Setting Up a Power BI Development Environment

Setup Time: 60 minutes

Lab Folder: C:\Student\Modules\01_GettingStarted\Lab

Overview: You will begin this lab by downloading the student files for this training class and then following step-by-step instructions to create a new Azure AD tenant with 25 Office 365 E5 trial licenses which will serve as your Power BI development environment. Note that the Office 365 E5 license includes a Power BI Pro license which is required to publish and manage content in a Power BI app workspace. Next, you will create a set of Azure AD user accounts that you will use in your testing efforts. After that, you will create a new app workspace and populate it with content using the Power BI portal.

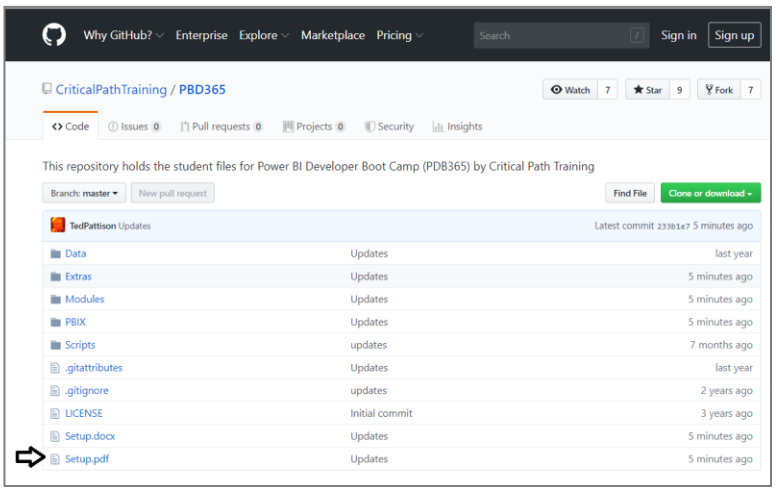
Exercise 1: Download a Local Copy of the Student Lab Files

In this exercise, you will use the GIT utility to download a local copy of the student files from the **DPBIE** repository in GitHub.

1. Launch a browser and navigate to the GitHub repository for this course at the following URL.

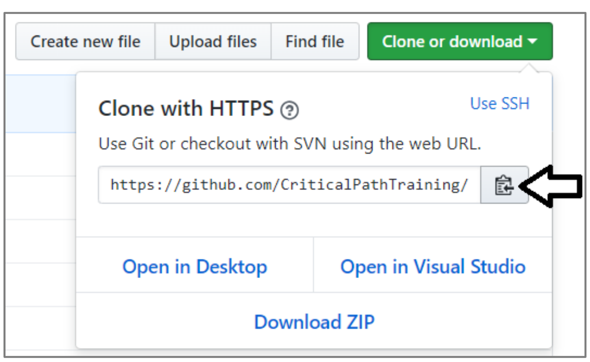
```
https://github.com/CriticalPathTraining/PBD365
```

2. You should see the home page for the repository as shown in the following screenshot.



Note that setup.pdf is the setup guide used to configure your student PC and install the software you need to complete lab exercises. This exercise assumes that GIT has already been installed on your PC as discussed in the setup guide.

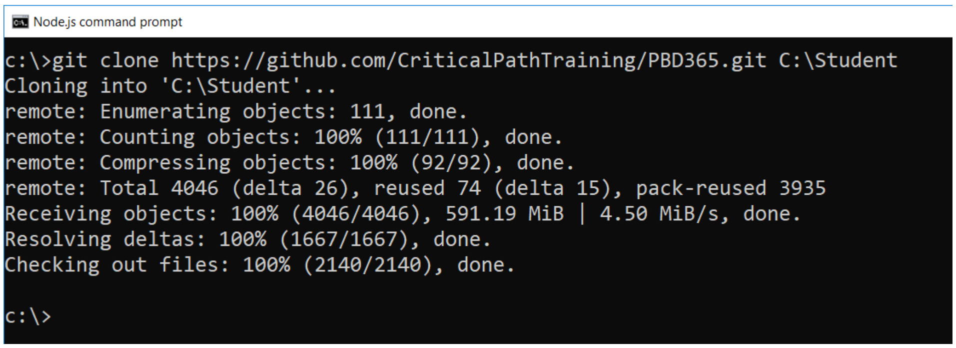
3. Copy the URL to clone the repository to the Windows clipboard.
   a) On the home page of the **PBD365** repository, click the green **Clone or download** dropdown menu.
   b) Click the **Copy to clipboard** button to copy the URL to the Widows clipboard.



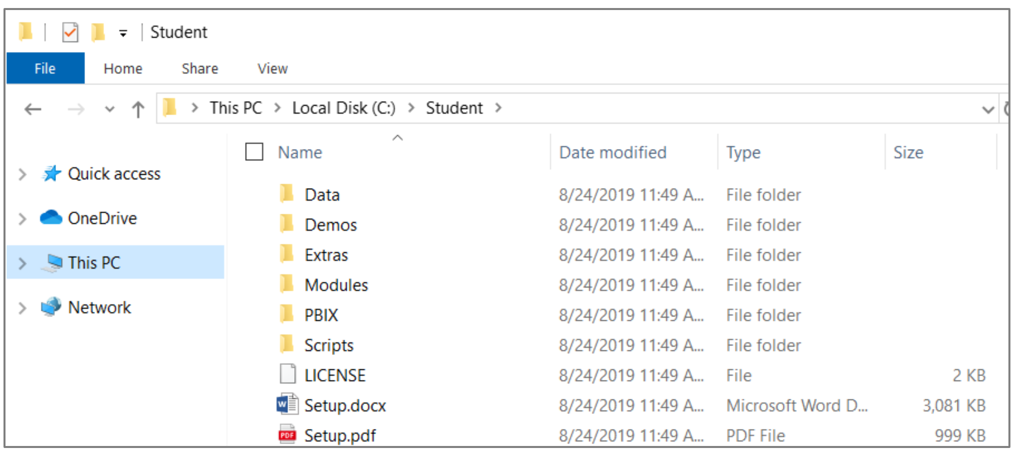
4. Use GIT to clone the **PBD365** repository.
   a) Open up a Windows PowerShell command prompt.
   b) Type in and execute the following **git** command to download the student files to a local folder named **C:\Student**. Note that you copied the URL to github.com in the previous step and you can paste it from the Windows clipboard instead of typing it it.

```
git clone https://github.com/CriticalPathTraining/PBD365.git C:\Student
```

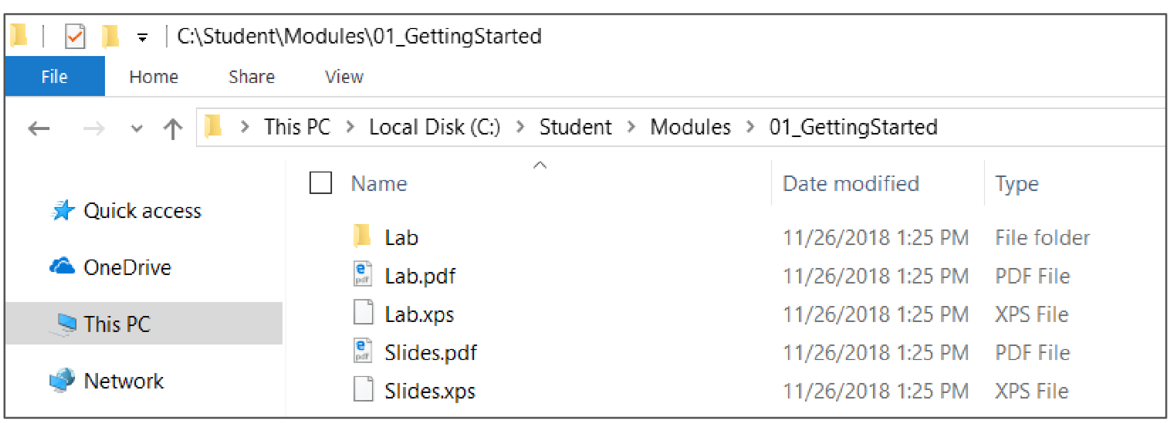
   c) When the **git clone** command runs, it will create a local copy of the repository on your local machine in the **C:\Student** folder.



   d) When the **git clone** command completes, open Windows Explorer and examine the **Student** folder. You should be able to see the **Student** folder has child folders named **Demos, Extras**, **Modules**, **PBIX** and **Scripts**.



   e) Drill into the **Modules** folder and look in the folder inside named **01_GettingStarted**.



You can see that the **01_GettingStarted** folder contains a folder named **Lab** as well as **Lab.pdf** and **Slides.pdf**.

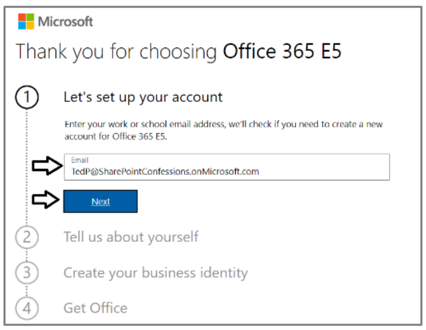
Exercise 2: Sign Up for an Office 365 E5 Trial

In this exercise you will create a new Office 365 trial tenant. As you work through the sign up process for this free trial, you will be asked to provide a user name and a password for an Azure AD user account that will be configured as the tenant Global administrator. You will log in with this account when developing and testing applications that use Power BI embedding. However, it's a good practice that you also test your applications with standard user Azure AD accounts that have no administrative permissions. The trial tenant that you are going to create will allow you to create up to 25 user accounts with Office 365 E5 subscriptions. Remember that any user with an Office 365 E5 subscription is automatically assigned a Power BI Pro license as well.

1. Navigate to the Office 365 trial sign up web page.
   a) Launch the Chrome browser.
   b) Copy and paste the following URL into the address bar of the incognito window to navigate to the signup page.

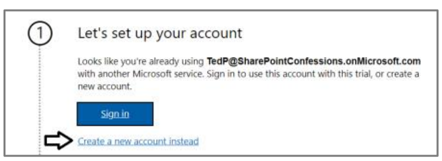
```
https://go.microsoft.com/fwlink/p/?LinkID=698279&culture=en-US&country=US
```

   c) You should now see the form you need to fill out to create your new **Office 365 E5** trial.
   d) Enter your email address and click **Next**.

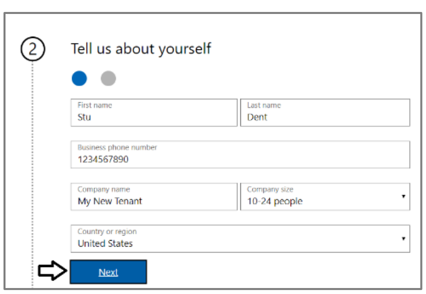


If you enter an email address for an organization account, the form provides the option to sign in. Do not click the **Sign in** button because you don't want to sign with an existing organization account. The purpose of this exercise is to create a new organizational account in a new Microsoft 365 tenant.

   e) Click the **Create a new account instead** link.



   f) Enter your **First name** and **Last name**.
   g) Enter your mobile phone number as the **Business phone number**.
   h) Provides values for **Company size** and **Country or region** and click **Next**.

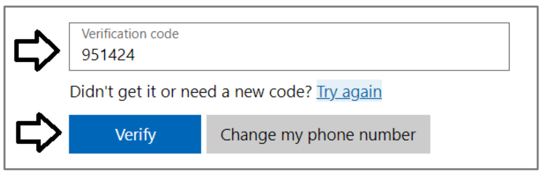


Whatever **Company name** you enter will be used as the name of the Azure AD tenant that will be created during the sign up process.

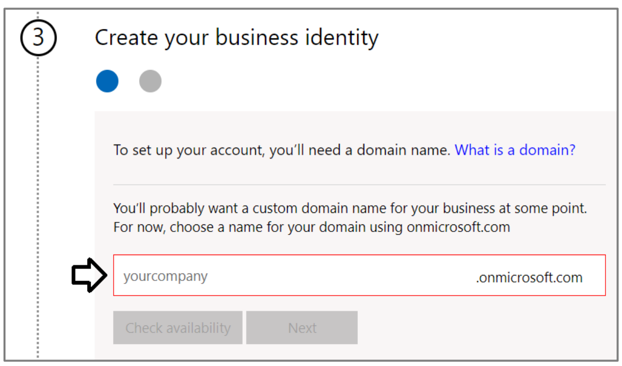
i) When prompted to prove you're not a robot, select the **Text me** option and ensure Phone number of for your mobile phone.

j) Click **Send Verification Code**.

k) Retrieve the access code form your mobile device and use it to complete the validation process.

