

Power Virtual Agents - Workshop

Exercise 1 - Create a sales bot and simple topic

In this exercise, you will check access to the trial environment, create a bot and add a simple topic to show a list of stores.

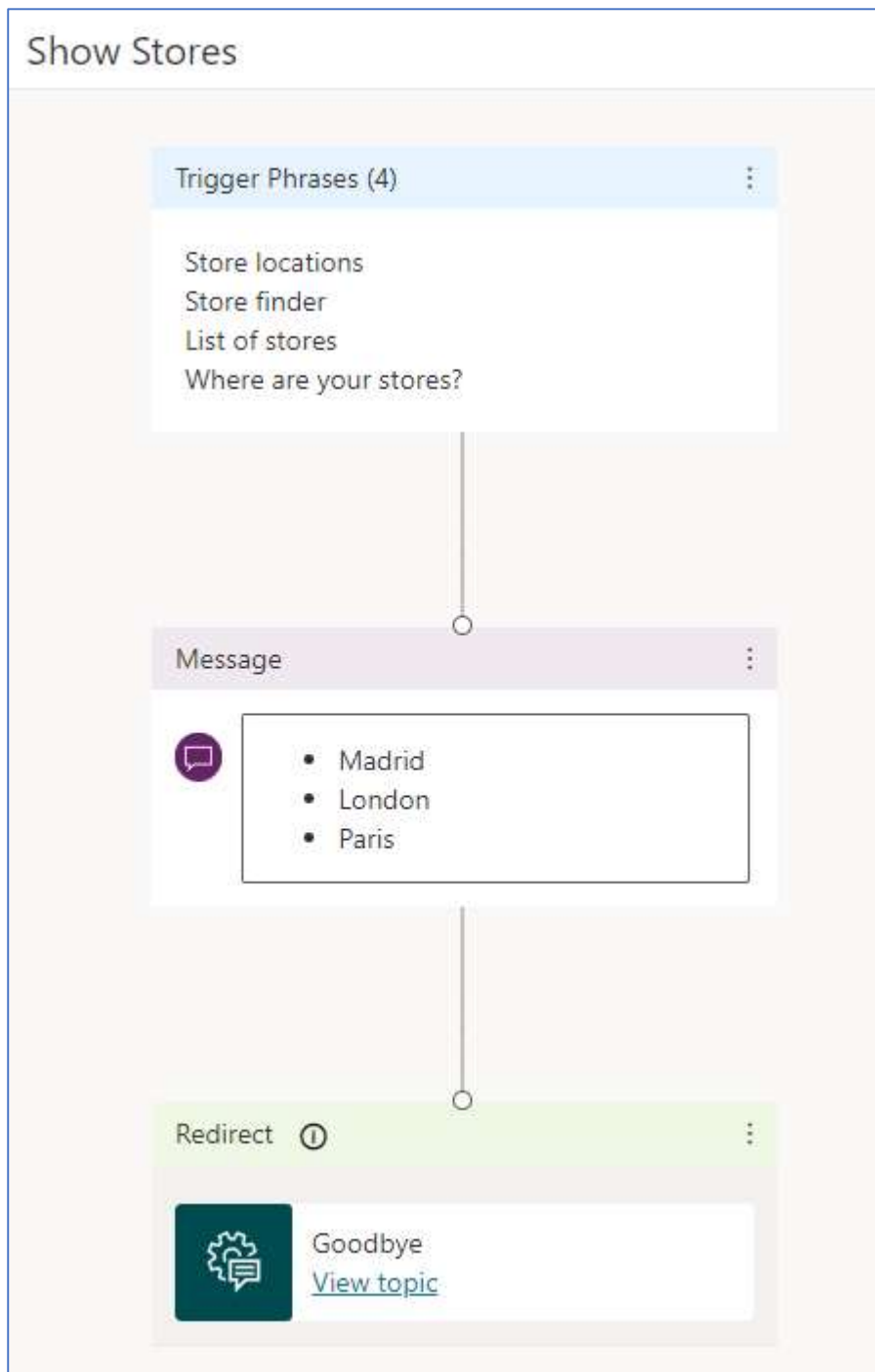
1. In an in-private session of a browser, navigate to <https://web.powerva.microsoft.com>.
2. Sign-in using the credentials provided by the instructor.
3. On the **Stay signed in** page, click **No**
4. On the Welcome page:
 - a. Select a country
 - b. Uncheck the **I will receive information** box
 - c. Click **Get Started**
5. On the **Create a chatbot** page:
 - a. In **Name your bot**, type **[UserX] Sales Bot** (replace X with the number from your user account).
 - b. In **What language will your bot speak?** select **English (US)**.
 - c. In **Select an environment**, select **bizz2022**.
 - d. Click **Create**
6. After a minute or so, the bot design interface shows.

Create a topic

7. In the left-hand navigation, click **Topics**.
8. Click **New topic**.
9. Replace **Untitled** with **Show Stores**
10. In the **Trigger phrases** pane, under **Add phrases**, add the following (press enter between each phrase):
 - a. Where are your stores?
 - b. List of stores
 - c. Store finder
 - d. Store locations
11. Close the **Trigger phrases** pane (click the X).
12. In the **Message box** type the following using bullet list format:
 - a. Madrid

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- b. London
 - c. Paris
13. Click the + below **Message**, click **Redirect to another topic** and select **Goodbye**.
 14. Click Save (top-right).
 15. The finished design should like the screenshot:



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Test the bot

16. To test the bot, in the **Test bot** pane:
 - a. Click to turn on **Track between topics**
 - b. At the bottom of the **Test bot** pane, type one of the trigger phrases and press enter
 - c. Confirm that the list of stores is shown

This is of course a very simple bot, and it would be better to get the list of stores from a list such as a table in Dataverse. You'll do this in a later exercise.

