

Building Data-driven Canvas Apps



Agenda

- Screen Design Guidelines
- Displaying Repeating Data using Galleries
- Using Table Functions to Filter and Sort Data
- Updating Data using Edit Forms and Data Cards
- Customizing SharePoint List Forms



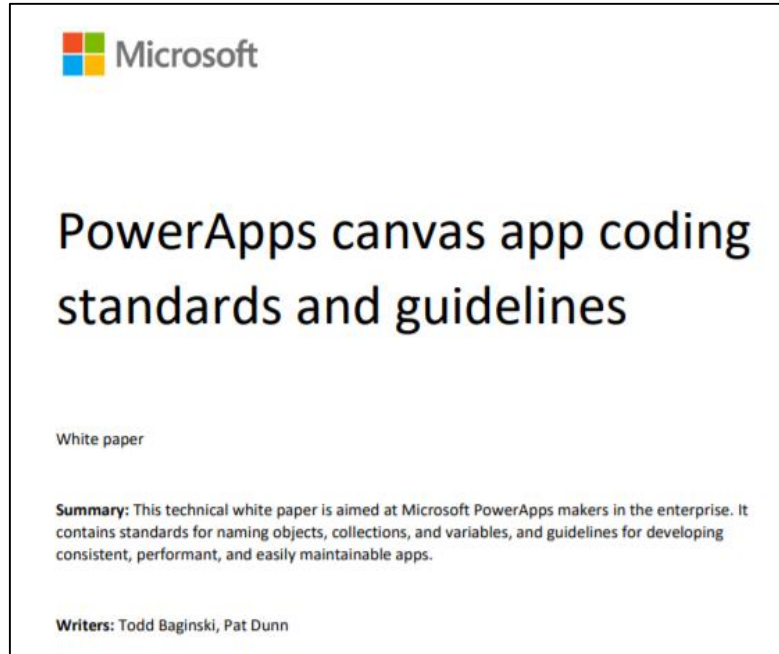
Challenges with Building Canvas Apps

- Who is the typical PowerApps application maker?
 - A developer without a software development background
- What is the maker is responsible for?
 - designing, building, testing, deploying
- What are the challenges in deploying canvas apps?
 - Building projects that are easy to maintain and extend
 - Building consistency across team members
 - Building canvas apps with better performance



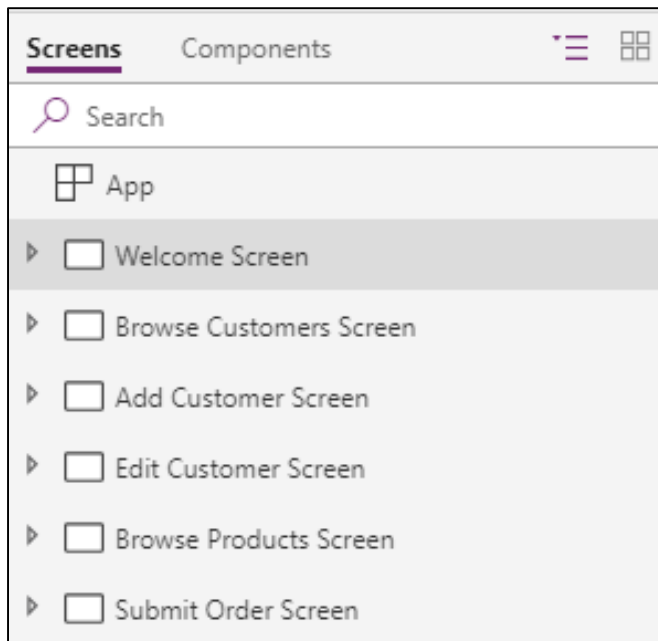
Read the Canvas Apps Whitepaper

- PowerApps canvas app coding standards and guidelines
<https://powerapps.microsoft.com/en-us/blog/powerapps-canvas-app-coding-standards-and-guidelines/>
- As a builder, you should strive for...
 - Simplicity, Readability , Performance, Supportability, Accessibility
 - Ease of deployment and administration



