Lab Module 2:   
Building with controls, fields, and formulas

WorkshopPLUS – Power Platform: Power Apps for Power User

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| Lab overview |

## Introduction

In this lab, you will perform the actions necessary for building Power Apps by adding controls, fields, and formulas.

## Objectives

After completing this lab, you will be able to:

* Add device gallery and connect to data source
* Arrange the device gallery
* Add gallery to show manufacturers
* Connect **galManufacturers** gallery to manufacturer's table
* Highlight the selected item in the gallery
* Filter the devices based on the selected manufacturer
* Configure text labels in the device gallery
* Apply conditional formation to highlight devices above $1,000
* Add a checkbox to add a device to the **Compare** list
* Create a collection for the selected devices
* Set the default selection to the first manufacturer and test the app.

## Prerequisites

Ensure you are using the “Incognito” or “InPrivate” browsing session of your modern browser.

Additionally, use the latest version of Microsoft Edge for the best performance.

## Estimated time to complete this lab

45 mins

## Scenario

The organization wishes to build app using Power Apps to take advantage of **No Code/Low Code** application development in the cloud. As part of this effort, you are required to add controls and create formulas to add functionality to your canvas app.

# Exercise 1: Connect the app to data

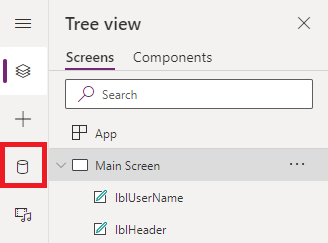
In this exercise you will learn how to connect the app to the various data sources required for the app to both display devices and track device orders.

Tip: What is a data connection? In Power Apps, a data connection adds data to your app. Your canvas app can connect to SharePoint, Dataverse / Dataverse for Teams, SQL Server, Office 365 and over 650 first- and third-party services.

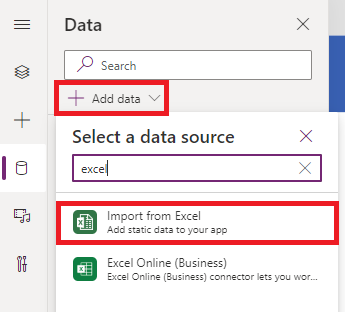
## Task 1: Import static data from Excel

In this task you will learn how to create a connection to the Excel spreadsheet containing device data for the solution.

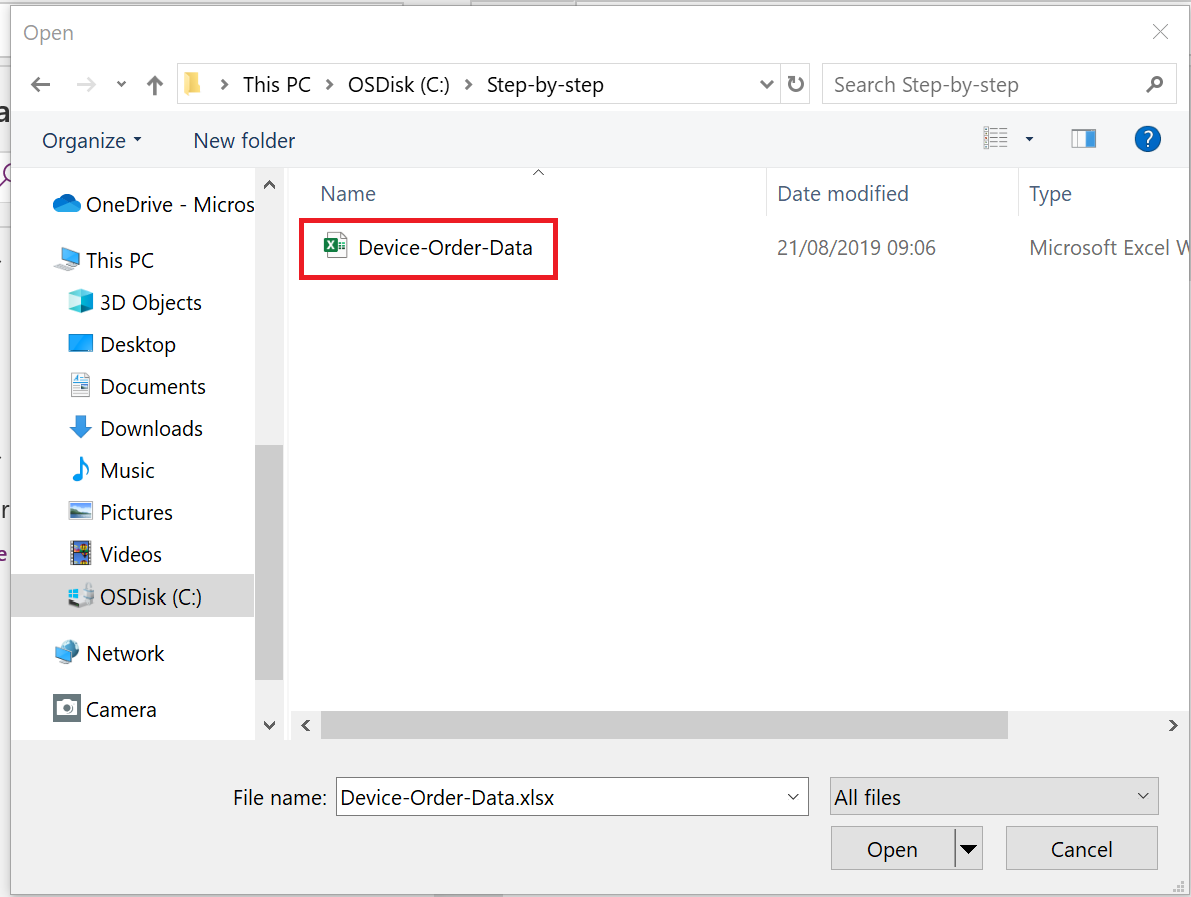
1. In the app authoring pane, click the **Data** icon