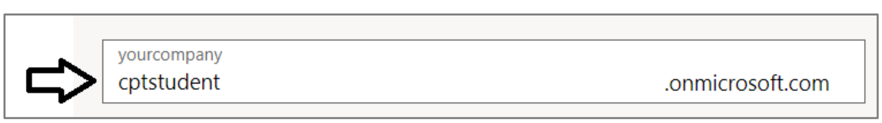


l) In the **Create your business identity** step, locate the textbox into which you will enter a domain name.



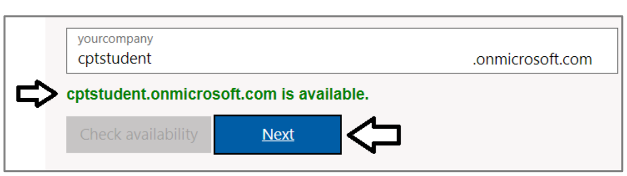
Note that the company name you enter in this textbox will be used to create an Internet domain name for a new Microsoft 365 tenant. For example, if you were to enter a company name of **cptstudent**, it would result in the creation of a new Office 365 tenant within a domain of **cptstudent.onMicrosoft.com**. The user name you enter will be used to create the first user account which will be given global admin permissions throughout the Azure AD tenant. If you enter a user name of **Student**, then the email address as well as user principal name for this account will be **student@cptstudent.onMicrosoft.com**

m) Enter a domain name for your new Microsoft 365 tenant.

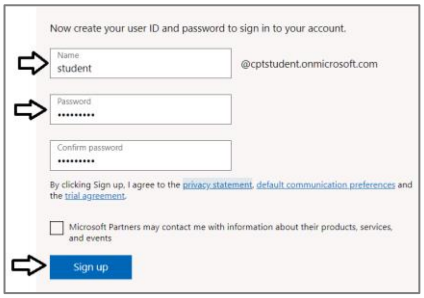


n) If the domain name you enter is not available, modify the domain name until you can verify that it is available.

o) Once you have created a domain name that is available, click **Next**.

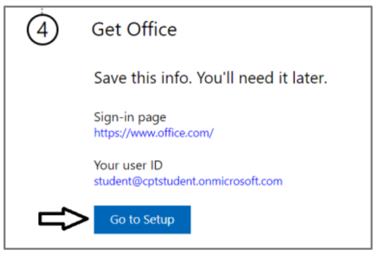


p) Enter a **Name** for your user account, a **Password** that you will remember and then click **Sign up**.



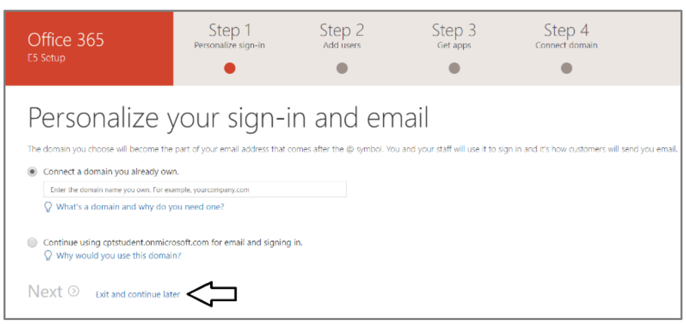
At this point, the Sign up process should begin to provision your new Microsoft 365 tenant and your new organizational account.

q) Once the provision process completes, take note of your new **user ID** and click the **Go To Setup** button.

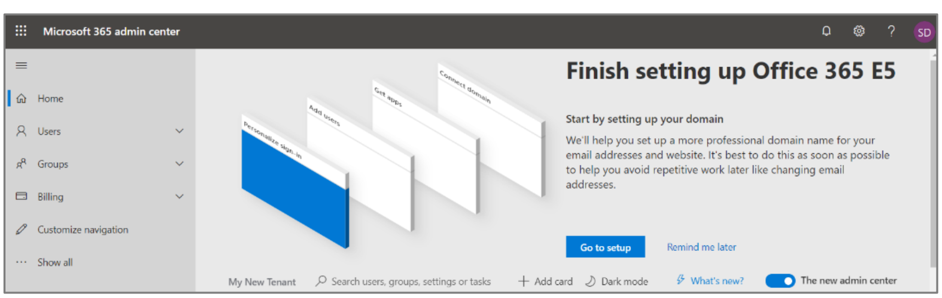


You have just created a new Microsoft 365 tenant with a 30-day trial for 25 Office 365 E5 licenses. Note that some Microsoft cloud services within your new tenant such as the Microsoft 365 admin center, Power BI, PowerApps and Flow can be accessed immediately. Other Office 365 services such as SharePoint Online, OneDrive for Business and your Outlook mailbox will not be ready immediately and can take some time to provision.

r) If you see the **Personalize your sign-in and email** setup page, click **Exit and continue later**.

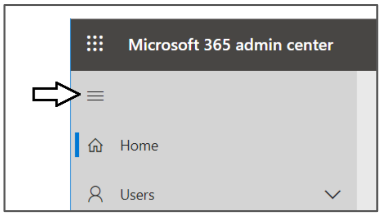


s) You should now be located at the home page of the **Microsoft 365 admin center**.

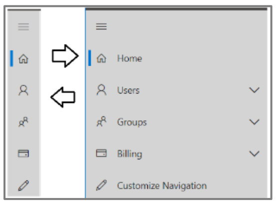


If you don't see the home page of the **Microsoft 365 admin center**, navigate to [https://admin.microsoft.com/Adminportal.](https://admin.microsoft.com/Adminportal)

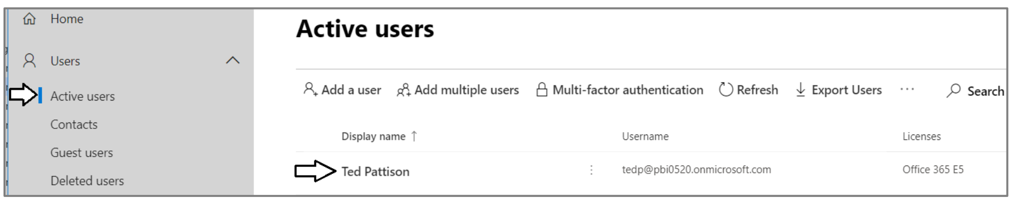
2. Inspect the set of active users in the current Azure AD tenant.
   a) Locate the top **Collapse navigation menu** with the hamburger icon just under the Microsoft 365 App Launcher menu.



   b) Toggle the **Collapse navigation menu** button to see how it collapses and expands the left navigation menu.

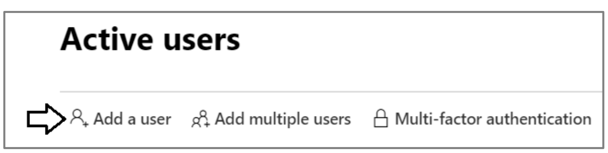


   c) Navigate to the **Active users** view where you should be able to verify that the user account you are currently logged in as is the only user account that exists in the current tenant.



Remember that your account is global tenant administrator. You have permissions to configure any settings throughout the tenant.

3. Create a second Azure AD user account in your new Azure AD tenant.
   a) On the **Active Users** page, click the button **Add a user** button to create a new user account



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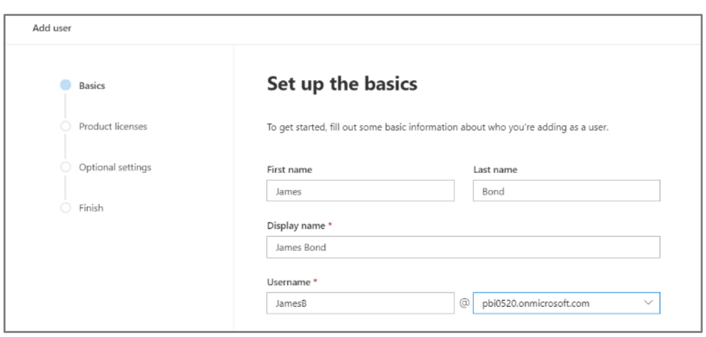
   b) Fill in the **Set up the basics** form with information for a new user account. When creating this account, you can use any name you would like. These lab instructions will demonstrate this by creating a user account for a person named **James Bond** with a user name and email of **JamesB@cptstudent.onmicrosoft.com**.



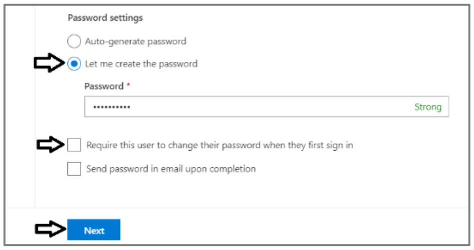
c) Move below to the **Password settings** section.

d) Select the option for **Let me create the password**.

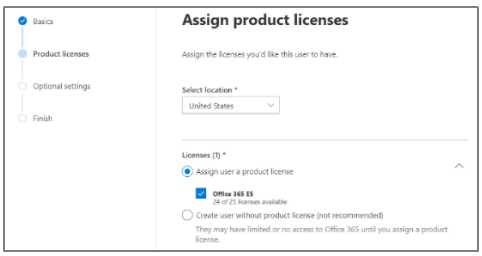
e) Enter a password of **pass@word1** into the textbox labeled **Password**.

f) Uncheck the checkbox for the **Require this user change their password when they first sign in** option.

g) Click **Next**.



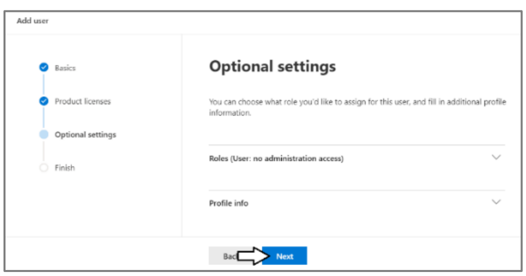
h) In the **Product licenses** section, make sure the **Office 365 E5** license is set to **On**.



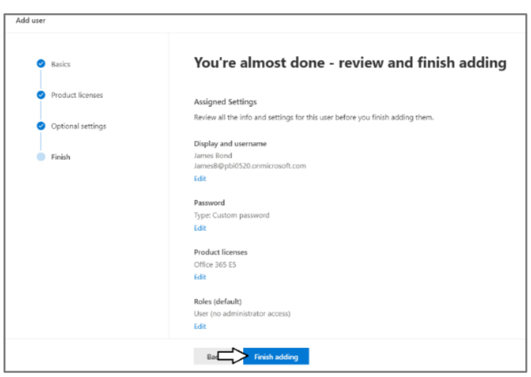
Note that the new account is usually assigned a trial license for **Office 365 E5** plan. However, it's a good practice to check and make sure the new user has been assigned a license for **Office 365 E5** which includes the **Power BI Pro** license.

i) Click the **Next** button down below.

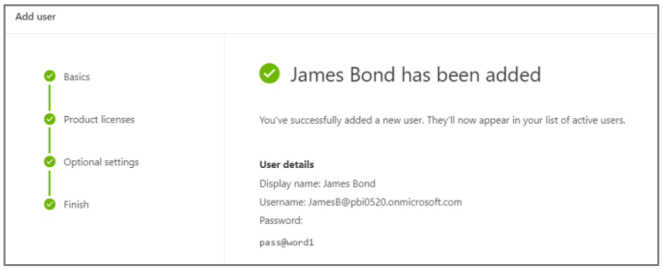
j) On the **Optional settings** view, click **Next**.



k) On the **Finish** view, Click the **Finish adding** button at the bottom to create the new user account.

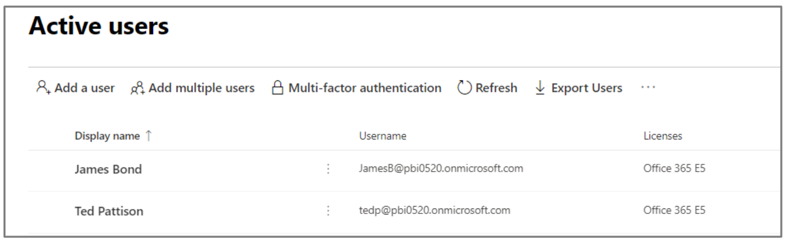


l) You should see the **Finish** view with a message indicating that the new user account has been created.



m) Click the **Close** button at the bottom of the **Finish** view to close the **Add User** pane on the right.

n) Verify that the new user account has been created and is displayed along with your primary Office 365 user account.



