Building PowerApps for SharePoint Online

Lab Time: 60 minutes

Lab Folder: C:\Student\Modules\03_SharePointOnline\Lab

Lab Overview: In this lab, you will begin by creating a new SharePoint list and customizing the form used to create new items and edit existing items. After that, you will continue to work on the **Device Ordering App** that you created in lab 2. You will extend the app you have already started by adding support to write a new list item to a SharePoint list when a user submits a new device request.

Lab Dependency: This lab assumes that you have already completed lab 2 and have built the **Device Ordering App**.

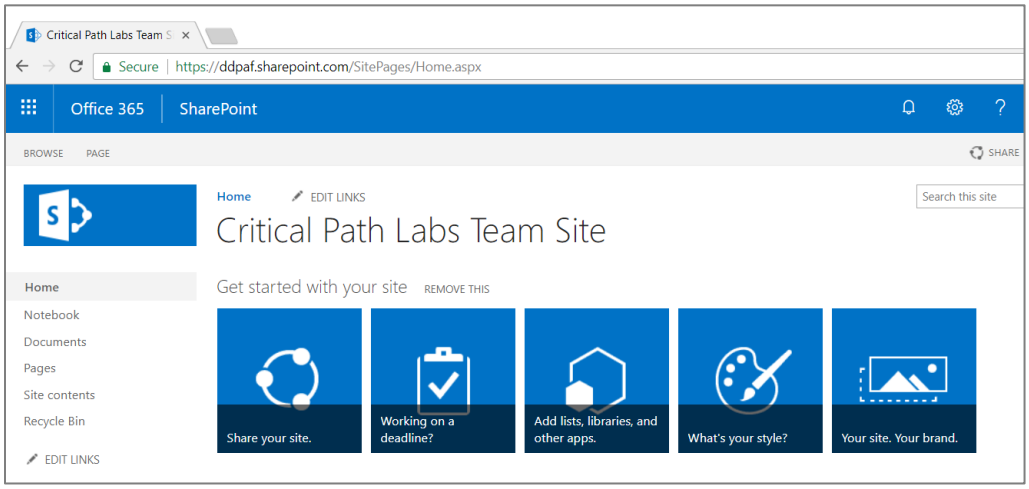
Exercise 1: Customize the New/Edit Form for a SharePoint List

In this exercise you'll create a new SharePoint List to use with the Device Ordering App.

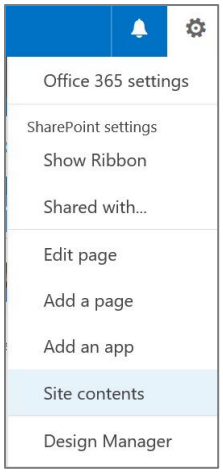
1. Navigate to the root SharePoint site you would like to use for this exercise.
   a) Navigate to the root SharePoint site for your trial Office 365 tenancy.

The URL for your SharePoint root site can be determined by your Office 365 tenancy name. For example, if your Office 365 tenancy is named **ddpaf**, then the URL for your SharePoint root site will be https://ddpaf.sharepoint.com.

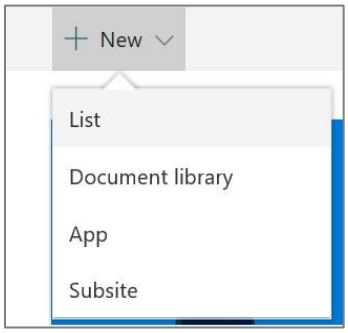
   b) When you navigate to your SharePoint site, it should be a standard SharePoint team site that matches the screenshot below.



2. Create a new SharePoint list.
   a) Click on the gear icon and click on **Site contents**



b) Click on **New** and select List from the menu

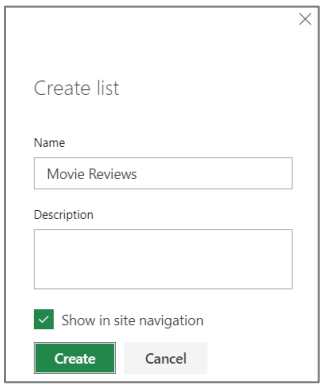


c) Create a new List

i) Enter the List name: **Movie Reviews**

ii) Optionally, enter a short description

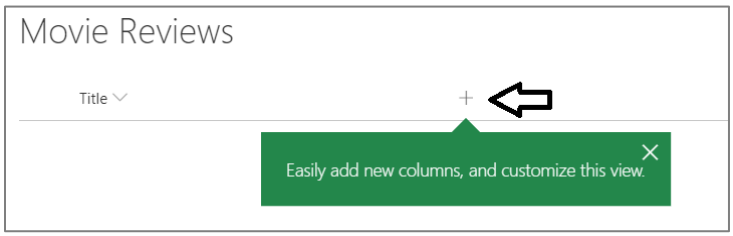
iii) Click the **Create** button.



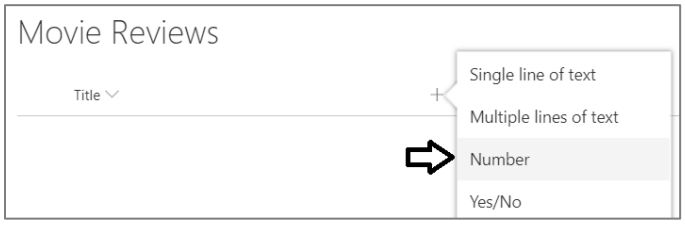
The list will have a single column by default.

3. Add the **Rate the acting** column.

a) In the next few steps you will click on the **+ sign** next to the Title column to add additional columns

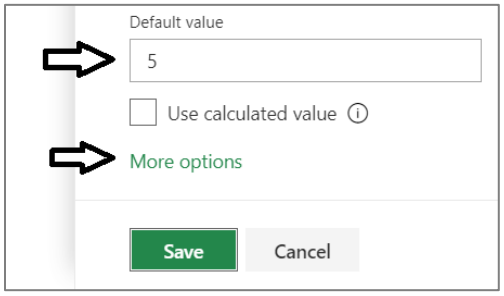


b) Select **Number** to create a new column of type **Number**.

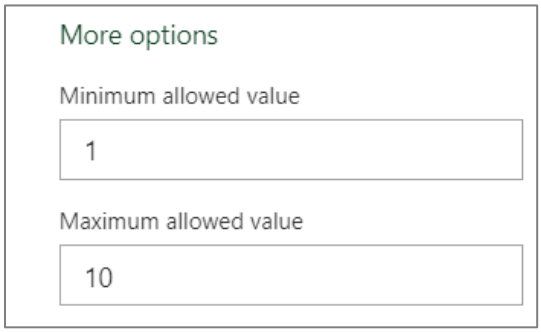


c) Give the new column a name of **Rate the acting**.

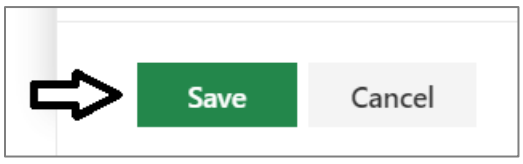
d) Configure the column's **Default value** property with a value of **5** and click the **More options** button.



e) In the **More options** section, set **Minimum allows value** to **1** and **Maximum allowed value** to **10**.



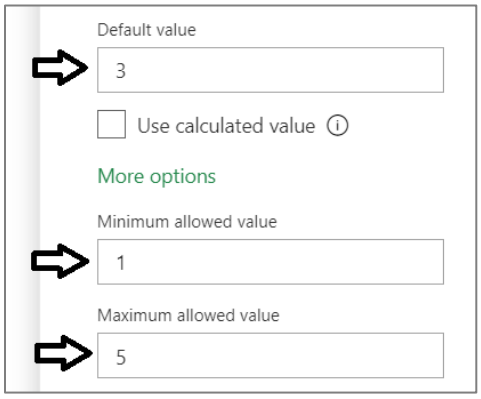
f) Click the Save button to add the new column to the Movie Reviews list.



g) The **Movie Reviews** list should now contain the **Rate the acting** column.

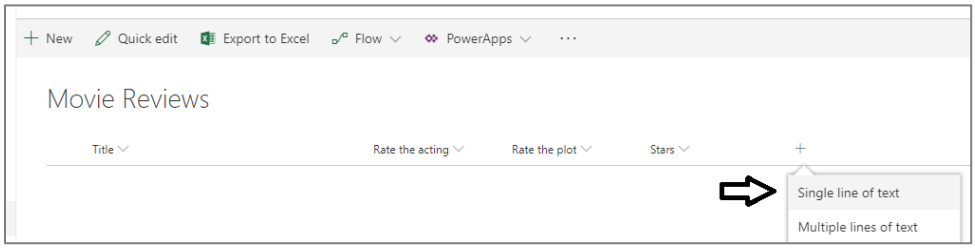
4. Add the **Rate the plot** column.
   a) Select **Number** to create a new column of type **Number**.
   b) Give the new column a name of **Rate the plot**.
   c) Configure the column's **Default value** property with a value of **5** and click the **More options** button.
   d) In the **More options** section, set **Minimum allows value** to **1** and **Maximum allowed value** to **10**.
   e) Click the **Save** button to add the new column to the Movie Reviews list.
   f) The **Movie Reviews** list should now contain the **Rate the acting** column.

5. Add the **Stars** column.
   a) Select **Number** to create a new column of type **Number**.
   b) Give the new column a name of **Stars**.
   c) Configure the column's **Default value** property with a value of **3** and click the **More options** button.
   d) In the **More options** section, set **Minimum allows value** to **1** and **Maximum allowed value** to **5**.

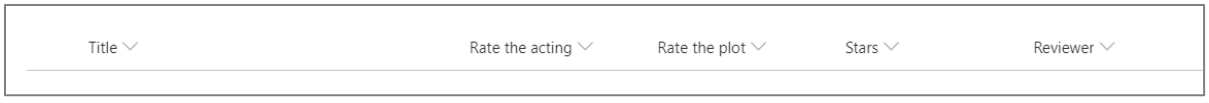


   e) Click the **Save** button to add the new column to the Movie Reviews list.
   f) The **Movie Reviews** list should now contain the **Stars** column.

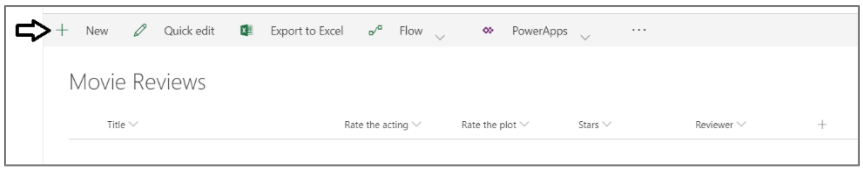
6. Add the **Reviewer** column.
   a) Select **Single line of text** to create a new column of type **Text**.