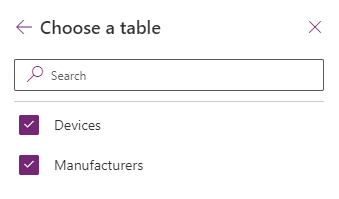
1. Click **+Add data** dropdown, in popup menu type **Excel** into the **search** box



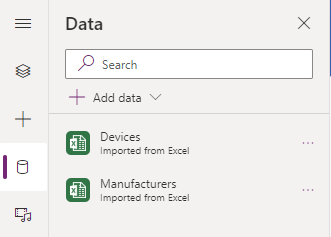
1. Click **Import from Excel**
2. The Open dialog will appear, browse to the location where the spreadsheet ‘device-order-data.xlsx’ is saved (this would be one of the lab files provided by your instructor)



1. Click **Open**
2. In the right-hand pane, from the **Choose a table** dialog, select both the **Devices** and **Manufacturers** tables



1. Click **Connect**
2. The **Devices** and **Manufacturers** connections should be listed in **the Data** pane



## Task 2: Create a connection to SharePoint

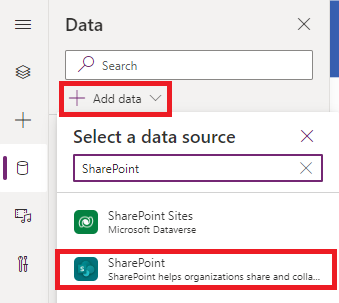
In this task you will learn how to create a connection to the SharePoint site that contains the  **Order Data** list (check with Prerequisites labs).

1. In the app authoring pane, click the **Data** icon

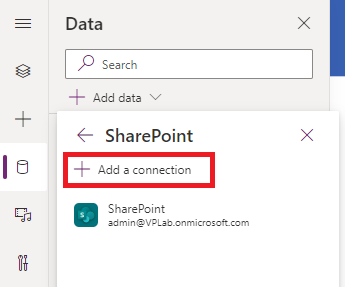
Graphical user interface, application

Description automatically generated

1. Click **+Add data** dropdown, in popup menu type **SharePoint** into the **search** box



1. Select **SharePoint**
2. Click **Add a connection**



1. Ensure that **Connect directly (cloud services)** is selected

Graphical user interface, text, application

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1. Click **Connect**
2. In the ‘Enter the SharePoint URL for the location of your list’ input box, paste the **URL** of the SharePoint site you created earlier, or select the site URL from the list of recent sites and click **Connect**

Graphical user interface, text, application

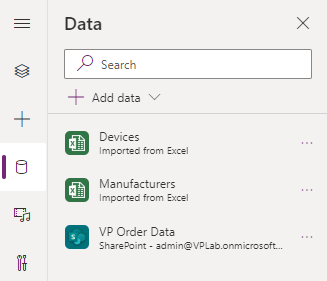
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1. In the ‘**Choose a list**’ dialog, select the ‘**Order Data’** list (created in task four of the Prerequisites)

Graphical user interface, text, application, email

Description automatically generated

1. Click **Connect**
2. Your **Order Data** list connection will appear in the list of connections in the **Data** pane



# Exercise 2: Add a device gallery to the Main Screen

In this exercise, you will add a gallery containing all available devices making it easy for users to browse the list and get a quick overview of the devices available.

Tips on working with galleries:

* Galleries provide a powerful way to visualize tabular data in Power Apps. It is important to become familiar with customizing a gallery. Key components of a gallery include the gallery control, the template cell (first cell), and controls within the template cell.
* To select the entire gallery – click on the gallery in the tree view on the left or click on the second or third cell. Clicking any cell that is not the first cell of the gallery will select the entire gallery. Now, you can specify properties that apply to the entire gallery, such as the data source, the gallery fill color, and borders.
* To customize how each item is displayed in the gallery, you will customize the template cell. Select the template by clicking the first cell of the gallery or the edit (pencil) icon  in the top left corner when the entire gallery is selected.
* With template cell selected, you can add, remove, and customize the controls within it. These changes will repeat across each item or row in the gallery.

