

Building solutions with Dataverse for Teams

# Lab 5 – Analytics with Power BI

Workshop Version: 1.4, Published: 02-2023

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# Exercise 1:

## Connect and prepare the data



### Important – Working with lab tenant

- All the labs in this course require you to use the latest version of Edge or Chrome in Incognito/InPrivate mode.
- Use Office 365 credentials retrieved from Skillable (Labs on Demand) in Lab 0.
- Always remember to replace M365XXXXXXX with your lab tenant prefix.
- If you are experiencing any problems with working in your lab tenant – please, notify your instructor as soon as possible.

### Objectives:

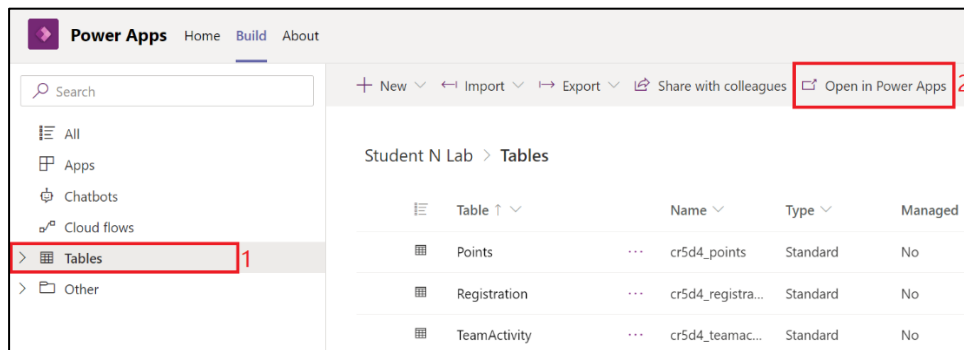
- Get data from Dataverse for Teams
- Apply data transformations and enhance the model

### Estimated time:

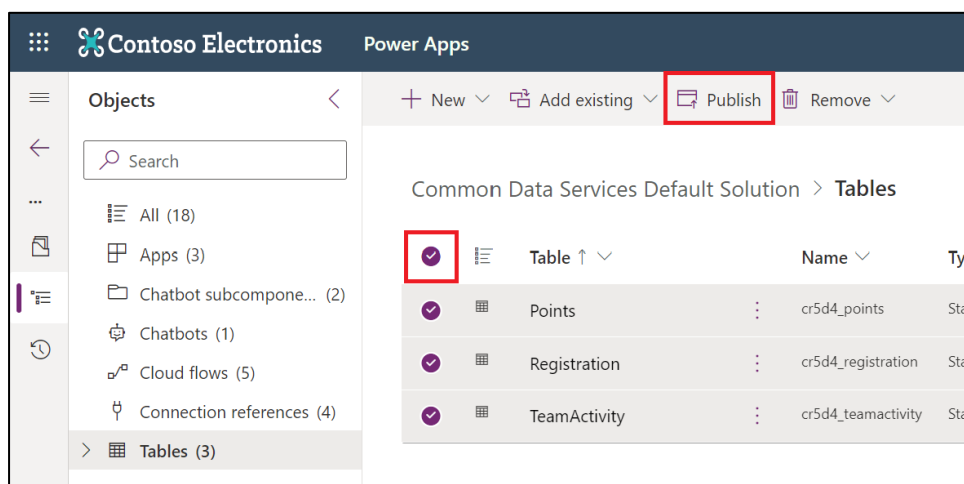
30 minutes

## Task 1: Publish Dataverse for Teams tables

1. Navigate to **Dataverse for Teams content of your Team**
2. Select **Tables** in the left menu and then **Open in Power Apps** button in the toolbar



3. Select all the Tables and click **Publish** button



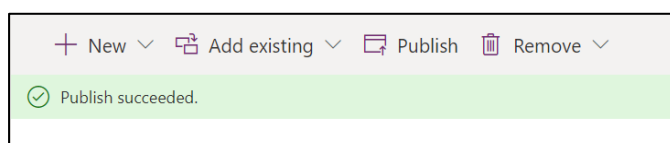
This action is needed to populate string values of Choices fields and lookups for reporting purposes.

For example:

crXXX\_approvalstatus = 0 -> crXXX\_approvalstatusname = 'In waitlist'

**Note:** If you did optional tasks, please, do the same for **Points** table

4. Give it a moment, you should see a notification, that "Publish succeeded".

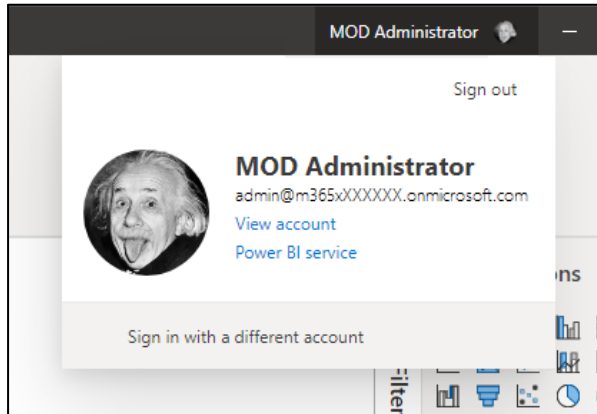


Task is completed.

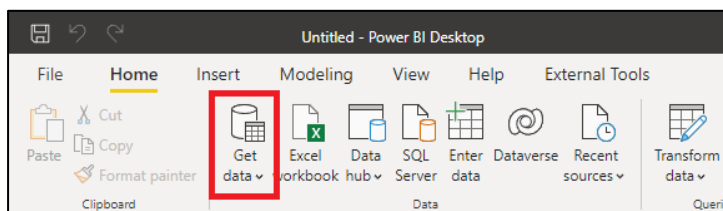
## Task 2: Get data from Dataverse for Teams tables

1. Start **Power BI Desktop** client

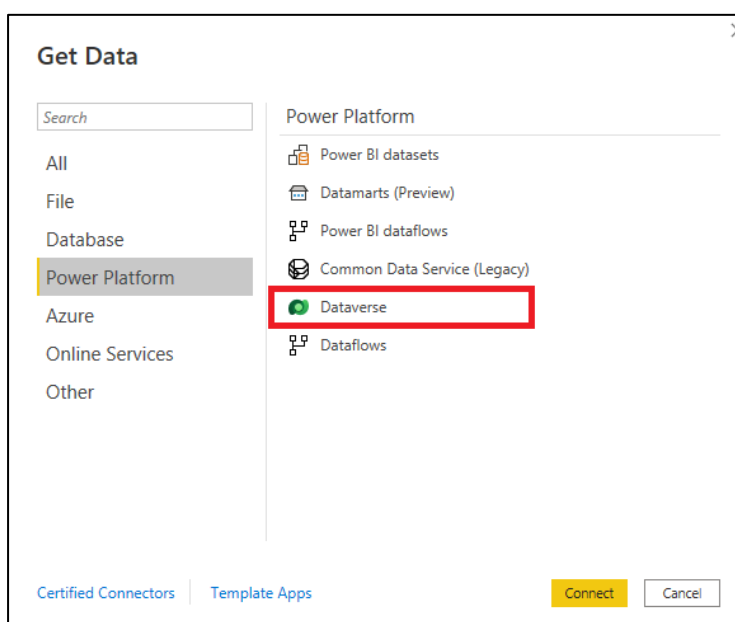
Make sure you're logged in as *admin@m365XXXXXX.onmicrosoft.com*



2. First, we need to **Get Data** for analytics from **Dataverse for Teams** tables, that were created before  
Click **Get Data** to start



3. In **Get data** dialog, go to **Power Platform** category and select **Dataverse**, click **Connect** button

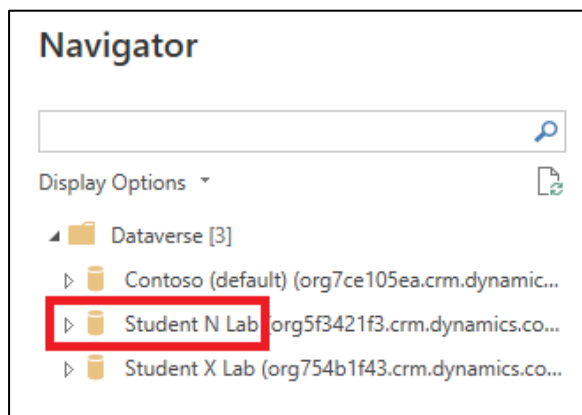


4. Click **Sign In** button and provide your **Administrator** user credentials to get access to your tables data from Power BI Desktop