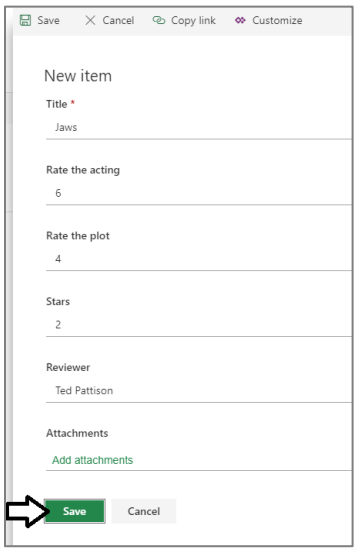
   b) Give the column a name of **Reviewer** and click the **Save** button to add it to the list.



7. Add a new item to the **Movie Reviews** list to test out the default SharePoint form for new items.
   a) Click to **New** button to display the new item form.

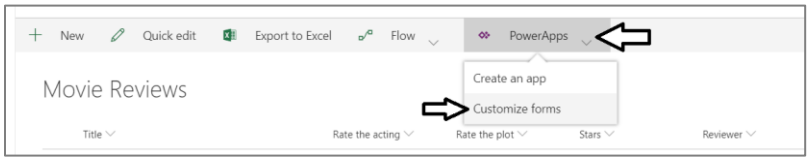


   b) Add a movie review as shown in the following screenshot and then add your name as the **Reviewer** and click **Save**.



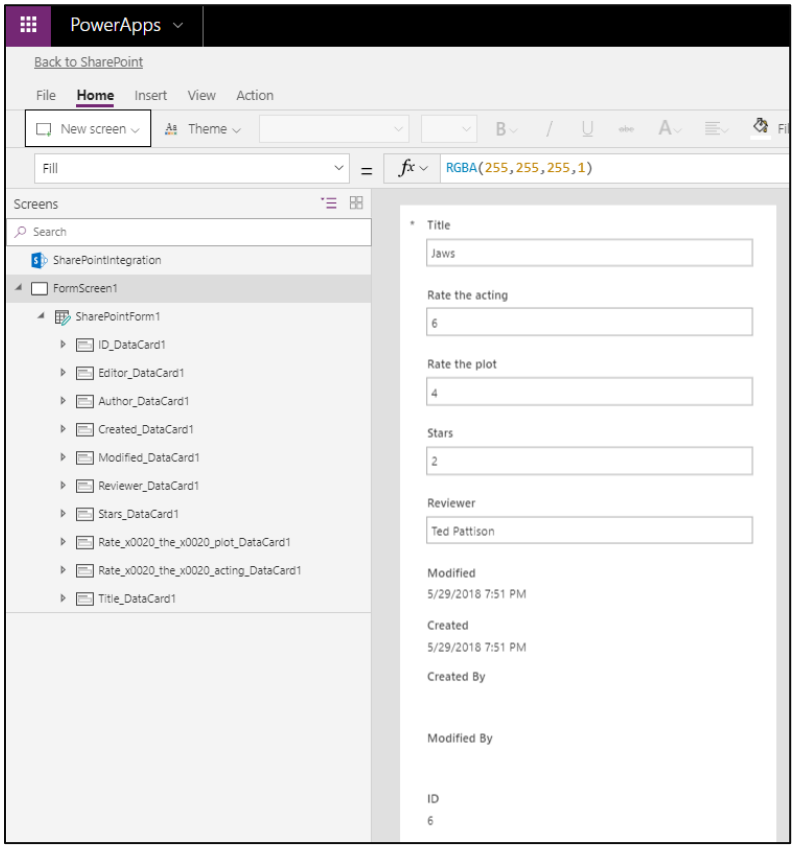
   c) You should see that your new item has been added to the **Movie Reviews** list.

8. Create a new PowerApps project to customize the new/edit form of the **Movie Reviews** list.
   a) Drop down the **PowerApps** menu of the **Movie Reviews** list and select the **Customize forms** command.



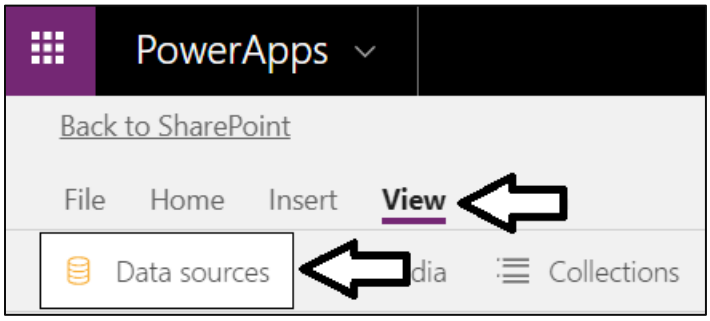
   b) Wait while the new PowerApps project is being created and initialized.

c) Once the new PowerApps project has been created, it should appear as the one in the following screenshot.

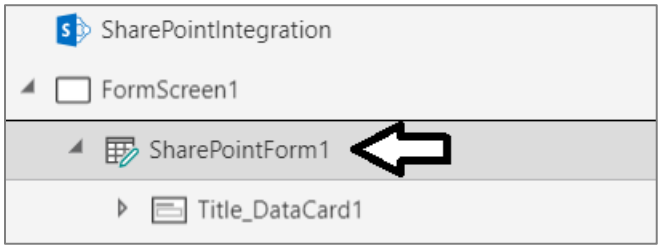


9. Remove the unneeded columns from the PowerApps form.

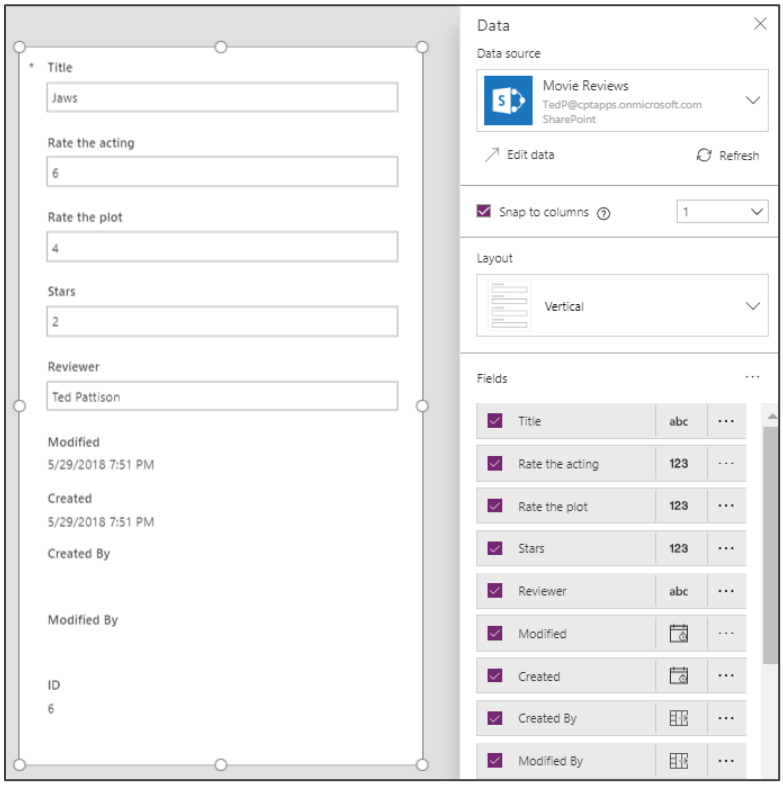
a) Display the **Data** panel by clicking **View** and then clicking **Data sources**.



b) Once the **Data** panel is showing, select **SharePointForm1** in the left navigation.

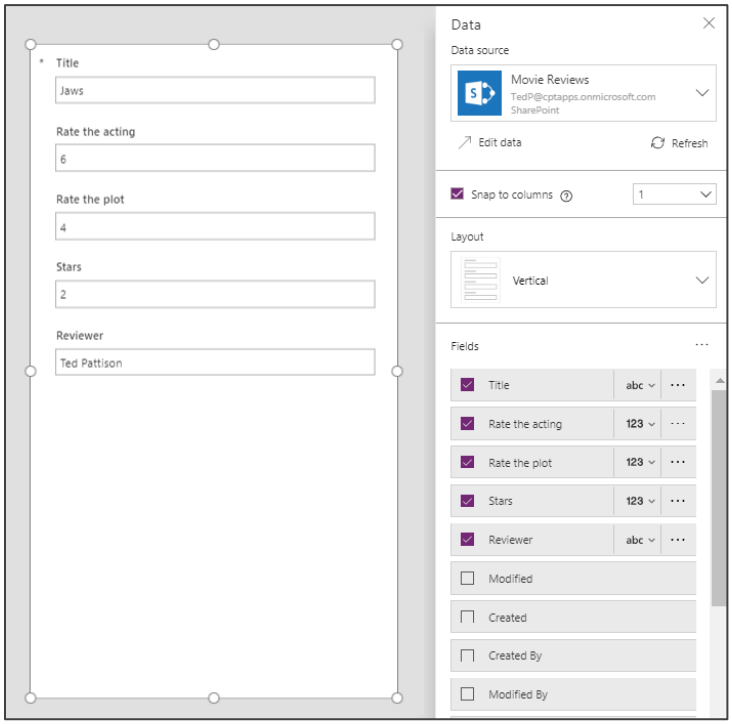


c) You should now see the **Fields** list at the bottom of the **Data** panel showing all the fields that have been added to the form.



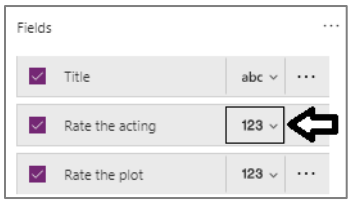
d) In the **Fields** list, unselect all fields except for **Title**, **Rate the acting**, **Rate the plot**, **Stars** and **Reviewer**.

e) Your form should now appear like the one shown in the following screenshot.

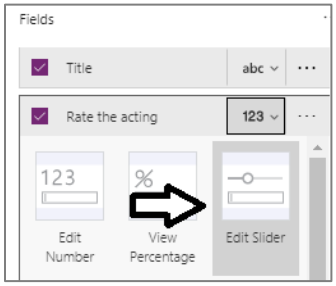


10. Modify the **Rate the acting** field to use a slider control instead of a textbox.

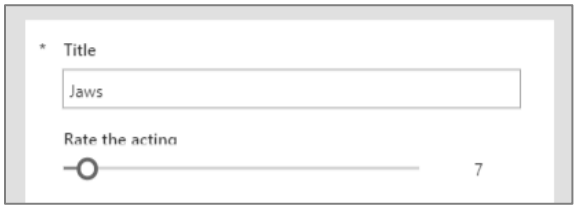
a) In the **Fields** list, click the dropdown menu to the right of the **Rate the acting** field.



b) Select the **Edit Slider** option.

