Power BI Embedded Workshop Guide

Outcome

At the end of this workshop, you will learn how to –

1. Module 1: Embed a Power BI report using App Owns Data embedding
2. Module 2: Embed Q&A (Question & Answer) for a Power BI dataset
3. Module 3: Understand exporting a visual's data
4. Module 4: Enable data security based on user context

Getting started

1. Open the App Owns Data sample code from your desktop
2. Open the sample in VS Code and run the sample as it is

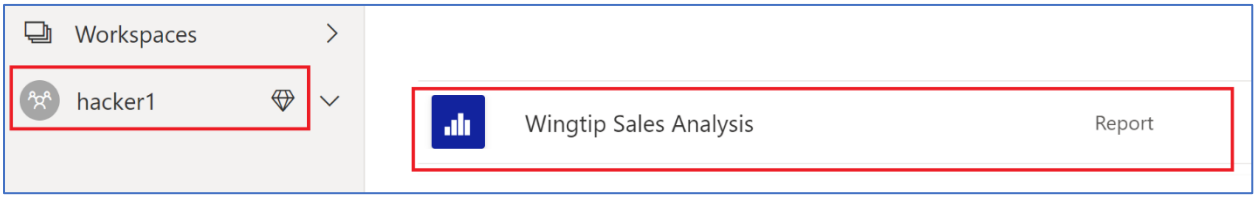
Files to be updated while completing the modules

1. **/appsettings.json**
2. /wwwroot/js/**index.js**
3. /Services/**PBIEmbedService.cs**

Hands-on

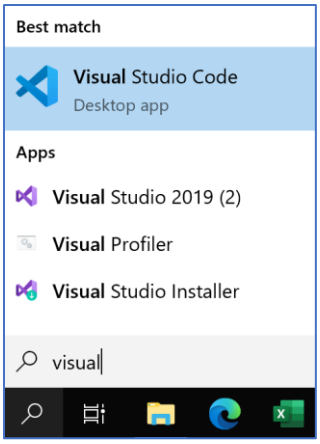
Module 1: Embedding Your First Power BI report

1. Login to your virtual machine with the username and password provided (hacker1/password)
2. Open up a browser and login to powerbi.com with the user and password provided (i.e. hacker1@ /password)
3. Find the workspace related to your hacker# (i.e. hacker1, hacker2, … hackerXX, etc.) and locate the "Wingtip Sales Analysis" report