## Task 1: Add a device gallery

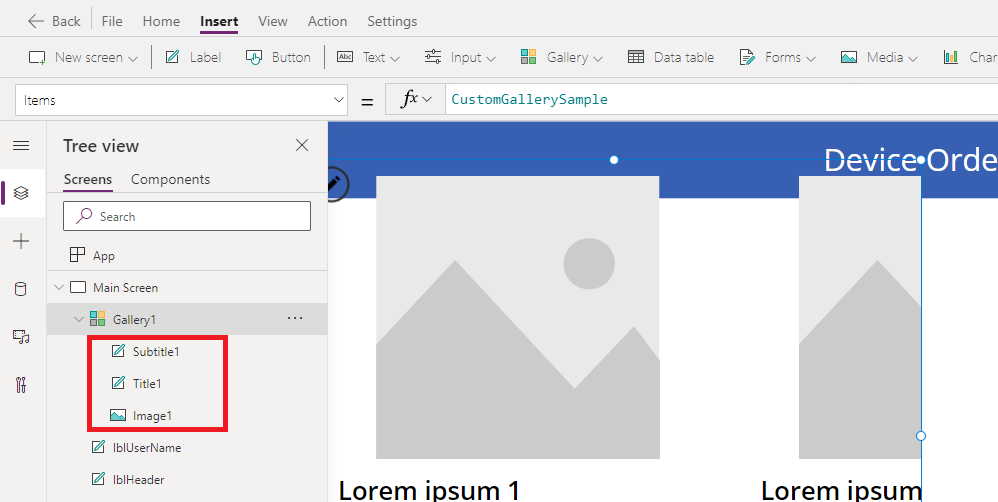
In this task you will learn how to add a gallery control to your app containing a list of all devices.

1. Select the **Insert** tab
2. Click **Layout** and select **Horizontal gallery**

**Graphical user interface, application

Description automatically generated**

This will add a gallery called **Gallery1** onto the screen. Notice the control tree view on the left displays this gallery with three controls within it – two labels and an image. A data pane will pop up on the right.



1. Deselect **Gallery1** (click on anything else in the tree view) and select **Gallery1** again in the tree view. This will open a fly-out on the gallery (shown in the next step)
2. Select ‘**Devices**’ from the list of data connections under the ‘In your app’ section, in the fly out. Alternatively, in the **Properties pane** on the right, select the drop-down in the **Data source** property and choose **‘Devices’**.

Graphical user interface, application

Description automatically generated

1. Click on **Gallery1**, at the top of the Properties pane and rename it to **galDevices**

**Text

Description automatically generated with medium confidence  A picture containing icon

Description automatically generated**

## Task 2: Arrange the device gallery

In this task you will learn how to resize, reposition and update the controls within the gallery template.

1. Drag-n-drop, resize and reposition **galDevices** gallery or just modify X, Y, Width, Height properties in Properties pane on the right, or clicking on the property below the type in fields (X, Y, Width, Height) and update in the Formula bar.

Table

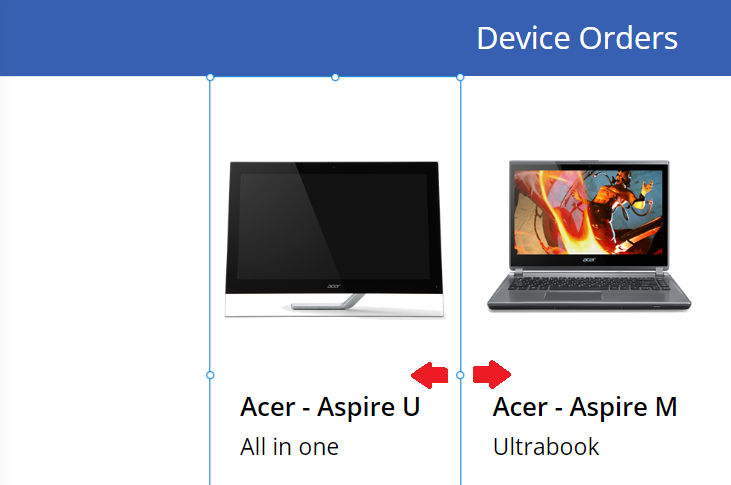
Description automatically generated

1. **Select** the **galDevices** and click the **Edit** (pencil) icon in the top left to edit the template

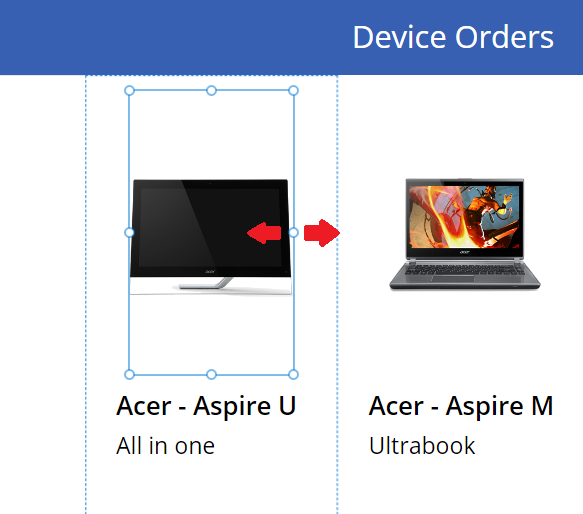
Graphical user interface, application

Description automatically generated

1. Using the right drag control, resize the first box to be narrower. Notice that all the items get narrower and more devices are visible to the user on the screen



1. Narrow the image as well by clicking on the image control and resizing it using the drag handles. Make sure the width of the image control is positioned within the template.