Creating Screen Names

- It's import to create screen names correctly
 - Screen names will be read aloud by screen readers
 - Names should include spaces and avoid abbreviations
 - Screen name should end with the word "Screen"
 - Screen name should reflect purpose of screen



Control Naming

- Control names cannot be duplicated across screens
 - Control names must be unique throughout project
- You should standardize on control naming convention
 - Use prefixes and make control names as self-explanatory

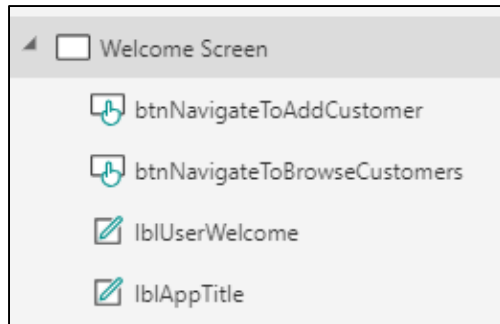
button	btn
camera control	cam
canvas	can
card	crd
collection	col
combo box	cmb
date picker	dte
drop down	drp
radio button	rad
form	frm
gallery	gal

group	grp
header page shape	fdr
html text	html
icon	ico
image	img
label	lbl
page section shape	sec
shapes (rectangle, etc.)	shp
table data	tbl
text input	txt
timer	tim