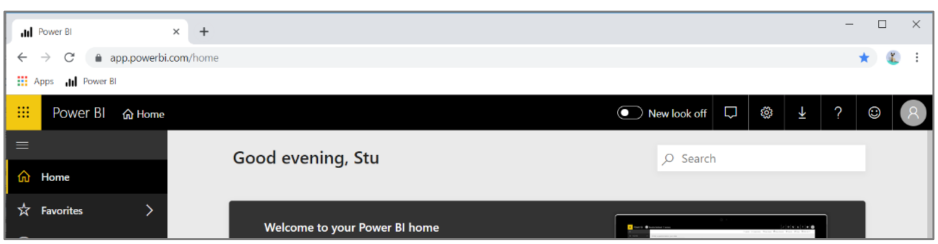
Now you have a secondary user account that does not have any administrative permissions. It's important that you test applications which use first-party embedding with standard user accounts to ensure your application doesn't require users with special permissions.

Exercise 3: Create New App Workspaces for a Custom Solution

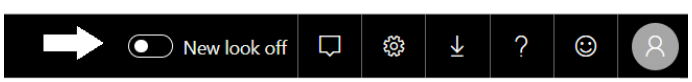
In this exercise, you will create a new app workspace so you have a place to publish Power BI content for your custom solutions.

1. Log into the Power BI Service with your new organizational account.

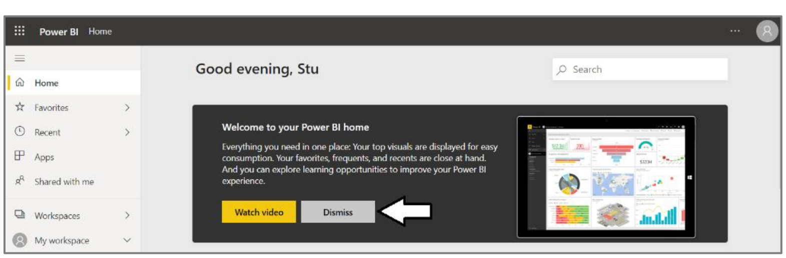
a) Navigate the Power BI portal at https://app.powerbi.com and if prompted, log in using your new organizational account.



b) Locate the **New look** toggle and switch it from **New look off** to **New look on**.



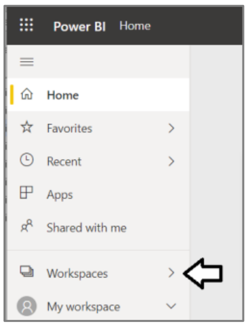
c) Click the **Dismiss** button to remove the **Welcome to your Power BI home** panel.



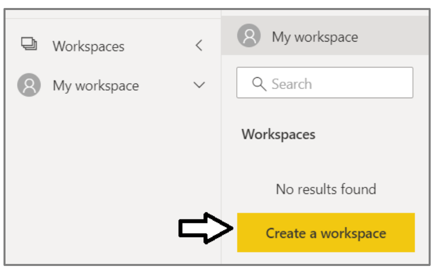
d) The home page of the Power BI Service should now match the following screenshot.

If you haven't worked with the new look of the Power BI Service yet, here's your big chance to get familiar with it.

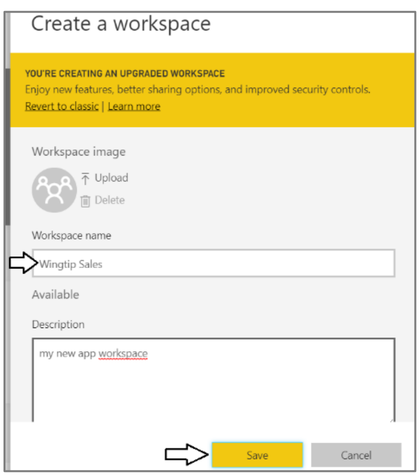
2. Create a new app workspace named **Wingtip Sales**.
   a) Click the **Workspace** flyout menu in the left navigation.



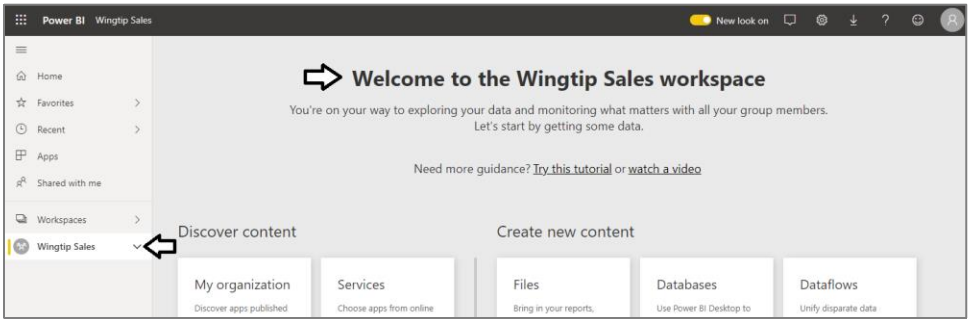
   b) Click the **Create app workspace** button to display the **Create an app workspace** dialog.



   c) In the **Create an app workspace** pane, enter a workspace name of **Wingtip Sales**.
   d) Click the **Save** button to create the new app workspace named **Wingtip Sales**.



e) When you click **Save**, the Power BI service should create the new app workspace and then switch your current Power BI session to be running within the context of this new app workspace.

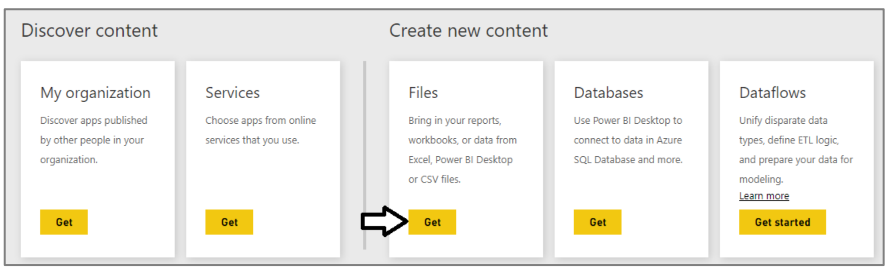


You have now created an app workspace which will provide the foundation for publishing and managing the Power BI datasets, reports and dashboards used by a custom solution.

Exercise 4: Publish a Power BI Desktop Project to the Wingtip Sales App Workspace

In this exercise, you add content to the **Wingtip Sales** workspace by uploading the PBIX file named **Wingtip Sales Analysis.pbix**.

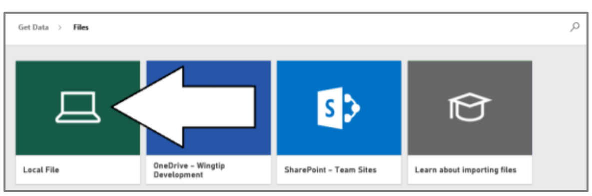
1. Navigate to the **Wingtip Sales** app workspace that you created in the previous exercise. This workspace should currently display the standard Welcome page because it does not yet contain any datasets, reports or dashboards.



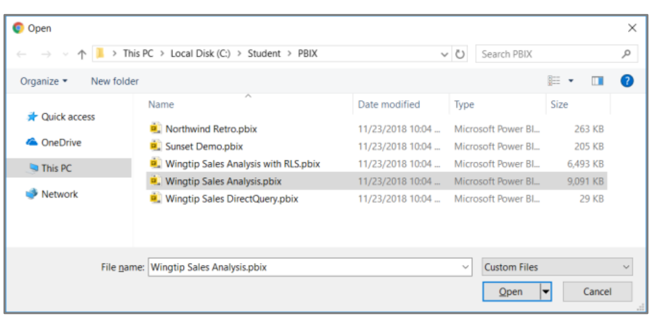
2. Import the **Wingtip Sales Analysis.pbix** project into the **Wingtip Sales** app workspace.

a) On the Welcome page, click the **Get** button in the **Files** section.

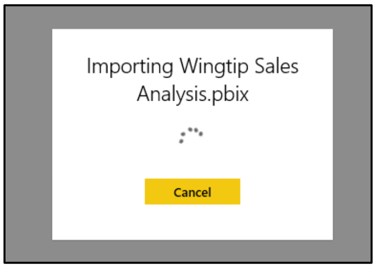
b) On the **Get Data > Files** page, click the **Local File** button to display the Windows **Open** file dialog.



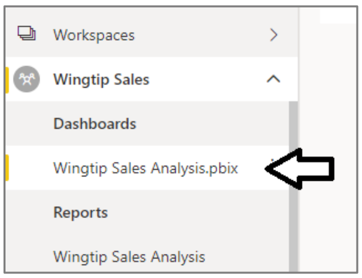
c) In the Windows **Open** file dialog, select the project file at **c:\Student\PBIX\Wingtip Sales Analysis.pbix** and click **Open**.



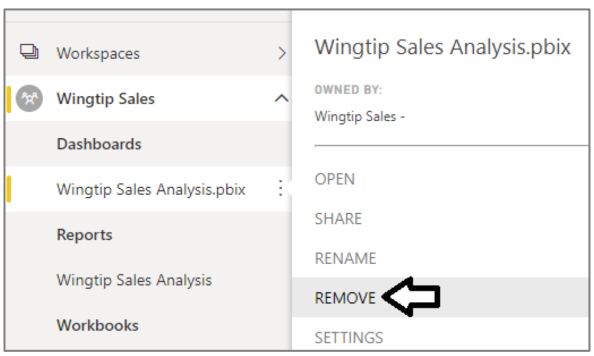
d) Wait while the Power BI service uploads the PBIX files and imports its assets into the **Wingtip Sales** app workspace



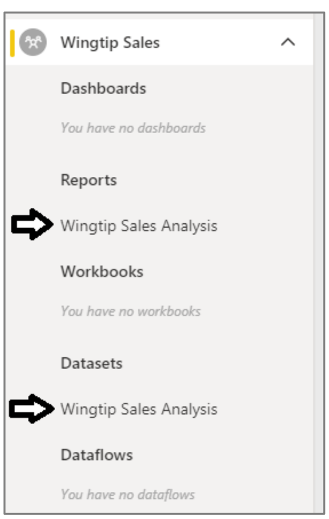
e) Check to see if the PBIX upload process has created a new dashboard named **Wingtip Sales Analysis.pbix**.



f) If it exists, delete the dashboard named **Wingtip Sales Analysis.pbix**.



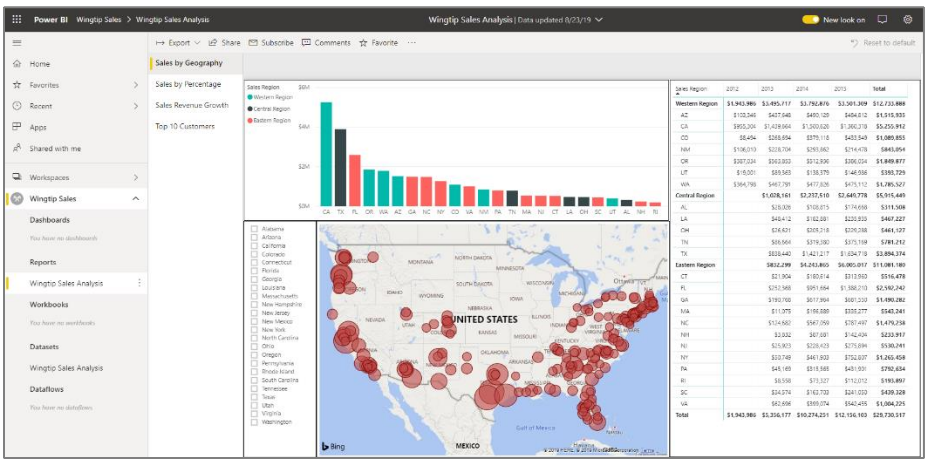
g) Now, you should only see a dataset and report in the left nav menu which are both named **Wingtip Sales Analysis**.



h) Click on the report named **Wingtip Sales Analysis** in the **Reports** section.

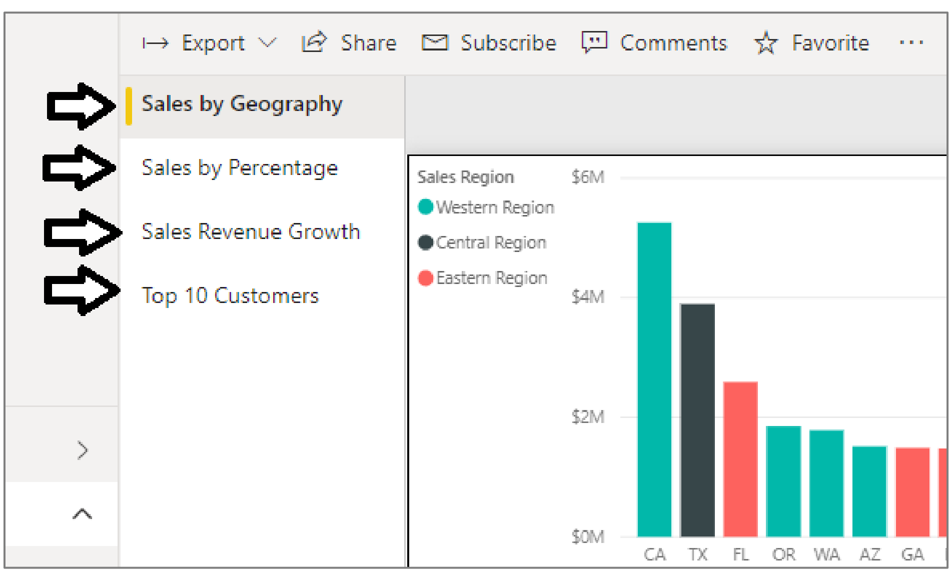
3. Examine the report named **Wingtip Sales Analysis**.

a) Locate the page tabs on the report.