## Task 3: Add a gallery to show manufacturers

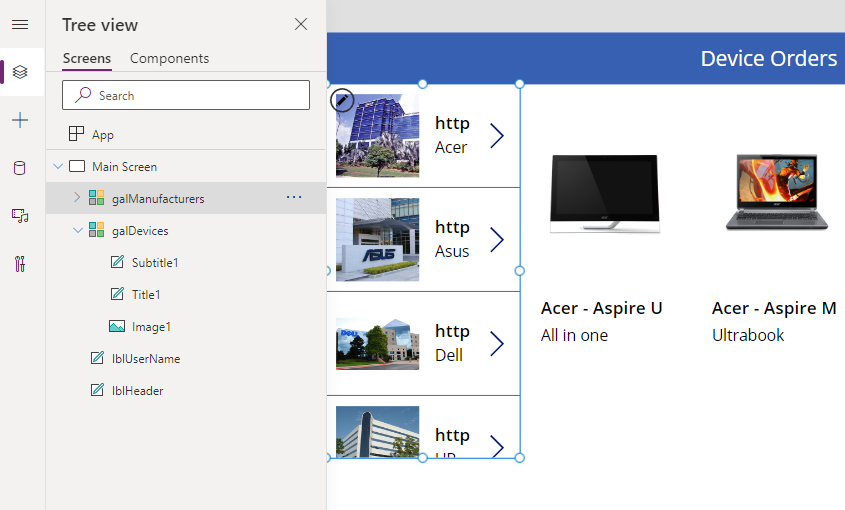
In this task you will add a second gallery that lists the various device manufacturers. This will be a single column vertical gallery positioned on the left side of the screen, with each cell displaying the manufacturers logo image. This gallery will later be used as a filter for the device gallery created above.

1. Select the **Main Screen** in the **Tree View**
2. Select the **Insert** tab on the command bar, open the **Layout** drop-down, then select **Vertical gallery**

**Graphical user interface, application

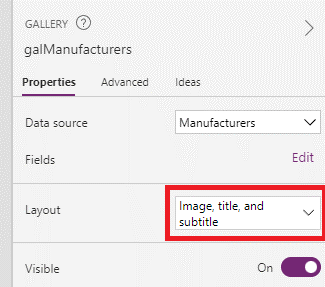
Description automatically generated**

1. In the ‘**Select a data source**’ dialog, select **Manufacturers**
2. **Rename** the gallery to **galManufacturers**
3. Move the **galManufacturers** gallery so that it is left aligned with the left edge of the screen and top aligned with the top of the device gallery.   
   The app should look like the image below



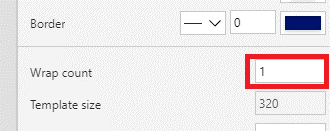
1. Select the **galManufacturers** (not the template cell), then in the **Properties** **pane** on the right, click **Layout**

Scroll down to the **Gallery** section and select **2 columns**

**Graphical user interface, application

Description automatically generated**

1. Change the **Wrap Count** from **2** to **1**. This will change the gallery to a single column



1. Select the **Image Control** within the gallery and reduce its height by dragging the middle bottom drag control upwards. The image size will be reduced whereas the template size will still be expanded

A picture containing text, outdoor, sign

Description automatically generated

1. Reduce the **height of the template cell** to match the image below by click on the white space below the first image, and selected the middle-bottom dot to adjust the template cell. We want the image to occupy the entire cell

|  |  |  |
| --- | --- | --- |
| A picture containing text  Description automatically generated | Arrow Right with solid fill |  |

1. Click the **Save** icon on the command bar

## Task 4: Display the manufacturer logo

In task three, you added a single column, vertical gallery connected to the manufacturers table in the Excel data connection. In this task, you will update the gallery to display the manufacturer logo.

1. Select the **galManufacturers**. Make sure the whole gallery is selected, and not just the first cell
2. Select **Items** from the property drop-down and ensure that Manufacturers is visible

Graphical user interface, application, PowerPoint

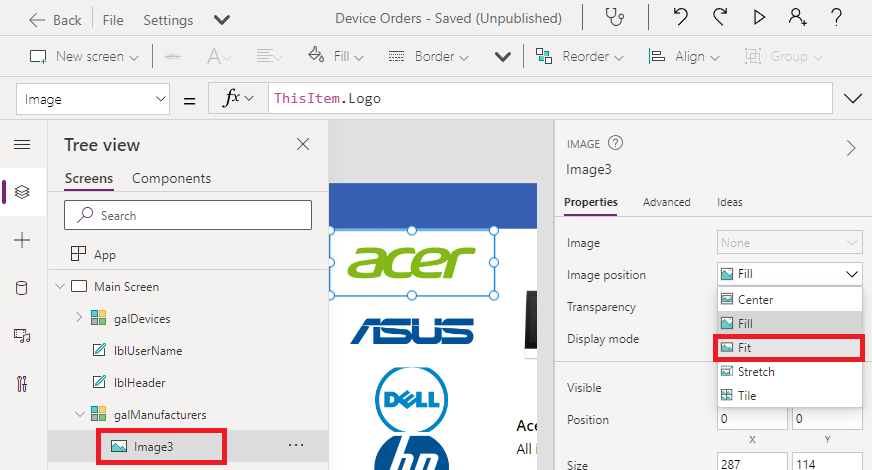
Description automatically generated

1. **Select** the image control in the first template cell in the gallery and make sure that the value of **Image** in the formula bar is not **ThisItem.HQ** but **ThisItem.Logo**.   
   All items in the gallery will now display logo images