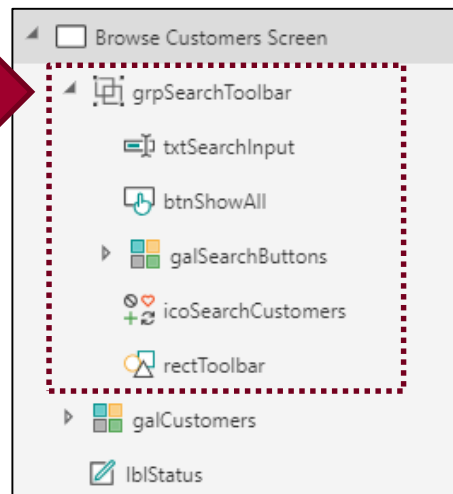
Keeping Screens Maintainable

- Each control name should be easy to read & understand

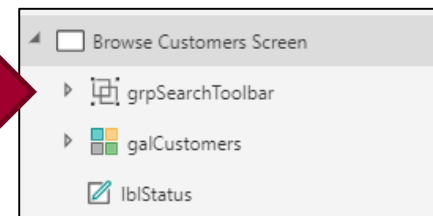


- Use grouping to isolate set of controls with single purpose

Expanded Group

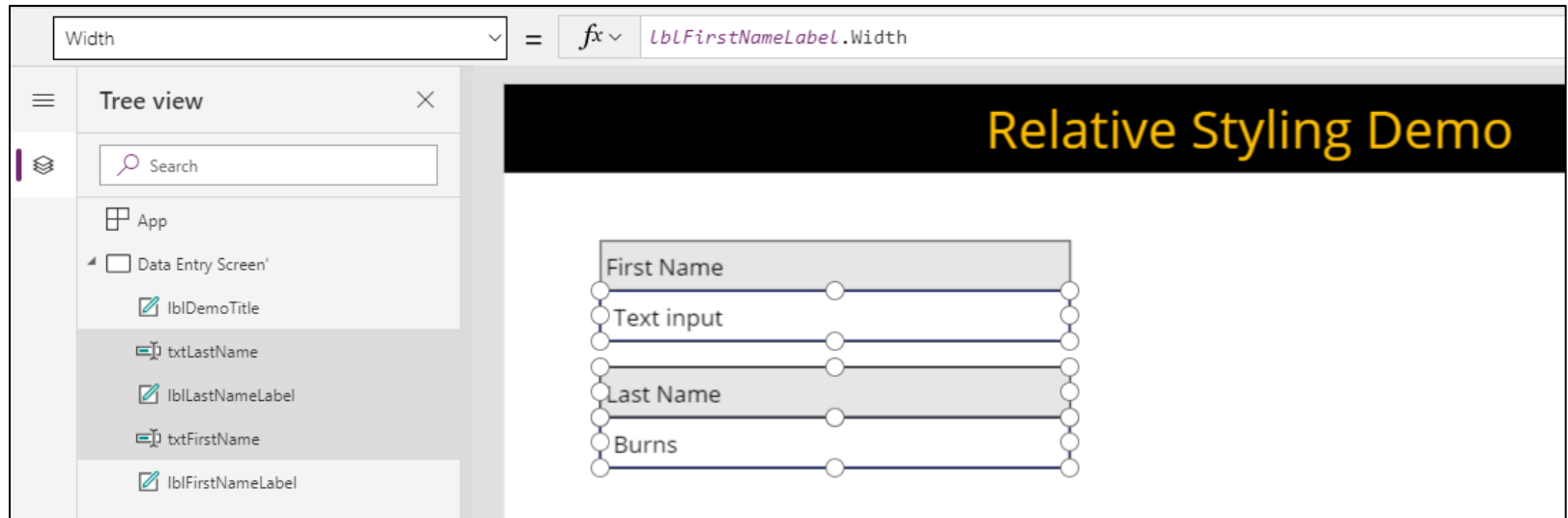


Collapsed Group



Relative Styling

- Calculate control property values from other controls
 - Common to use properties like X, Y, Width, Height, Size, Fill, etc.





DEMO

Designing Screens with Relative Styling

Agenda

- ✓ Screen Design Guidelines
- Displaying Repeating Data using Galleries
 - Using Table Functions to Filter and Sort Data
 - Updating Data using Edit Forms and Data Cards
 - Customizing SharePoint List Forms

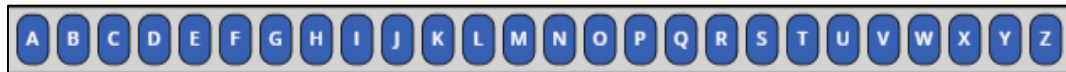


Displaying Repeating Items using Galleries









- Galleries are used to display repeating items
 - A list of customers




 Lionel Witt    email: Lionel.Witt@SoylentCorporation.com phone: 1(305)888-6666	 Casandra Vega    email: Casandra.Vega@TailSpinToys.com phone: 1(480)444-8888	 Jude Melton    email: Jude.Melton@JupiterMiningCorp.com phone: 1(707)222-5555
 Suzette Fernandez    email: Suzette.Fernandez@GraysonSkyDomes.com phone: 1(404)333-1111	 Dee Santana    email: Dee.Santana@TradeFederation.com phone: 1(541)555-6666	 Corrine Ortega    email: Corrine.Ortega@TyrellCorporation.com phone: 1(210)333-5555
 Gaston Knight    email: Gaston.Knight@LucernePublishing.com phone: 1(801)333-3333	 Elvis Knight    email: Elvis.Knight@DoublemeatPalace.com phone: 1(505)111-2222	

- A set of command buttons



- A products list and a shopping cart

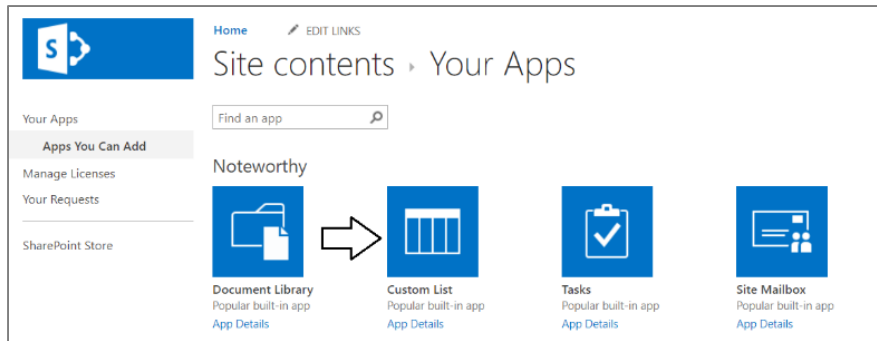
	Batman Action Figure A super hero who sometimes plays the role of a dark knight.	Quantity 1		ADD TO CART
	Captain America Action Figure A super action figure that protects freedom and the American way of life.	Quantity 1		ADD TO CART
	GI Joe Action Figure A classic action figure from the 1970s.	Quantity 1		ADD TO CART
	Green Hulk Action Figure An overly muscular action figure that strips naked when angry.	Quantity 2		ADD TO CART