After you signed in, click **Connect** button

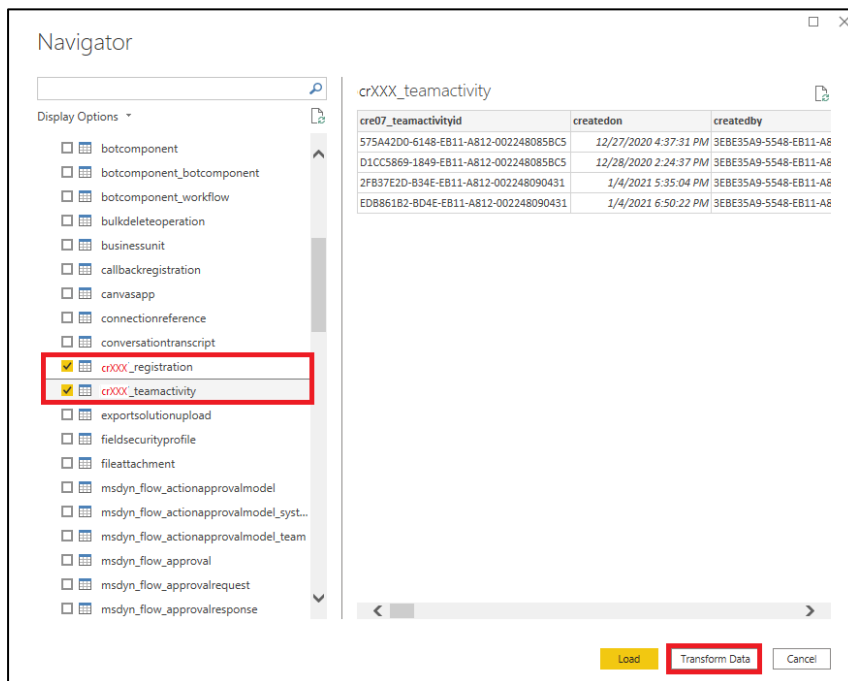
5. Wait for **Navigator** to load all the available environments and expand your Dataverse for Teams (e.g., Student N Lab)



6. In **Navigator** dialog, select **2 tables** that we've created before:
  - a. crXXX\_registration
  - b. crXXX\_teamactivity

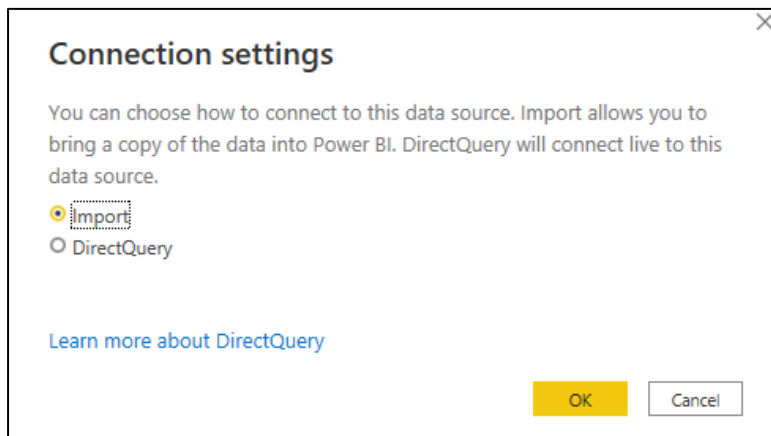
*Please, remember, that the custom table names start with **crXXX** prefix unique for your environment.*

Click **Transform Data** button



- Let's use **Import** data connectivity mode as it provides the best performance and flexibility in terms of data transformations, data mashup and modelling.

Click **OK** button



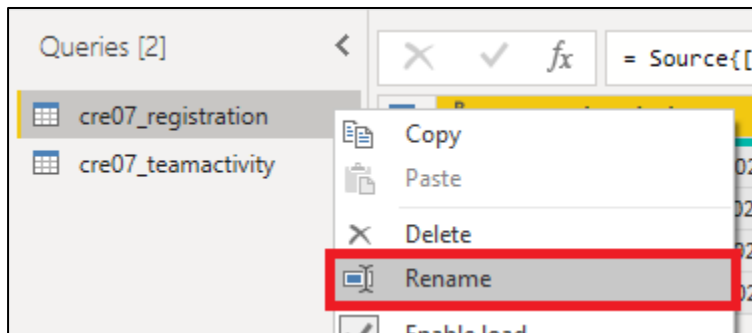
Use **DirectQuery** when you work with very big datasets or 'near real-time' reporting is the business requirement

- You should see Power Query Editor window opened – we're ready for the next task.

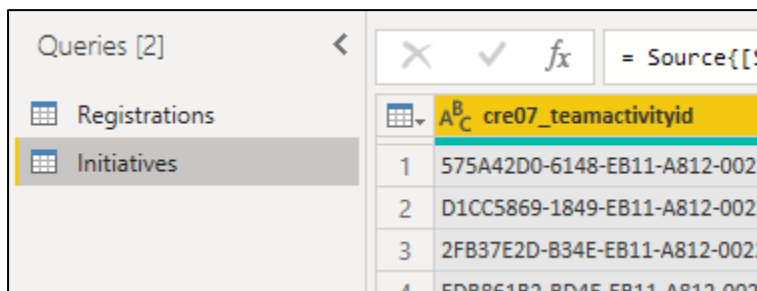
**Task is completed.**

### Task 3: Transform data from Dataverse for Teams tables

1. In **Power Query Editor** left **Queries** panel, right-click on the query and select **Rename option**. Rename both queries:
  - a. crXXX\_registration -> Registrations
  - b. crXXX\_teamactivities -> Initiatives



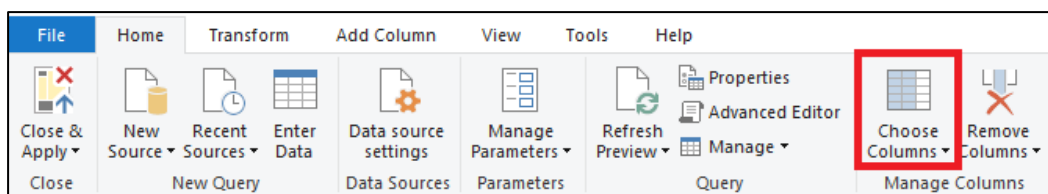
Result should look like this:



We can switch between queries by clicking on them in **Queries** panel

2. In **Query** panel, select **Registrations**
3. First, we can get rid of the data columns, that we won't need.

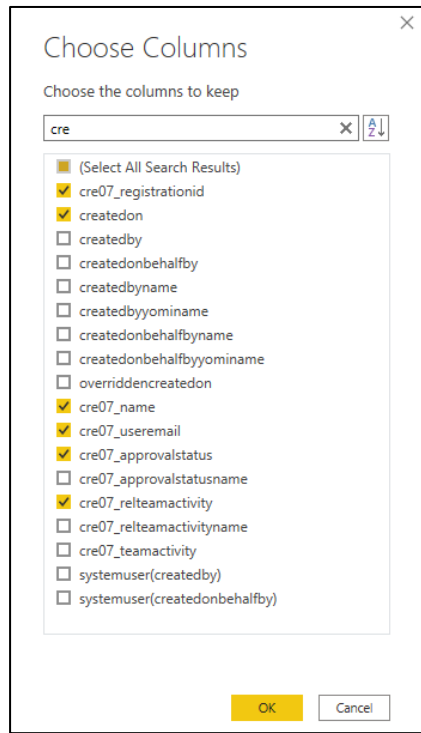
Click **Choose columns** button in the ribbon (Home tab)



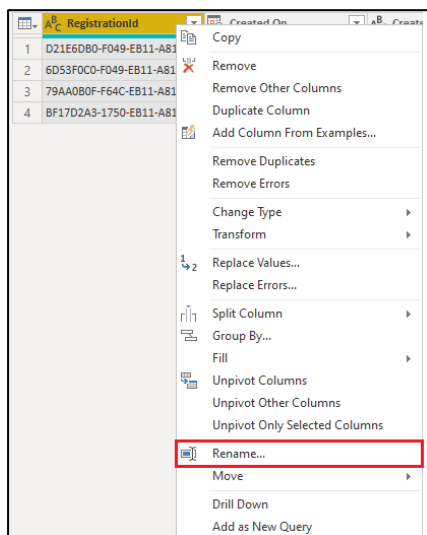
4. In **Choose columns** dialog select the following columns and click **OK**:
  - a. createdon
  - b. crXXX\_name
  - c. crXXX\_useremail



- d. crXXX\_approvalstatusname
- e. crXXX\_relteamactivity
- f. crXXX\_registrationid



5. Right-click on a column header and select **Rename** option to rename it (alternatively, double left-click a column header OR use F2 button)



Rename columns accordingly:

- a. createdon -> Created On
- b. crXXX\_name -> Display Name

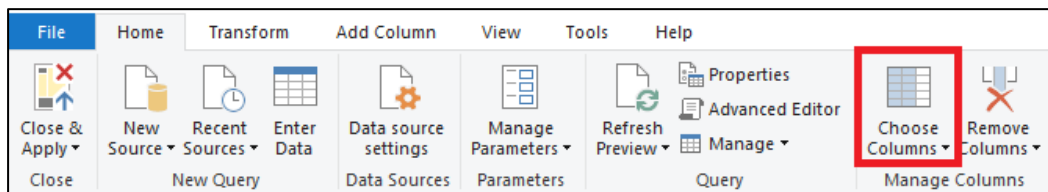
- c. crXXX\_useremail -> User Email
- d. crXXX\_approvalstatusname -> Approval Status
- e. crXXX\_relteamactivity -> TeamActivityId
- f. crXXX\_registrationid -> RegistrationId

Result should look like this:

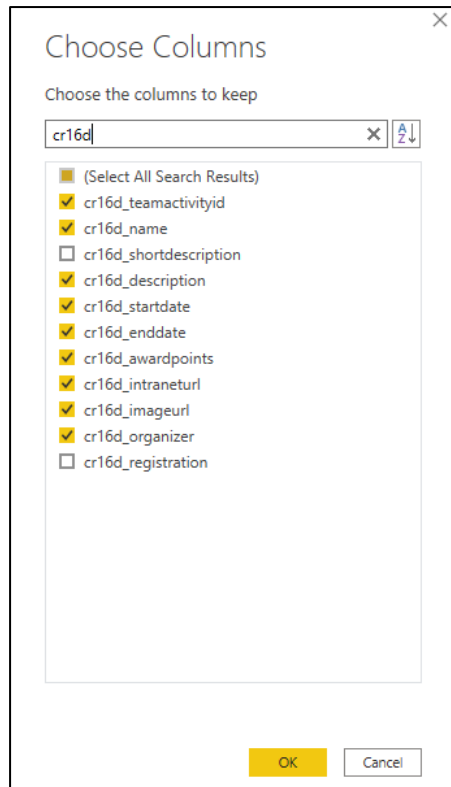
RegistrationId	Created On	Display Name	User Email	Approval Status	TeamActivityId
0500710F-735C-F811-AB13-0033480033	3/21/2021 3:00:12 PM	Aditya Vaidya	aditya.vaidya@msn.com	1	0-34FA1E1F-CDCC-F811-AB13-0033480033

6. In **Query** panel, select **Initiatives**
7. First, we can get rid of the data columns, that we won't need.

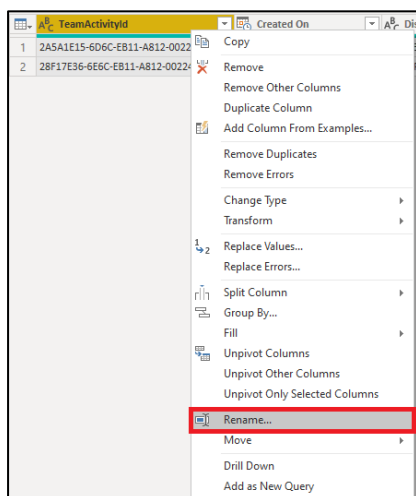
Click **Choose columns** button in the ribbon (Home tab)



8. In **Choose column** select the following columns and click **OK**:
  - a. crXXX\_name
  - b. crXXX\_description
  - c. crXXX\_startdate
  - d. crXXX\_enddate
  - e. crXXX\_awardpoints
  - f. crXXX\_imageurl
  - g. crXXX\_intraneturl
  - h. crXXX\_teamactivityid
  - i. crXXX\_organizer



9. Right-click on a column header and select **Rename** option to rename it (alternatively, double left-click a column header OR use F2 button)

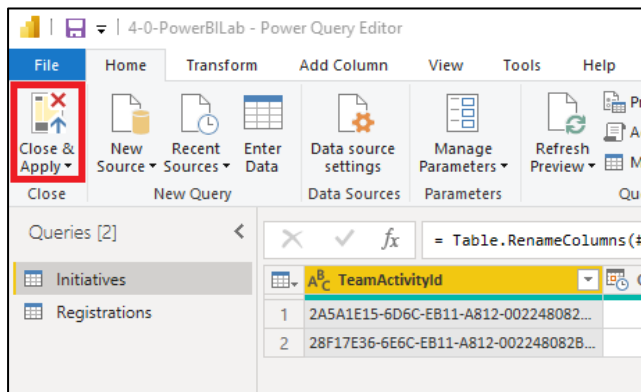


Rename columns accordingly:

- a. crXXX\_name -> Display Name
- b. crXXX\_description -> Description
- c. crXXX\_startdate -> Start Date
- d. crXXX\_enddate -> End Date
- e. crXXX\_awardpoints -> Points

- f. crXXX\_imageurl -> Image URL
- g. crXXX\_intraneturl -> Intranet URL
- h. crXXX\_teamactivity -> TeamActivityId
- i. crXXX\_organizer -> Organizer


10. Click **Close & Apply** to apply the transformations

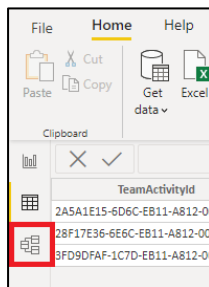


**Note:** Notice that Power Query Editor is closed now, and you returned to Power BI main interface.

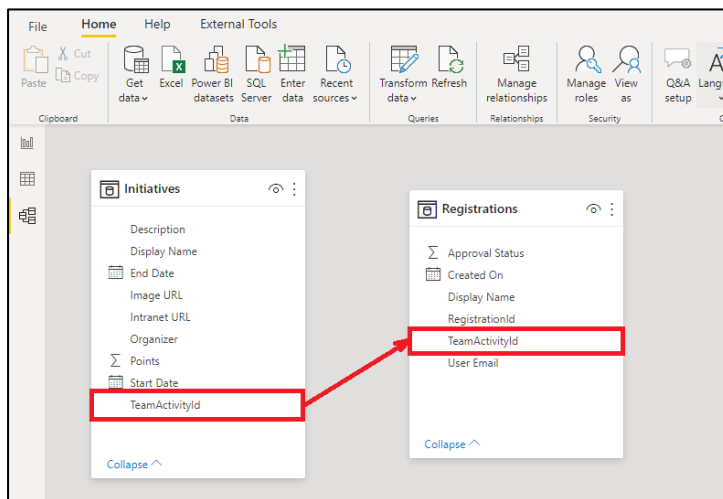
**Task is completed.**

## Task 4: Build a data model

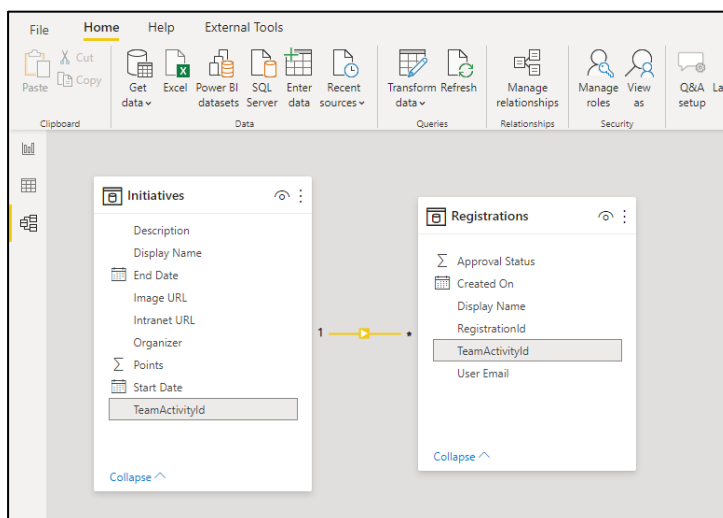
1. In left pane select **Model** 




2. If there's no active relationship between **Initiatives** and **Registrations** entities, then drag-n-drop **TeamActivityId** from one entity to another to create a relationship.