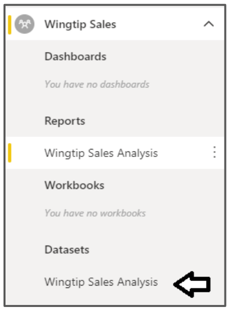


Note that the new look in the Power BI Service brings a significant new change with the layout of the page tabs for a report. While the old look displays page tabs horizontally at the bottom of a report, the new look moves page tabs to the top left in a vertical layout.

b) Click on each of the page tabs at the top left of the report to inspect each page of this report,



c) In the left navigation, click on the dataset named **Wingtip Sales Analysis** in the **Datasets** section. The Power BI service responds by displaying a new report that allows you to begin adding visuals.



When you navigate to a dataset in the Power BI service, it provides a different experience compared to when in Power BI Desktop. That's because Power BI Desktop allows you to customize and extend a dataset while the browser-based experience of the Power BI Service only allows you to consume datasets but not to modify them. Given the fact that a dataset is a read-only object, the Power BI Service responds to user's request to navigate to a dataset by opening a new report and showing the **Fields** list for that dataset.

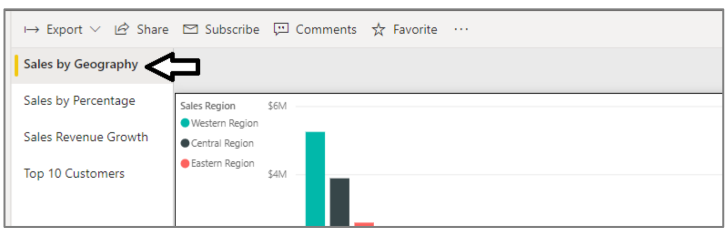
Exercise 5: Create and Design the Product Sales Dashboard

In this exercise you will create a new dashboard using the dataset and report you created in the **Wingtip Sale Analysis** project.

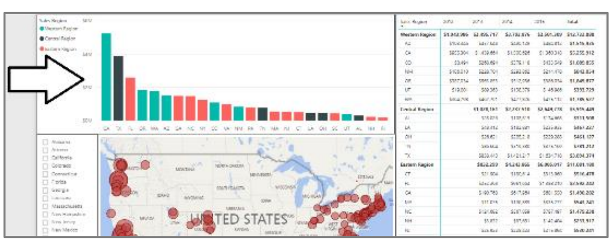
4. Create a new dashboard named **Wingtip Sales Analysis**.

   a) Navigate to the **Reports** tab and open the report named **Wingtip Sales Analysis**.

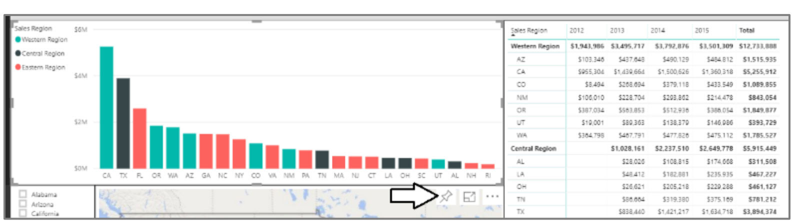
   b) Navigate to the **Sales by Geography** page of the **Wingtip Sales Analysis** report.



   c) Hover the mouse over the column chart visual which displays a sales revenue breakdown across sales regions and states.

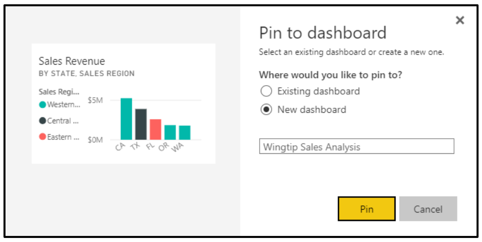


   d) Locate and click the button with the thumbtack icon to pin this report visual to a new dashboard.

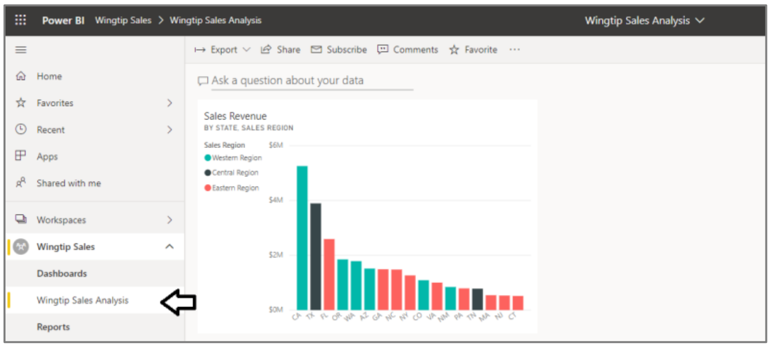


When you click the thumbtack button, you'll be prompted with the **Pin to dashboard** dialog which prompts you to select a dashboard.

e) Select **New Dashboard**, give it a name of **Wingtip Sales Analysis** and click the **Pin** button.



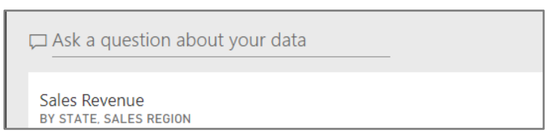
f) Click the **Wingtip Sales Analysis** link in the **DASHBOARDS** section of the left navigation to display the new dashboard.



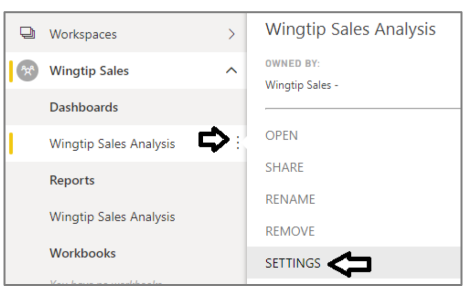
If you haven't previously worked with a Power BI dashboard, take a moment to experiment with resizing and moving the dashboard tile. Unlike a report, the changes you make to a dashboard tile are automatically saved without an explicit save action.

5. Remove the Q&A search box from the **Wingtip Sales Analysis** dashboard.

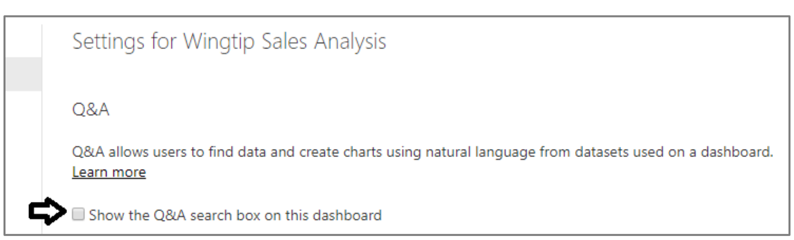
a) You can see that the new dashboard is initially displayed with the Q&A search box in the upper left corner.



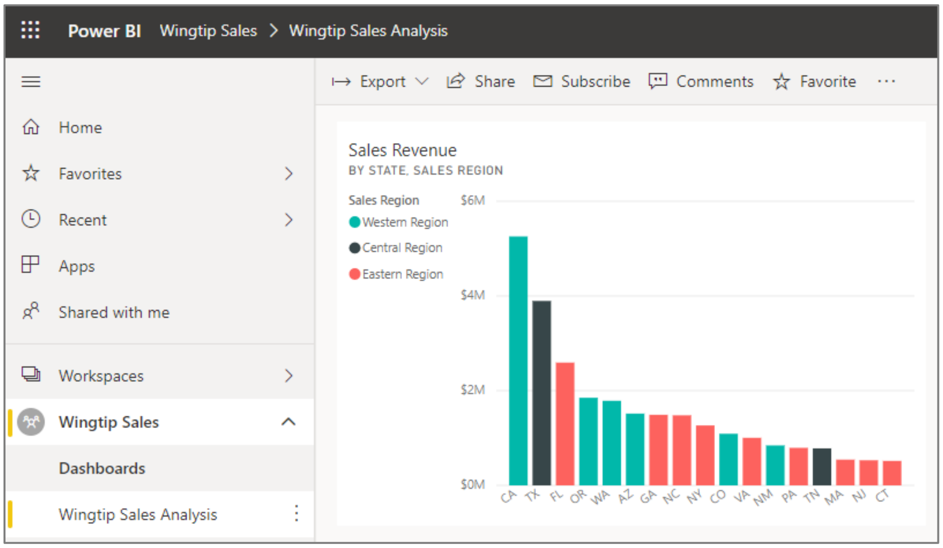
b) Click **Dashboards > SETTINGS** in the left navigation to display the **Settings for Wingtip Sales Analysis** pane.



c) In the **Settings for Wingtip Sales Analysis** pane, uncheck the **Show the Q&A search box on this dashboard** checkbox.



d) Click **Apply** below in the **Settings for Wingtip Sales Analysis** pane and confirm the Q&A search box is no longer showing.

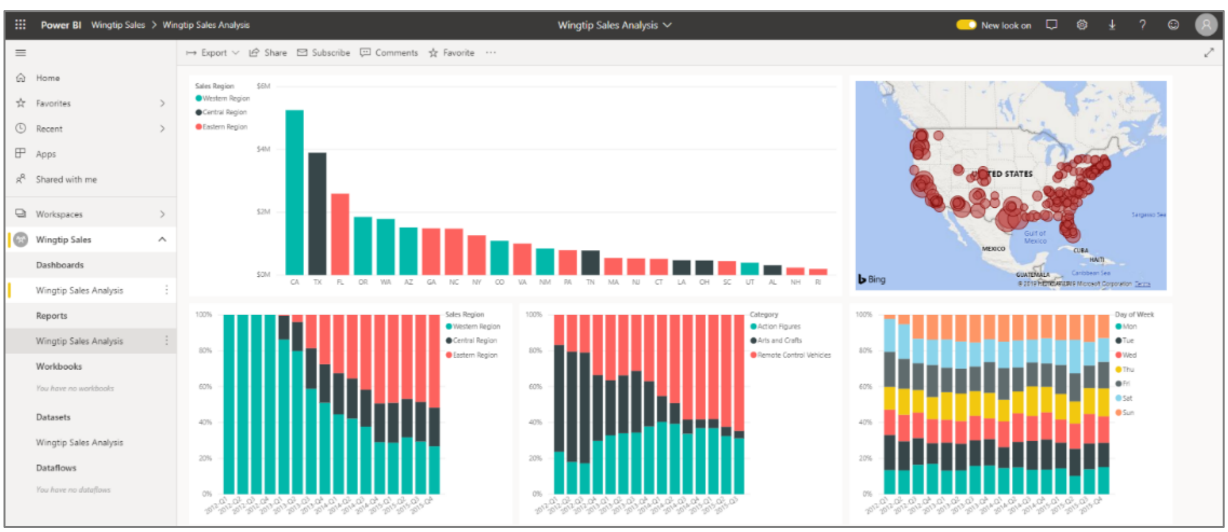


6. Add several more tiles to the dashboard by pinning visuals from the **Wingtip Sales Analysis** report.

   a) Repeat the process you used in step 1 to create the first dashboard tile to add additional tiles to the dashboard.

Choose whatever visuals you'd like from the **Wingtip Sales Analysis** report. However, you should make sure that your dashboard contains several tiles. Be creative and design a dashboard that looks better than the dashboards of the other students around you.

   b) When you're done, your dashboard should look something like the dashboard shown in following screenshot.