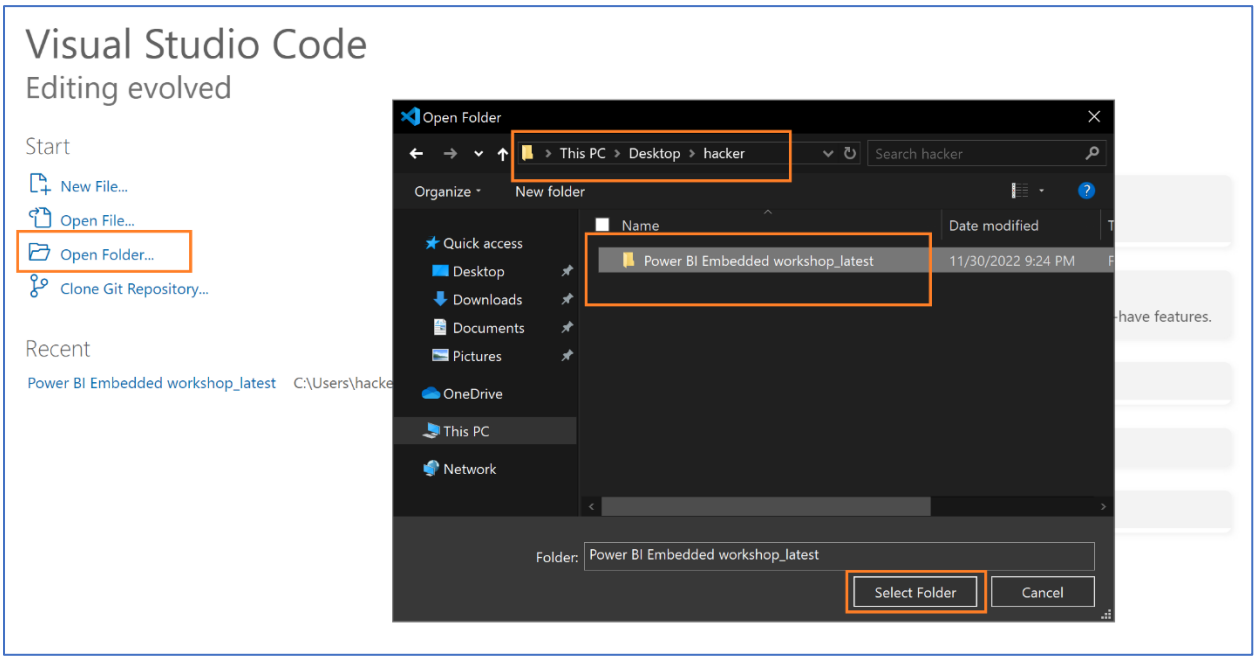


Capture the Workspace ID, Report ID, and Dataset ID for this report and put it into notepad

4. Launch Visual Studio Code – which can be found on your virtual machine



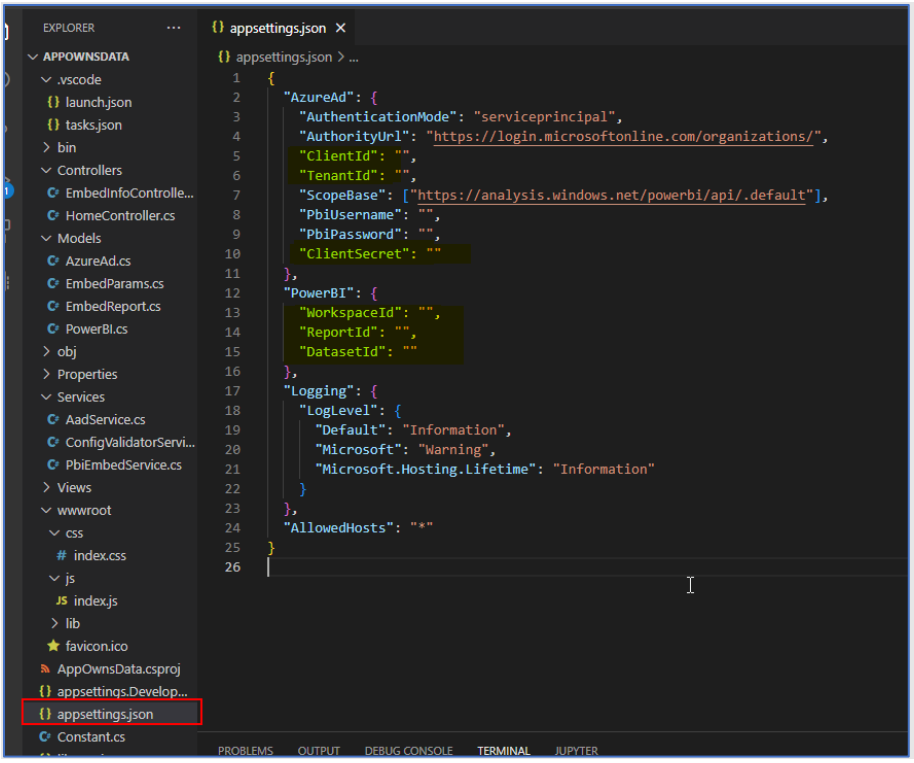
5. In Visual Studio Code – click on “Open Folder” and point to the folder where the solution can be found – this folder should be on your desktop:



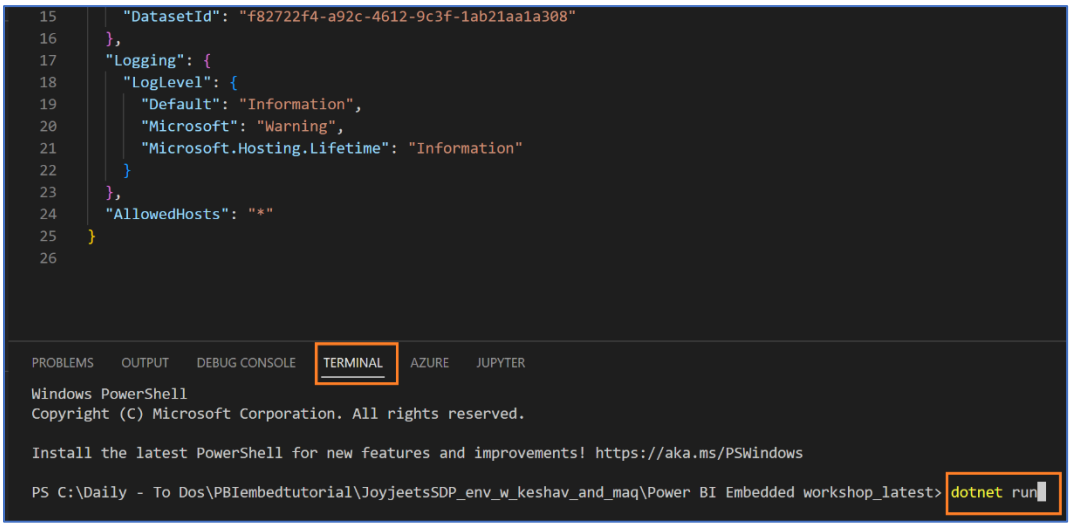
6. Navigate to the */appsettings.json* file and add/update the Azure AD and Power BI configurations i.e., client ID, tenant ID, client secret, workspace ID, report ID, and dataset ID