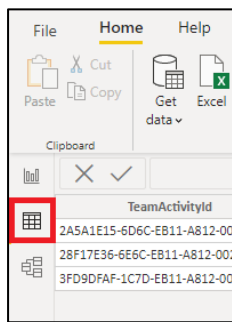


3. The resulting one-to-many relationship should look like this:



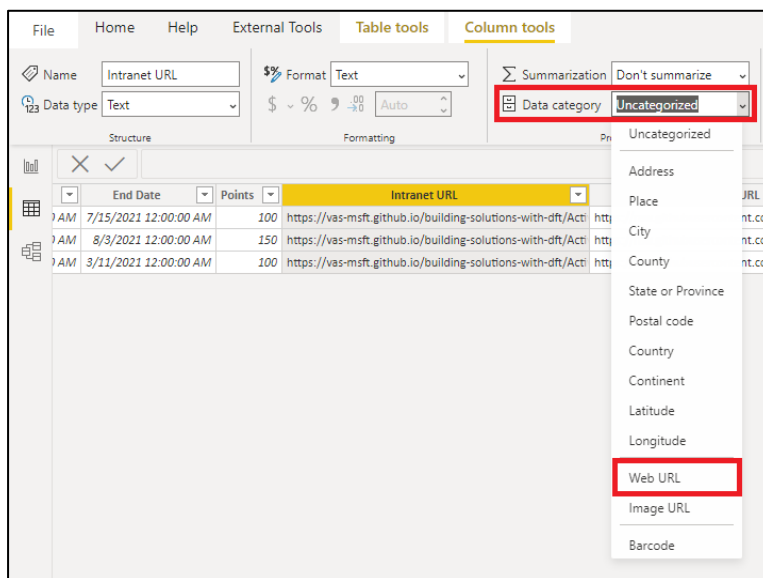
**Note:** we will use this relationship to easily implement cross-filtering in a report

4. In left pane select **Data** 



5. To make Intranet URLs clickable in the report, select **Intranet URL** column

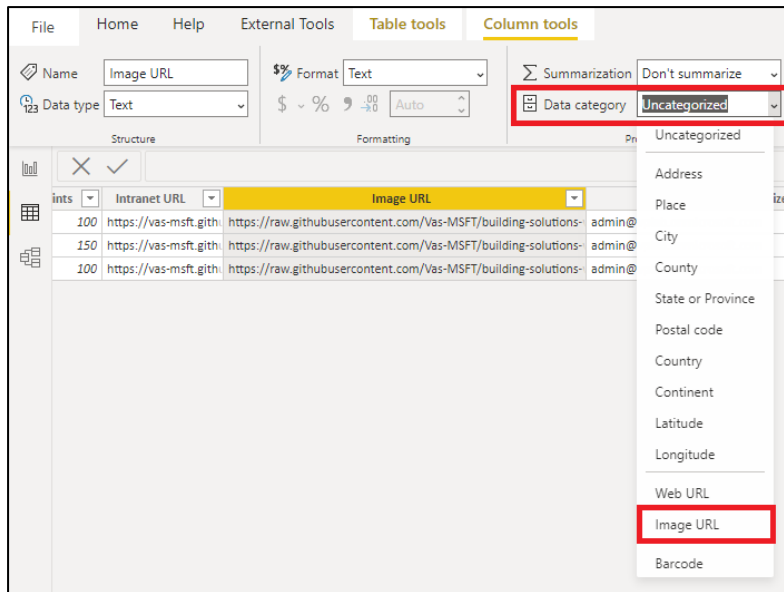
In ribbon set **Data category** as **Web URL**



In report Power BI visuals will display this column's data as clickable URLs now, not just as a plain text.

6. To make Image URLs displayed as images, select **Image URL** column

In ribbon set **Data category** as **Image URL**



In report Power BI visuals will display this column's data as images now, not just as a plain text.

**Task is completed.**

# Exercise 2:

## Build and publish a report

### Objectives:


- Explore Power BI visualizations
- Publish a report to Power BI service
- Configure data refresh
- Embed report into Microsoft Teams

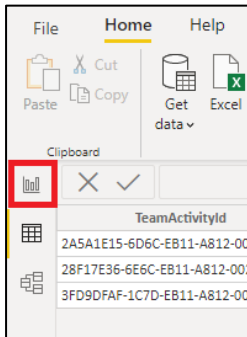
### Estimated time:

30 minutes

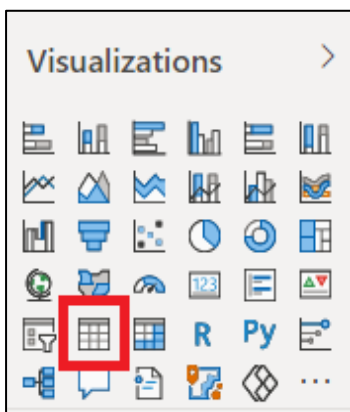


## Task 1: Build a report - Table

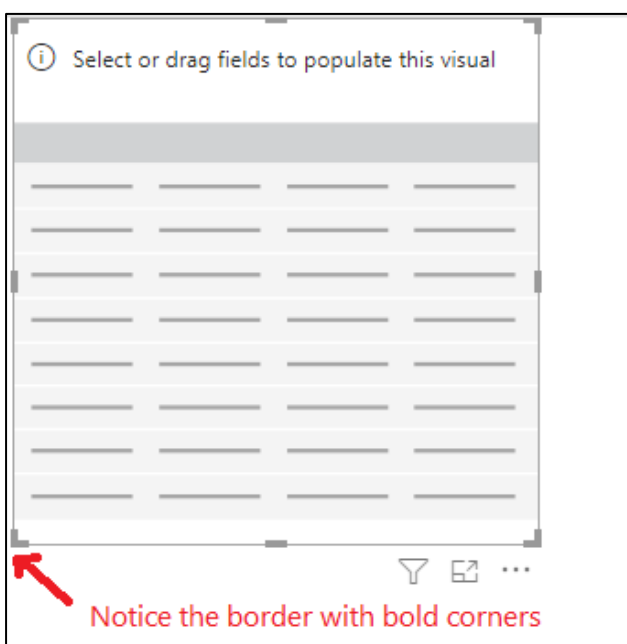
1. In left pane select **Report** 



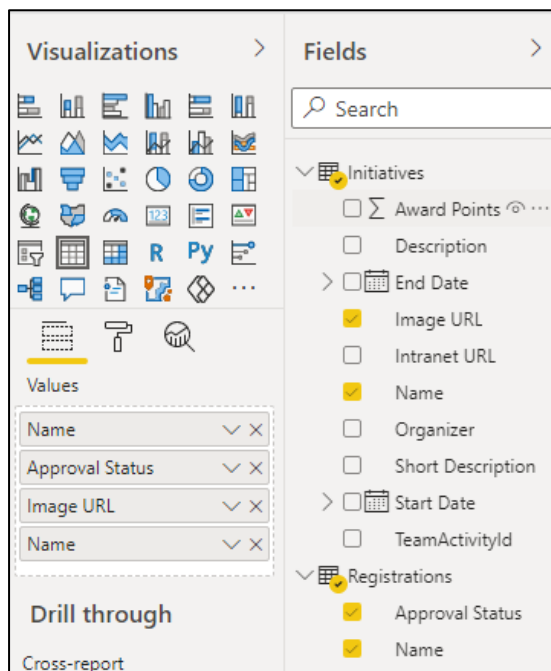
2. In **Visualizations**, select **Table** visual



3. Make sure that the **Table** visualization is selected. You will see a border with bold corners around the visualization if it's selected.



4. In **Fields** pane,
- expand **Registrations** and select **Name, Approval Status** fields,
  - expand **Initiatives** and select **Image URL, Name**



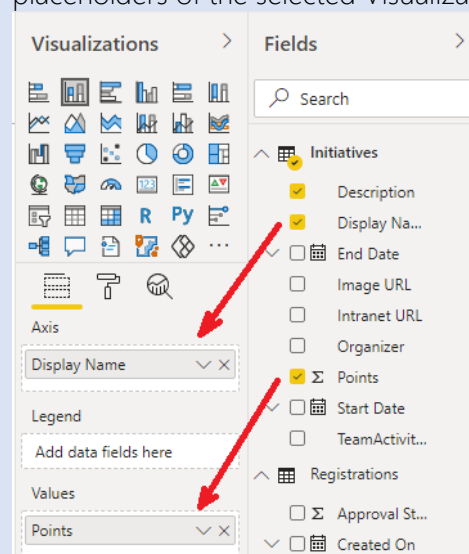
## Adding data to a visualization

There are multiple ways of how you can add data to a visualisation:

- 1) Select a visualization and check boxes in Field pane, just as we did in step 4.
- 2) Drag-n-drop field from the Fields pane to the visualization, where you want to add the data.

**Methods 1 and 2 work well for a simple visualization like Table or Card.**





- 3) Select a visualization and drag-n-drop fields from the Fields pane to appropriate placeholders of the selected Visualization.



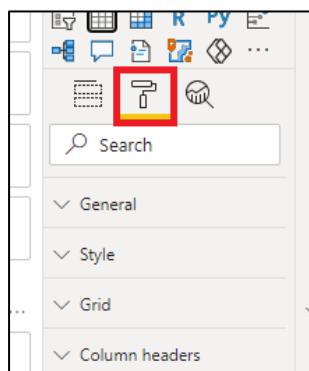
5. **Resize** the table to fit more columns by dragging the corner of the visualization.

Notice that images are displayed according to data categorization.