Graphical user interface, application

Description automatically generated

1. Select the first image (topmost) and using the **Properties pane** on the right, set the **image position** to **Fit**



## Task 5: Highlight the selected item in the gallery

In this task, you will learn how to use the TemplateFill property of the manufacturer gallery to specify a highlight color for the item.

1. Select the **galManufacturers**
2. From the properties drop-down, select the **TemplateFill** property
3. In the **formula** bar, enter the following:



TemplateFill

If(ThisItem.IsSelected, ColorFade(*lblHeader*.Fill, 75%))

Graphical user interface, application, PowerPoint

Description automatically generated

for alternate/European locales, enter:



TemplateFill

If(ThisItem.IsSelected; ColorFade(*lblHeader*.Fill; 75%))

1. Use the **preview mode** to perform a quick test of the highlighting. You can enable preview mode by holding down the Alt key and clicking a few different manufacturers in the gallery. Preview mode ends when you stop holding the Alt key.



Tip: You could alternatively click the Play button to enter preview mode, and to exit this you would click the X in the upper right corner, or use the Esc key.

## Task 6: Filter the devices based on the selected manufacturer

In this task, you will learn to use the **Filter()** function to filter the items in the **galDevices** to only display devices that match the selected item in the **galManufacturers**.

1. Select the **galDevices**
2. From the properties drop-down, select the **Items** property
3. Enter the following expression in the formula bar:



Filter(

Devices,

ManufacturerID = *galManufacturers*.Selected.ManufacturerID

)

Items

This will filter the device gallery to only display items that match the selected manufacturer based on **ManufacturerID**.

Graphical user interface, application

Description automatically generated



for alternate/European locales, enter:



Filter(

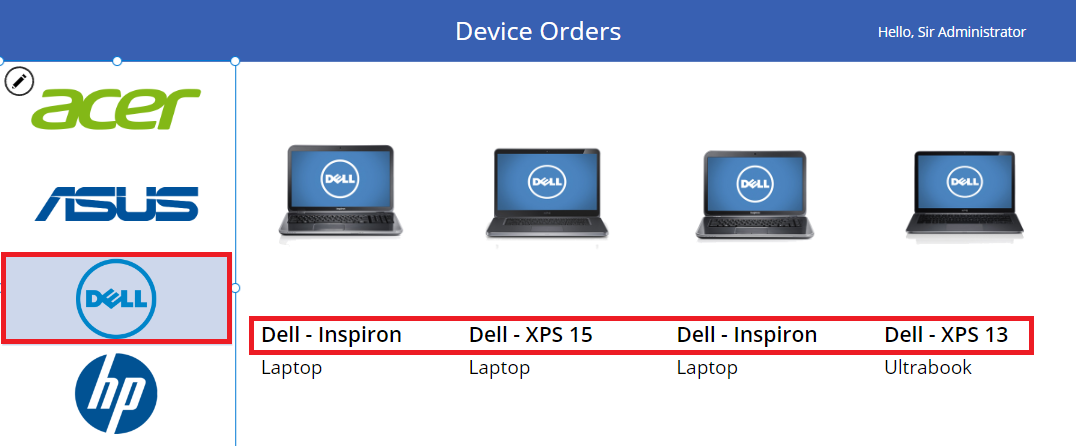
Devices;

ManufacturerID = *galManufacturers*.Selected.ManufacturerID

)

Items

1. Enter **preview mode**
2. Select a different item in the manufacturer gallery on the left, and you will notice the device gallery will update accordingly



## Task 7: Configure text labels in the device gallery

In this task you will learn how to configure text label formatting to the template cell.

1. Select the template cell in the **galDevices**
2. Select the title, it is named **Title1** in the left navigation
3. Change the label to the device name by setting the label’s **Text** property to **ThisItem.Title**

**Graphical user interface, application, PowerPoint

Description automatically generated**

Formatting suggestions (these are optional, feel free to move forward to step 4).

* Expand the width of the label to the template width
* Change the **PaddingLeft** from 0 to **10**
* Change the Font to **Segoe UI**

1. Select the **Subtitle1** control
2. In the property drop-down list, select the **Text** property change it to **ThisItem.Price**:

Graphical user interface, application, PowerPoint

Description automatically generated

1. To add the currency formatting, use the text expression:



Text

Text(ThisItem.Price, "[$-en-US]$##,###.00")

Graphical user interface, application, PowerPoint

Description automatically generated

**Note:** After you enter the above expression in the formula bar, it will automatically resolve to include your locale, e.g. [$en-US]. If you see an error here, it might be because your local is not yet supported, in which case as a workaround, manually change it to [$-en-US].