Shopping Cart for Lionel Witt				
No	Product	List Price	Total	
1	Batman Action Figure	\$14.95	\$14.95	
2	Green Hulk Action Figure	\$9.95	\$19.90	
10	Twitter Follower Action Figure	\$1.00	\$10.00	



Creating Lists in SharePoint Online

- PowerApps works best with modern lists
 - Best to create lists from the Custom list type



- Add site columns to track required data

Customers			
Last Name ▾	First Name ▾	Company ▾	E-Mail ▾
Smith	John	Some Company	SomeEmail@SomeDomain.com
Doe	Jane	Doe Consulting	janedoe@geemail.com



Creating galCustomers

- Create a gallery to display customers
 - **galCustomers** created as a vertical gallery
 - **Items** property references **Customers** list in SharePoint
 - **WrapCount** property set to 3 to display three customers per row
 - Item template designed to display customer data
 - Item template designed to provide customer-specific actions

 Lionel Witt    email: Lionel.Witt@SoylentCorporation.com phone: 1(305)888-6666	 Casandra Vega    email: Casandra.Vega@TailSpinToys.com phone: 1(480)444-8888	 Jude Melton    email: Jude.Melton@JupiterMiningCorp.com phone: 1(707)222-5555
 Suzette Fernandez    email: Suzette.Fernandez@GraysonSkyDomes.com phone: 1(404)333-1111	 Dee Santana    email: Dee.Santana@TradeFederation.com phone: 1(541)555-6666	 Corrine Ortega    email: Corrine.Ortega@TyrellCorporation.com phone: 1(210)333-5555
 Gaston Knight    email: Gaston.Knight@LucernePublishing.com phone: 1(801)333-3333	 Elvis Knight    email: Elvis.Knight@DoublemeatPalace.com phone: 1(505)111-2222	



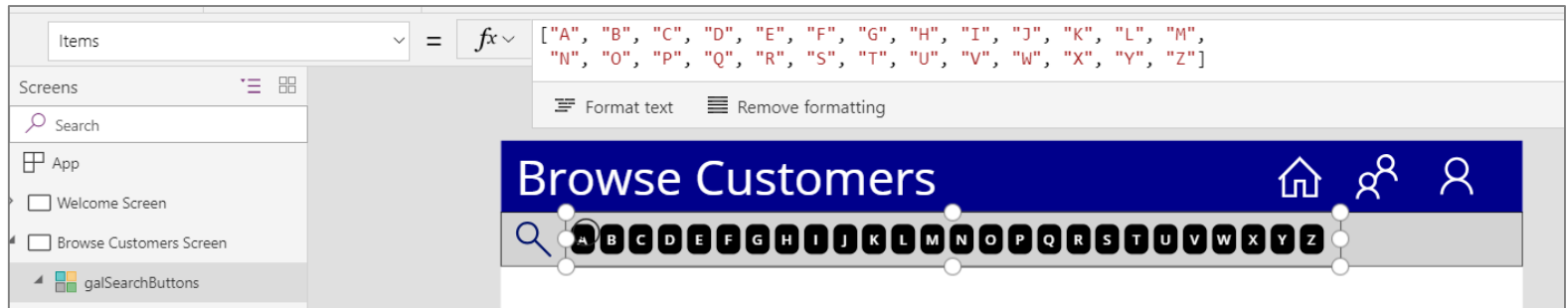
Agenda

- ✓ Screen Design Guidelines
- ✓ Displaying Repeating Data using Galleries
- Using Table Functions to Filter and Sort Data
 - Updating Data using Edit Forms and Data Cards
 - Customizing SharePoint List Forms