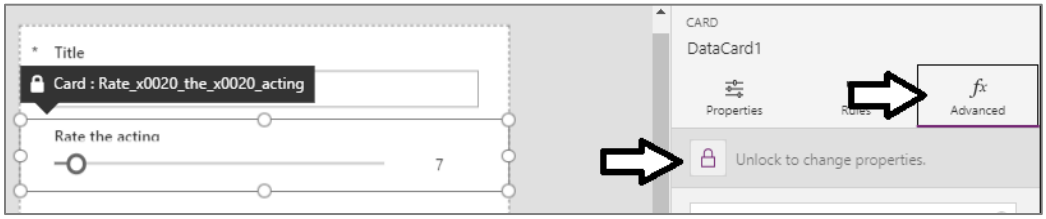


c) The form should now display a slider control for the **Rate the acting** field.

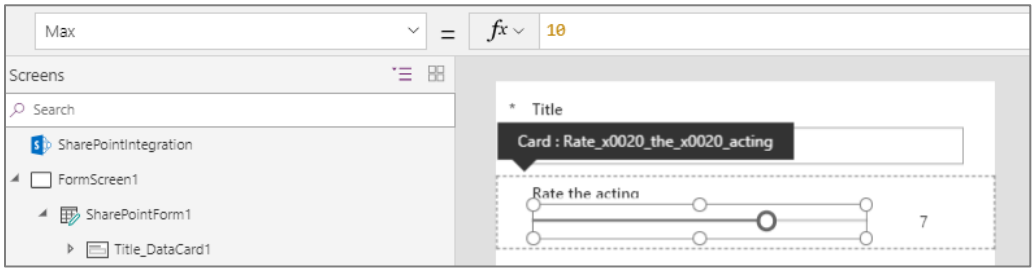


You still need to configure the maximum value and the minimum vale for the slider control. However, this will require that you unlock the data card with the slider control before you can make these changes.

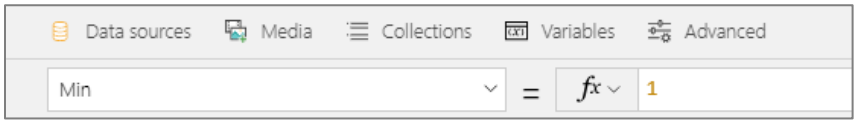
d) With the data card for the **Rate the acting** field selected, click the **Unlock to change properties** button in the **Advanced** tab.



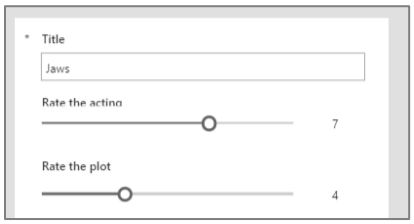
e) Inside the **Rate the acting** data card, select the slider control and set its **Max** property to **10** using the formula bar.



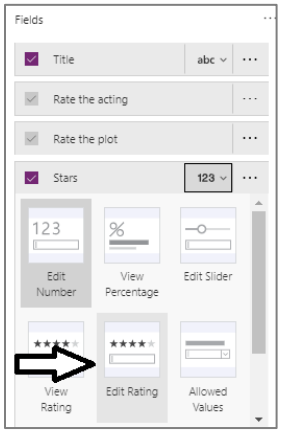
f) With the slider control still selected, set its **Min** property to **1** using the formula bar.



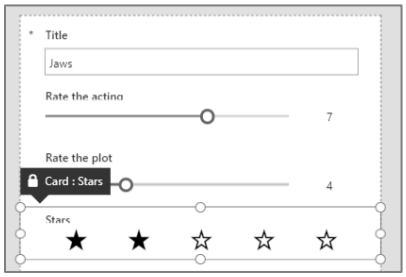
11. Modify the **Rate the plot** field to use a slider control instead of a textbox.
    a) In the **Fields** list, click the dropdown menu to the right of the **Rate the plot** field.
    b) Select the **Edit Slider** option.
    c) The form should now display a slider control for the **Rate the acting** field.
    d) With the data card for the **Rate the plot** field selected, click the **Unlock to change properties** button in the **Advanced** tab.
    e) Inside the **Rate the plot** data card, select the slider control and set its **Max** property to **10** using the formula bar.
    f) With the slider control still selected, set its **Min** property to **1** using the formula bar.
    g) The slider for the **Rate the plot** field should now be configured just like the slider for the **Rate the acting** field.



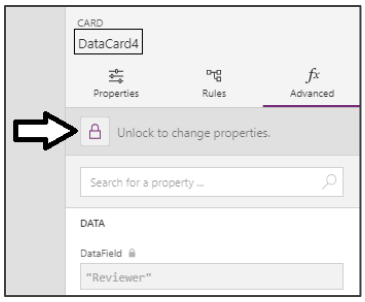
12. Modify the **Stars** field to use a edit rating control instead of a textbox.
    a) In the **Fields** list, click the dropdown menu to the right of the **Stars** field.
    b) Select the **Edit Rating** option.



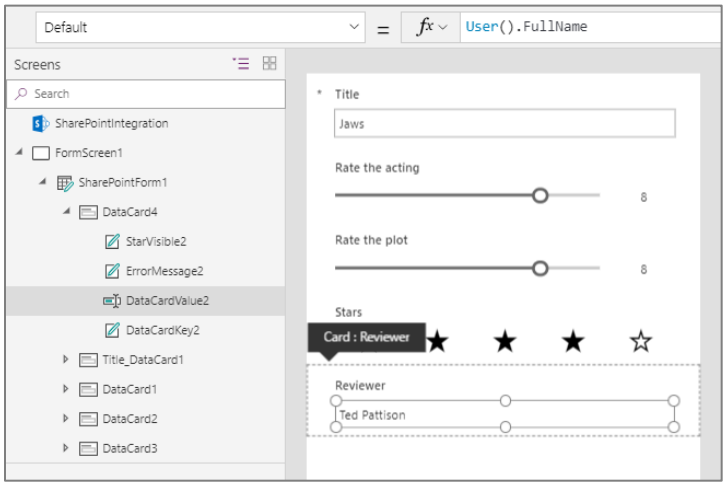
    c) The form should now display an edit rating control for the **Stars** field.



13. Modify the data card for the **Reviewer** field.
    a) With the data card for the **Rate the acting** field selected, click the **Unlock to change properties** button in the **Advanced** tab.



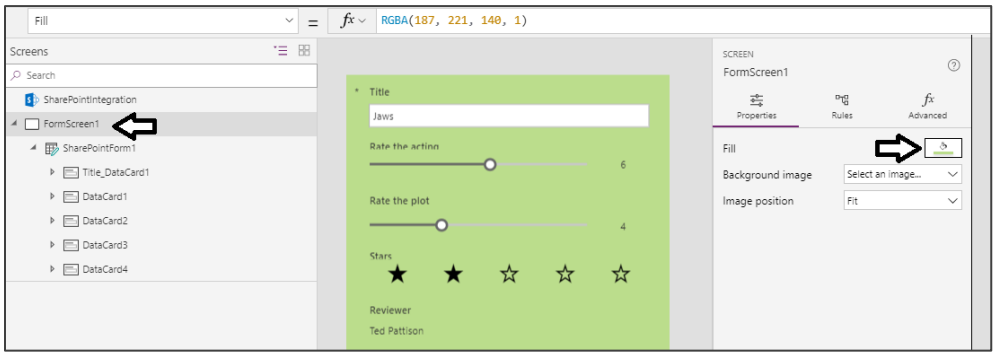
    b) Select the textbox control inside the data card for the **Reviewer** field and set its **Default** property to **User().FullName**.



    c) With the textbox control inside the data card for the **Reviewer** field still select,

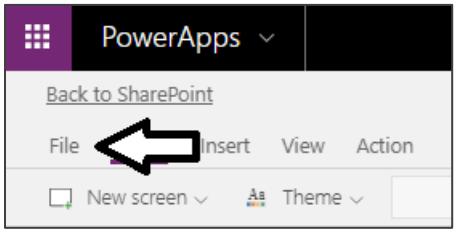
The last thing you will do is to change the form's background color to make it obvious when the custom form is being used.

14. Change the background color of the form.
    a) Select the top-level form named **FormScreen1** in the left navigation.
    b) Modify the **Fill** property of the form to a color of your choosing.

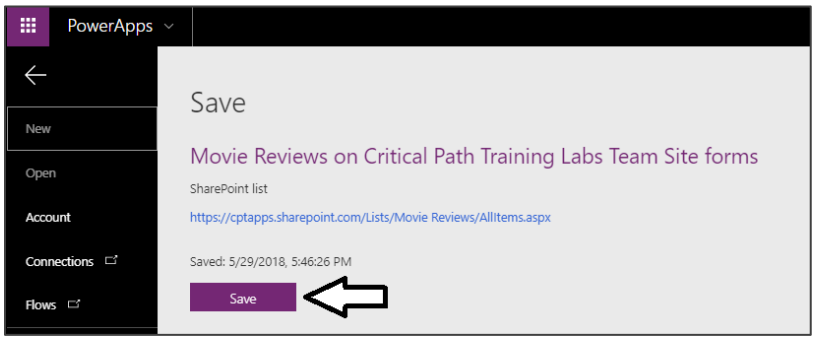


At this point, you have finished your work creating the customized form. Now you must work through the steps to save the PowerApps project with the form and publish it back to the SharePoint list so you can begin using it.

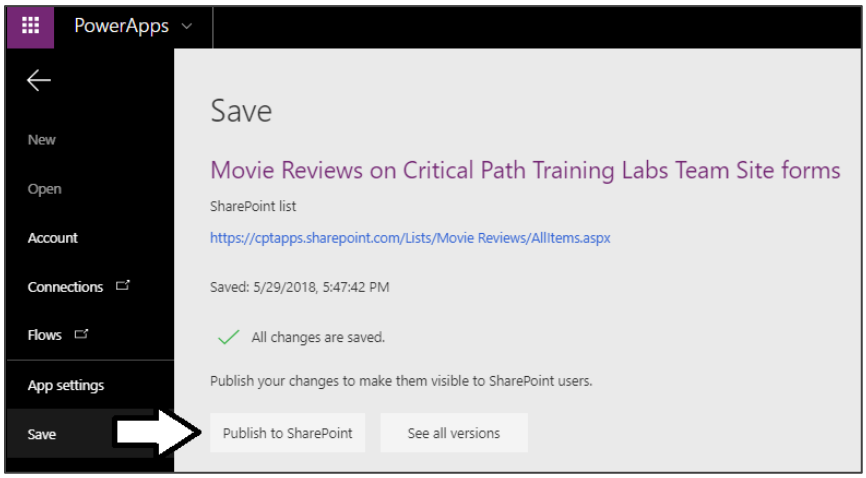
15. Save and Publish the PowerApps project with the custom SharePoint form.
    a) Click the **File** menu to navigate to the **Save** page.



    b) On the **Save** page, click the **Save** button.