Exercise 6: Getting Started with Power BI Desktop

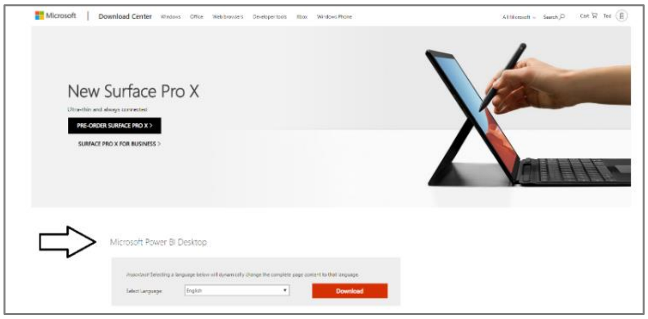
In this exercise, you will download and install the latest update of Power BI Desktop if you have not already done so. Then you will use Power BI Desktop to open and publish a pre-provided PBIX project file. If you already have the latest version of Power BI Desktop installed, you can skip over **Step 1** and begin with **Step 2**.

1. Download the EXE installation file for Power BI Desktop.

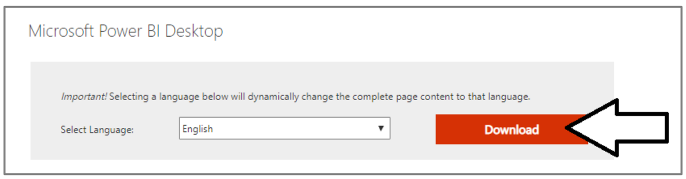
   a) Using the browser, navigate to the following URL.

```
https://aka.ms/pbiSingleInstaller
```

b) Move down the web page and locate the **Microsoft Power BI Desktop** section.

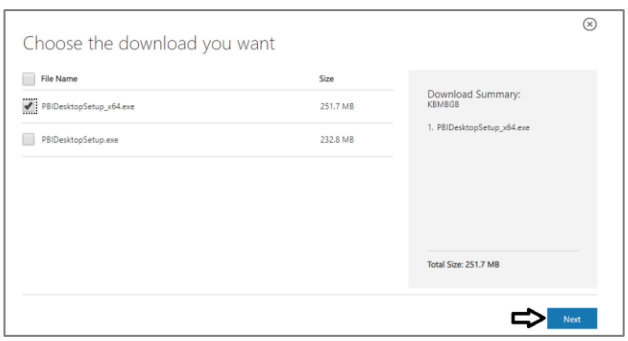


c) Click the Download button to download the EXE-based installation program for Power BI Desktop.

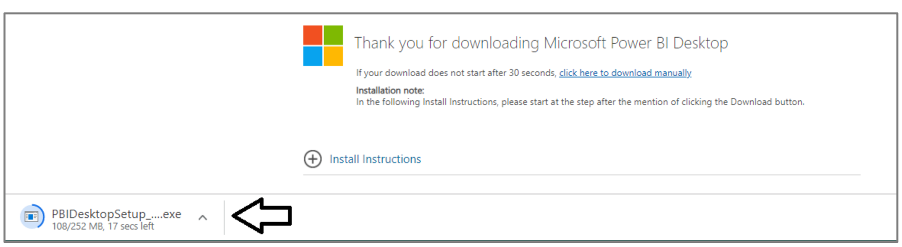


d) Download the 64-bit version. (If you are running a 32-bit version of Windows, select the other EXE without 64 in its name).

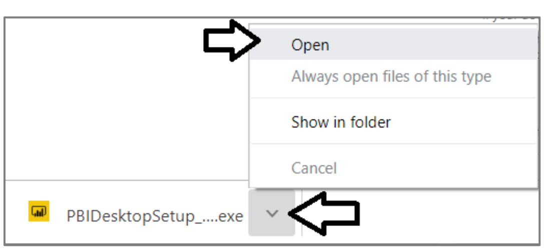
e) Click **Next** to download the installation file named **PBIDesktopSetup_x64.exe**.



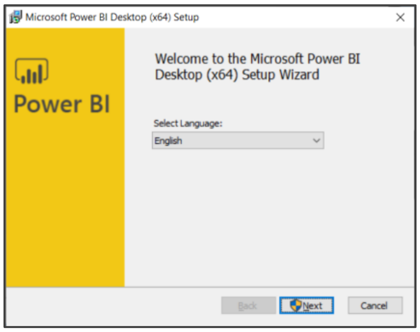
f) Wait until **PBIDesktopSetup_x64.exe** has finishing downloaded



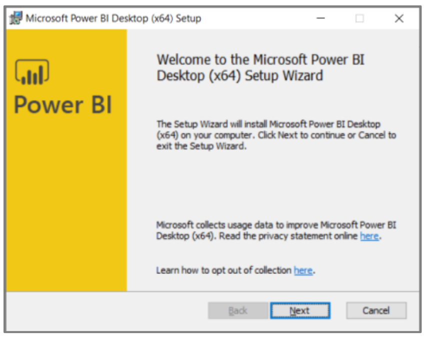
2. Select **Open** on **PBIDesktopSetup_x64.exe** to begin the installation of Power BI Desktop.



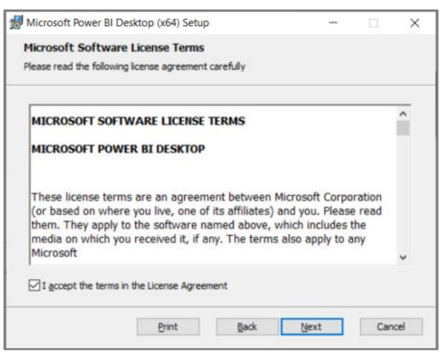
a) When you see the Welcome screen, click **Next** to continue with the installation.



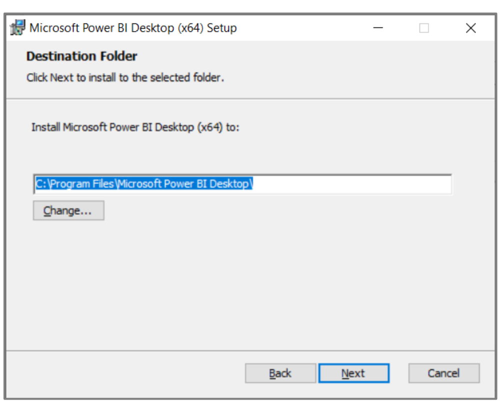
b) Click **Next** again to move past the Welcome screen.



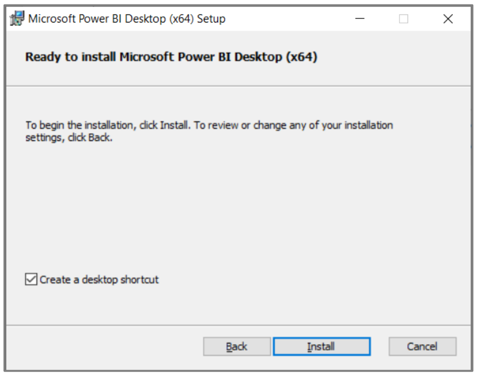
c) Click the checkbox to accept the license agreement and click **Next**.



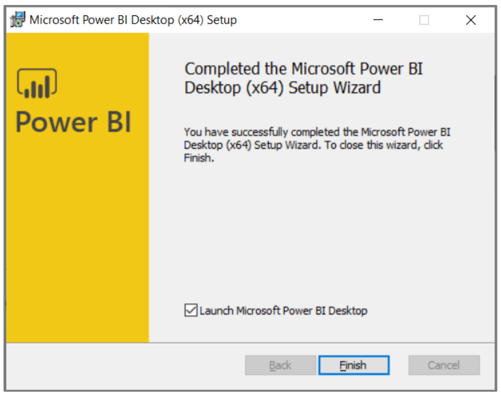
d) Accept the default location for the installation and click **Next**.



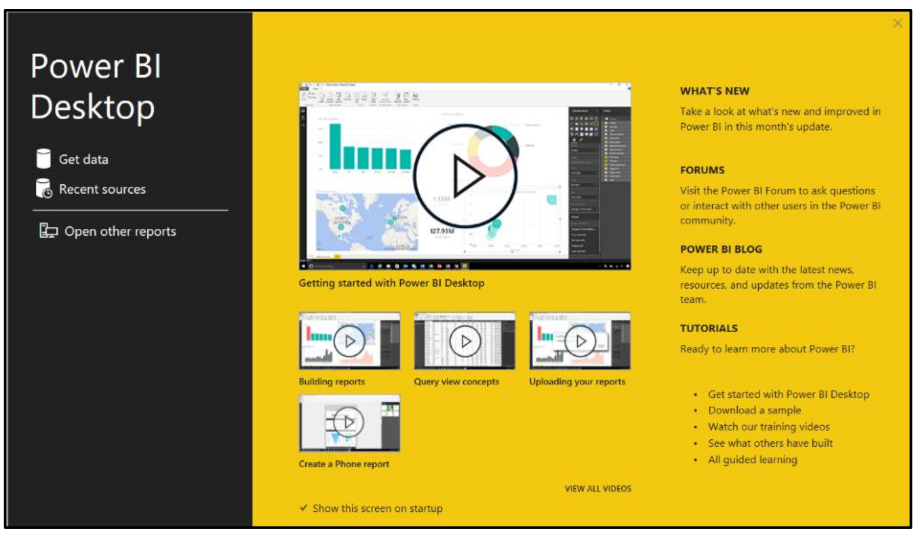
e) On the next screen, click **Install**.



f) When you see the **Completed the Microsoft Power BI Desktop Setup Wizard** screen, click **Finish** to launch Power BI Desktop.

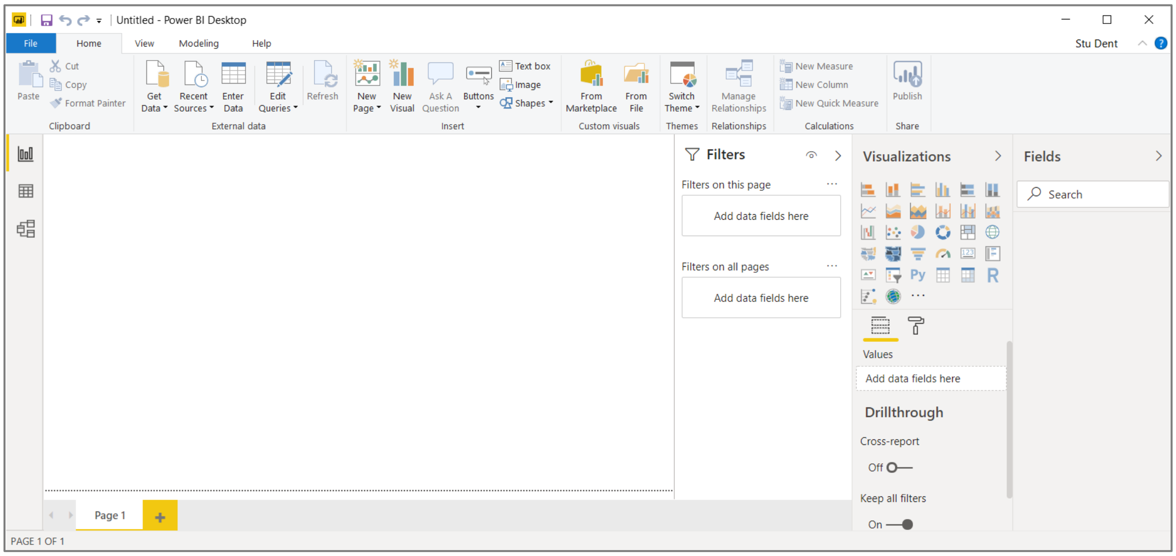


g) When Power BI Desktop launches for the first time, it displays a Welcome screen as shown in the following desktop. Click the (**X**) button in the upper right corner to close this window.



If you launch Power BI Desktop without logging into a licensed account, you might be prompted by an obnoxious lead generation form which requires you to submit personal information to Microsoft in order to use Power BI Desktop. You can suppress this behavior of displaying the lead generation form by adding a Windows registry entry. There's a file named **DoNotShowLeadGenDialog.reg** which is located inside the **Student** folder at the path **C:\Student\Extras\DoNotShowLeadGenDialog.reg** to add the required registry entry.

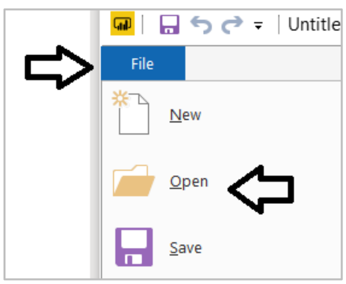
h) At this point, you should have Power BI Desktop running with a new, unsaved project as shown in the following screenshot.



You can start this exercise here if Power BI Desktop was already installed.