Creating galSearchButtons

- Create a search toolbar
 - Assign table of letters to **Items** property of **galSearchCustomers**



- Use **ThisItem.Value** for **Text** property of button inside gallery template



Creating a Search Filter

- Assign filter string to local context variable



- Configure expression for **Items** property to set filtering

```
If(  
    IsBlank(locCustomerFilter),  
    Sort(Customers, 'Last Name'),  
    Sort(Filter(Customers, StartsWith('Last Name', locCustomerFilter)), 'Last Name')
```





DEMO

Filtering Data in a Table

Agenda

- ✓ Screen Design Guidelines
- ✓ Displaying Repeating Data using Galleries
- ✓ Using Table Functions to Filter and Sort Data
- Updating Data using Edit Forms and Data Cards
- Customizing SharePoint List Forms



Working with Edit Forms and Data Cards

- Form acts as a container for data cards
 - Each form binds to a single record
 - Within a form, each data card binds to an underlying field
 - Each data card contains an encapsulated set of child controls

The screenshot displays a Visual Studio IDE window titled 'frmAddCustomer'. On the left, a 'Solution Explorer' pane lists the following items:

- ▶ FirstName_DataCard1
- ▶ LastName_DataCard1
- ▶ Company_DataCard1
- ▶ EmailAddress_DataCard1
- ▶ WorkPhone_DataCard1
- ▶ HomePhone_DataCard1
- ▶ Address_DataCard1
- ▶ City_DataCard1
- ▶ State_DataCard1
- ▶ Zipcode_DataCard1
- ▶ Edit Customer Screen
- ▶ Browse Products Screen
- ▶ Submit Order Screen
- ▶ Order Confirmation Screen

The main design surface on the right shows the layout of the 'frmAddCustomer' form. It features two columns of data cards, each with a text label and an input field:

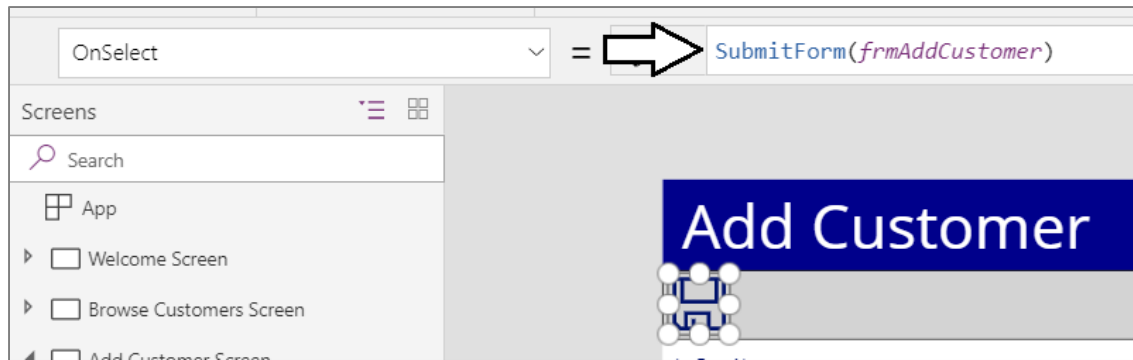
- Left Column:**
 - * First Name (input field)
 - Company (input field)
 - Work Phone (input field)
 - Address (input field)
 - State (input field)
- Right Column:**
 - * Last Name (input field)
 - * Email Address (input field)
 - Home Phone (input field)
 - City (input field)
 - Zipcode (input field)

The form is enclosed in a rectangular frame with corner handles for resizing.