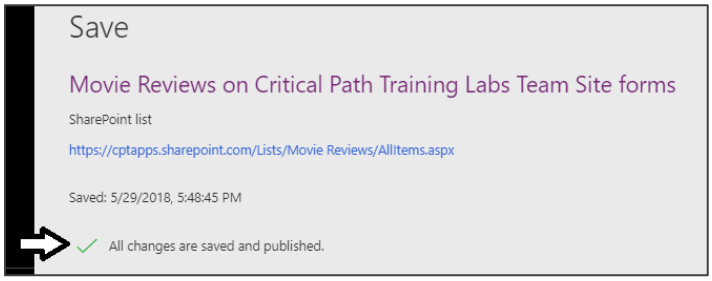


    c) Once the form has been saved, click the **Publish to SharePoint** button.



    d) When you see the **Publish** dialog, click the **Publish to SharePoint** button to continue.

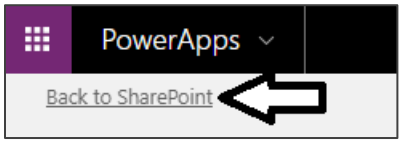
e) After publishing, the **Save** page should display a message indicating all changes have been saved and published.



16. Navigate back to SharePoint.

a) On the **Save** page, click the back arrow to return to the PowerApps project with the custom form.

b) Click the **Back to SharePoint** link.

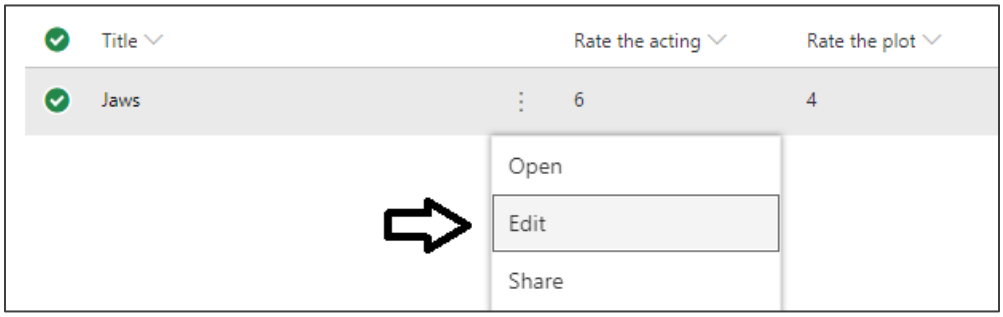


After a few second, the browser should be redirected back to the default view for the Movie Reviews list in the SharePoint site.

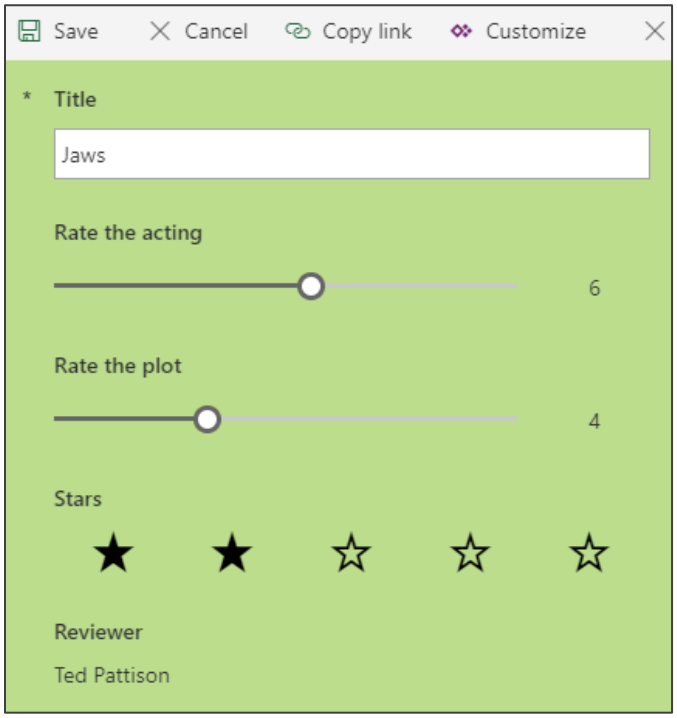
17. Use the customized form to edit an existing item.

a) Locate the item in the **Movie Reviews** list you created earlier and drop down the **Show actions** menu.

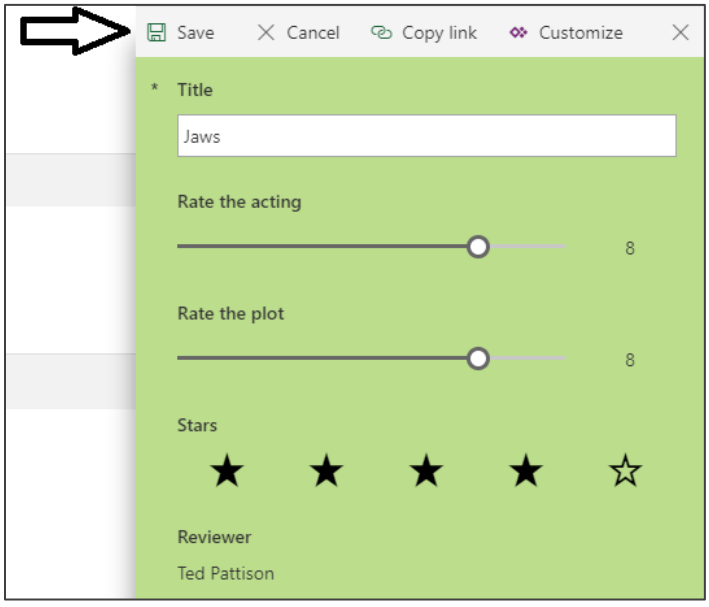
b) Select the **Edit** command to edit this item using the new custom form.



c) The existing **Movie Reviews** item should display as shown in the following screenshot.



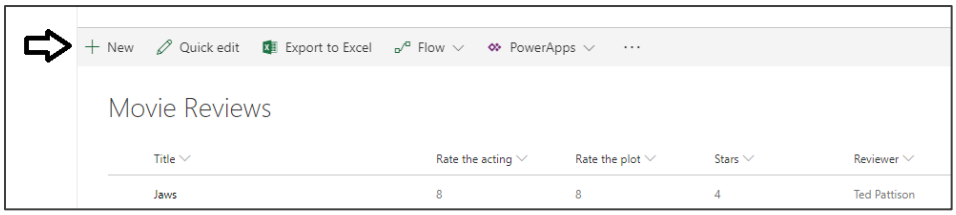
d) Make some changes to the **Rate the acting** field, the **Rate the plot** field and the **Stars** field and click **Save**.



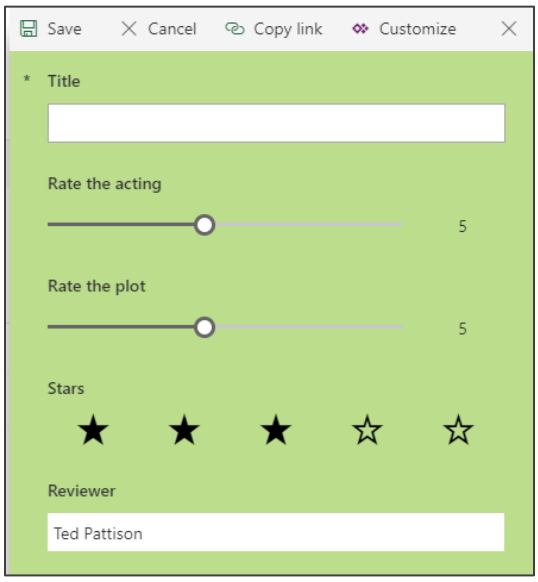
e) You should be able to confirm that your changes have been saved back to the item in the **Movie Reviews** list.

18. Create a new item using the new custom form.

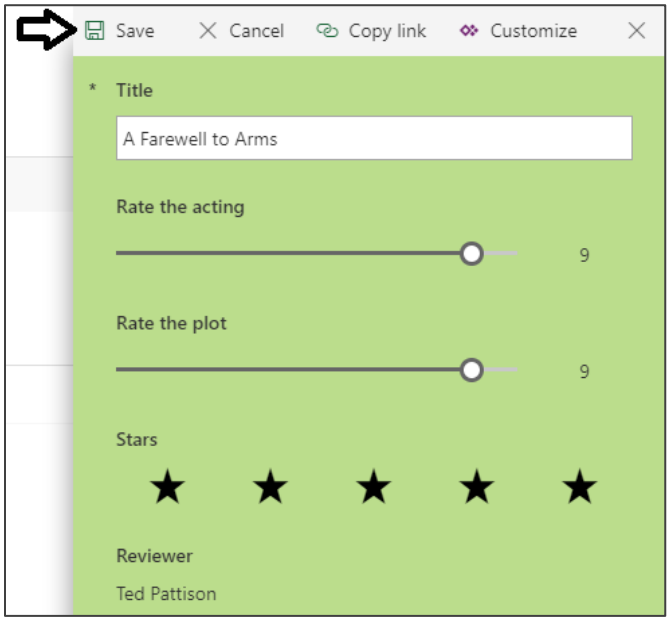
a) Make sure no item is selected and click the New button to create a new item for the **Movie Reviews** list.



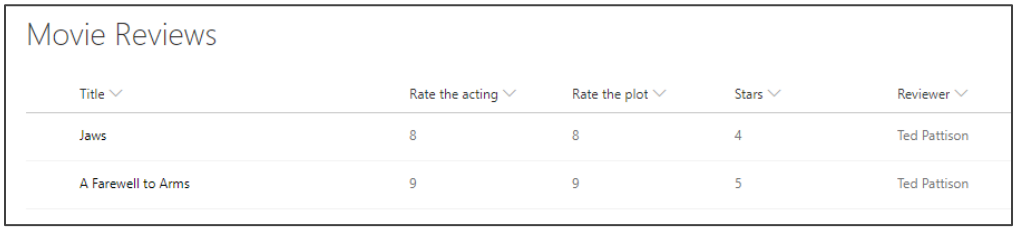
b) At first, you should see a new form as shown in the following screenshot.



c) Enter the data for a new movie review as shown in the following screenshot and click **Save**.



d) Confirm that the new item has been created correctly.



You have now worked through all the steps of creating and testing a customized SharePoint list form using PowerApps.