## Task 8: Conditional formatting to highlight devices above $1,000

In this task, you are going to format devices that have a value greater than $1,000 by displaying the price in Red.

1. Select the label in the template cell that displays the price
2. In the properties drop-down, select the **Color** property
3. In the **formula** bar, enter the following:



Color

If(ThisItem.Price>1000, OrangeRed, Gray)

Graphical user interface, application, PowerPoint

Description automatically generated



for alternate/European locales, enter:



Color

If(ThisItem.Price>1000; OrangeRed; Gray)

## Task 9: Add a checkbox to add a device to Compare list

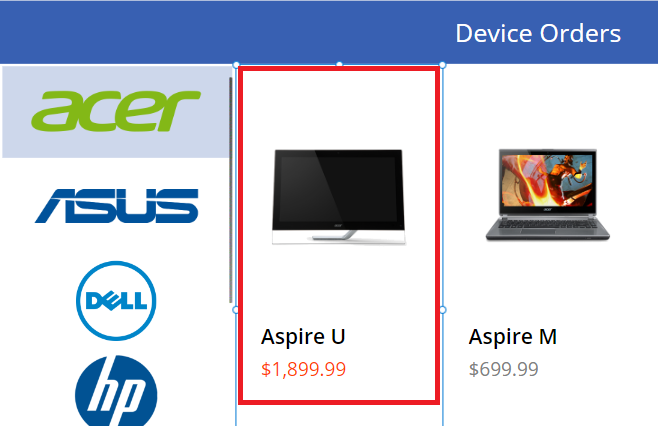
We want to be able to allow users to compare devices before making an order, in this task you will learn how.

1. Select the **galDevices**
2. Click the **pencil icon** in the top left of the gallery to select the template cell

Graphical user interface, application

Description automatically generated

1. Make sure that only the first item in the gallery is selected

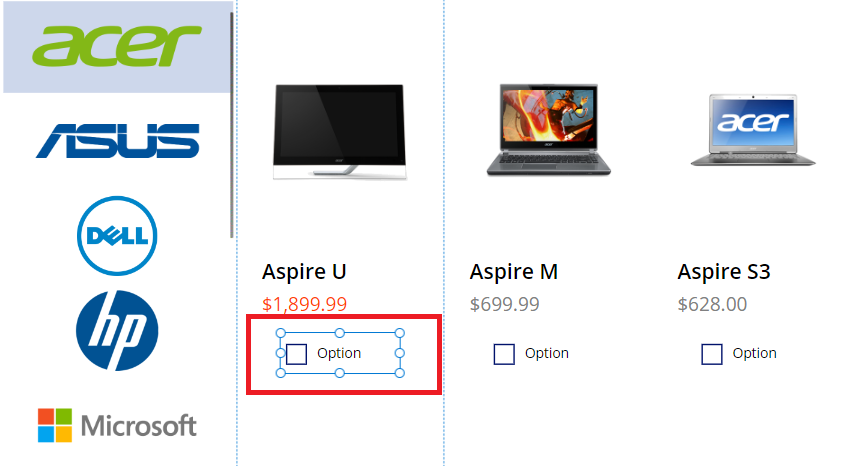


1. Select **Insert** tab, open **Input** tree, then select **Check box**

Graphical user interface, application, Word

Description automatically generated

1. Drag the checkbox control below the price



1. Change the checkbox text to ‘**Compare**’ (you can do this by setting the **Text** property or click within the text of the control and typing directly into the control)

Graphical user interface, application

Description automatically generated

## Task 10: Create a collection for the selected devices

In this task you will create a collection called CompareList. This will allow users to compare devices before deciding to place an order.

Tip: What is a collection? A collection is a group of items that are similar, such as devices in a device list

1. Select the Checkbox control and select the **OnCheck** event in the properties dropdown
2. Type the following expression in the formula bar:



OnCheck

Collect(CompareList, ThisItem)

Graphical user interface, application

Description automatically generated

for alternate/European locales, enter:



OnCheck

Collect(CompareList; ThisItem)

1. Click the **OnUncheck** value and type the following expression in the formula bar



OnUncheck

Remove(CompareList, ThisItem)



for alternate/European locales, enter:



Remove(CompareList; ThisItem)