Form Submission with Edit Forms

- Update with Edit Form triggered by calling **SubmitForm**



- Submit button should be disabled when form data is not valid



Custom Form Validation with Edit Forms

- Data cards contain label control for error message



- Set **Text** property of label to display error message





DEMO

Validating User Input Data with an Edit Form and Card Controls

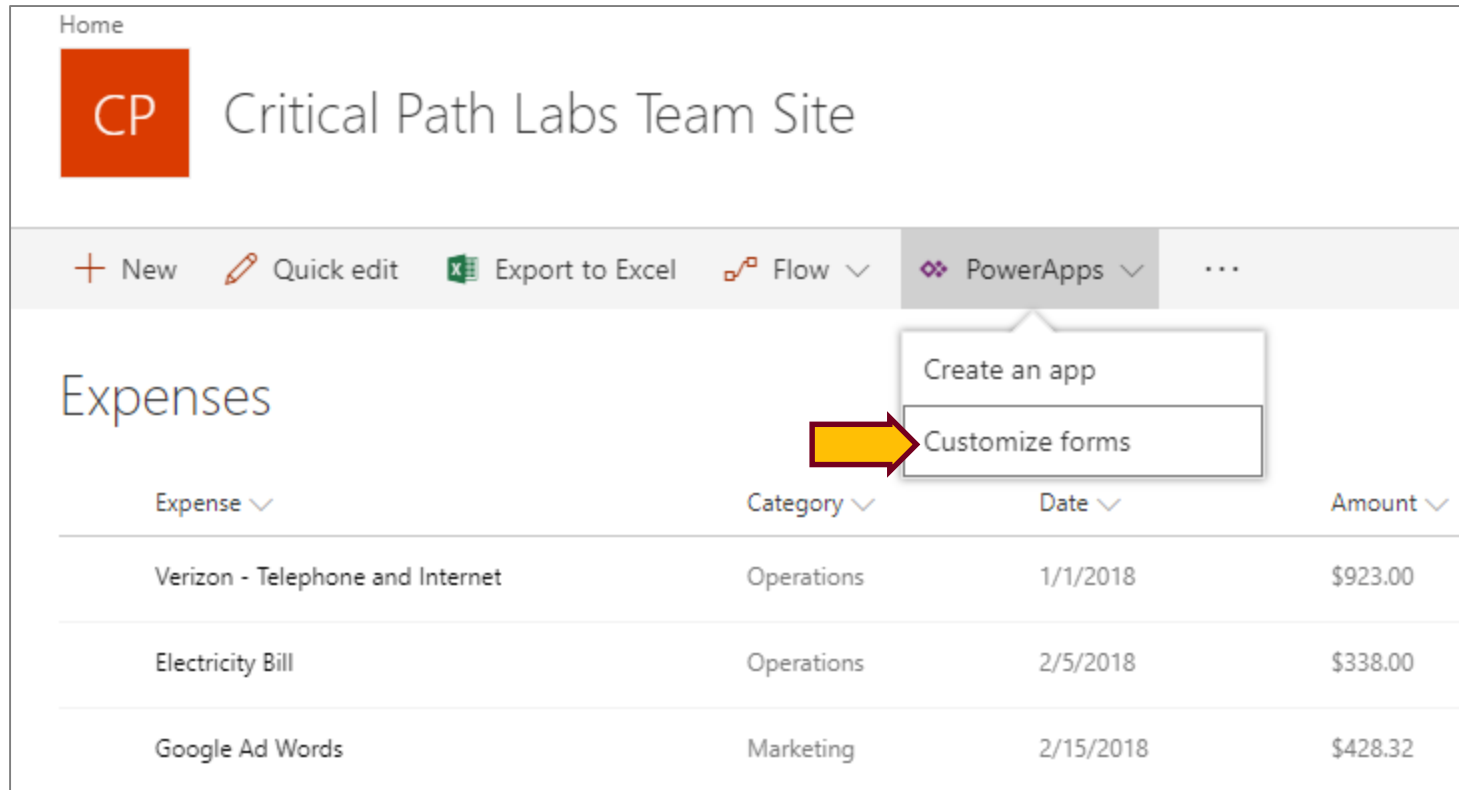
Agenda

- ✓ Screen Design Guidelines
- ✓ Displaying Repeating Data using Galleries
- ✓ Using Table Functions to Filter and Sort Data
- ✓ Updating Data using Edit Forms and Data Cards
- Customizing SharePoint List Forms