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Exercise 2 – Create an entity and topic

In this exercise, you will create an entity to identify types of sport shoes and then create a topic that uses the new entity.

Feel free to refer to the completed topic screenshots at the end of the exercise steps to help you complete the steps.

Create an Entity

1. Navigate to **Power Virtual Agents** as per Exercise 1.
2. In the left-hand navigation, click **Entities**.
3. Click **New entity**.
4. In the **Create an entity** window, click **Closed list**.
5. Complete the pane using the following:
 - a. **Name:** Shoe Type
 - b. **Description:** The different types of shoes that we sell
 - c. **Smart matching:** on
 - d. Add the following for **List Items** (click **Add** after each one):
 - i. Road Running
 - ii. Trail Running
 - iii. Tennis
 - iv. Gym
 - v. Basketball
6. Click **Save** and then **Close**.

Create a topic

7. In the left-hand navigation, click **Topics**.
8. Click **New topic**.
9. Replace **Untitled** with **Shoe Sales**
10. In the **Trigger phrases** pane, in **Add phrases**, add the following (press enter between each phrase):
 - a. Do you sell shoes?
 - b. What shoes can I buy?
11. Close the **Trigger phrases** pane (click the X).

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12. Click the + below **Message**, click **Ask a question**.
13. In the **Question** node:
 - a. in **Ask a question**, type **What type of shoe are you interested in?**
 - b. For **Identify**, select **Shoe Type** (the entity you just created)
 - c. Click, **Select options for user** and then select to display all the options.
 - d. Under **Save Response as**, click the edit icon and change the **Name** to **UserShoeType**
 - e. Close the **Variable properties** pane (click the X).
14. In the **Message** node above the **Question**, click the three dots and then click **Delete**.
15. Click the + below **Question**, and then click **Add a condition**.
16. In the left-hand **Condition** node, select the **UserShoeType** variable and under **is equal to** select **Basketball**.
17. Click the + below the left-hand **Condition**, and then click **Show a message**.
18. In the **Message box** type **Sorry we don't sell basketball shoes**.
19. Click the + below the **Message** created in the previous step, and then click **Redirect to another topic** and select **Goodbye**.
20. Click the + below the right-hand **Condition** (labelled **All other conditions**), and then click **Ask a question**.
21. In the **Question** node:
 - a. in **Ask a question**, type **Please enter your name**
 - b. For **Identify**, select **User's entire response**
 - c. Under **Save Response as**, click the edit icon and change the **Name** to **UserName**
 - d. Close the **Variable properties** pane (click the X).
22. Click the + below the **Question** node you just added, and then click **Show a message**.
23. Click in the text area of the **Message box** and then click the **Insert Variable icon {x}** and select the **UserName** variable.
24. In the Message box, after the **UserName** variable, type **", let me connect you with a sales representative"** (don't include the quotation marks).

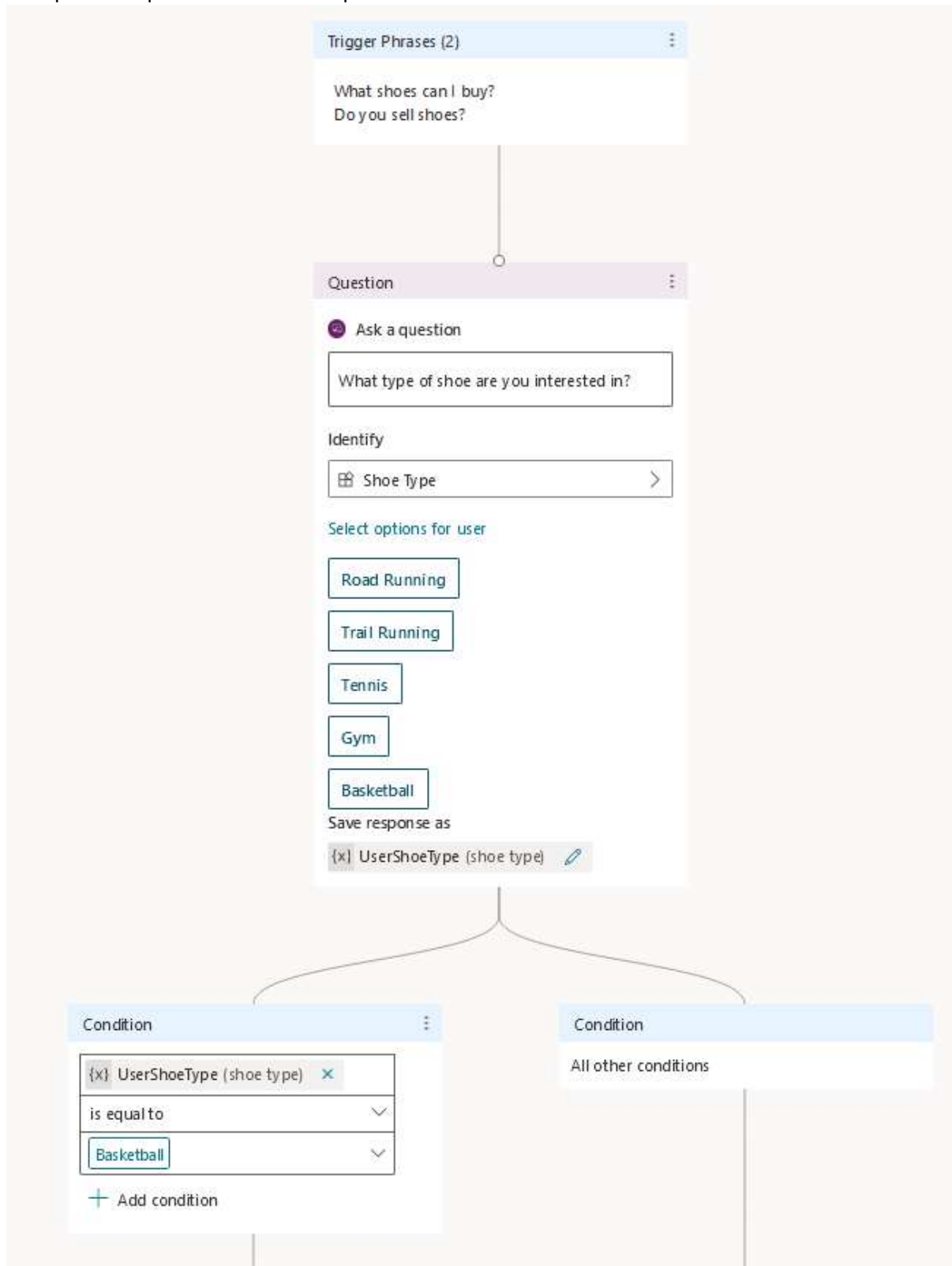
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Test the bot