OnUncheck

1. From the properties drop-down, select the **Default** property
2. Set **Default** property as follows:



Default

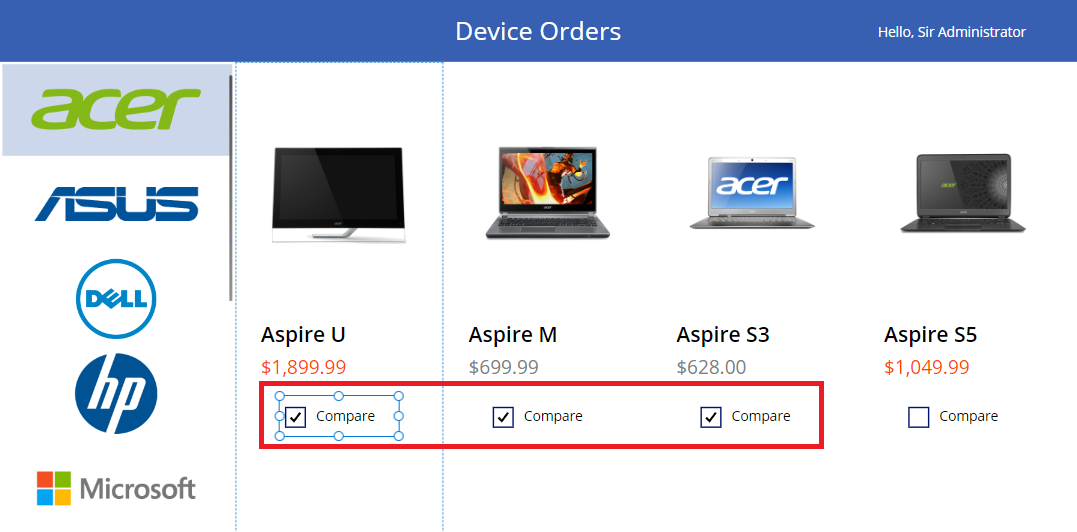
ThisItem in CompareList

Graphical user interface, application

Description automatically generated

Note: The Default property of the checkbox is a Boolean (true of false) value that determines if the checkbox should be checked or not by default. Setting it to this formula will ensure that the checkbox is checked by default if the item has already been added to the collection since the result will be true, i.e., this item ‘is’ in the CompareList collection.

1. Test the checkbox functionality. Run the app in **preview mode** (F5) or by clicking the preview button, click on checkboxes of three items

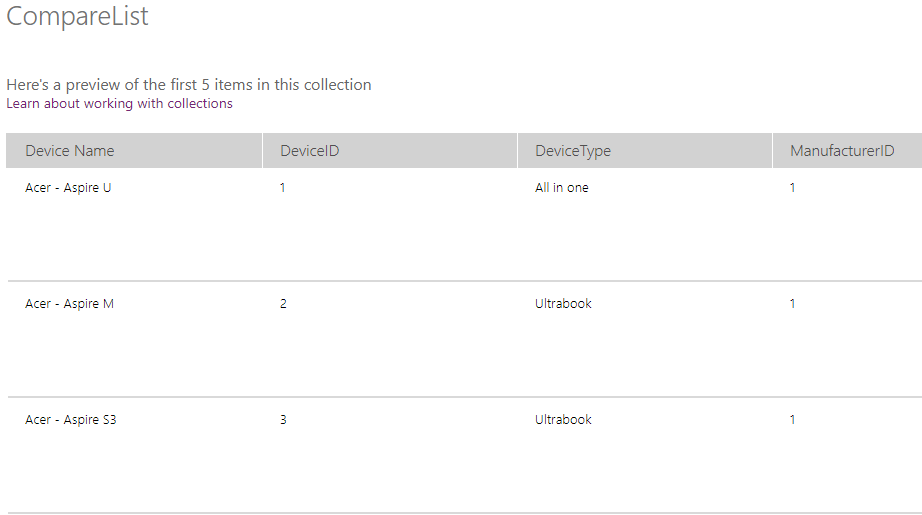


1. **Close** preview mode (clicking X)
2. Click on the ellipsis **(…)** tab and select **Collections**

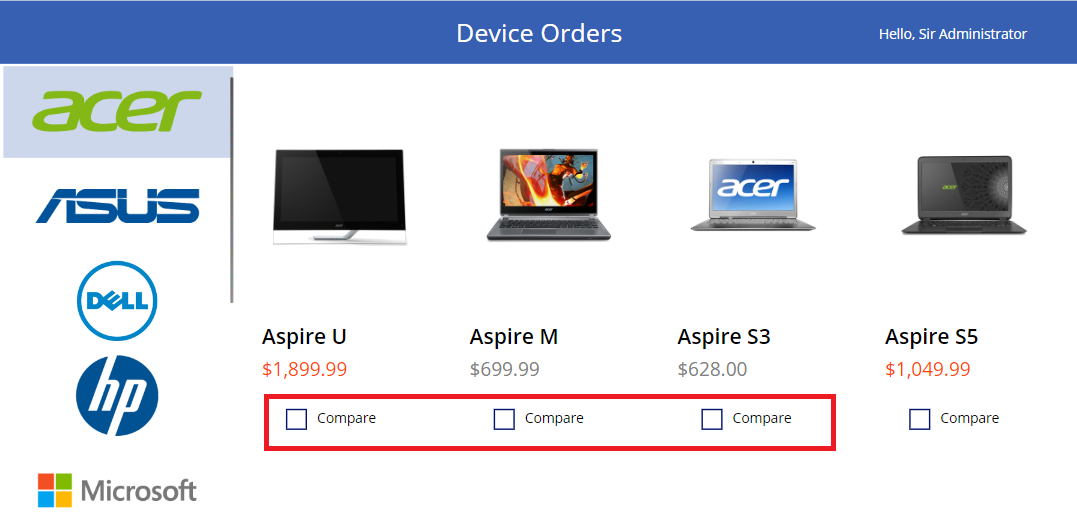
Graphical user interface, text, application, chat or text message