Customizing SharePoint List Forms

- Modern SharePoint lists allow forms customization
 - Customized SharePoint lists provide custom UI using canvas apps



The screenshot shows the 'Expenses' list in a SharePoint environment. The top navigation bar includes 'Home', 'CP', and 'Critical Path Labs Team Site'. Below this, a toolbar contains 'New', 'Quick edit', 'Export to Excel', 'Flow', 'PowerApps', and a more options menu. The 'PowerApps' dropdown is open, showing 'Create an app' and 'Customize forms'. A yellow arrow points to the 'Customize forms' option. Below the toolbar, the 'Expenses' list is displayed with columns: Expense, Category, Date, and Amount.

Expense	Category	Date	Amount
Verizon - Telephone and Internet	Operations	1/1/2018	\$923.00
Electricity Bill	Operations	2/5/2018	\$338.00
Google Ad Words	Marketing	2/15/2018	\$428.32



Customizing the Form

- SharePoint list data passed in connection

The screenshot displays the Microsoft PowerApps interface for customizing a form. The top navigation bar includes 'PowerApps' and a 'Back to SharePoint' link. The main menu shows 'File', 'Insert', 'View', 'Action', and 'Home'. Below the menu, there are tabs for 'Data sources', 'Media', 'Collections', 'Variables', and 'Advanced'. The 'Data source' dropdown is set to 'Expenses'. The central canvas shows a custom form titled 'This is a Custom Form' with fields for 'ID', 'Expense', 'Category', 'Date', and 'Amount'. The right-hand pane is divided into three sections: 'Data', 'Layout', and 'Fields'. The 'Data' section shows the 'Expenses' data source with options to 'Edit data' and 'Refresh'. The 'Layout' section shows the form is set to 'Vertical' layout. The 'Fields' section lists the fields connected to the form: 'ID', 'Expense', 'Category', 'Date', 'Amount', and 'Modified'. The bottom-right pane shows the 'Properties' of the form, including 'Data source', 'Layout', 'Default mode', 'Position', 'Size', 'Color', 'Border', and 'Visible'.