25. To test the bot, in the **Test bot** pane:
 - a. Click to turn on **Track between topics**
 - b. At the bottom of the **Test bot** pane, type one of the trigger phrases and press enter
 - c. In the row of shoe types, scroll to the right and click on **Basketball**.
26. Repeat the test, by typing in one of the trigger phrases again.
27. In the row of shoe types, click **Road Running**.
28. After **Please enter your name** shows, type in your name.
29. Confirm that the message shows with your name.

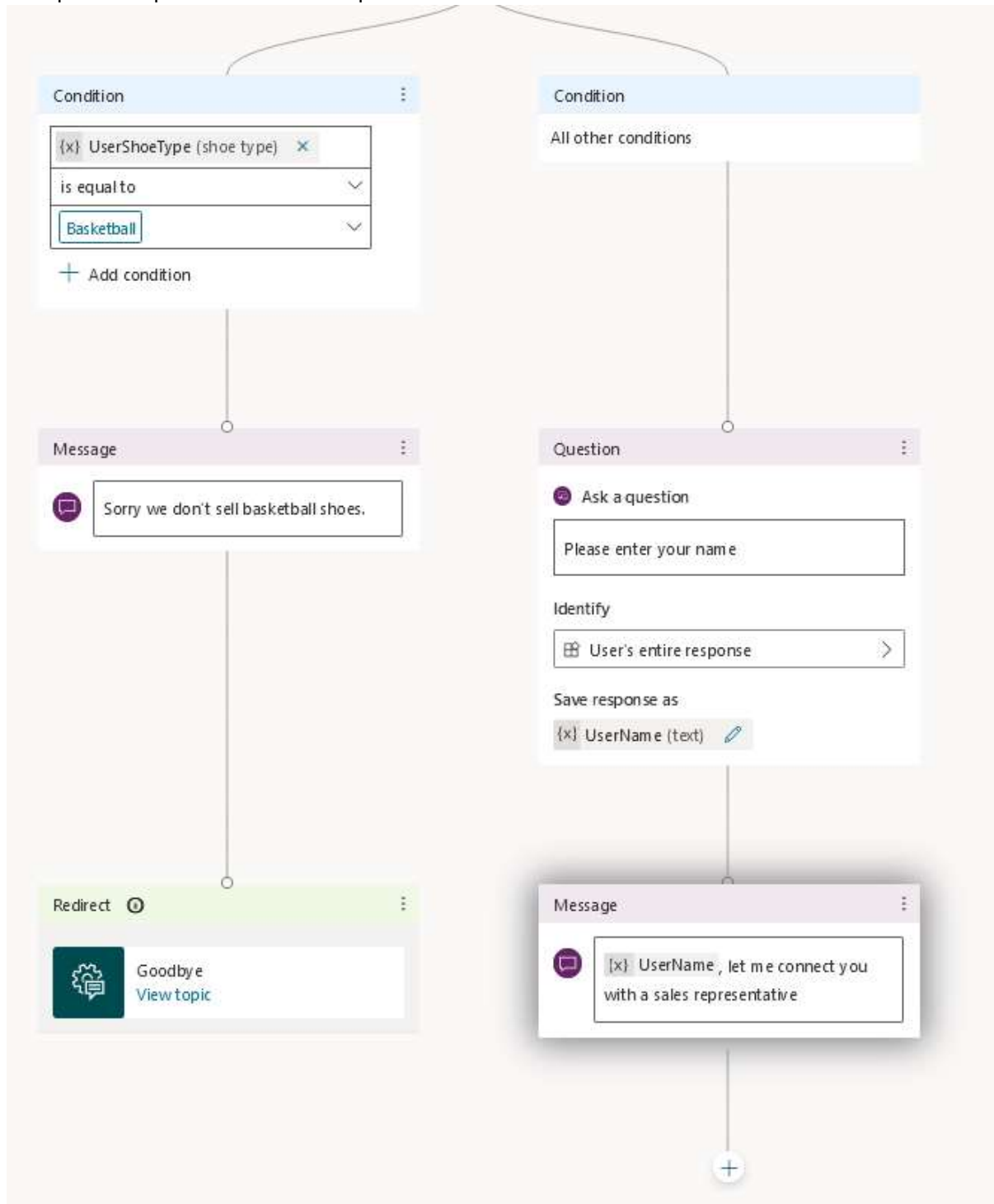
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Completed topic for Exercise 2 – part 1 of 2