3. Open the Power BI Desktop project file named **Lab01.pbix**.

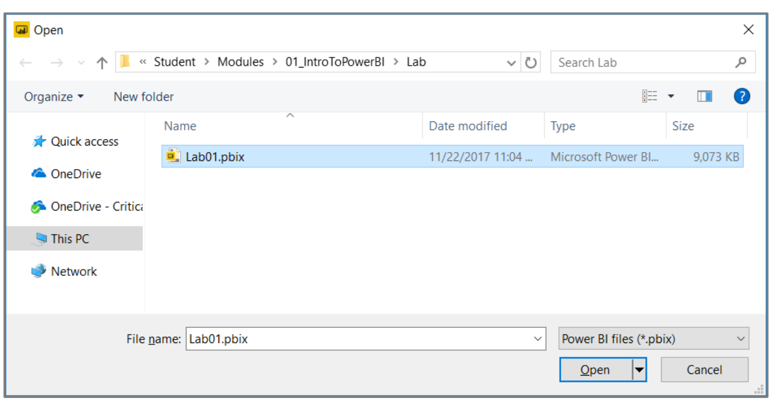
a) Select he **File > Open** command from within Power BI Desktop.



b) Locate the PBIX file located at the following path.

```
C:\Student\Modules\01_IntroToPowerBI\Lab\Lab01.pbix
```

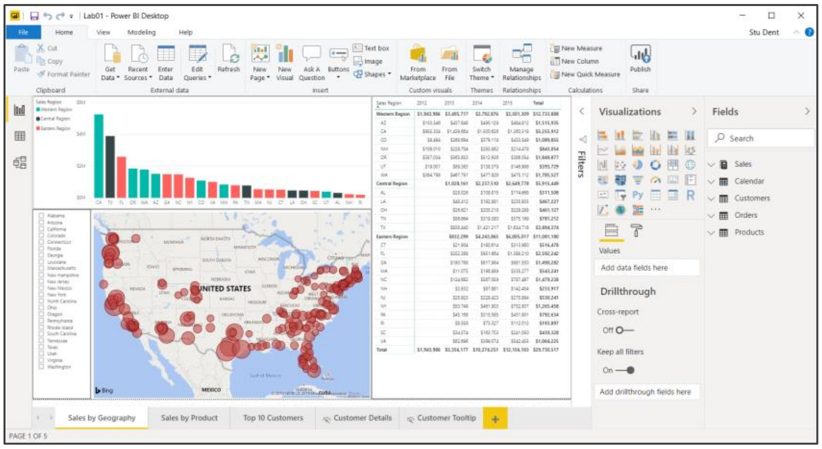
c) Open **Lab01.pbix** to load this project into Power BI Desktop.



The project should now be open in Power BI desktop.

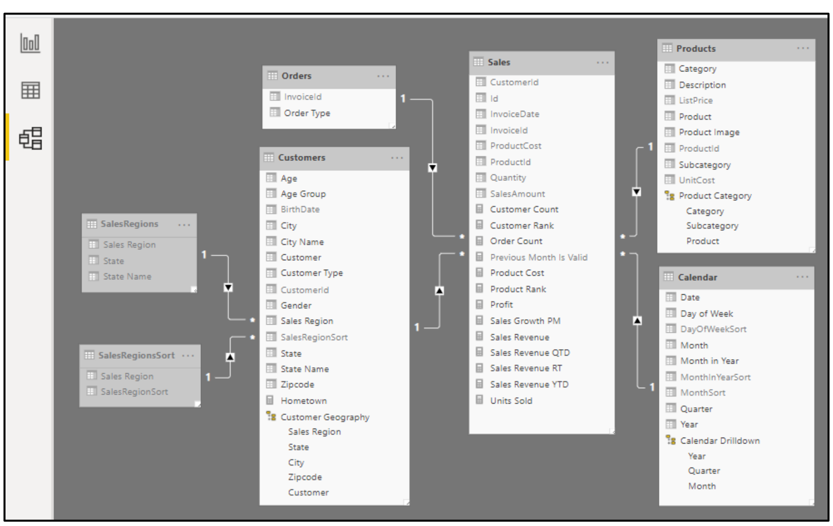
4. Inspect the contents of the Power BI Desktop project named **Lab01.pbix**.

a) Inspect the report that has been created inside this project. You should see if provides four pages.

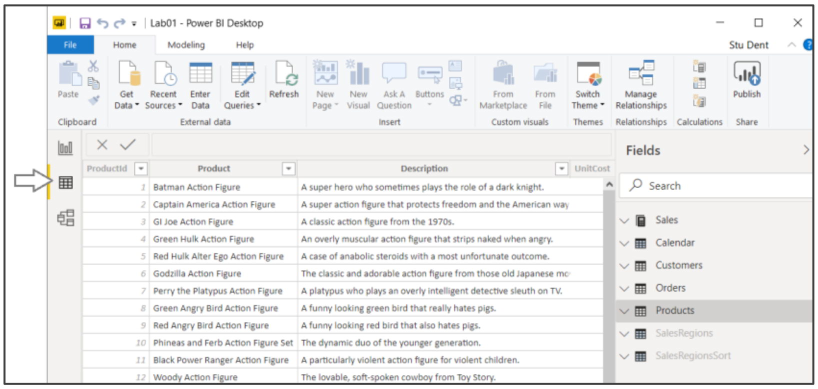


b) Using the navigation tabs at the bottom of the report, move from page to page to inspect each page in the report.

c) Click on the Relationship view button in the left navigation to see the tables included in data model and their relationships.



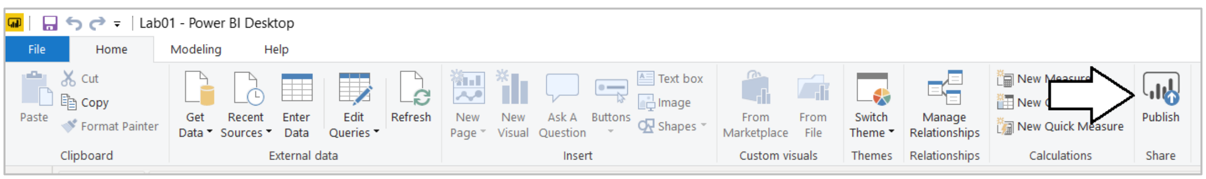
d) Click on the Data view button in the left navigation to see a tabular view of the data inside the project's data model. Note that you can select a table in the FIELDS list on the right to see the data in that table.



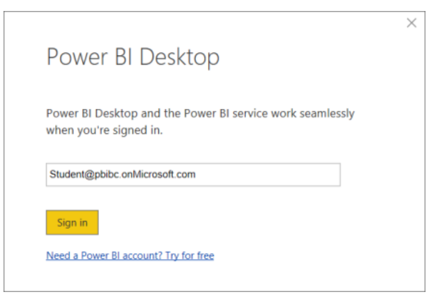
You do not need to make any changes to the Power BI Desktop project named **Lab01.pbix**. The purpose of this lab is for you to open an existing project that has already been completed and then to publish it to your personal workspace.

5. Publish the **Lab01.pbix** project to the Power BI Service.

a) Navigate to the **Home** tab in the ribbon and click the **Publish** button on the far right-hand side.

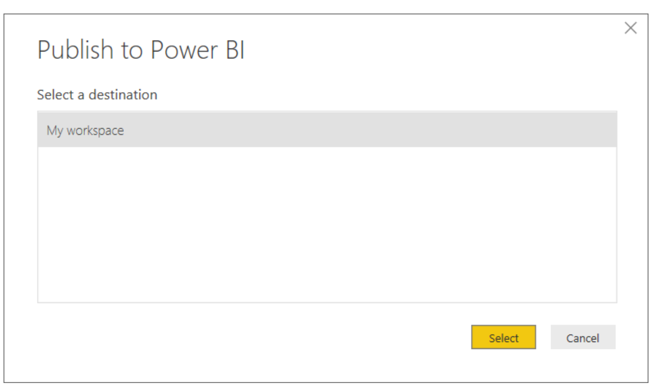


b) When promoted with the **Sign in to Power BI** dialog, click the **Sign In** button

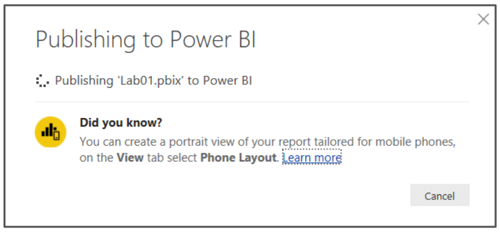


c) When prompted for your password, sign into the Power BI service.

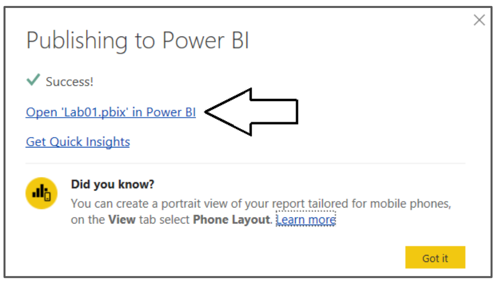
d) When Power BI Desktop prompts you with the **Publish to Power BI** dialog, select **My workspace** and then click **Select**.



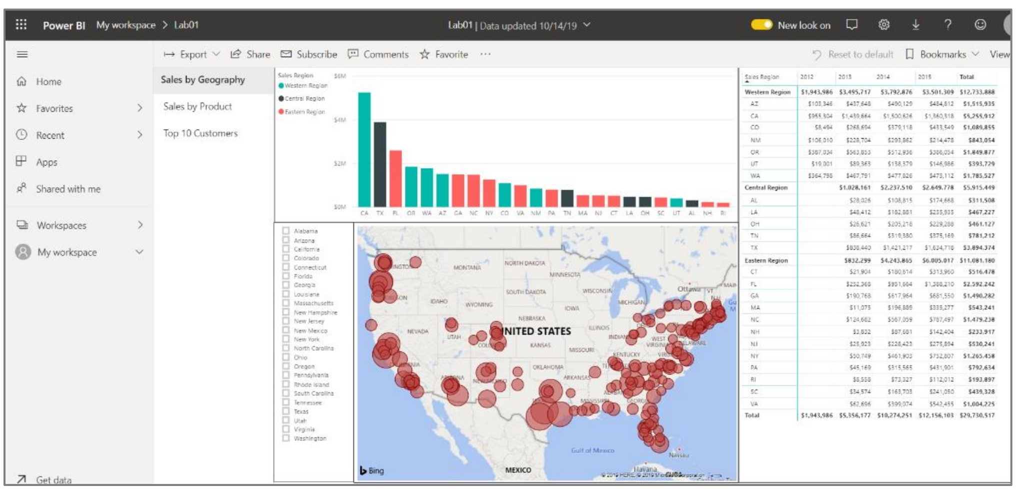
e) Power BI Desktop will display the **Publishing to Power BI** dialog as the publishing process begins.



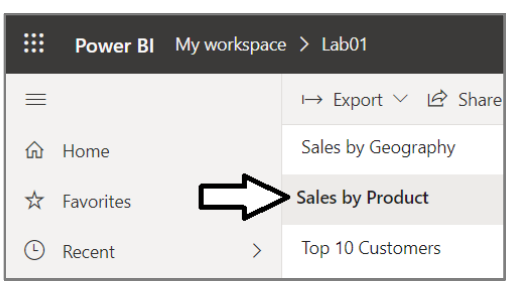
f) Once the publishing process has completed, the **Publishing to Power BI** dialog will display a success message and provide you with a link to **Open Lab01.pbix in Power BI**. Click on that link to navigate to the Power BI service using the browser.



g) You should now be able to see the **Sales by Geography** page of the report you just published.

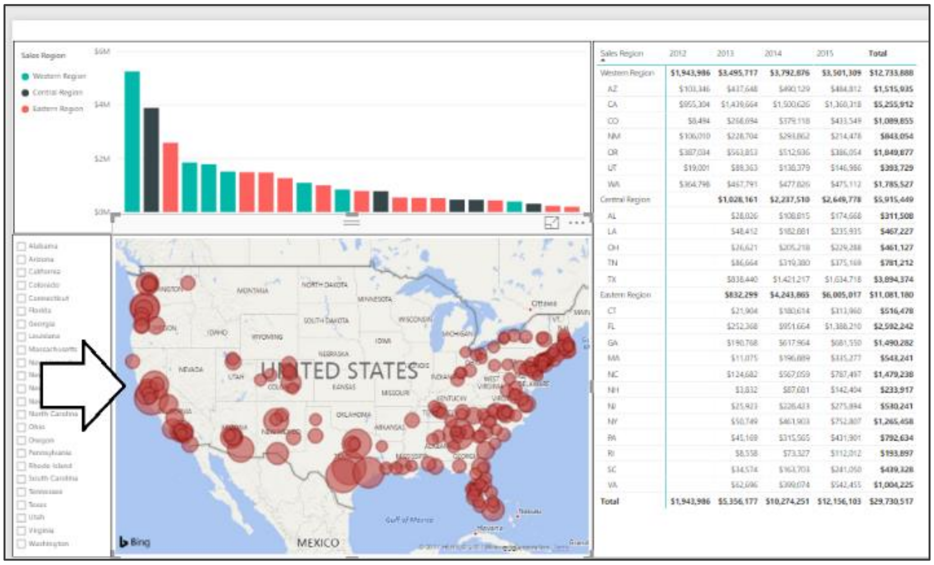


h) Click on the **Sales by Product** link in the left navigation to see the second page of the report.