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1. You should see the **CompareList** collection and the three items that you selected



1. Click the back arrow to return to the main screen
2. Run the app in **preview mode** (F5) or by clicking the preview button, click on checkboxes of three items to uncheck them



1. **Close** preview mode (clicking X)
2. Click on the **View** tab and select **Collections**
3. **Check** that all items were removed from the CompareList collection

## Task 11: Set the default selection to the first manufacturer

In this task, you will learn how to ensure that the app doesn’t display a blank list of devices when the app starts by setting the default item in the Manufacturer gallery to be the first item.

1. **Select** the **galManufacturers** in the tree view in the left pane
2. From the **properties** drop-down, select the **Default** property
3. Enter the following **expression** in the formula bar



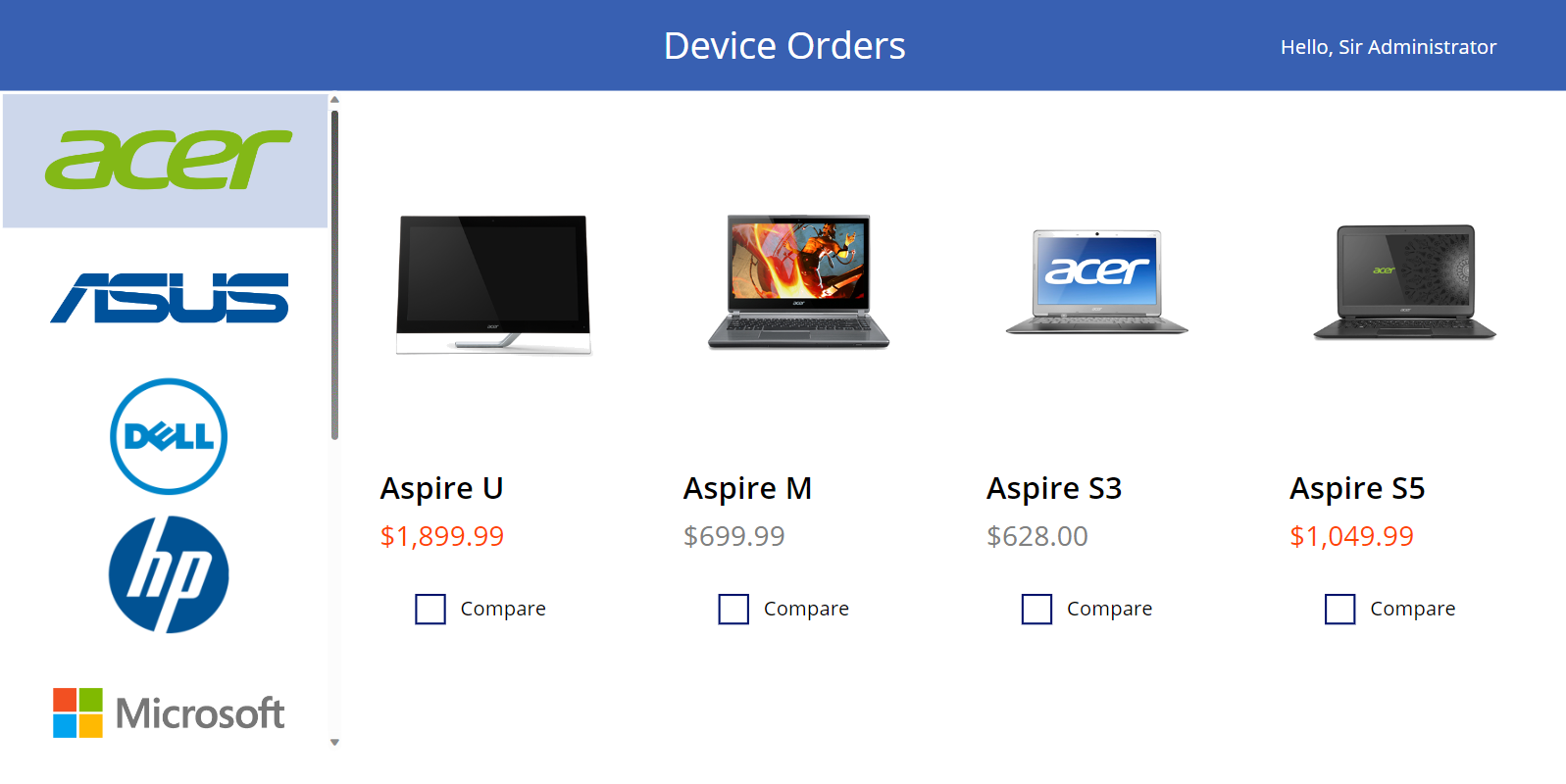
Default

First(Manufacturers)

Graphical user interface, application

Description automatically generated

1. Run the app in **preview mode** (F5)
2. The app should look like the image below



1. **Close** preview mode (clicking X)
2. Save your app by pressing **Ctrl+S**