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Completed topic for Exercise 2 – part 2 of 2

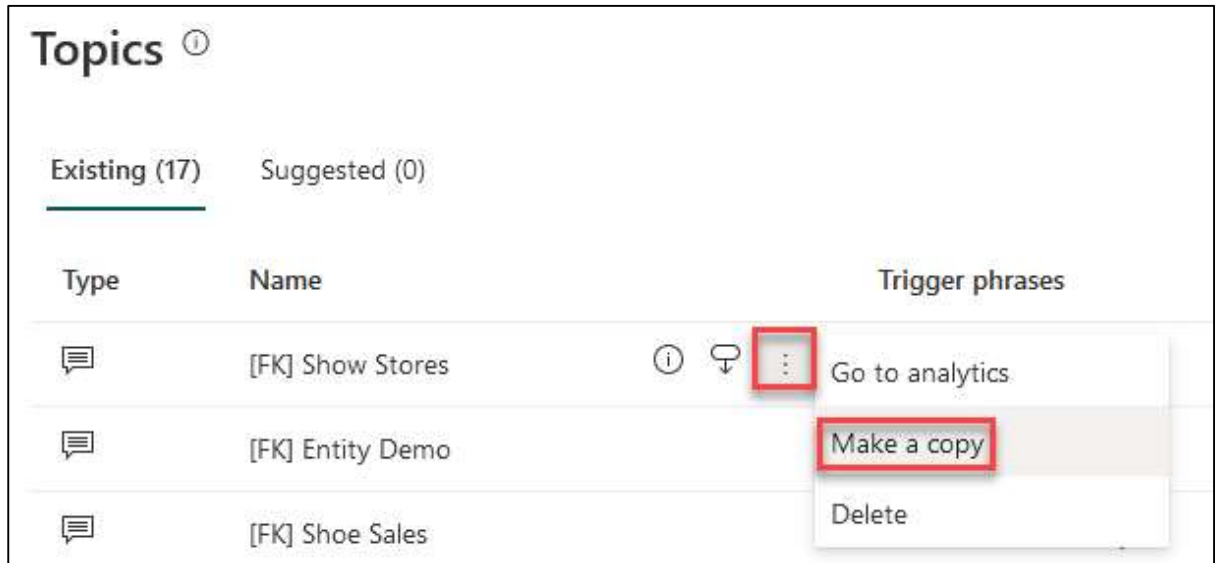


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Exercise 3 – Get stores from Dataverse

In this exercise, you will create a new topic that shows stores by getting a list from Dataverse.

1. Navigate to **Power Virtual Agents** as per Exercise 1.
2. In the left-hand navigation, click **Topics**.
3. In the list of topics, hover over the **Show Stores** topic and then click the three dots and then click **Make a Copy**.



4. After the copy is saved, click on the copy.
5. Click on the name and change it to **Show Stores from Dataverse**.

Create the flow

6. Hover over the line between the **Message** and **Redirect** nodes, click on the + when it appears and then click on **Call an action** and then select **Create a flow**.
7. A new browser tab or window opens in the Power Automate flow designer.
8. Rename the flow from **Power Virtual Agents Flow Template** to **[XX] Get Stores from Dataverse** (replace XX with your initials).
9. Hover over the line between the two steps, click on the + when it appears and then click on **Add an action**.
10. In **Search connectors and actions**, type **Variable**.
11. In the list of boxes, click **Variable**.
12. In the list of actions, click **Initialize Variable**.
13. Configure the **Initialize Variable** action as follows:

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- a. In **Name**, type **Store List**.
- b. In **Type**, select **String**.
- c. In **Value**, type | Store | followed by a new line and then |-----| and then another new line.