Important:

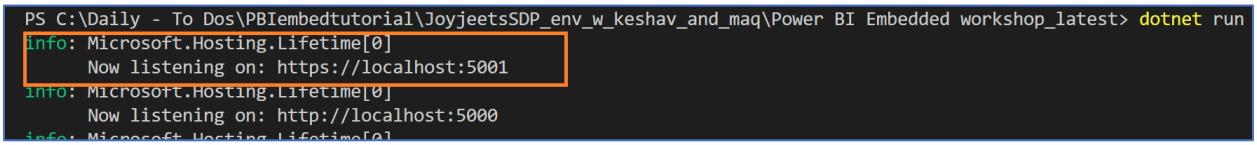
1. Azure AD configuration will be shared with you in advance or during the session.
2. For Power BI configuration, you can refer to point #5, #6, and #7 in the Environment set up section



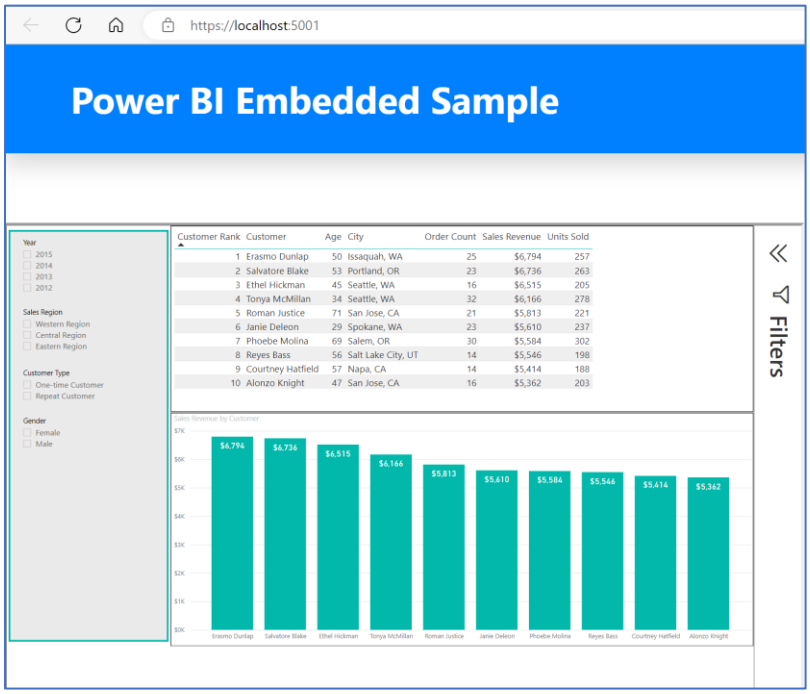
7. Click on the Terminal and type in “dotnet run” and Enter to run the sample code to embed the power bi report “Wingtip Sales Analysis” in READ mode.



8. Once the code is executed, you can click on the link https://localhost:5001” as shown below to launch the browser/app:

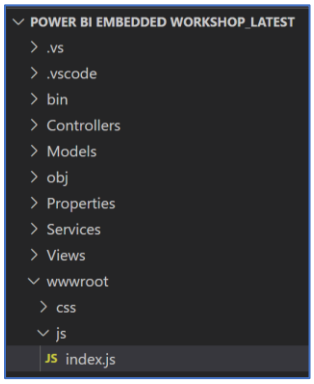


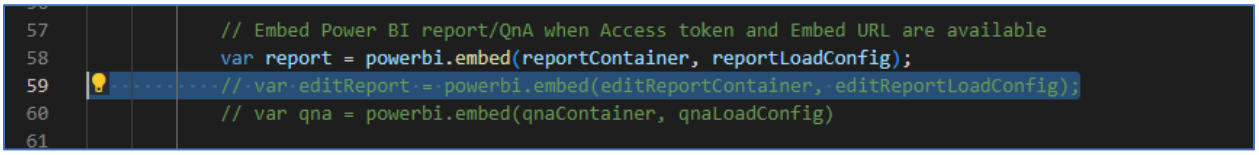
9. Once the browser is launched, you should see a web app that has now embedded your “Wingtip Sales Analysis” report you viewed from Power BI in the earlier steps.