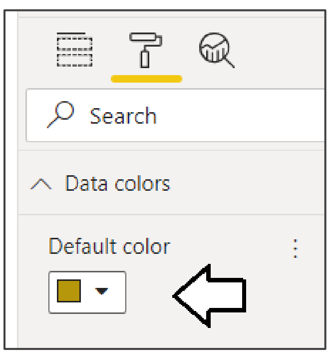


You have now successfully published a PBIX project using Power BI Desktop. But what happens when you want to make a change to a report after it has been published? It's very easy because you can make changes to your Power BI Desktop project and republish it on top a previous version of the same project that has already been published.

6. Change the type of the visual that displays sales revenue by month and purchase type.
   a) Return back to Power BI Desktop and make sure you are in report view for the project named **Lab01.pbix**.
   b) Return to the **Sales by Geography** page.
   c) Select the **Map** visual.



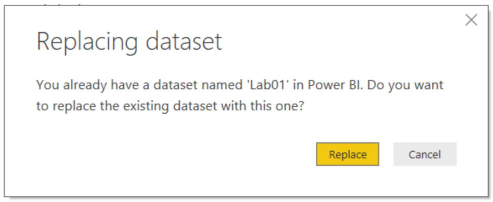
   d) Update the **Default color** property in the **Data colors** section in the **Format pane** to change the color of the bubbles from red to a different color such as yellow or purple.



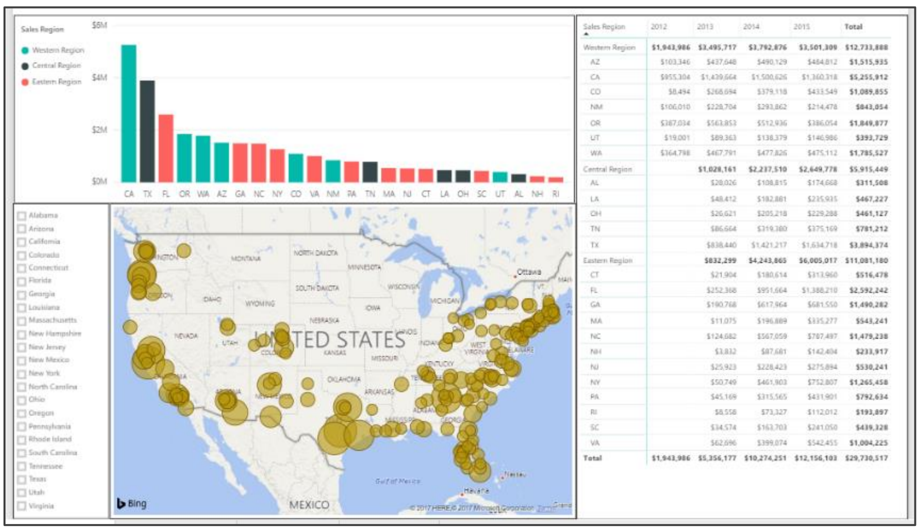
   e) Verify that the bubbles in the Map visual are now a different color than red.

   f) Save your changes to **Lab01.pbix**.

7. Republish the project to the Power BI service.
   a) Click the **Publish** button on the far right-hand side of the **Home** tab in the ribbon.
   b) When Power BI Desktop prompts you with the **Publish to Power BI** dialog, select **My workspace** and then click **Select**.
   c) When prompted with the **Replacing dataset** dialog, click Replace to begin the publishing process.



   d) Once the publishing process has completed, inspect the published report in the Power BI service using the browser. Verify that the bubble color within the Map visual has been updated.

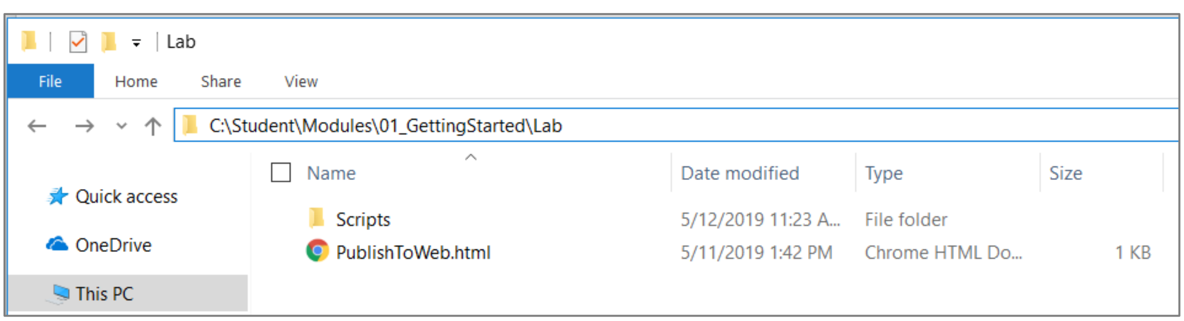


Congratulations, you have now finished this lab. If you finish early before other student and you still have extra time, experiment by clicking the **Edit report** button in the browser and seeing how you can continue to modify the pages of the report after the report has been published to the Power BI service. Note that any changes you make to the report through the browser will be overwritten if you republish the report with Power BI Desktop.

Exercise 7: Use Publish to Web to Surface a Report on a Custom Web Page

In this exercise, you will use Power BI's *Publish to Web* feature to display the **Wingtip Sales Analysis** report on a custom web page.

8. Locate and open the HTML file named **PublishToWeb.html** for editing.
   a) Using Windows Explorer, locate **PublishToWeb.html** in the **C:\Student\Modules\01_GettingStarted\Lab** folder.



b) Open **PublishToWeb.html** in an text or HTML editor such as Visual Studio, Visual Studio Code or Notepad.

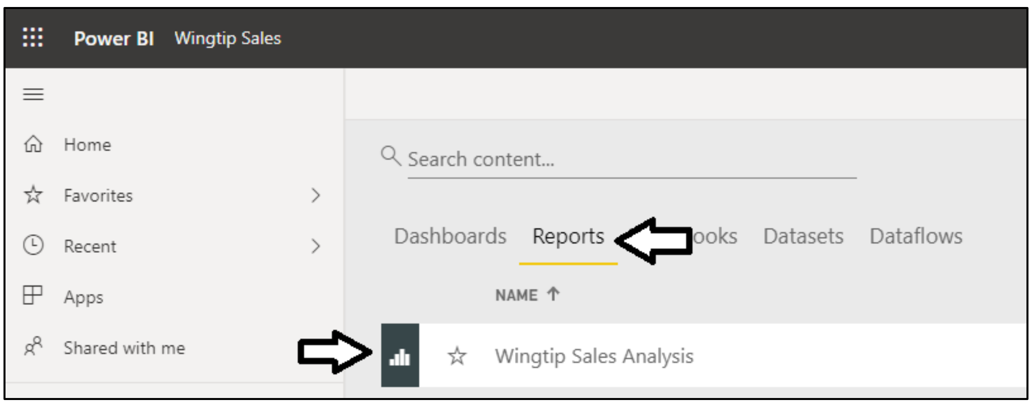
c) Examine the HTML content inside **PublishToWeb.html**. and locate the **TODO** comment inside.

```
<!DOCTYPE html>
<html>
<head>
    <meta charset="utf-8" />
    <title>Lab 1</title>
</head>
<body>

  <h2>Publish to Web</h2>

  <div>
    <!-- TODO: Embed Power BI Report Here-->
  </div>

</body>
</html>
```

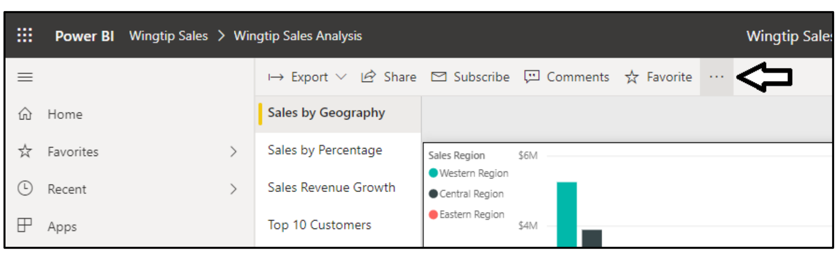
9. Use the *Publish to Web* feature to create an embed code and an embeddable iframe tag

a) In the browser, return to the Power BI portal and the **Wingtip Sales** app workspace.

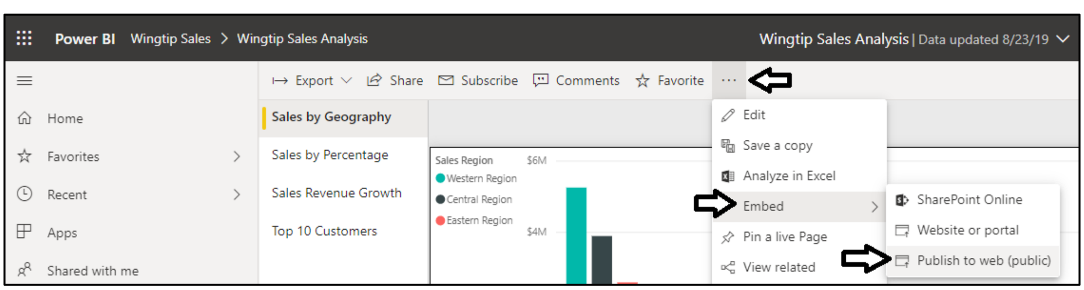
b) Open the report named **Wingtip Sales Analysis**.



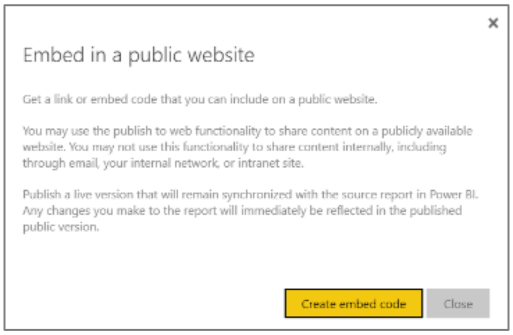
c) Drop down the report's **File** menu and select the **Publish to Web** command.



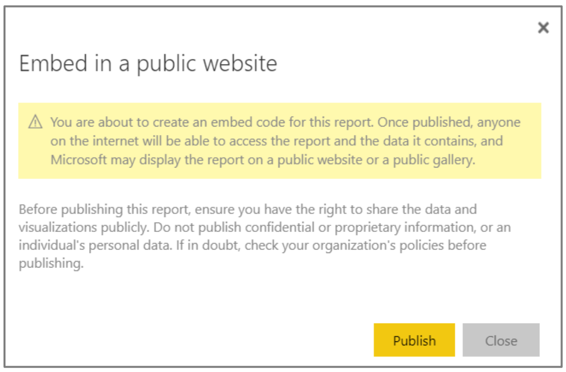
d) sss



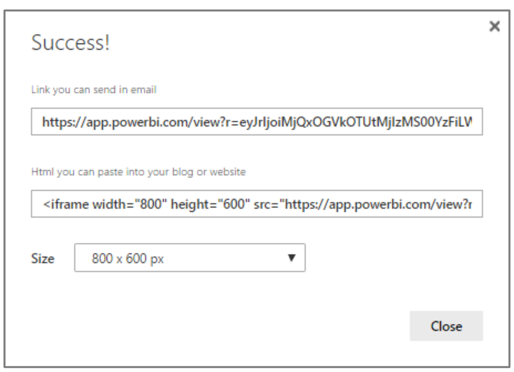
e) When prompted with the **Embed in a public website** dialog, click the **Create embed code** button.



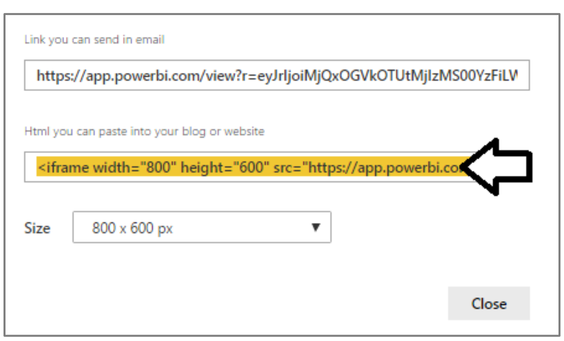
f) On the next page, click the **Publish** button.



g) Inspect what is displayed to you on the **Success!** page.



h) Select the contents of the **Html you can paste into your blog or website** textbox and copy it to the Windows clipboard,



i) Return to **PublishToWeb.html** and paste the HTML snippet with the iframe tag just below the TODO comment.