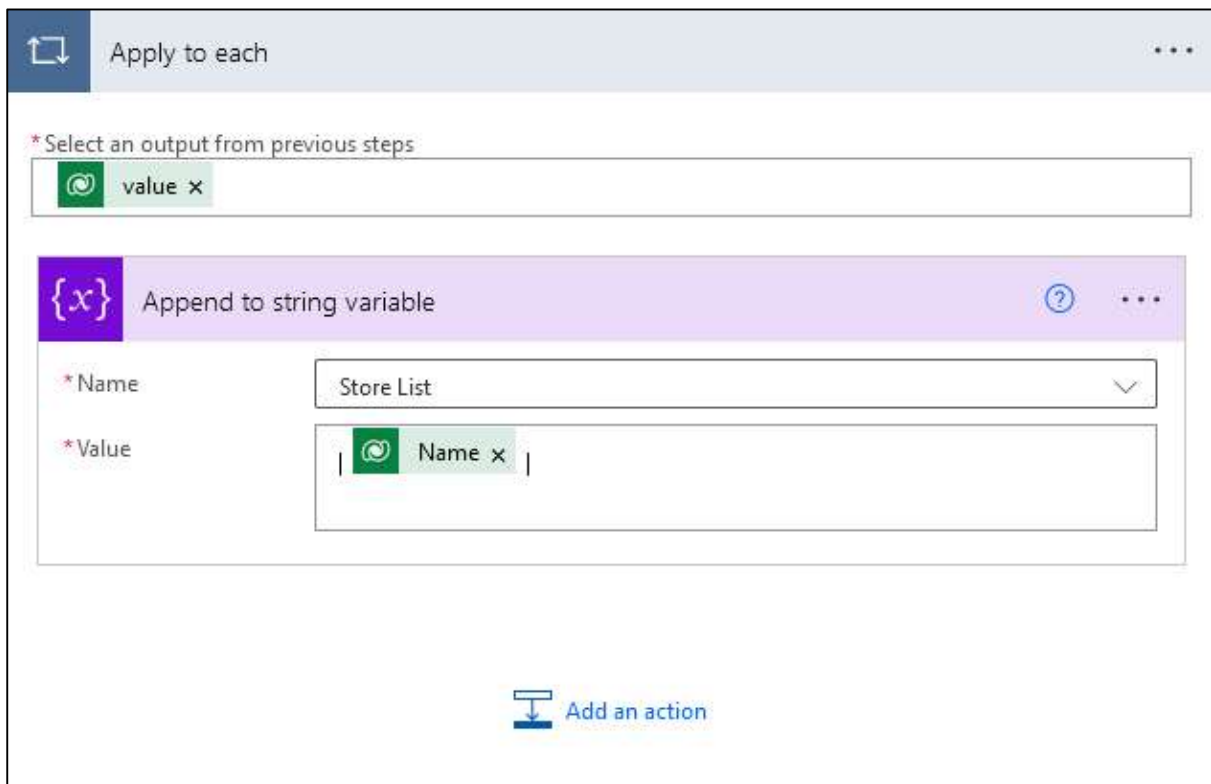
* Name	Store List
* Type	String ▼
Value	Store -----

14. Hover over the line after the **Initialize Variable** node, click on the + when it appears and then click on **Add an action**.
15. In **Search connectors and actions**, type **Dataverse**.
16. In the list of boxes, click **Microsoft Dataverse** (don't select Microsoft Dataverse (legacy)).
17. In the list of actions, click **List rows**.
18. In Table name, select **Stores**.
19. Hover over the line after the **List rows** node, click on the + when it appears and then click on **Add an action**.
20. In **Search connectors and actions**, type **Apply to each**.
21. In the list of actions, click **Apply to each (Control)**.
22. In **Select an output from previous steps**, in the **Search dynamic content** box, click on **value** showing under **List Rows**.
23. Click on **Add an action** showing in the **Apply to Each** action.
24. In **Search connectors and actions**, type **Variable**.
25. In the list of boxes, click **Variable**.
26. In the list of actions, click **Append to string variable**.
27. In the **Append to string variable** action:
 - a. In **Name**, select **Store List**.

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- b. For **Value**, in the **Search dynamic content** box, click on **Name** showing under **List Rows** (you might need to use the vertical scroll bar in the Dynamic content window).
- c. In the **Value** box, before the **Name** variable add a | (vertical line) followed by a space and then after the **Name** variable add a space followed by a | (vertical line) and then add a newline.

28. The **Apply to Each** action should look like the screenshot below.



29. Click on the **Return value(s) to Power Virtual Agents** action.

30. Click on **Add an output**.

31. Configure the output parameter as follows:

- a. **Type**: select **Text**
- b. **Title**: type **Stores**
- c. **Enter a value to respond**: use the Dynamic content pane to select the **Store List** variable

32. Click **Save**.

[Continue editing the topic in Power Virtual Agents](#)

33. After the flow has saved, switch back to the **Power Virtual Agents** browser window.

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34. Click again on the **Call an action** node (to refresh the list of flows) and then click on the flow you just created (**[XX] Get Stores from Dataverse**).
35. Hover over the line after the **Action** node, click on the + when it appears and then click on **Add an action** and then click on **Show a message**.
36. Click in the text area of the **Message box** and then click the **Insert Variable icon {x}** and select the **Stores** variable.
37. In the **Message** node below the **Trigger Phrases**, click the three dots and then click **Delete**.
38. Click **Save** (top-right).
39. Navigate back to the list of **Topics**.
40. Change the **Status** for the **Show Stores from Dataverse** topic to **On**.
41. Change the **Status** for the **Show Stores** topic to **Off**.

Type	Name	Trigger phrases	Status
	[FK] Show Stores	(4) Store locations	<input type="checkbox"/> Off
	[FK] Show Stores from Dataverse	(4) Store locations	<input checked="" type="checkbox"/> On

Test the bot

42. To test the bot, in the **Test bot** pane:
 - a. Click to turn on **Track between topics**
 - b. At the bottom of the **Test bot** pane, type one of the trigger phrases and press enter
 - c. Confirm that the list of stores is shown

Note

Even though you didn't do this in this exercise, renaming flow steps to something more meaningful is considered a best practice guideline.

