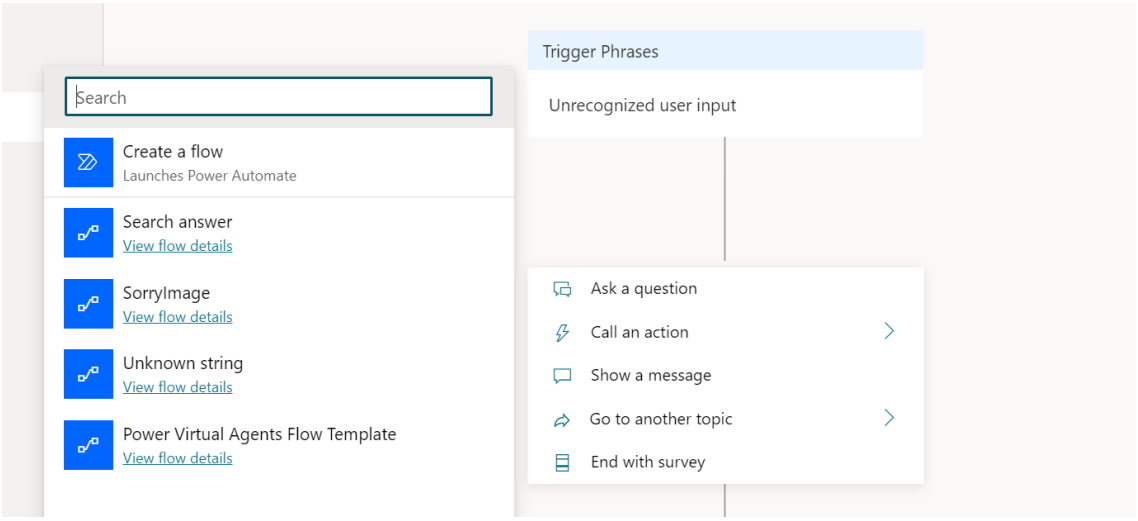
Managing different topics and trigger phrases

The authorising canvas is where you define how the chatbot responds to questions. The options provided for responses can range from showing a message, asking sub questions or by adding several conditions to move forward the conversation. The conversation can be directly guided to another predefined topic or can call an action. The end with survey option allows you to keep a check on the performance of the chatbot.



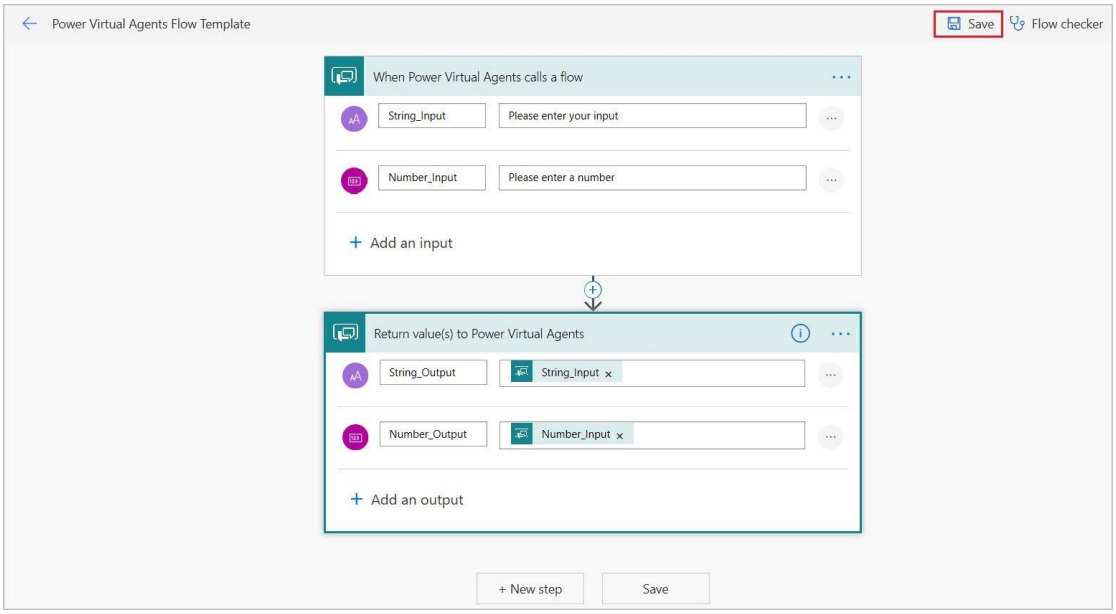
Several options to respond to queries.

Call an action is the option that allows the chatbot to integrate with the Power Automate features to automate the processes. It helps in creating a flow that can be followed for integrating existing databases or user defined knowledgebase to get some details on other platforms.