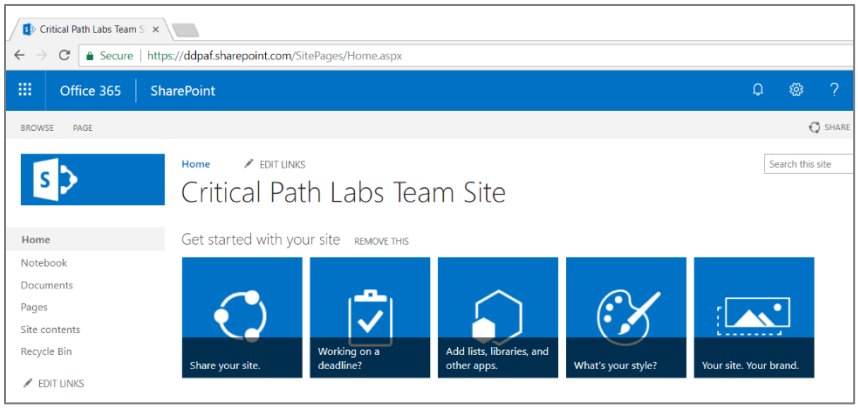
Exercise 2: Create a New SharePoint List for Device Order Requests

In this exercise you'll create a new SharePoint List to use with the Device Ordering App.

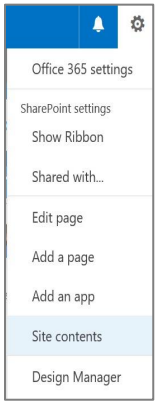
1. Navigate to the root SharePoint site you would like to use for this exercise.
   a) Navigate to the root SharePoint site for your trial Office 365 tenancy.

The URL for your SharePoint root site can be determined by your Office 365 tenancy name. For example, if your Office 365 tenancy is named **ddpaf**, then the URL for your SharePoint root site will be https://ddpaf.sharepoint.com.

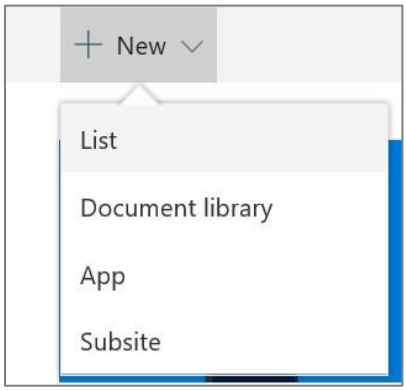
   b) When you navigate to your SharePoint site, it should be a standard SharePoint team site that matches the screenshot below.



2. Create a new SharePoint list.
   a) Click on the gear icon and click on **Site contents**



b) Click on **New** and select List from the menu

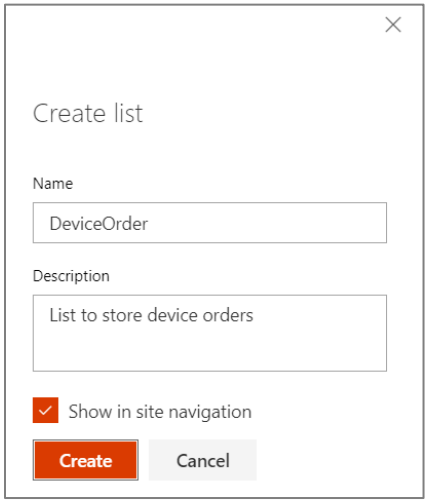


c) Create a new List

i) Enter the List name: **DeviceOrder**

ii) Enter a short description

iii) Click the **Create** button.



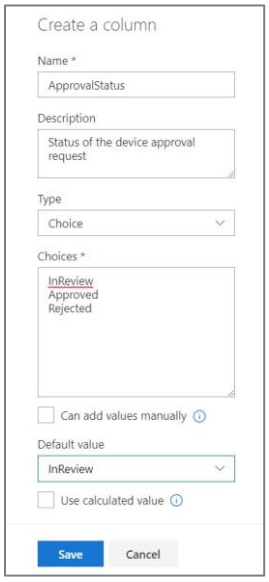
d) The list will have a Title column by default

e) In the next few steps you will click on the **+ sign** next to the Title column to add additional columns

f) Add these **additional columns** step by step to the new list:

Column	Type
Price	Currency
RequestedBy	Single line of text
Approver	Single line of text
ApprovalStatus	Choice *
Comments	Multiple lines of text – Make sure to set **Specify the type of text to allow** property to **Plain Text**
DeviceID	Number

g) * For the **ApprovalStatus** column, select the Choice type and enter **InReview**, **Approved**, and **Rejected** as choices. You will also need to set the **Default Value** to **InReview**.



3. View your **list settings** and confirm the columns and types are accurate.

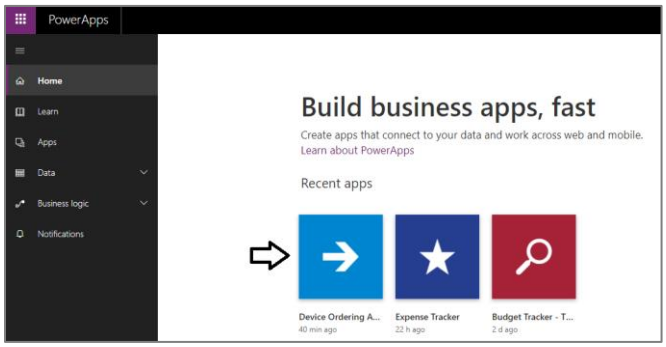
a) Click the gear icon in the top right and select **List settings**.

b) The column settings for the DeviceOrder list should match the image below –

Exercise 3: Connect to a SharePoint List as a Data Source

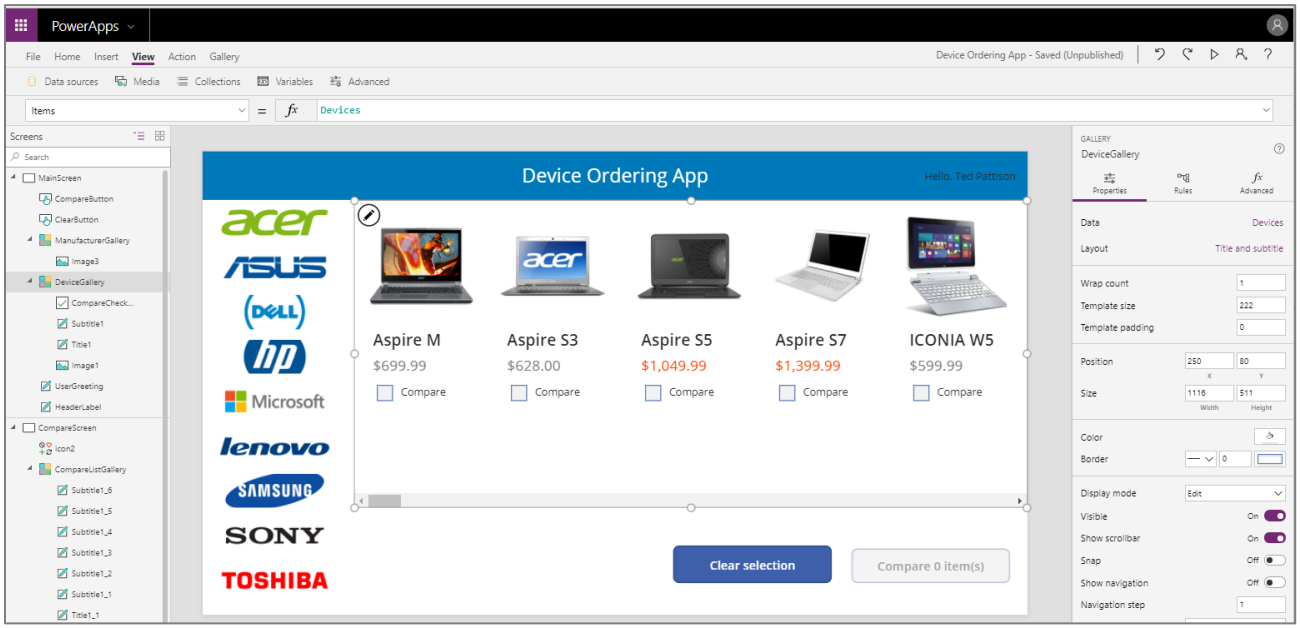
Now the SharePoint list is created, attach this SharePoint list to your PowerApps app so you can submit data and store it in the list.

1. Open the Device Ordering App you created in Lab 2.
   a) Using a new tab in the browser, navigate to https://web.powerapps.com.
   b) Hover the mouse over the tile for the **Device Ordering App**.



   c) Click on the button with the pen icon to open the **Device Ordering App** in edit mode.

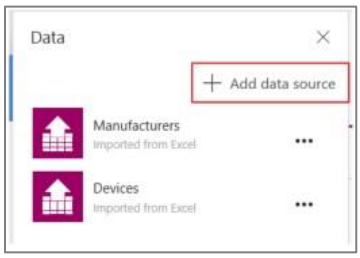
   d) The Device Ordering App should now be open in edit mode and match the following screenshot.



2. Add SharePoint as a data source

a) Click on the **View** tab and then click **Data sources** to display the Data sources property pane to the right of the canvas.

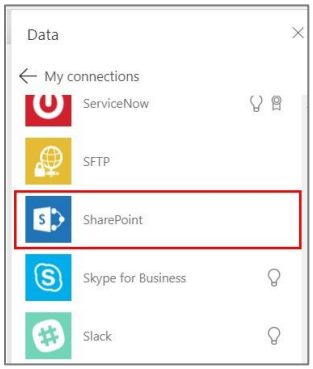
b) Click + Add data source.



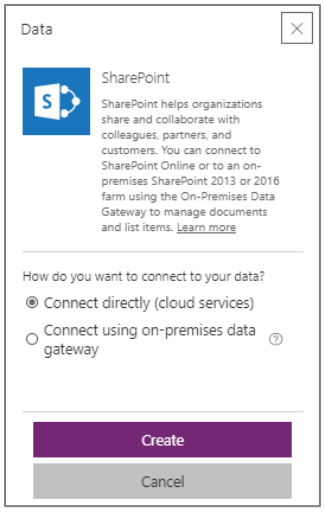
c) If you see SharePoint in the list of existing connections, select it.

d) If you don't see SharePoint listed, click **+ New connection**

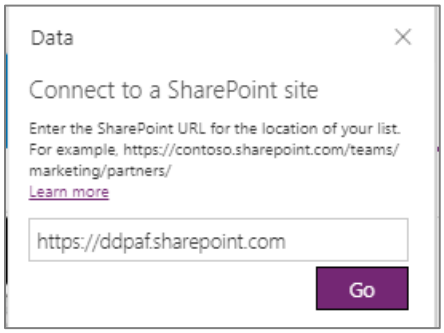
e) Select the **SharePoint** connection.



f) Select the Connect directly (cloud services) option and click Create.