PowerApps

Back to SharePoint

File Insert View Action Home

Expenses on Critical Path Labs Team Site forms - Saved (Unpu

Data sources Media Collections Variables Advanced

DataSource = fx Expenses

Screens

Search

SharePointIntegration

FormScreen1

Label1

SharePointForm1

ID_DataCard1

Amount_DataCard1

Date_DataCard1

Title_DataCard1

DataCard2

This is a Custom Form

ID

Expense

Category

Date

Amount

Data

Data source

Expenses

Student@DDPAF.onmicrosoft.com

SharePoint

Edit data

Refresh

Snap to columns

Layout

Vertical

Fields

ID

Expense

Category

Date

Amount

Modified

EDIT

SharePointForm1

Properties Rules fx Advanced

Data

Layout

Default mode

Position

Size

Color

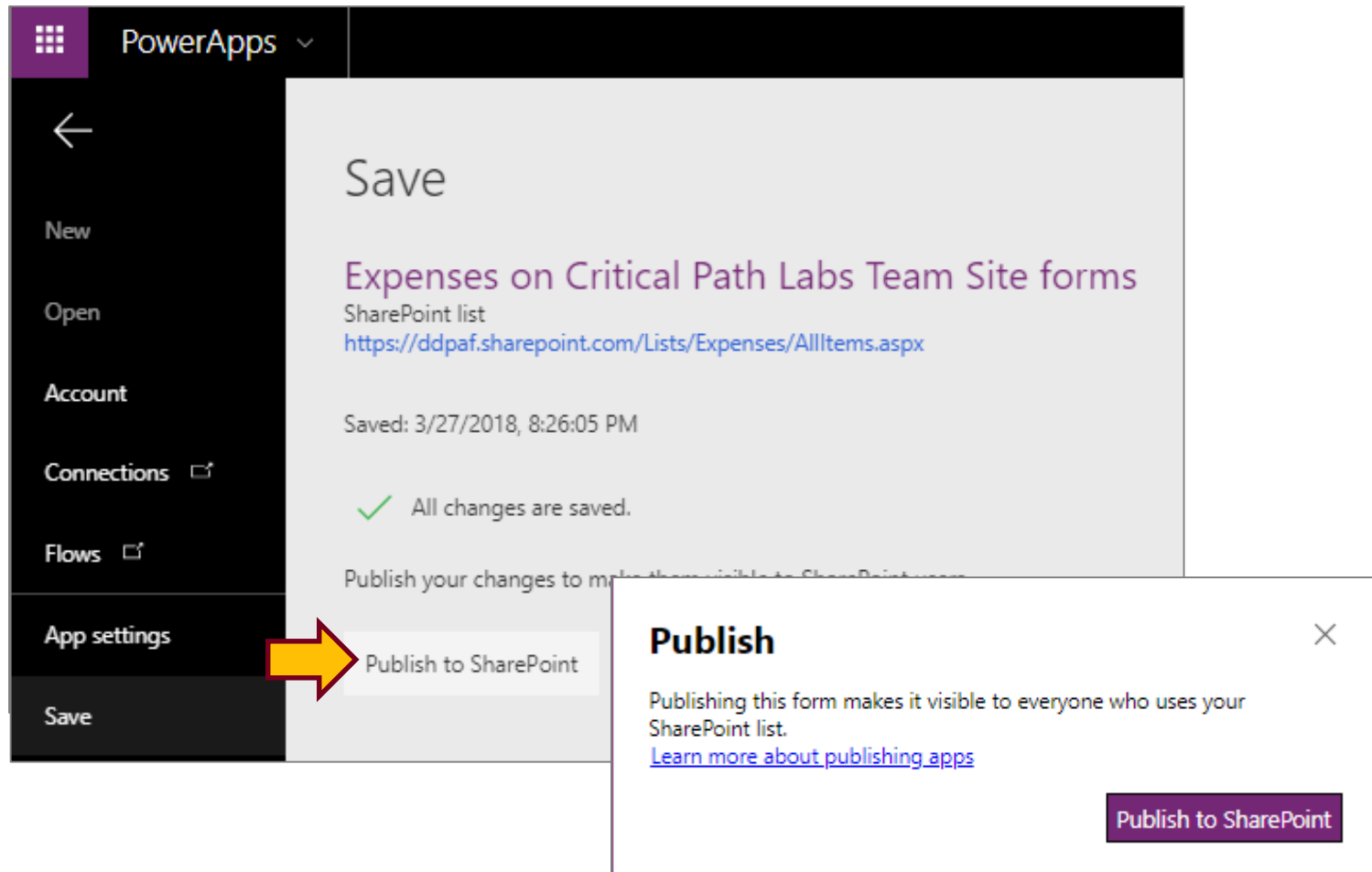
Border

Visible



Saving the Customized Form

- Canvas app is saved back into SharePoint site



Editing Items using a Customized Form

Home

CP

Critical Path Labs Team Site

Edit

Share

Copy link

Delete

Flow

Expenses

Expense	Category	Date
Verizon - Telephone and Internet	Operations	1/1/2018
Electricity Bill	Operations	2/5/2018
Google Ad Words	Marketing	2/15/2018
Printer Paper	Office Supplies	3/1/2018
Azure HDInsight Subscription	Research & Development	3/15/2018

Save

Cancel

Copy link

Customize

This is a Custom Form

ID

2

* Expense

Electricity Bill

Category

Operations

Date

2/5/2018

Amount

338





DEMO

Customizing SharePoint List Forms

Summary

- ✓ Screen Design Guidelines
- ✓ Displaying Repeating Data using Galleries
- ✓ Using Table Functions to Filter and Sort Data
- ✓ Updating Data using Edit Forms and Data Cards
- ✓ Customizing SharePoint List Forms