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Exercise 4 - Configure Authentication

In this exercise, you will create a topic that shows the orders for an authenticated user. The user is authenticated using Azure Active Directory and only the orders for the user are shown. The Azure App Registration has already been configured. You will configure authentication for your bot.

Configure Azure AD Authentication

1. Navigate to **Power Virtual Agents** as per Exercise 1.
2. In the left-hand navigation, click **Manage** and then **Security**.
3. On the right, click **Authentication**.
4. In the **Authentication** pane, select **Manual (for any channel including Teams)**
5. Configure authentication using the following:
 - a. **Require users to sign in**: Do NOT select
 - b. **Service Provider**: Azure Active Directory v2
 - c. **Client ID**: *provided by instructor*
 - d. **Client secret**: *provided by instructor*
 - e. **Token exchange URL**: leave blank
 - f. **Scopes**: profile openid User.Read
6. Click **Save** and then click **Close**.

Create the Authenticate topic

This topic will be called by the **Order Status** topic (which you will create after this one).

1. In the left-hand navigation, click **Topics**.
2. Click **New topic**.
3. Replace **Untitled** with **Authenticate**
4. In the **Trigger phrases** pane, in **Add phrases**, add the following (press enter between each phrase):
 - a. Login
 - b. Authenticate
5. Close the **Trigger phrases** pane (click the X).
6. In the **Message box** type **We need to authenticate you**.
7. Click the + below **Message**, click **Call an action** and then select **Authenticate**.

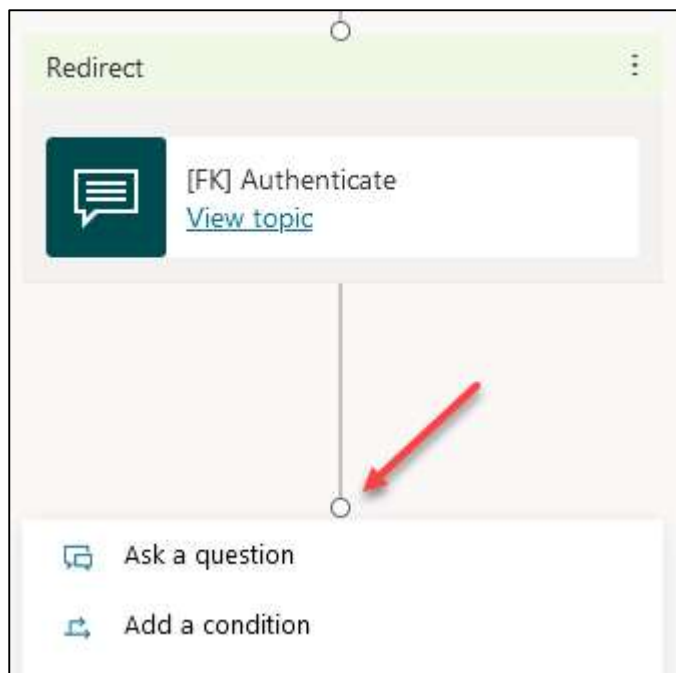
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8. Note the various nodes that are added, conditions, messages, and question.
9. Click **Save** (top-right).
10. Navigate back to the list of **Topics**.

Create the Order Status topic

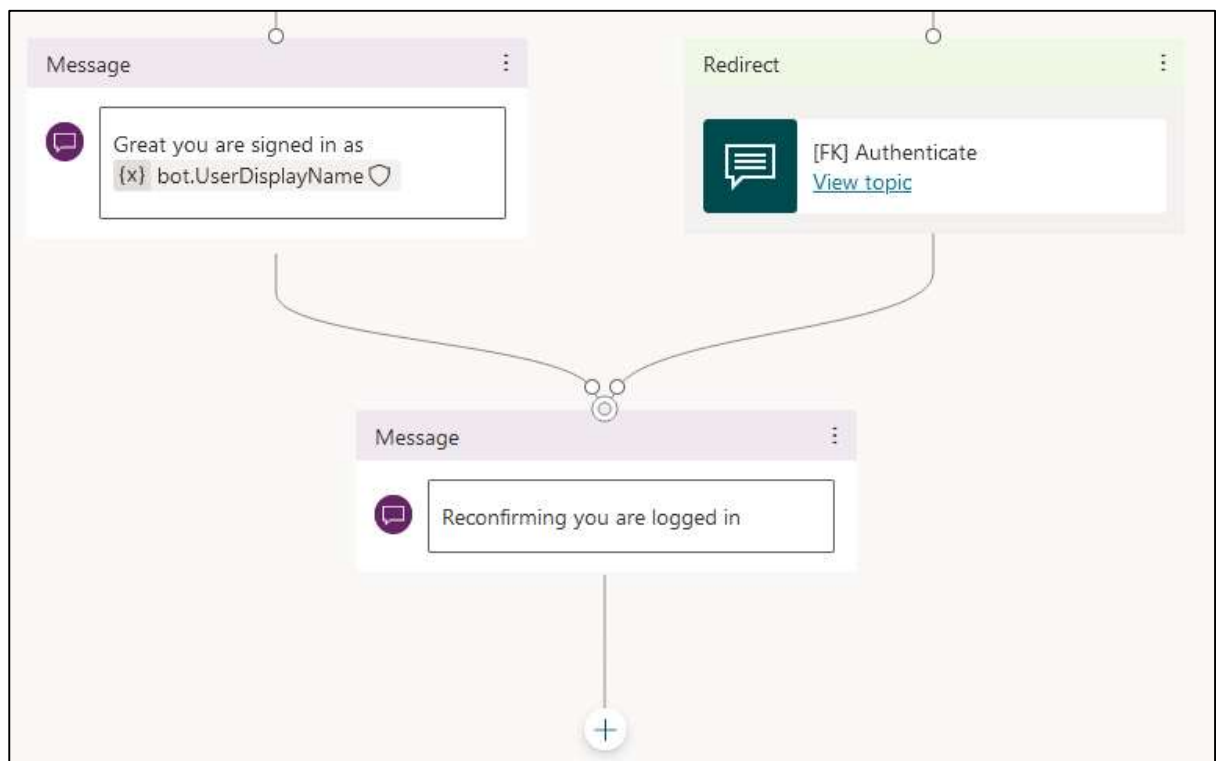
1. In the left-hand navigation, click **Topics**.
2. Click **New topic**.
3. Replace **Untitled** with **Show Orders from Dataverse**
4. In the **Trigger phrases** pane, in **Add phrases**, add the following (press enter between each phrase):
 - a. What is the status of my orders?
 - b. Show my orders
 - c. List my orders
5. In the **Message** box, type **I can help with that, but first I need to check if you have been authenticated.**
6. Click the + below **Message**, and then click **Add a condition**.
7. In the left-hand **Condition** node, select the **bot.IsLoggedIn** variable and under **is equal to** select **True**.
8. Click the + below the left-hand **Condition**, and then click **Show a message**.
9. In the **Message** box, type **Great, you are already signed in as**
10. Click in the text area of the **Message box** after the text you just typed and then click the **Insert Variable icon {x}** and select the **bot.UserName** variable.
11. Click the + below the right-hand **Condition** (labelled **All other conditions**), and then click **Redirect to another topic** and then click **Authenticate**.
12. Click the + below the **Message** box you created below the left-hand condition and then click **Show a message**.
13. In the Message box, type **Reconfirming you are logged in.**
14. Click **Save** (top-right).
15. Click the + below the **Redirect** node and then click the small circle. The circle changes colour and then collapses to just the +.