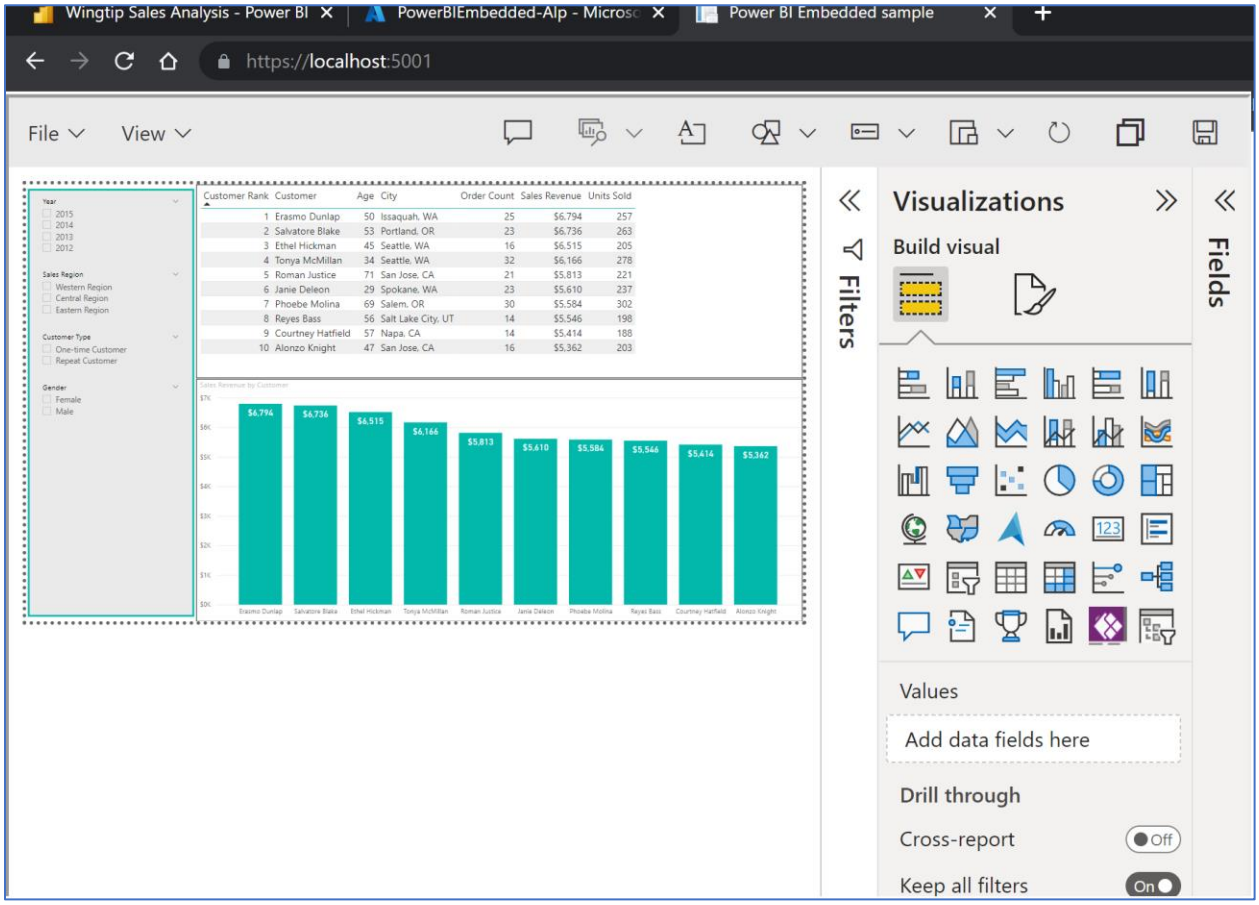
Navigate the report like you did when you were in the power bi service and note the interactivity. Now, leave the browser open and go back to your Visual Studio Code