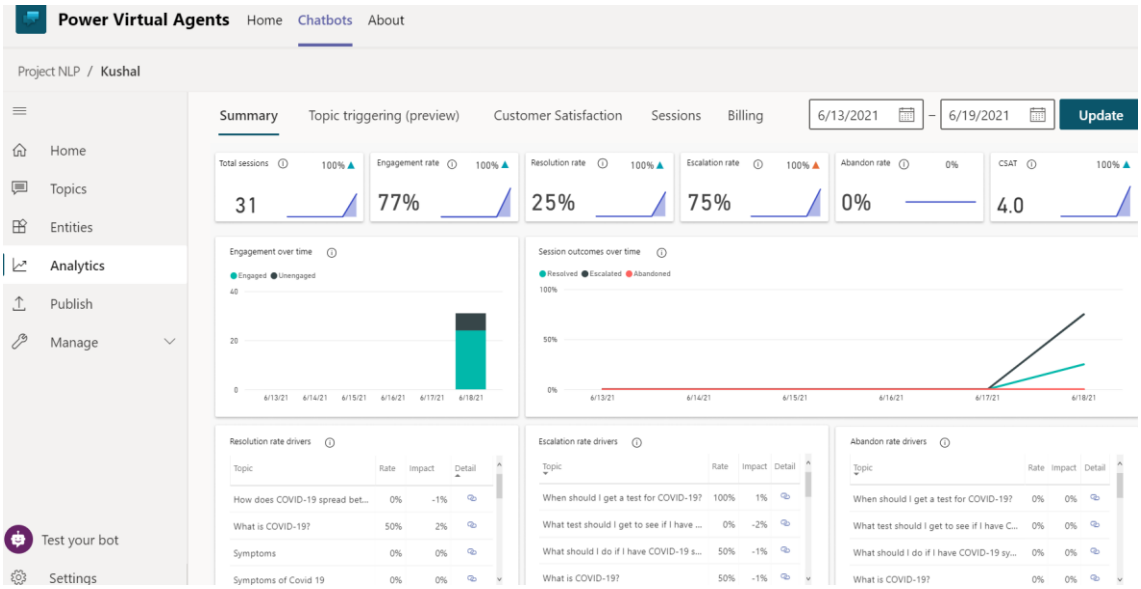
Has the ability to integrate to power automate directly by creating a flow

Using this feature the user can use a database of questions and sirectly answer questions using it. It provides a range of input and output type options like basic string, number, email etc. But can also has options to respond with weather, date and time, images and videos.



Creating flow for PVA using Pre-defined templates

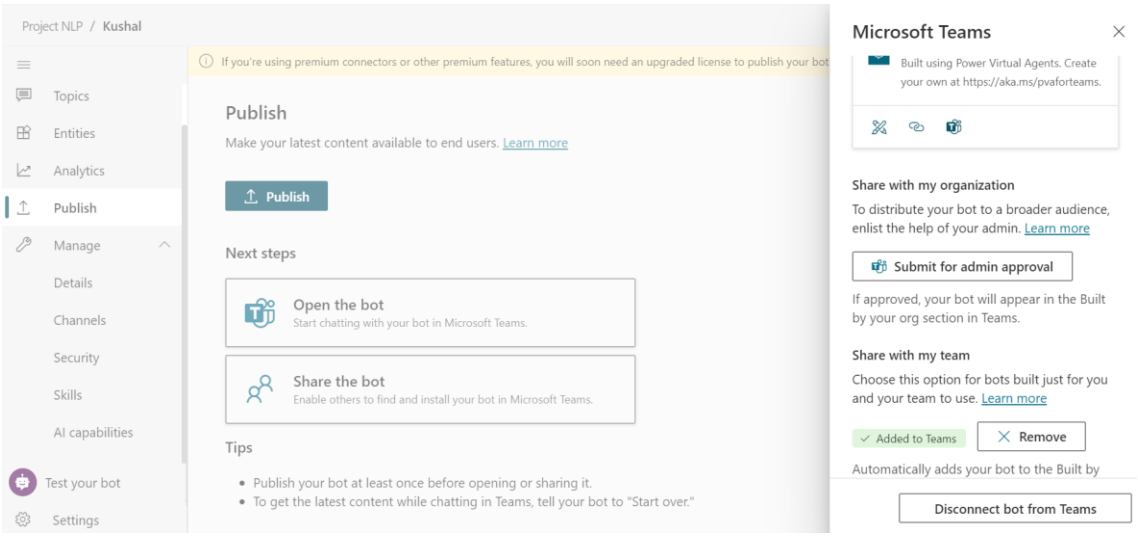
Feedback of the user helps in making improvements to the functioning. The Analytics section of PVA shows how the chatbot has been performing. It allows the creator to see what questions are working and how well. It gives the opporttunity to keep improving the chatbot as it works and provides an active learning capability to the chatbot. The analysis provided is very thorough and has several sub categories to focus on depending on the purpose of the chatbot.



Analytics section to evaluate the performance of the chatbot

Power Virtual Agents is an advanced for software and has the ability of providing a large scale scope to the chatbot created using PVA. It has several other features and integrations which I could not explore since it requires a premium subscription. My

chatbots purpose was not as complex but a much more complex chatbot can be created using PVA to use it to its full potential.



Publishing the chatbot on teams

Link- https://teams.microsoft.com/l/app/f6405520-7907-4464-8f6e-9889e2fb7d8f?templateInstanceId=f714918d-1fa6-4edc-9bd3-893eea2360e8&environment=317b3394-7110-44aa-accc-b86e780d0716

To access the link you must add the PVA app on teams

References

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[8] Bordini, R. H., Fisher, M., Wooldridge, M. and Visser, W. 2009. Property-based slicing for agent verification. J. Log. Comput. 19(6), pp. 1385-1425.