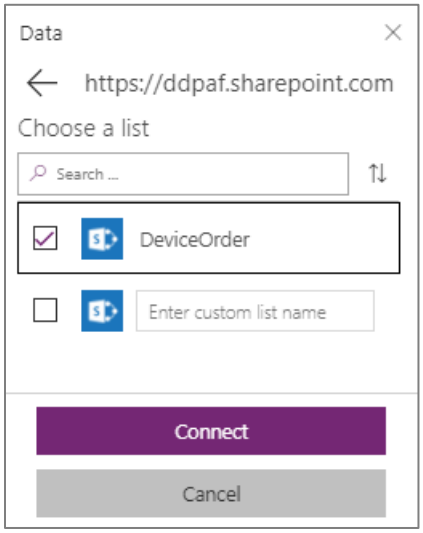


g) Enter your **SharePoint site URL** where you created the **DeviceOrder** List and then click **Go**.

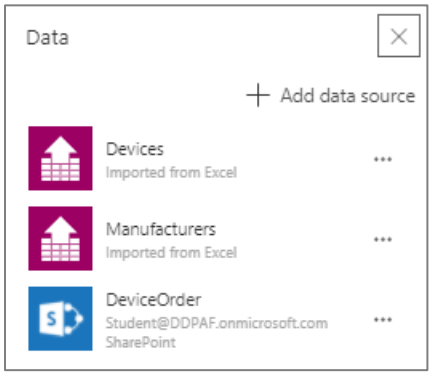


Make sure you enter only the site URL and not the full URL to the list.

h) You will see all the lists on the site. Select the **DeviceOrder** list and click **Connect**



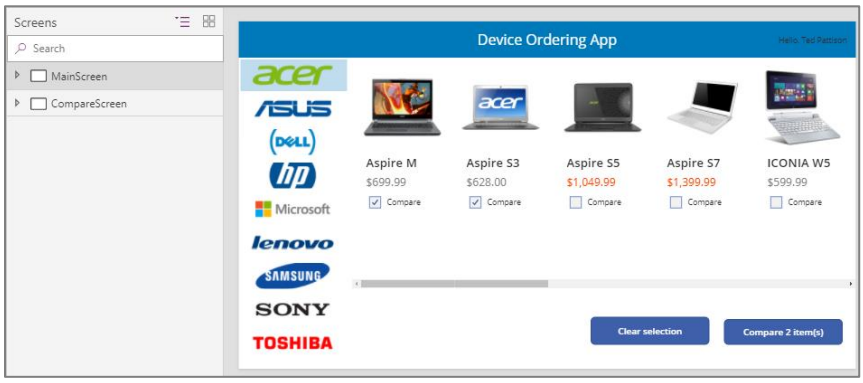
i) You should be able to confirm that the new **DeviceOrder** connection has been added to your app.



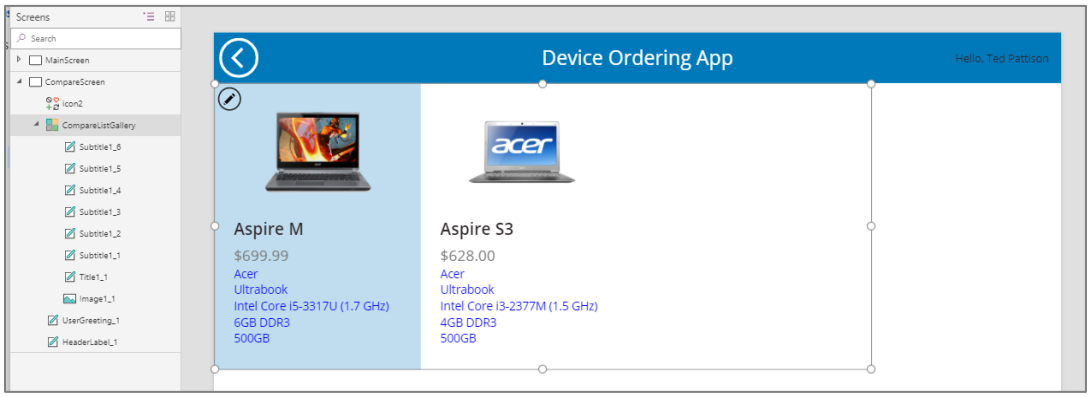
You have now created a connection from your app to the **DeviceOrder** list. Your next step is to create an edit form so that you can implement the behavior in the app to insert new items in this SharePoint list.

Over the next few steps, you will add an Edit Form to the app that is connected to the SharePoint list. This will let users input information for their device approval request.

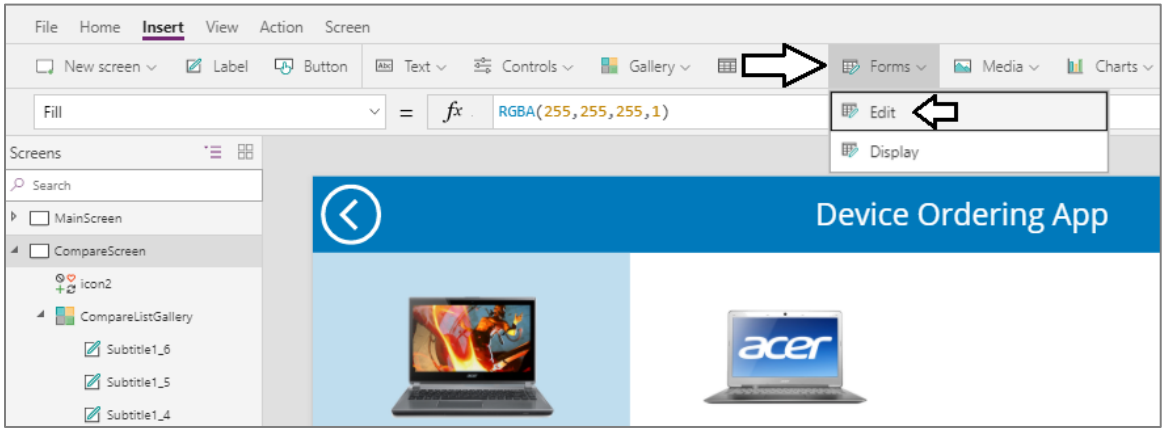
3. Make sure the **CompareList** collection is not empty.
   a) Navigate to the **MainScreen**.
   b) Make sure at least 2 or 3 devices are selected as shown in the following screenshot.



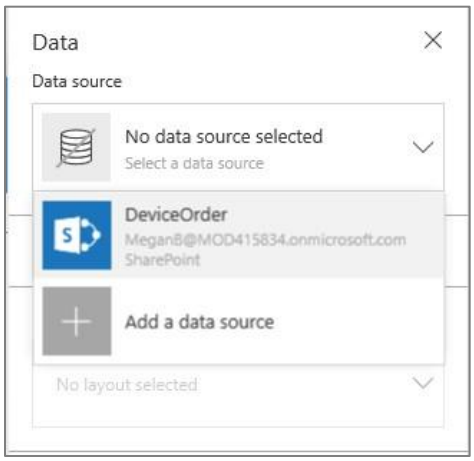
   c) Navigate to **CompareScreen** and verify the you can see the devices that you selected on **MainScreen**.



4. On **CompreScreen**, insert a new Edit Form and select **DeviceOrder** as the data source
   a) Click **Insert** in the ribbon and select **Forms** -> **Edit**.



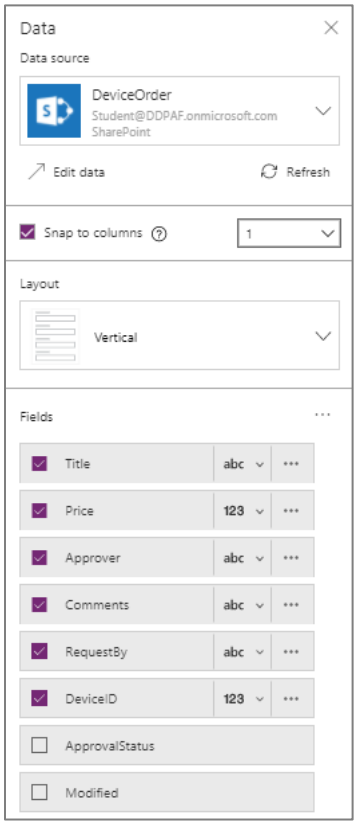
   b) Click the **Data source** dropdown in the Data pane on the right.
   c) Select the **DeviceOrder** list as the data source.



d) Set the **Snap to columns** value setting to a value of **1**.

e) By default, all the fields will be created on the form.

f) Unselect the fields not required, and re-order the fields such that the set of selected fields matches the image below. The only fields that should remain selected are **Title**, **Price**, **Approver**, **Comments**, **RequestedBy**, **DeviceID**.



Tip: Scroll to the bottom of the list of fields and start unselecting from the bottom up. You can drag the fields up and down as needed.

g) When you are done, click the 'X' button in the top right to close the Data pane.

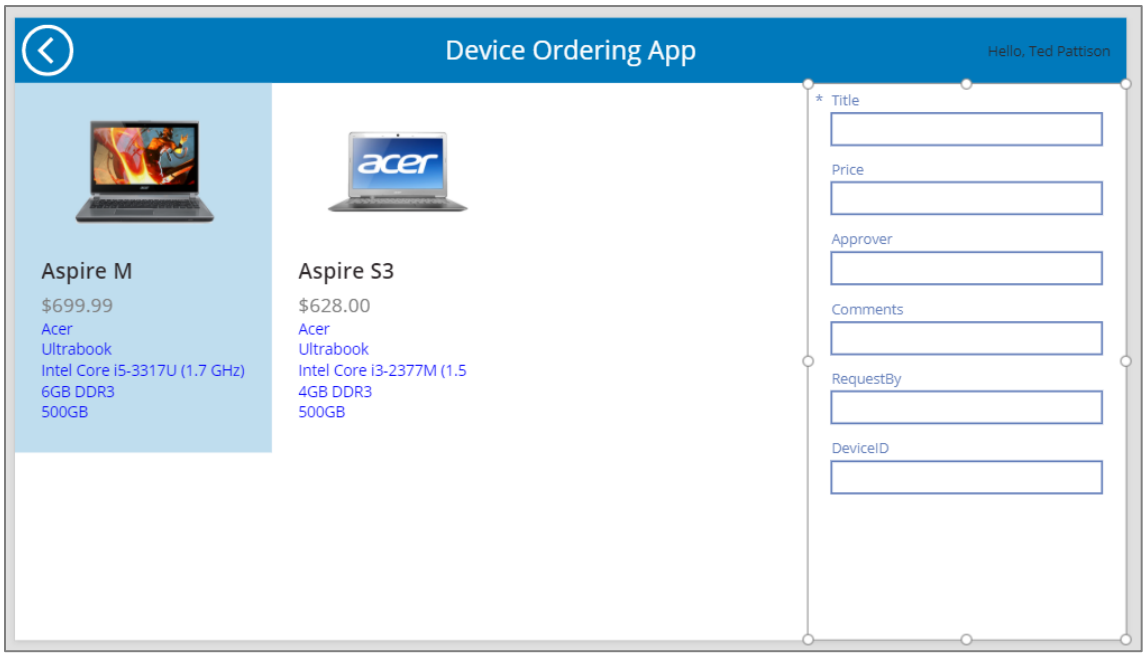
5. Move and resize the new Edit form to fit on the right side of the second screen, see image below:

a) Move and resize the form such that it is just below the header label, aligned with the right edge of the screen, and to the right of the device gallery.

b) Make sure there is enough space below the form to add a Submit button

c) **Note**: To select the entire form, use the tree control on the left and select the Form1 control. If you click within the form you may select a data card within the form and not the entire form.

d) Don't worry about the formatting of each field within the form for now, we'll cover that in the next task.