Result may look like this:

Name	Approval Status	Image URL	Name
Adele Vance	In waitlist		Team Building CY2021
Megan Bowen	Approved		Team Building CY2021
Sir Administrator	In waitlist		Team Building CY2021
Sir Administrator	Approved		M365 Readiness workshop

6. Explore and try out some of Table's **Format** options.

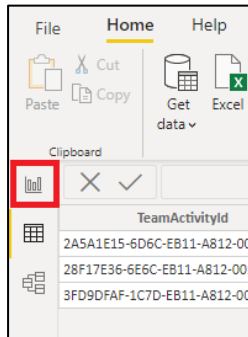


7. Save your report by pressing **Ctrl+S** or through **File -> Save** menu

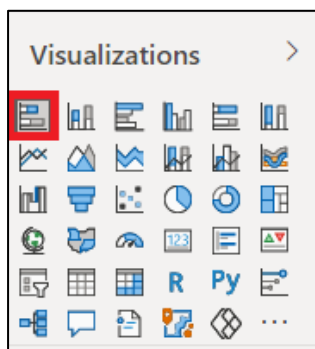
**Task is completed.**

## Task 2: Build a report – Bar chart

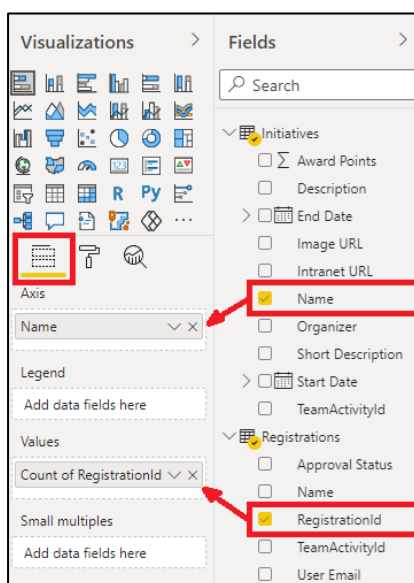
1. In left pane select **Report**  (if it's not selected)



2. In **Visualizations**, select **Stacked bar chart** visual

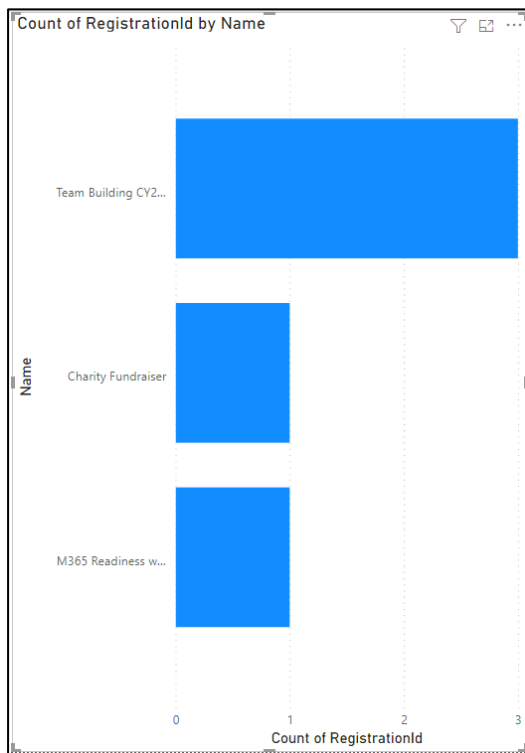


3. Make sure that Bar chart visual is selected and in **Fields** pane,
  - expand **Initiatives** and drag-n-drop **Name** to **Axis**,
  - expand **Registrations** and drag-n-drop **RegistrationId** to **Values**

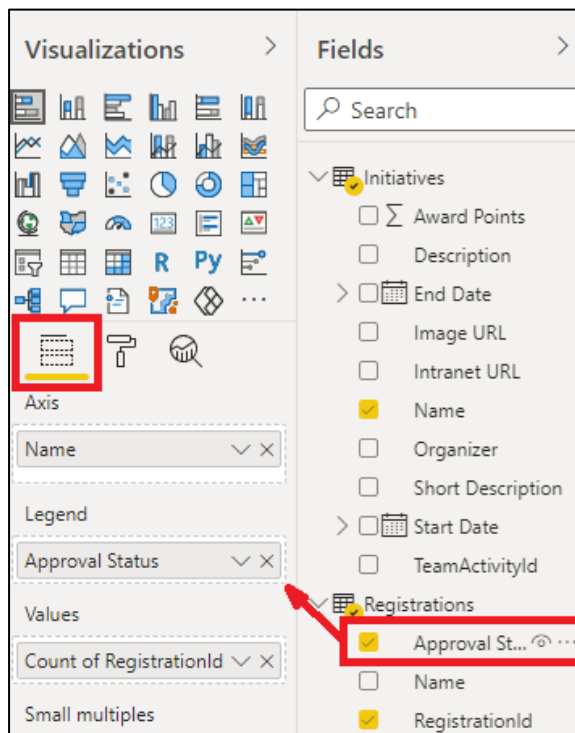


Notice, that **RegistrationId** becomes **Count of RegistrationId**

You Bar Chart should look like this:

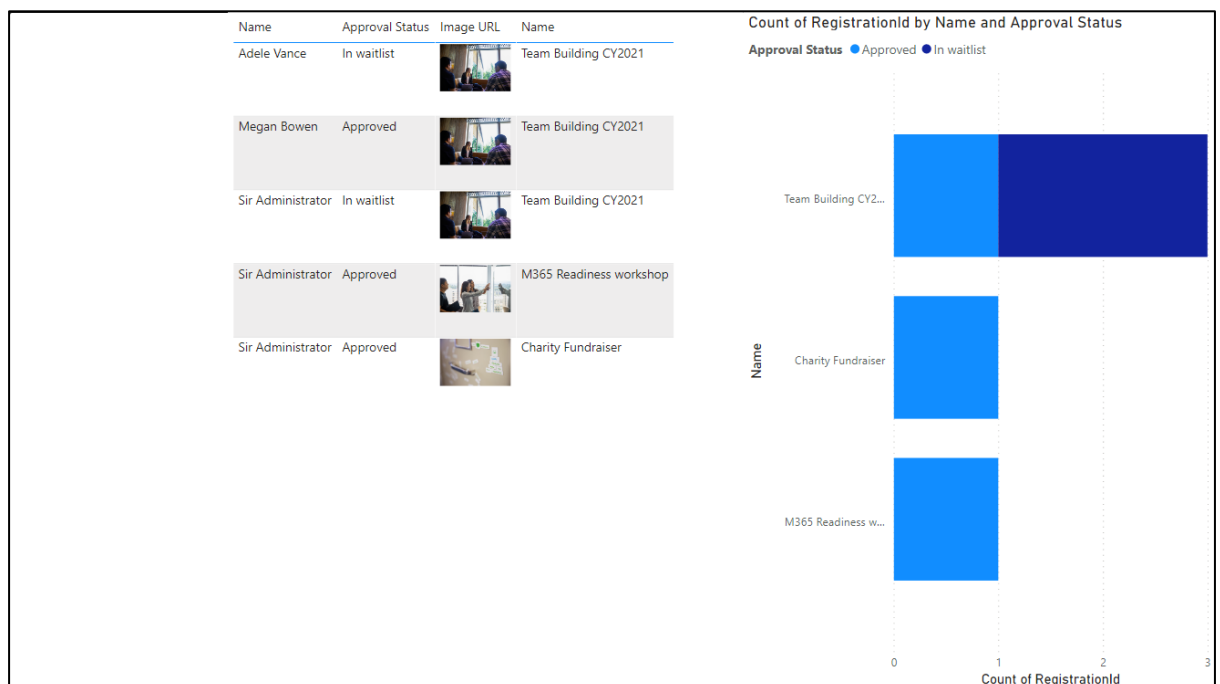


4. In **Fields** pane, expand **Registrations** and drag-n-drop **Approval Status** to **Legend**

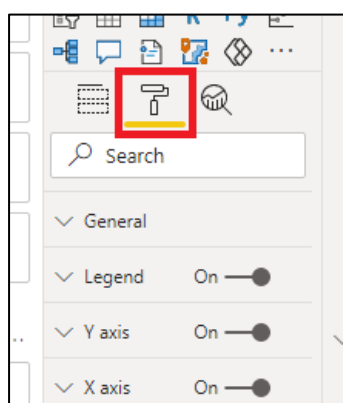


Notice that bar charted is now stacked and contains approval status information.