10. Open */wwwroot/js/index.js* file. <u>Uncomment</u> the WRITE MODE embedding (i.e., line #59)



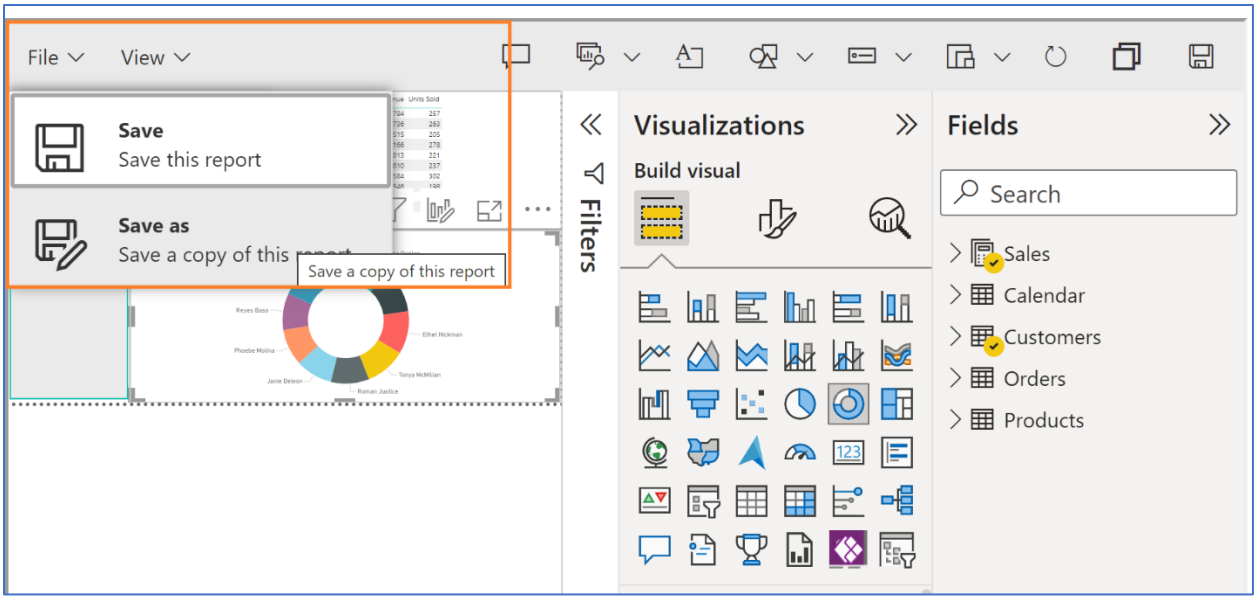


11. Save the code CTRL-S in Visual Studio Code; and refresh the web page in browser. You should see the same Wingtip Sales Analysis Report as a second report below the original report – except – now you have edit/modification capabilities:



12. Perform a test update to the embedded report and verify that the updates are getting reflected in Power BI service report after clicking on the SAVE button

    **FYI / the Save this report gives an error for me however if I do File Save As – it works



In this module, you have learnt to embed a report in Read and Edit mode

Module 2: Embedding Q&A

1. In */wwwroot/js/index.js* file, add/update the dataset ID on line #11

```
15  var embedDatasetId = "e78ea048-7709-4ce0-8e2d-217b11f30fd2"; // This is a hardcoded dataset for embedding Q&A
16
17  $.ajax({
```

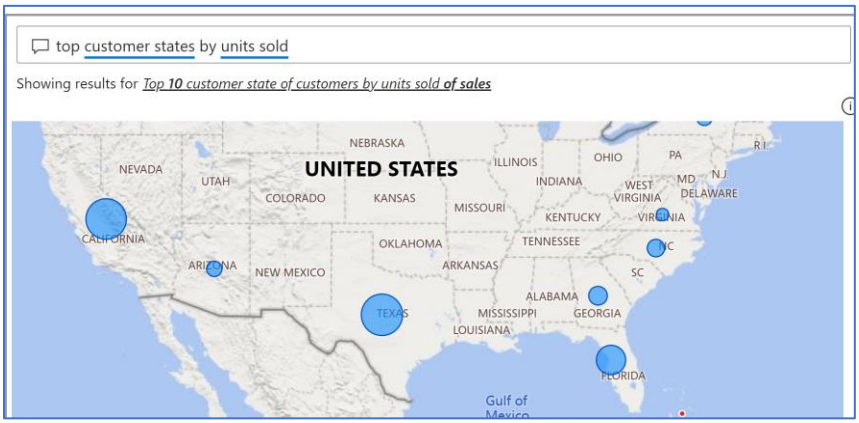
Important:

1. For dataset ID, you can refer to point #7 in the environment set up section

2.Uncomment the Q&A embed code (i.e., line #60) to embed a Q&A visual

```
57      // Embed Power BI report/QnA when Access token and Embed URL are available
58      var report = powerbi.embed(reportContainer, reportLoadConfig);
59      var editReport = powerbi.embed(editReportContainer, editReportLoadConfig);
60      //var qna = powerbi.embed(qnaContainer, qnaLoadConfig)
```

3. Save the code CTRL-S in Visual Studio Code; and refresh the web page in browser4. Try querying the dataset through the question suggestions in the visual to view the output



You can also type “top 5 customer segments by customer unit” as a custom question and check the results

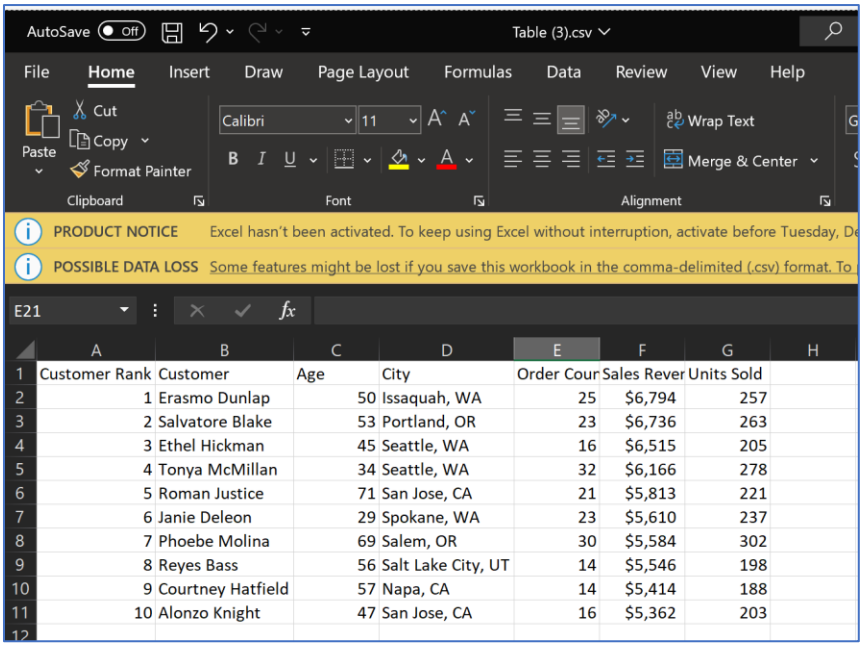
In this module, you have learnt to embed Q&A into your web application

Module 3: Export to CSV

1. Comment line #12 to enable the “Export to CSV” button by adding “//” in front of the export statement

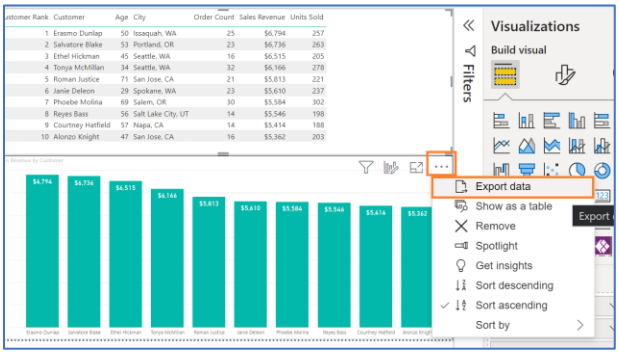
```
// $("#exportCsv").hide();
```

2. Save the code; and refresh the web page in browser
3. Click on “Export to CSV” button on the top right of the embedded report. A CSV file named will get downloaded with the exported data present in it