PublishToWeb.html - Notepad

File Edit Format View Help

```
<!DOCTYPE html>
<html>
<head>
    <meta charset="utf-8" />
    <title>Lab 1</title>
</head>
<body>

  <h2>Publish to Web</h2>

  <div>
    <!-- TODO: Embed Power BI Report Here-->
    <iframe
        width="800"
        height="600"
        src="https://app.powerbi.com/view?r=eyJrIjoiYmRlYWIyYTgtNGE3Mi00MmVlLWIxMzItMT
        frameborder="0"
        allowFullScreen="true"></iframe>
  </div>

</body>
</html>
```

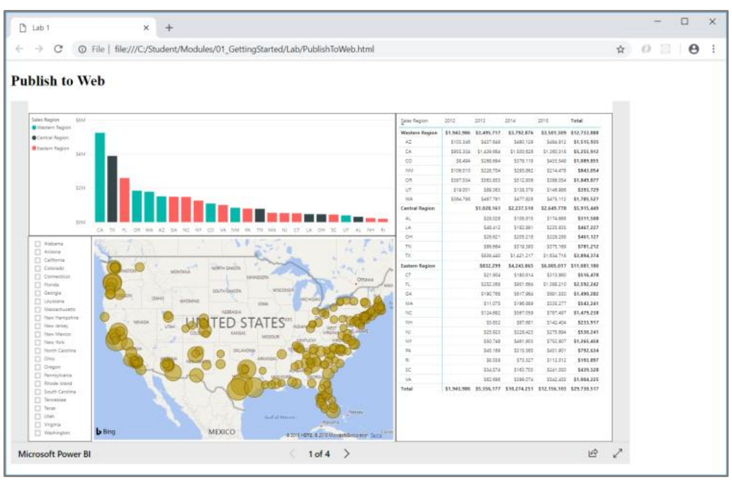
j) Update the **width** attribute of the iframe to **1024**.

```
<div>
  <!-- TODO: Embed Power BI Report Here-->
  <iframe
      width="1024"
      height="600"
      src="https://app.powerbi.com/view?r=eyJr
      frameborder="0"
      allowFullScreen="true"></iframe>
</div>
```

k) Save your changes to **PublishToWeb.html**.

l) Using Windows Explorer, double-click on **PublishToWeb.html** to open this HTML file in a browser.

m) You should see your report displayed in the custom web page.



Remember that the Publish to Web feature is not secure and is only available via anonymous access. Developing with Power BI embedding will provide a secure and far more flexible way to surface reports and dashboards in a custom application.

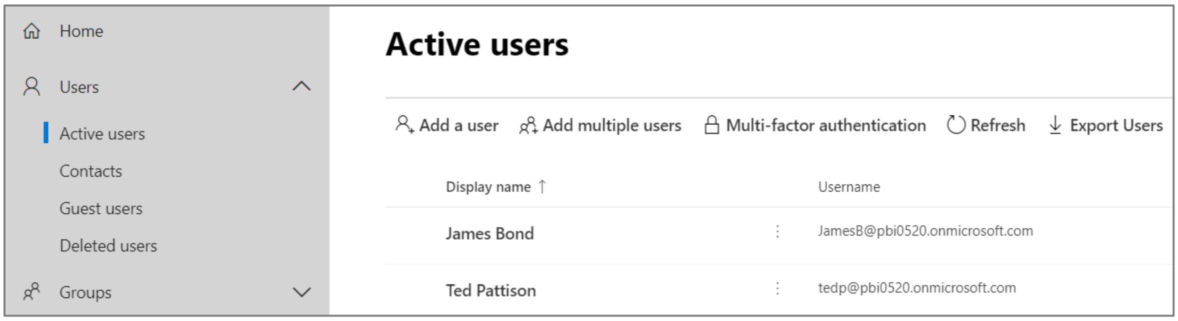
Exercise 8: Create New Azure AD User Accounts using a PowerShell Script

This is an ***optional exercise*** for students who are quick to complete lab exercises and need something to do while all the mere mortal students work from exercise 1 to exercise 7. Earlier in exercise 2, you created an Azure AD user account by hand in the Azure portal. Now it's time to see how to automate this task using PowerShell. In this exercise, you will use the **AzureAD** PowerShell module to verify connectivity to your Office 365 tenant and to create a few new user accounts in your new Azure AD tenant. This lab assume you have already installed the **AzureAD** PowerShell module as described in the setup document for this course.

10. Review the user accounts that have been created in your trial tenant.
    a) Navigate to the **Active users** view of the **Microsoft 365 admin center** using the following URL.

```
https://admin.microsoft.com/Adminportal/Home?source=applauncher#/users
```

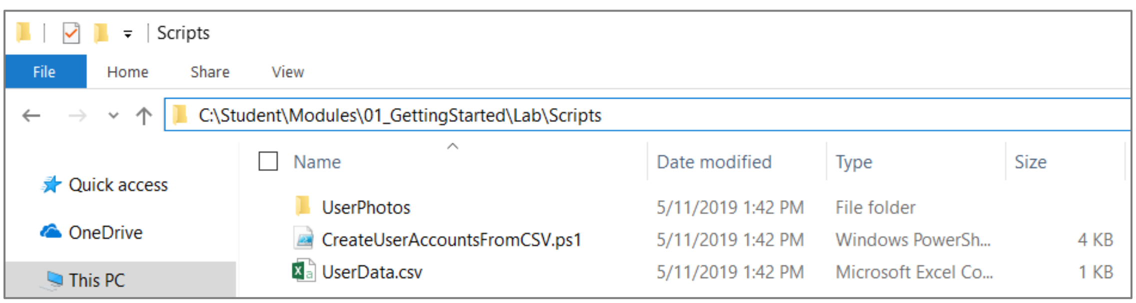
    b) You should be able to see your primary user account and the account you created by hand for the user **James Bond**.



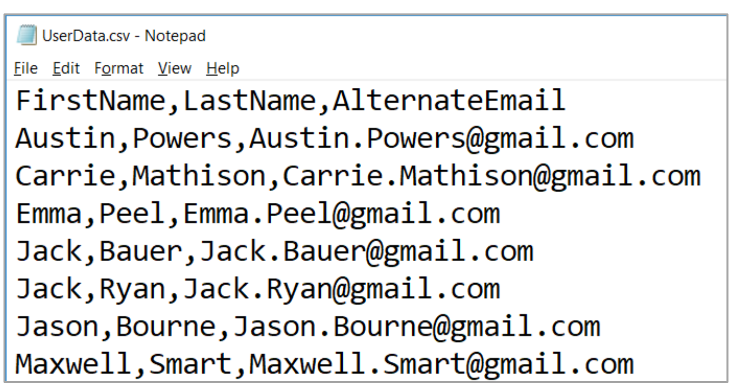
11. Open and review the PowerShell script named **CreateUserAccountsFromCSV.ps1**.
    a) Using Windows Explorer, navigate to the folder at the following location.

```
C:\Student\Modules\01_GettingStarted\Lab\CreateUsersScript
```

    b) You should see several files including **UserData.csv** and **CreateUserAccountsFromCSV.ps1**.

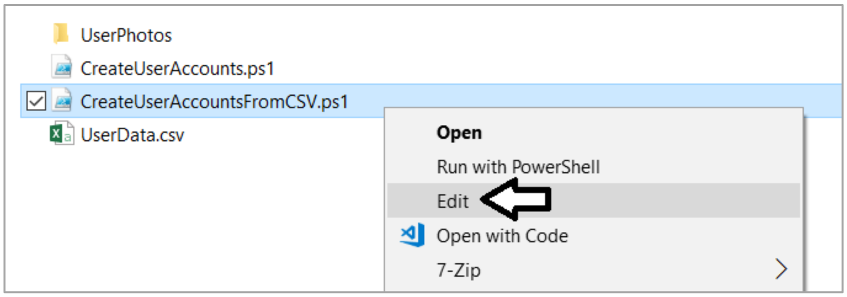


    c) Open **UserData.csv** file in Notepad and examine the data inside which is formatted in a CSV format.

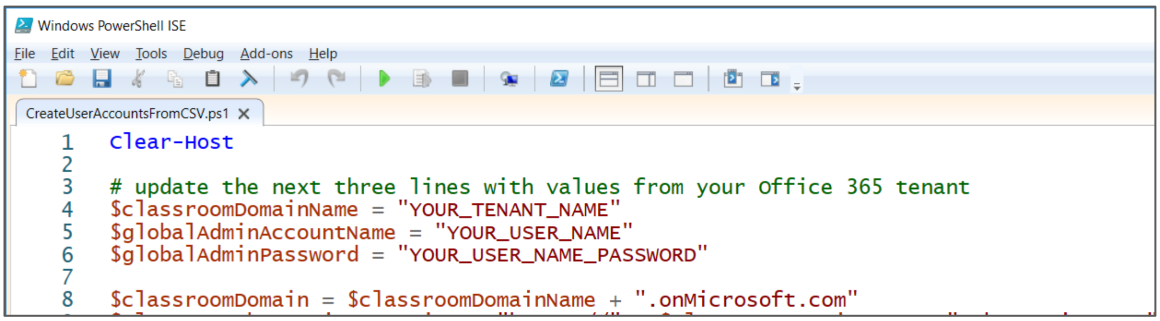


d) Close **UserData.csv** without saving any changes.

e) Right click on the file named **CreateUserAccountsFromCSV.ps1** and click Edit to open the file in the PowerShell ISE.



f) Take a moment to walk through the code in this PowerShell script.



g) As you can see, the script creates new Azure AD user accounts using the **New-AzureADUser** cmdlet.

```
$password = "pass@word1"
$passwordProfile = New-Object -TypeName Microsoft.Open.AzureAD.Model.PasswordProfile
$passwordProfile.Password = $password
$passwordProfile.EnforceChangePasswordPolicy = $false
$passwordProfile.ForceChangePasswordNextLogin = $false

# Create new user account
$newUser = New-AzureADUser `
            -DisplayName $displayName `
            -GivenName $firstName `
            -Surname $lastName `
            -MailNickName $mailNickname `
            -PasswordProfile $passwordProfile `
            -PasswordPolicies "DisablePasswordExpiration, DisableStrongPassword" `
            -UserPrincipalName $userPrincipalName `
            -UsageLocation "US" `
            -AccountEnabled $True
```

Note that any user account created with this script will have a password of **pass@word1**.

h) Move to the top of the script and edit the script to include the details for your tenant name, user account and password.

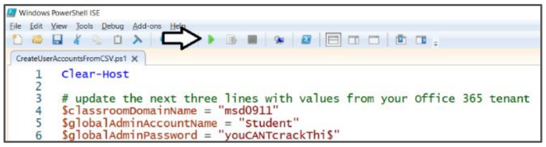
```
# update the next three lines with values from your Office 365 tenant
$classroomDomainName = "msd0911"
$globalAdminAccountName = "Student"
$globalAdminPassword = "youCANTcrackThi$"
```

i) Save your changes to **CreateUserAccountsFromCSV.ps1**.

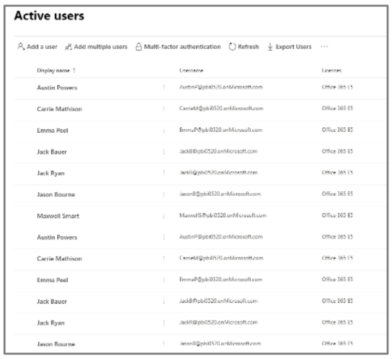
In the next step you will execute the PowerShell script which means you must have the ability to run PowerShell scripts on your Windows PC. If you are not able to run PowerShell scripts, you might need to open a PowerShell prompt as Administrator and then execute the **Set-ExecutionPolicy Bypass** command.

12. Run the PowerShell script named **CreateUserAccountsFromCSV.ps1** to create new user accounts in your new AD tenant.

  a) Inside the Windows PowerShell ISE, click the green arrow button on the toolbar to execute the script.



  b) Once the script executes, return to the **Active users** view in **Microsoft 365 admin center** and refresh the page to verify the new Azure AD user accounts have been created.



Note, there are user photos in the folder at **C:\Student\Modules\01_GettingStarted\Lab\CreateUsersScript\UserPhotos** if you want to upload photos for each of these users. Uploading user photos is not required so we leave this as an optional exercise for the reader.

Congratulations, you have now finished this lab.