5. Resize and align **Bar chart** visual in any way you like.  
Your report page may look like this:



6. Explore and try out some of Bar chart's **Format** options.

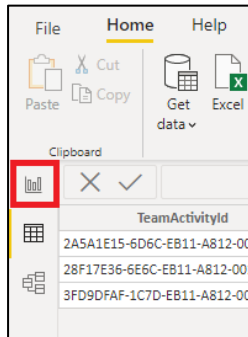


7. Save your report by pressing **Ctrl+S** or through **File -> Save** menu

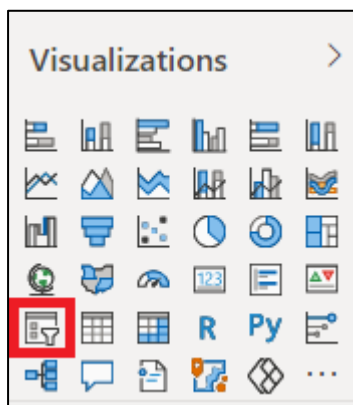
**Task is completed.**

## Task 3: Build a report – Slicer

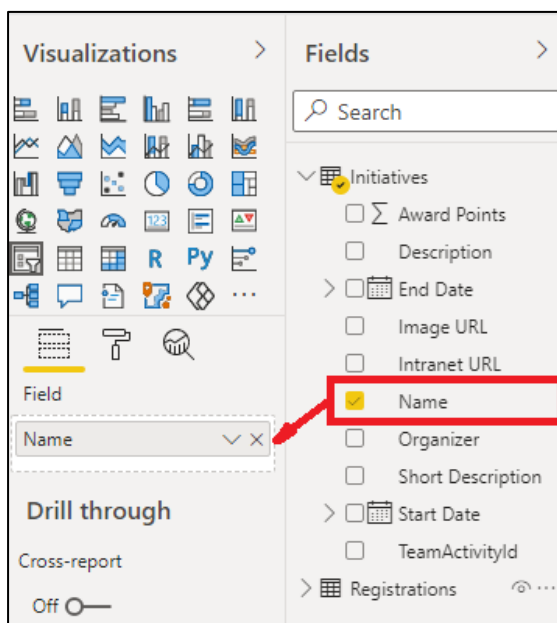
1. In left pane select **Report**  (if it's not selected)



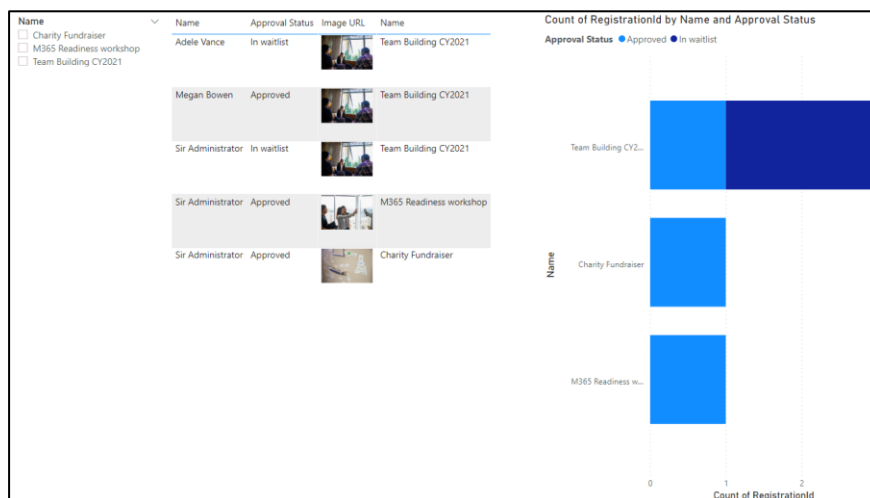
2. In **Visualizations**, select **Slicer** visual



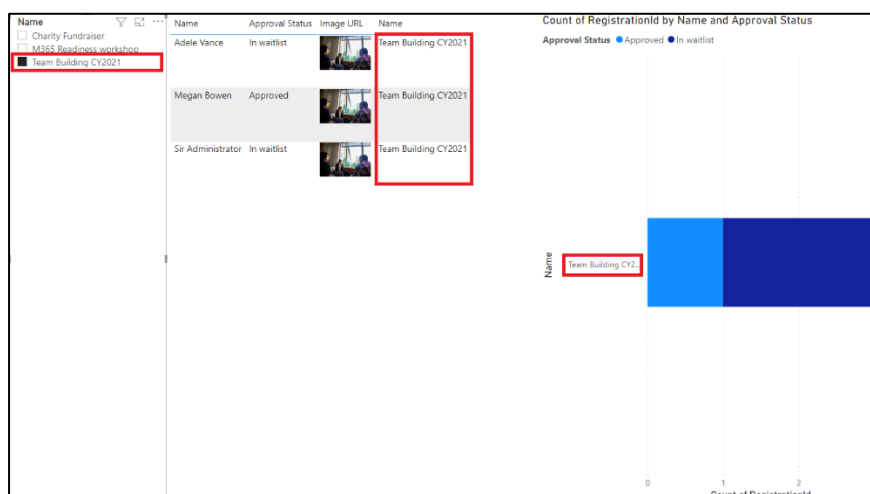
3. Make sure **Slicer** visual is selected.  
In **Fields** pane, expand **Initiatives** and select **Name**



4. Resize and align **Slicer** visual in any way you like.  
Your report page may look like this:



5. Try clicking on Slicer options, notice how report changes.  
For example:



Filtering works automatically, because we defined relationships and cross-filtering direction between **Initiatives** and **Registrations**.

6. Feel free to experiment with your data and any additional visualizations.  
Try out Slicer's **Format** options.

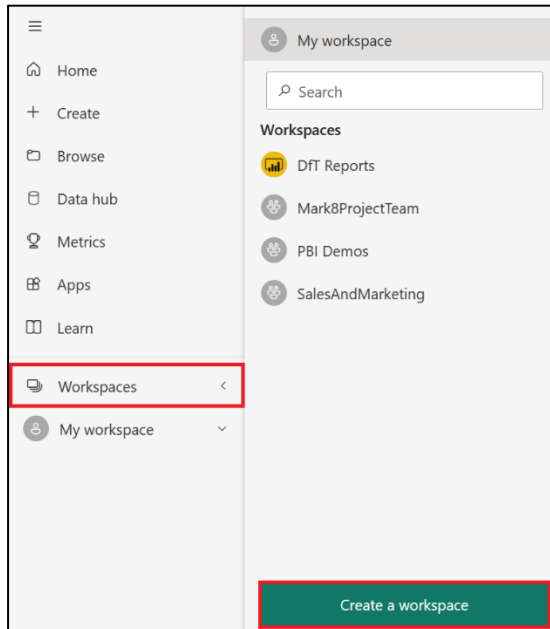
7. Save your report by pressing **Ctrl+S** or through **File -> Save** menu

**Task is completed.**



## Task 4: Prepare a Power BI workspace

1. In **InPrivate/Incognito** browser mode, while logged in into your **M365XXXXXX lab tenant**, navigate to <https://app.powerbi.com>
2. In the left navigation select **Workspaces** and click **Create a workspace** button



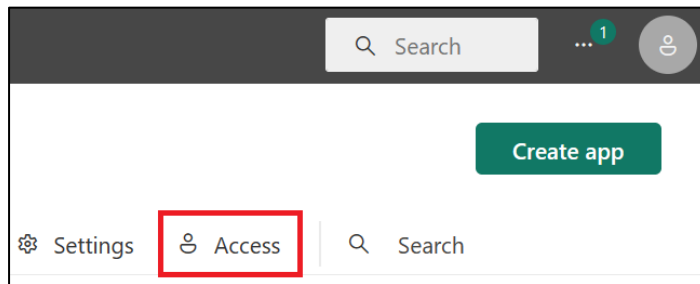
3. In workspace creation dialog, set **Workspace name** as Initiative Analytics and click **Save** button

A screenshot of the 'Create a workspace' dialog box. The title is 'Create a workspace'. Below the title, there is a 'Workspace image' section with a circular icon and 'Upload' and 'Delete' buttons. The 'Workspace name' field is required (indicated by an asterisk) and contains the text 'Initiative Analytics'. Below this is an 'Available' status indicator. The 'Description' field is a large text area with the placeholder text 'Describe this workspace'. At the bottom right, there are two buttons: 'Save' (highlighted with a red rectangle) and 'Cancel'.

A newly created workspace should get opened in a moment.