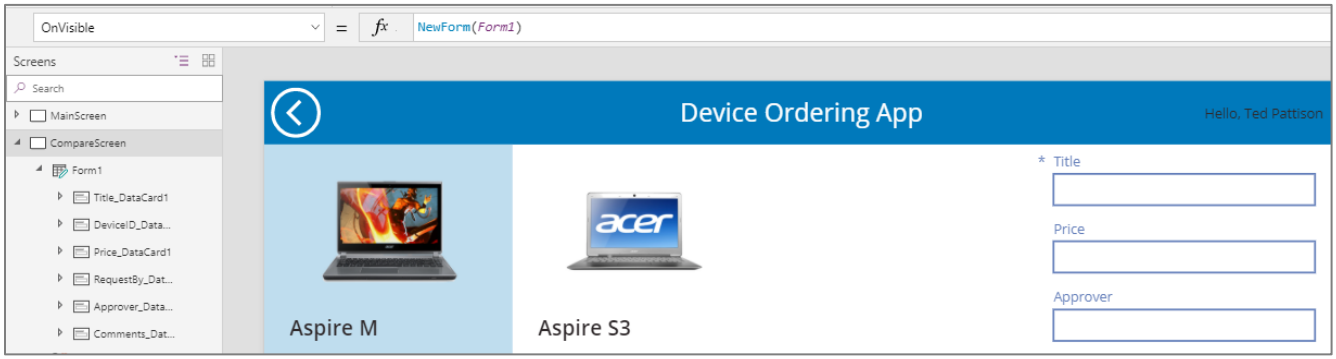


Now that you have a new Edit Form that is tied to the SharePoint list, let's go ahead and make some edits to the form.

6. Initialize the form by creating a new instance of the form each time the second screen is loaded

a) Select the screen – click **CompareScreen** in left tree view pane.

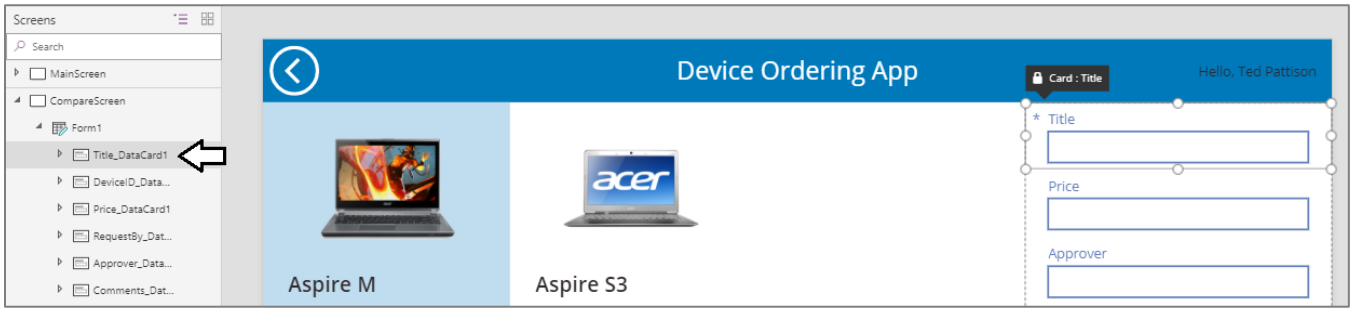
b) In the **OnVisible** property of the screen, enter: `NewForm(Form1)`



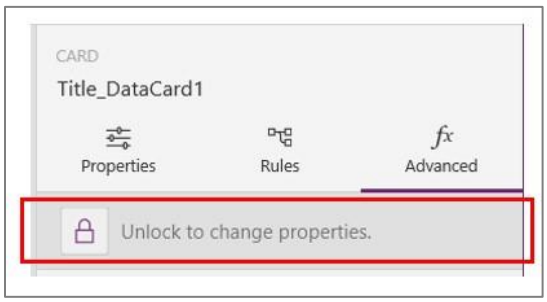
Over the next few steps you will configure the **Title** field by setting the default value of the **Title** field to include the manufacturer and device name of the selected device and make this field read-only. For example, if the user selects the Surface Pro device, the Title field should be assigned a value of "Microsoft – Surface Pro".

7. Set the default value for the **Title** field:

a) In the left navigation, select the **Title** card. The control name is **Title_DataCard1**.



b) With the **Title** card selected, go to the **Advanced** pane on the right and click the **Unlock to change properties** button.



c) Click the **more options** button in the DATA section of the Advanced pane.

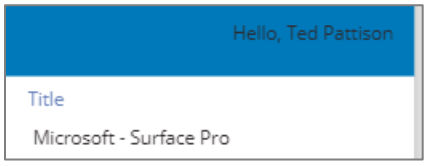
d) Set the **Default** property to:

```
CompareListGallery.Selected.ManufacturerName & " - " & CompareListGallery.Selected.Title
```

e) Set the Title field to be Read-Only, i.e. DisplayMode = View

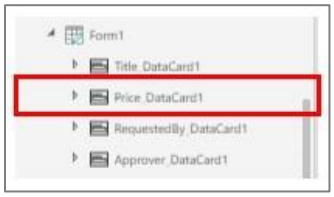
i) Click the **more options** button in the DESIGN section of the **Advanced pane** on the right. ii. Change the **DisplayMode** from Parent.DisplayMode to **DisplayMode.View**.

f) Select a device and make sure the **Title** field displays the manufacturer and device name.

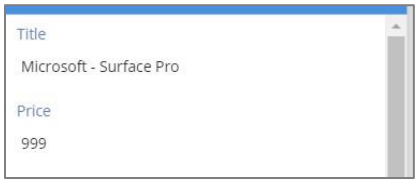


g) Select different devices and see how the **Title** value changes

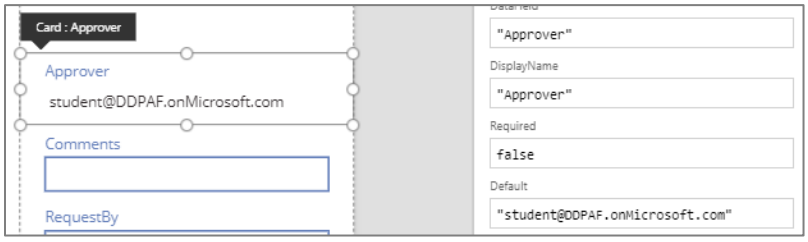
8. Configure the **Price** field to set it to the price of the selected device
   a) Select the data card for the Price field – **Price_Datacard1**



   b) Go the **Advanced** pane and unlock the card.
   c) Change the **Default** property to `CompareListGallery.Selected.Price`.
   d) Change the **DisplayMode** property to: `DisplayMode.View`.



9. Configure the **Approver** field by setting its default value to be the email address of your Office 365 trial account.
   a) Select the card named **Approver_DataCard1**.
   b) Go to the **Advanced** pane and unlock the card.
   c) Set the **Default** value by entering a string value with the email address of your Office 365 trial account.



In a real-world application, you would not hardcode an email address like this. Instead, you would use a different approach to determine who the approver would be. However, this simplification has been made to reduce the complexity of this lab exercise.

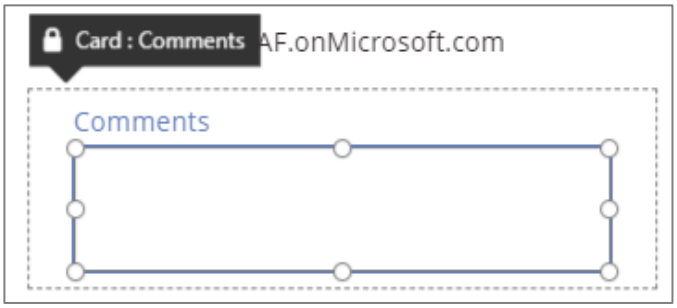
10. Modify the **Comments** Field
    a) Select the entire form – **Form1** control in the left tree view

b) Click on **Data** in the **Properties pane** on the right to open the data pane

c) Select the chevron next to the Comments field to view a list of layout options

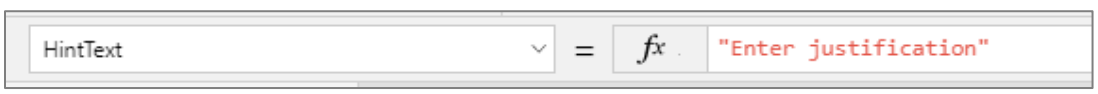
d) Select **Edit multi-line text** to change it from a single line to multi-line input

e) The Comments field in the form should look like this:

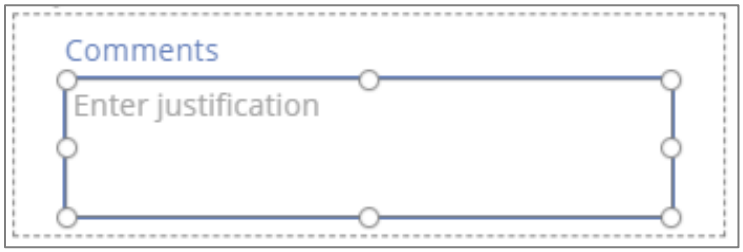


f) Go the **Advanced pane** and unlock the data card for the comments field.

g) Update the **HintText** property with the string value of **Enter justification**.



h) The text input for comments should now show the hint,



11. Modify the **RequestedBy** Field by assigning its default value to the current user's email.
    a) Select the card named **RequestedBy_DataCard1**
    b) Go to the **Advanced** pane and Unlock the card.
    c) Change the **Default** property to: `User().Email`.

    d) Make this control read-only by assigning the **DisplayMode** property for this card to `DisplayMode.View`.