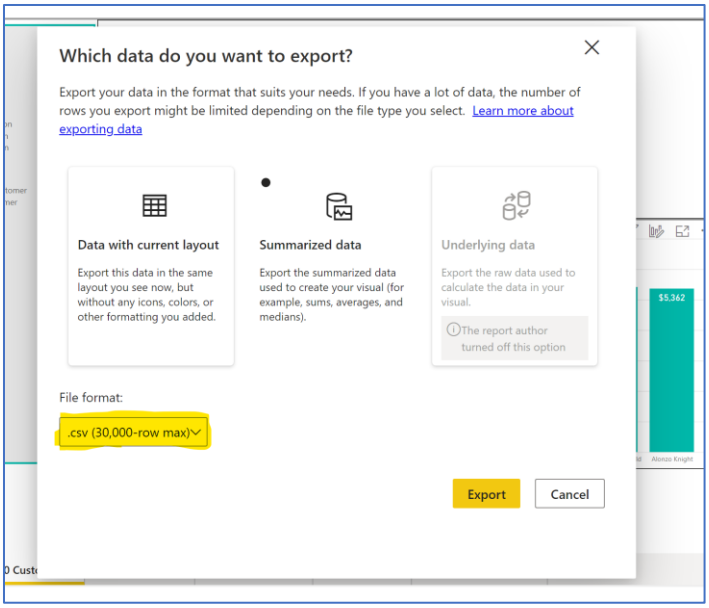


	A	B	C	D	E	F	G	H
1	Customer Rank	Customer	Age	City	Order Cour	Sales Rever	Units Sold	
2	1	Erasmo Dunlap	50	Issaquah, WA	25	$6,794	257	
3	2	Salvatore Blake	53	Portland, OR	23	$6,736	263	
4	3	Ethel Hickman	45	Seattle, WA	16	$6,515	205	
5	4	Tonya McMillan	34	Seattle, WA	32	$6,166	278	
6	5	Roman Justice	71	San Jose, CA	21	$5,813	221	
7	6	Janie Deleon	29	Spokane, WA	23	$5,610	237	
8	7	Phoebe Molina	69	Salem, OR	30	$5,584	302	
9	8	Reyes Bass	56	Salt Lake City, UT	14	$5,546	198	
10	9	Courtney Hatfield	57	Napa, CA	14	$5,414	188	
11	10	Alonzo Knight	47	San Jose, CA	16	$5,362	203	
12								

4. You can also hover over the visuals and click on the … to export the data – as shown below:



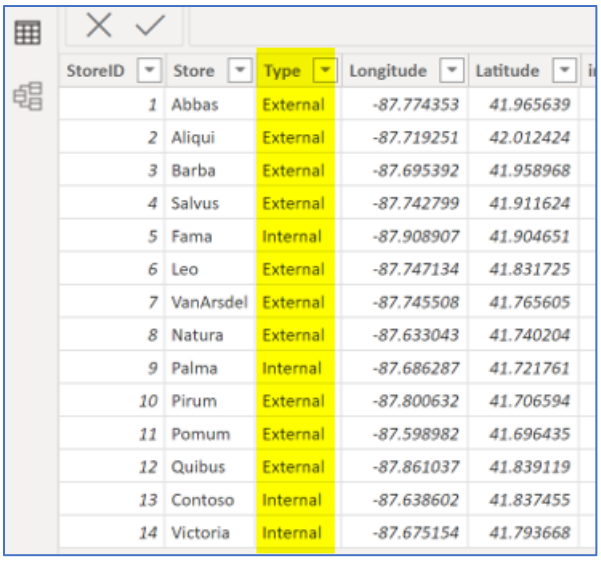
5. Please note – you will be prompted to explore various options as part of your export – make sure to choose the CSV option as shown below:


Which data do you want to export?
Export your data in the format that suits your needs. If you have a lot of data, the number of rows you export might be limited depending on the file type you select. Learn more about exporting data
Data with current layout
Export this data in the same layout you see now, but without any icons, colors, or other formatting you added.
Summarized data
Export the summarized data used to create your visual (for example, sums, averages, and medians).
Underlying data
Export the raw data used to calculate the data in your visual.
The report author turned off this option
File format:
.csv (30,000-row max)
Export
Cancel
$5,362

Module 4: Embedding with RLS

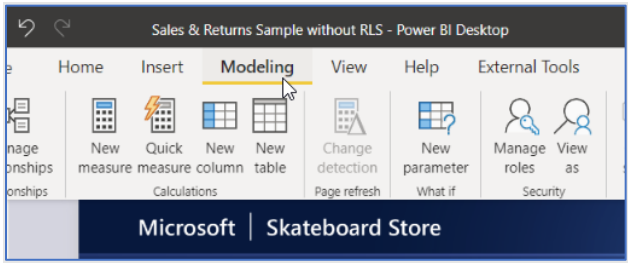
1. Download the “Sales and Returns Sample without RLS” from your Power BI HackerXX workspace.