4. Let's add our team members to be able to view content in this workspace.

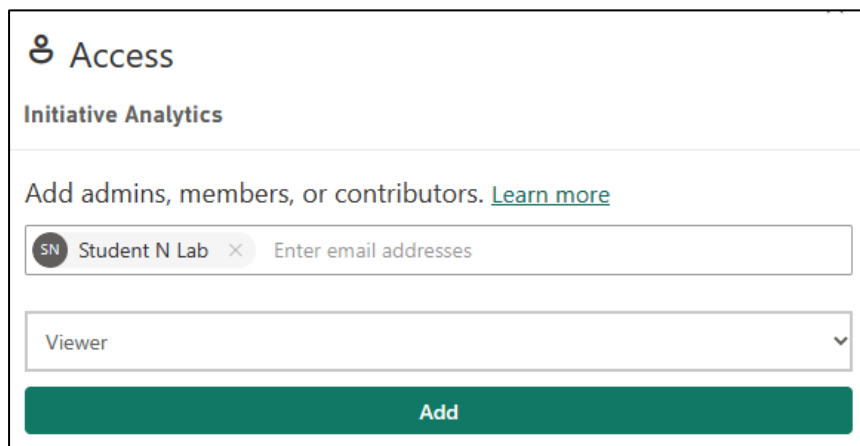
Click **Access** button



5. **Select** your team in a people picker (e.g., Student N Lab)

Set permission level as **Viewer**

Click **Add** button



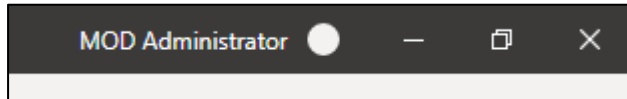
Make sure, that your team was added as **Viewer** after you clicked **Add** button.


Q Search		
NAME	PERMISSION	
System Administrator ⓘ	Admin	...
Student N Lab ⓘ	Viewer	...

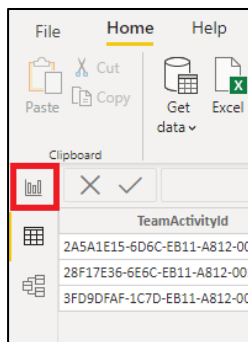
Task is completed.

## Task 5: Publish a Power BI report and set up data refresh

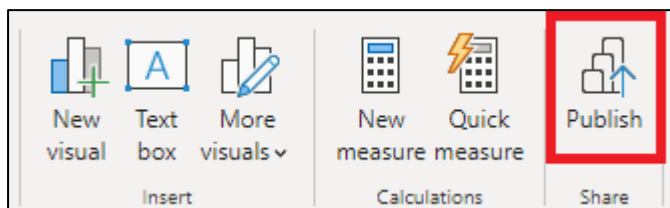
1. Go back to **Power BI Desktop** or open your report once again if you closed it.
2. Make sure that Power BI Desktop is logged into your lab M365 tenant



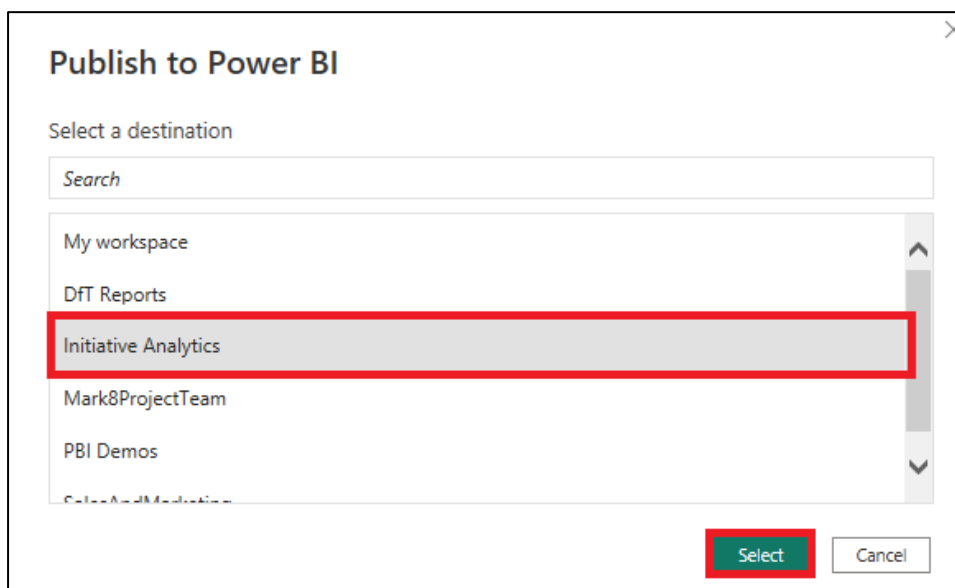
3. Make sure that you are in **Report**  mode



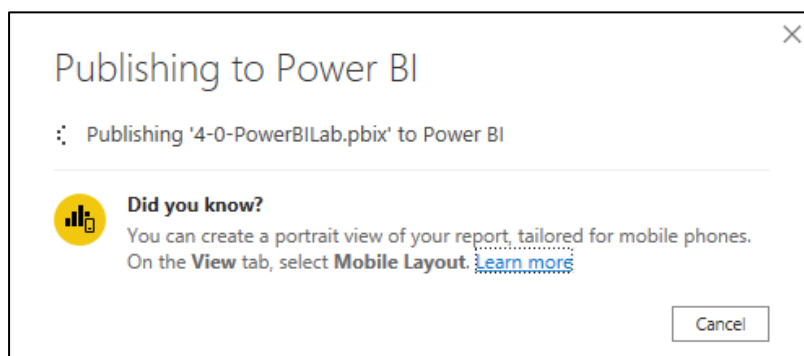
4. In ribbon click **Publish** button



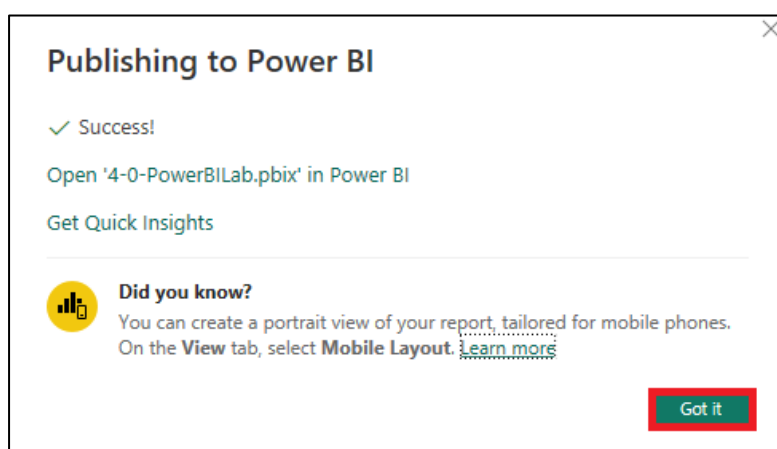
5. In Publish to Power BI dialog **choose** *Initiative Analytics* workspace (that was created in the previous task) and click **Select** button



- Wait until the report will get published to Power BI service

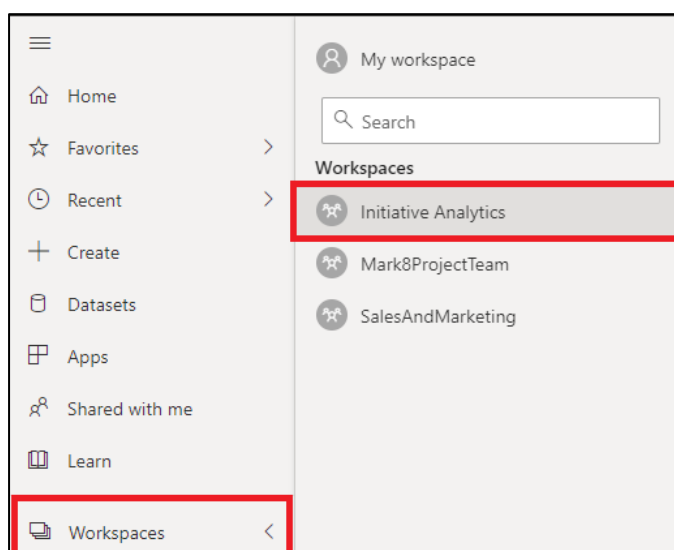


Click **Got it** when it's finished




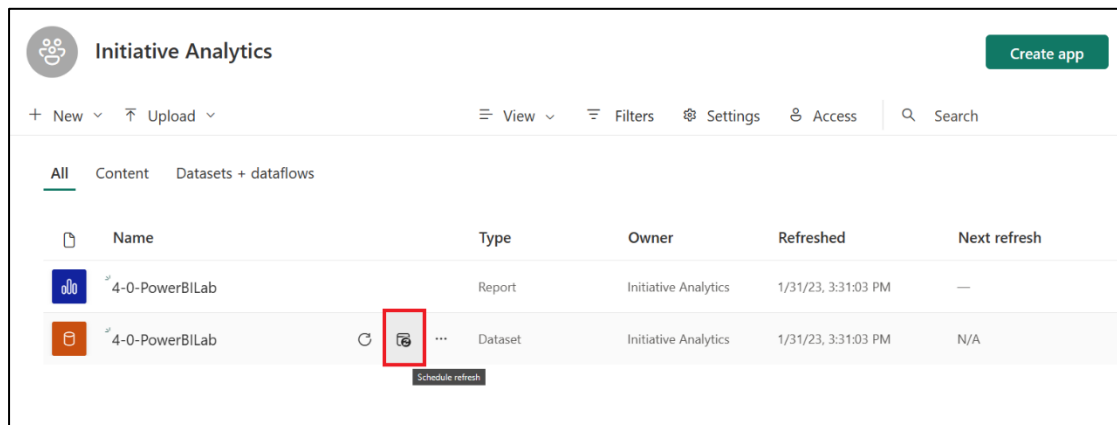
*Report and dataset should be published to Initiative Analytics workspace now.*