12. Modify the card for the **DeviceID** field so it is hidden but still stored as part of the form for submission.
    a) Select the card named **DeviceID_DataCard1.**
    b) Go to the **Advanced** pane and unlock the card
    c) Change the **Default** property to `CompareListGallery.Selected.DeviceID`.

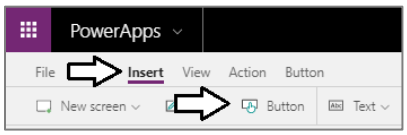
    d) Hide the card by selecting it and then update its **Visible** property from **On** to **Off** in the **Properties** pane.

The card won't be visible but the value will get updated as part of the form's submission.

Exercise 4: Add a Button to Save an Item to a SharePoint List

In this exercise, you will add a button to submit the form to add new items to the SharePoint list.

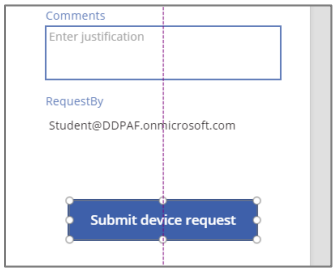
1. Add a new button to **CompareScreen**.
    a) Navigate to the **Insert** tab and click the **Button** button to add a new button.



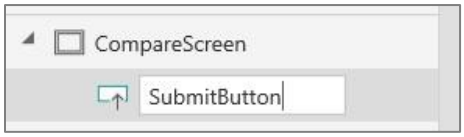
b) Change the text caption of the button to “Submit device request”.

c) Make the button larger – you can resize to 280x60 using the **Properties** pane on the right.

d) Position it in the bottom right of the screen, center aligned with the Form.



e) Rename the button control to SubmitButton

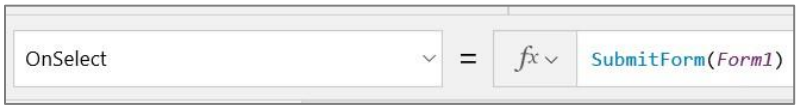


2. Set the Button Display Mode to only be enabled if a device is selected

a) To do this, change the button’s **DisplayMode** property to:

```
If(!IsBlank(CompareListGallery.Selected), DisplayMode.Edit, DisplayMode.Disabled)
```

b) Set the **OnSelect** property to `SubmitForm(Form1)`.

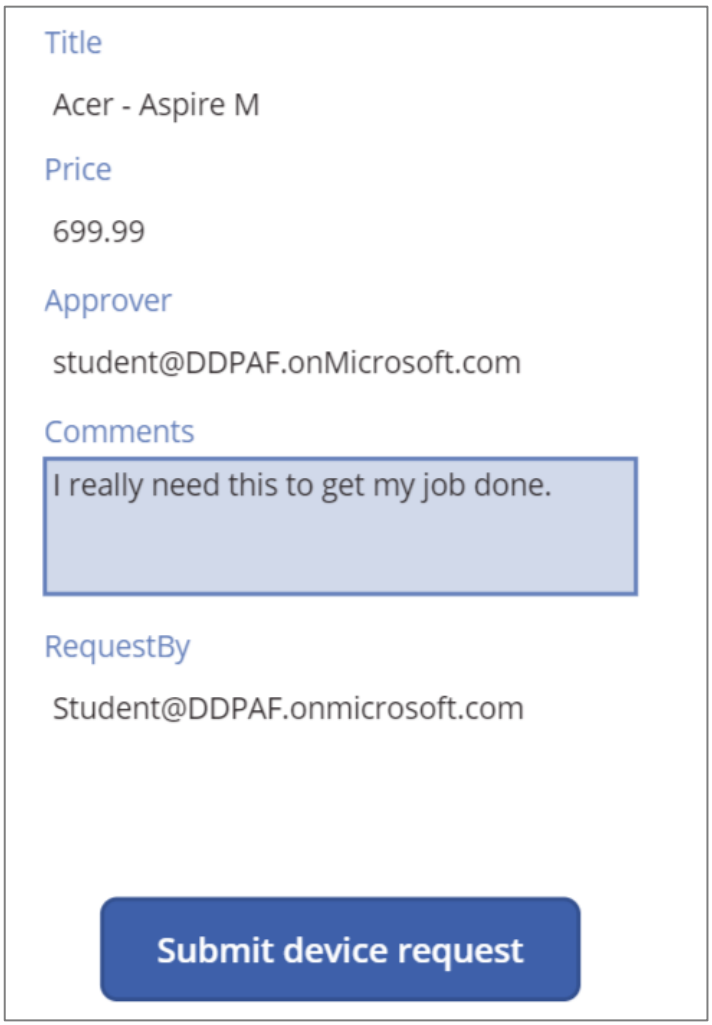


c) When the button is pressed, the form data will be submitted to the SharePoint Online list.

This is a good time to save the changes to your app.

That’s all there is to submitting data to the SharePoint list, go ahead and give it a try:

1. Go to the first screen and play the app
2. Select a few devices to compare and hit the **Compare** button
3. As you select difference devices on the compare screen, you should see the information in the form change



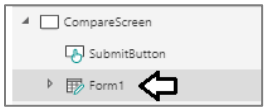
4. Add a comment to the form and click Submit Device Request
5. Go back to where you created the DeviceOrder SharePoint list. You should have your recent submission there.

Exercise 5: Add a Submit Order Confirmation Screen

In this exercise, you will add a confirmation screen with details about the device that was just requested.

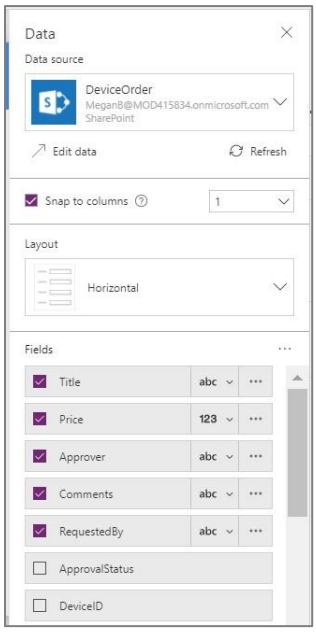
1. Create a third screen
   a) Click Home -> New screen -> Blank
   b) Rename the screen to SubmitSuccessScreen
   c) Go back to the second screen
2. Add the navigation to the third screen

a) In the left navigation, select **Form1**.



b) Set the **OnSuccess** property of Form1 to: `Navigate(SubmitSuccessScreen,ScreenTransition.Fade)`

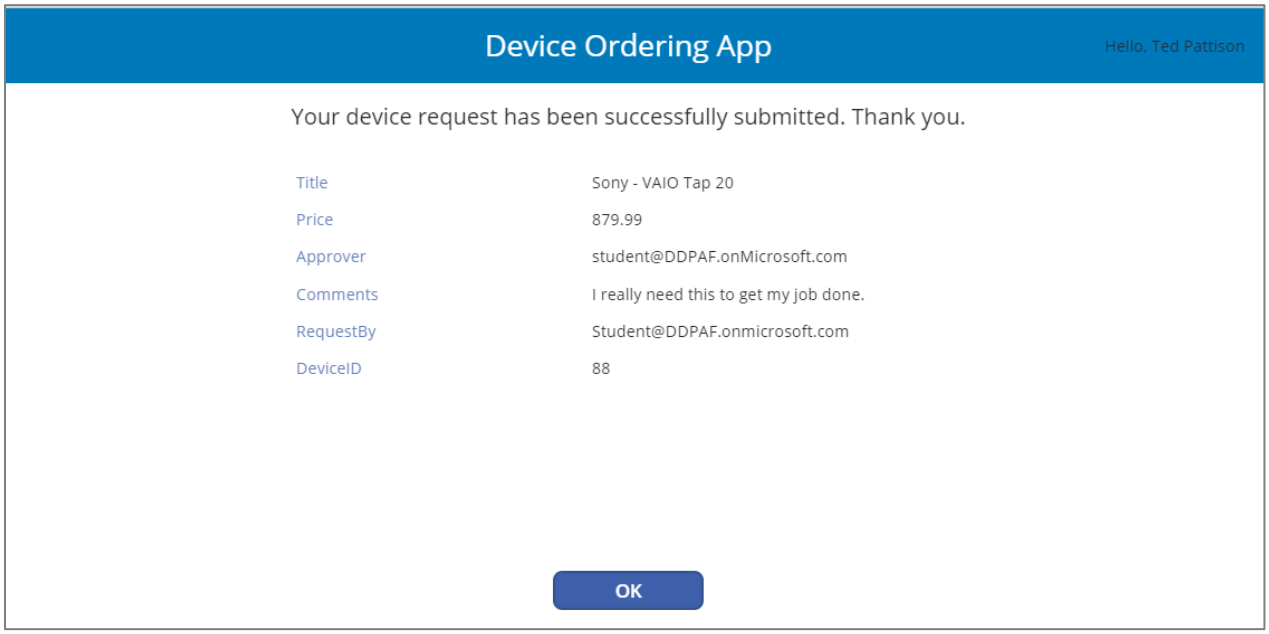
3. Add a header on the third screen
   a) Copy (Ctrl-C) the header along with the user welcome label from the second screen
   b) Go to the third screen and paste the header label
4. Add a thank you message in a label control
   a) Click Insert -> Label
   b) Set the Text to: "`Your device request has been successfully submitted. Thank you.`"
5. Add a Display Form to show the details of the device that was ordered
   a) Click Insert -> Form -> Display
   b) Configure the data source to point to the DeviceOrder list
   c) Change the Snap to columns value from 3 to 1
   d) Change the Layout from Vertical to Horizontal
   e) Uncheck the columns/fields that are not required.
   f) Rearrange the fields by dragging them up/down such that they match the image below



   g) Close the Data pane
   h) Set the **Item** property of the display form to: `Form1.LastSubmit`
   i) This is the item that was last submitted in the form on the second screen (Form1)
   j) Move and resize the display form control (see screenshot below)
6. Add an Ok button and set its behavior to clear the compare list and navigate to the first screen a. Click **Insert** -> **Button**
   a) Set the **Text** property of the button to: **"Ok"**
   b) Set the **OnSelect** property of the button: **Clear(CompareList); Navigate(MainScreen, ScreenTransition.Fade)**

Note: ';' is a separator used when calling multiple functions one after the other, like above. If you are in a locale where ';' is used instead of a comma as a separator within functions, then use a double semi-colon ';;' here to separate multiple function calls.

7. Test the app
   a) Submit another device approval request
   b) The confirmation screen should look like this image:



8. Make sure to **Save** and **Publish** the app.