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16. Click the small circle above the **Message** node you just added.

17. The **Message** node moves to underneath both arrows.



Create the flow

18. Click the + below the Reconfirming you are logged in **Message** node and then click **Call an action** and then select **Create a flow**.

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19. A new browser tab or window opens in the Power Automate flow designer.
20. Rename the flow from **Power Virtual Agents Flow Template** to **[XX] Get Orders from Dataverse** (replace XX with your initials).
21. In the Power Virtual Agents step, click **Add an input**.
22. Under **Choose the type of user input**, click **Text**.
23. Change the parameter name **Input** to **Azure User ID**.
24. Hover over the line between the two nodes, click on the + when it appears and then click on **Add an action**.
25. In **Search connectors and actions**, type **Variable**.
26. In the list of boxes, click **Variable**.
27. In the list of actions, click **Initialize Variable**.
28. Configure the **Initialize Variable** action as follows:
 - a. In **Name**, type **Orders**.
 - b. In **Type**, select **String**.
 - c. In Value, type **Here are your active orders:** followed by two new lines followed by **| **Name** | **Date** | **Total** |** followed by a new line and then **|-----|-----|-----:|** and then another new line.

Note: this is markdown formatting for a table.

Value	<pre>Here are your active orders: **Name** **Date** **Total** ----- ----- -----: </pre>
-------	---

29. Hover over the line after the **Initialize Variable** node, click on the + when it appears and then click on **Add an action**.
30. In **Search connectors and actions**, type **Dataverse**.
31. In the list of boxes, click **Microsoft Dataverse** (don't select Microsoft Dataverse (legacy)).
32. In the list of actions, click **List rows**.
33. In Table name, select **Orders**
34. In the **List rows** step, click **Show advanced options**.

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35. In the **Fetch Xml Query** box, paste the following:

```
<fetch>  
<entity name="ecs_order">  
<link-entity name="contact" from="contactid" to="ecs_contact">  
<filter>  
<condition attribute="ecs_azureadid" operator="eq" value="
```

36. Click in the **Fetch Xml Query** box on the line after the text you pasted in and then in the **Dynamics content** pane click on **Azure User ID**.

37. Click in the **Fetch Xml Query** box on the line after Azure User ID variable and paste the following:

```
" /></filter></link-entity></entity></fetch>
```

38. The step should look like the screenshot below; the formatting of the text in terms of spaces and new lines in the Fetch XML Query does not matter.

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The screenshot shows the 'List rows' configuration window. The 'Table name' is set to 'Orders'. The 'Fetch Xml Query' field contains the following XML snippet:

```
<fetch>
<entity name="ecs_order">
<link-entity name="contact" from="contactid" to="ecs_contact">
<filter>
<condition attribute="ecs_azureadid" operator="eq" value="
Azure User ID " /> </filter> </link-entity> </entity> </fetch>
```