- In **InPrivate/Incognito** browser mode, while logged in into your **M365XXXXXX lab tenant**, navigate to <https://app.powerbi.com>
- In the left navigation select **Workspaces** and choose *Initiative Analytics* workspace



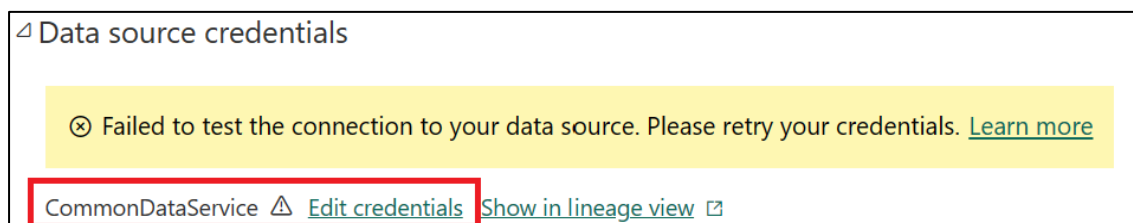
9. You should see that report and dataset are published into this workspace.

Hover a cursor over a dataset and click on **Schedule refresh** icon 

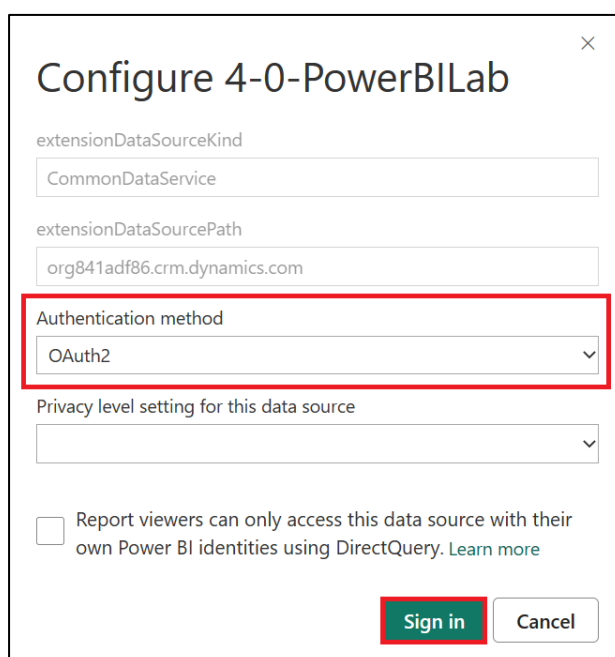


10. Notice that data refresh is not working, because Power BI Service do not have credentials, that will be used to update the data in this dataset.

Click **Edit credentials**



11. In Configure dialog, make sure that *OAuth2* is selected as an authentication method and click **Sign in** button



12. Use your lab tenant credentials for data refresh e.g.,  
admin@m365xxxxxx.onmicrosoft.com  
(please, replace xxxxxxx with your tenant prefix)
13. After refresh credentials are set up, expand **Scheduled refresh** settings and switch on **Keep your data up to date**

Click **Apply** button to set up default daily refresh

⌵ Scheduled refresh

Keep your data up to date

Configure a data refresh schedule to import data from the data source into the dataset. [Learn more](#)

On

Refresh frequency

Daily

Time zone

(UTC) Dublin, Edinburgh, Lisbon, Lond

Time

[Add another time](#)

Send refresh failure notifications to

Dataset owner

These contacts:

Enter email addresses

Apply

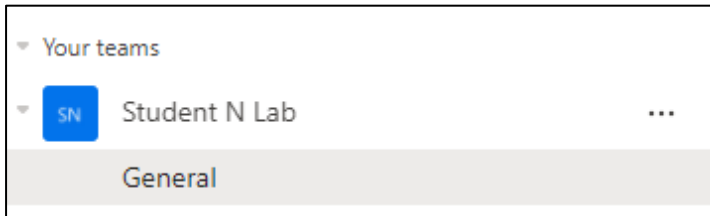
Discard

*Data in your report will automatically get refreshed from Dataverse for Teams tables on daily basis.*

**Task is completed.**

## Task 6: Embed a report to Microsoft Teams

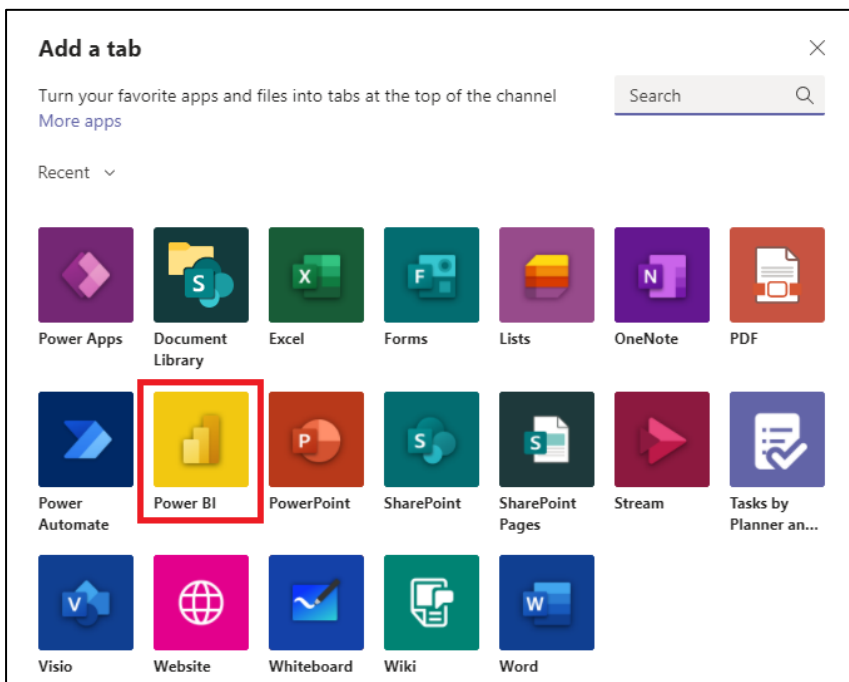
1. In **InPrivate/Incognito** browser mode, while logged in into your **M365xXXXXXX lab tenant**, navigate to <https://teams.microsoft.com>
2. Select your Team's **General** channel:



3. On the top of the chat, click + to add a new channel tab



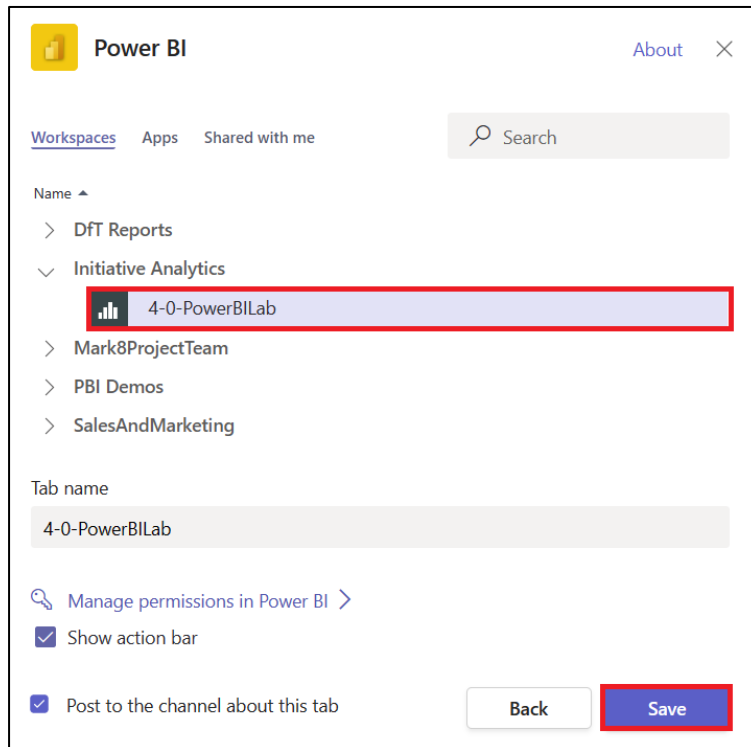
4. In Add a tab dialog, select **Power BI**



5. Set **Tab name** as *Analytics*

Expand *Initiative Analytics* workspace and **select your report**

Click **Save** button



6. Your report should get opened as a tab in your team channel.

**Task is completed.**