2. Open your “Sales and Returns Sample without RLS” report in the Power BI desktop.
3. In this part, we will create a role in order to enable row level security. In our case, we are going to apply row level security (RLS) on Internal v/s External stores so that, internal users can only see internal sales data and external users can only see external sales data. Here is a sample of the Store data:

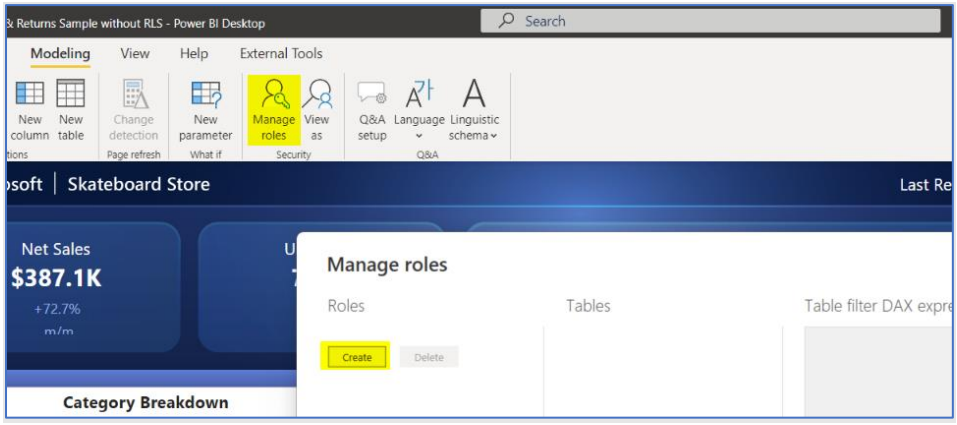


StoreID	Store	Type	Longitude	Latitude
1	Abbas	External	-87.774353	41.965639
2	Aliqui	External	-87.719251	42.012424
3	Barba	External	-87.695392	41.958968
4	Salvus	External	-87.742799	41.911624
5	Fama	Internal	-87.908907	41.904651
6	Leo	External	-87.747134	41.831725
7	VanArsdel	External	-87.745508	41.765605
8	Natura	External	-87.633043	41.740204
9	Palma	Internal	-87.686287	41.721761
10	Pirum	External	-87.800632	41.706594
11	Pomum	External	-87.598982	41.696435
12	Quibus	External	-87.861037	41.839119
13	Contoso	Internal	-87.638602	41.837455
14	Victoria	Internal	-87.675154	41.793668

a. Open PBI report and click on Modeling tab

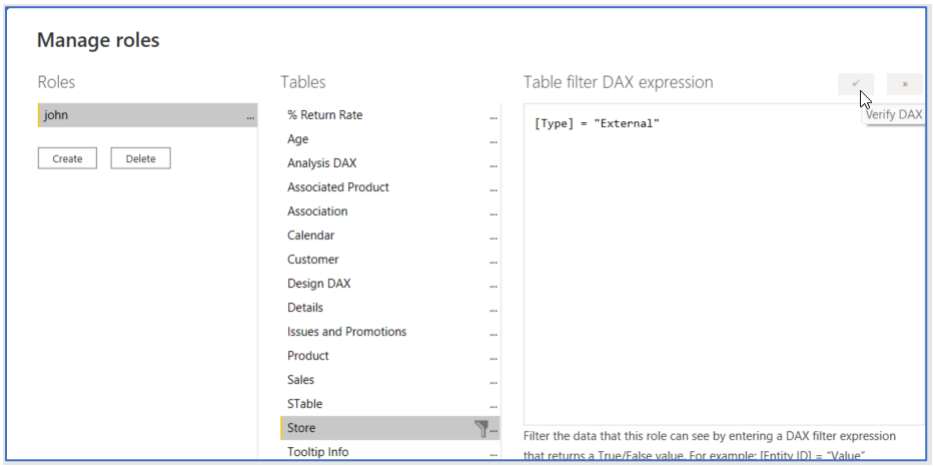


b. Click on Manage roles option and then click on Create button



c. Create a role named “john” and then click on Store table in the section

d. Set the filter for this user as [Store] = “External”



e. Save and publish the report to PBI service

4. In */Services/PBIEmbedService.cs* file, <u>uncomment</u> line #118

```
117         // Update the RLS config on this line once you update the PBIX and republish
118         identities = new List<EffectiveIdentity> { new EffectiveIdentity(username: "john", roles: new List<string> { "john" }, dat
119
```

5. Update the username and role values to the new role which you have created in PBI Desktop
6. Similar to Module 1 earlier, navigate to */appsettings.json* file and update your parameters to reflect the new report “Sales and Returns Sample without RLS”

7. Click on the Terminal and type in “dotnet run” and Enter to run the sample code

8. Now, you can see that the numbers in the visual are slightly on the lower side due to user (john) specific filtering
9. In this module, you have learned to embed a Power BI report with data security as per user’s context