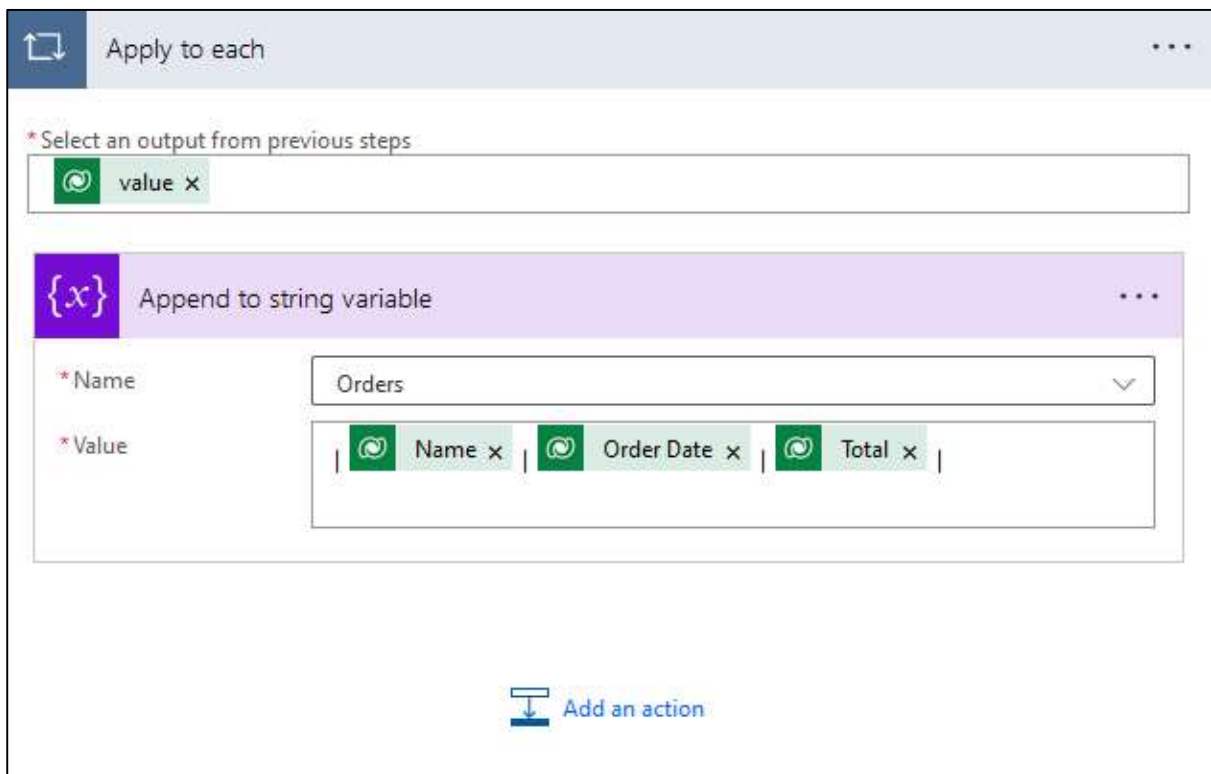
Below the XML snippet is a link for 'Add dynamic content' with a plus icon. At the bottom of the form, there is a link for 'Hide advanced options' with an upward arrow icon.

39. Hover over the line after the **List rows** node, click on the + when it appears and then click on **Add an action**.
40. In **Search connectors and actions**, type **Apply to each**.
41. In the list of actions, click **Apply to each (Control)**.
42. In **Select an output from previous steps**, in the **Search dynamic content** box, click on **value** showing under **List Rows**.
43. Click on **Add an action** showing in the **Apply to Each** action.
44. In **Search connectors and actions**, type **Variable**.
45. In the list of boxes, click **Variable**.
46. In the list of actions, click **Append to string variable**.
47. In the **Append to string variable** action:
 - a. In **Name**, select **Orders**.

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- b. For **Value**, use the **Dynamic content** box, to add the **Name**, **Order Date** and **Total** variables showing under **List Rows** (you will need to use the vertical scroll bar in the **Dynamic content** window, or you can use the **Search dynamic content** box).
- c. Add a | (vertical line) followed by a space before the **Name** variable.
- d. Add a space followed by a | (vertical line) and a space between the **Name** and **Order Date** variables and also between the **Order Date** and **Total** variables.
- e. Add a space followed by a | (vertical line) after the **Total** variable and then add a newline.

48. The **Apply to Each** step should look like the screenshot below.



49. Click on the **Return value(s) to Power Virtual Agents** action.

50. Click on **Add an output**.

51. Configure the output parameter as follows:

- a. **Type**: select **Text**
- b. **Title**: type **Orders**
- c. **Enter a value to respond**: use the Dynamic content pane to select the **Orders** variable.

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52. Click **Save**.

Continue editing the topic in Power Virtual Agents

53. After the flow has saved, switch back to the **Power Virtual Agents** browser window.

54. Click again on the **Call an action** node (to refresh the list of flows) and then click on the flow you just created (**[XX] Get Stores from Dataverse**).

55. Hover over the line after the **Action** node, click on the + when it appears and then click on **Add an action** and then click on **Show a message**.

56. Click in the text area of the **Message box** and then click the **Insert Variable icon {x}** and select the **Orders** variable

57. Click **Save** (top-right).

58. Navigate back to the list of **Topics**.

Test the bot

59. To test the bot, in the **Test bot** pane:

- a. Click to turn on Track between topics
- b. At the bottom of the Test bot pane, type one of the trigger phrases and press enter
- c. Follow the login process – this authenticates you as your currently logged in user account.
- d. Confirm that the list of orders is shown.

Optional Test

1. Log in to the model-driven app at <https://bizz2022.crm11.dynamics.com> and select the **PVA Workshop** app.
2. Navigate to Orders and create more orders for your user.
3. Re-test the bot to see the new orders.