

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



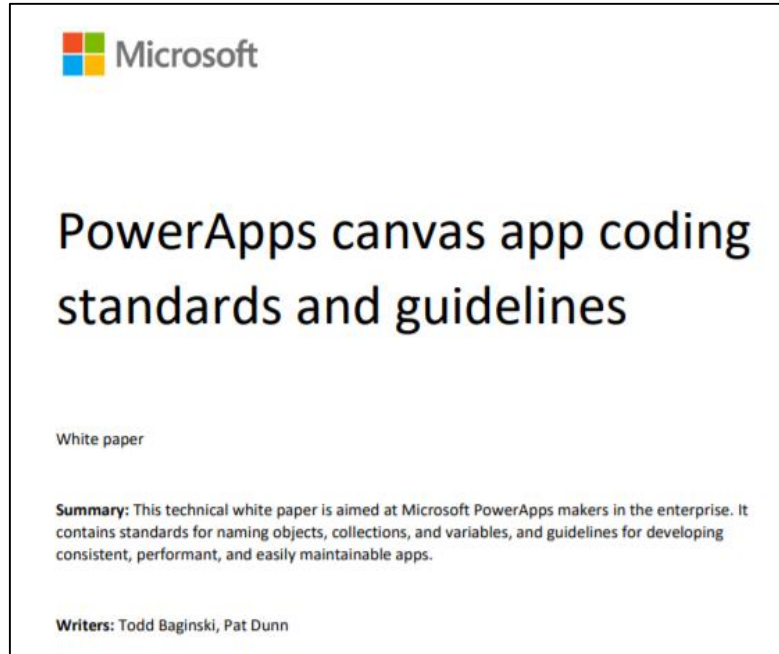
Challenges with Building Canvas Apps

- 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



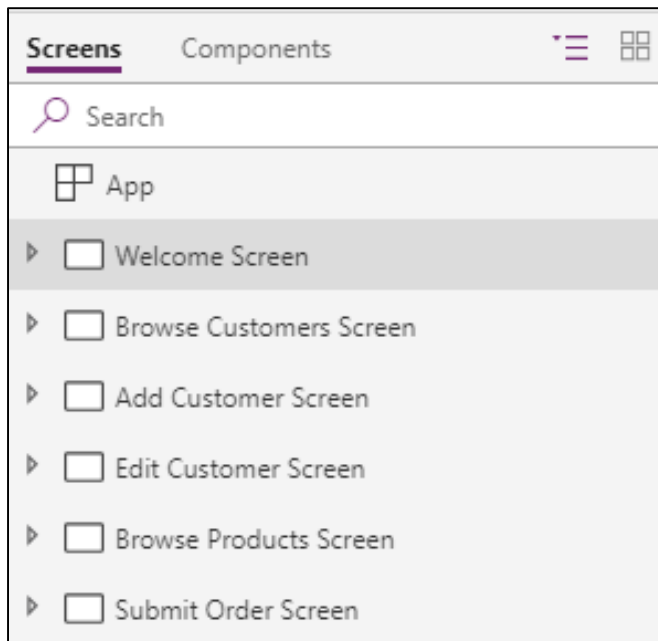
Read the Canvas Apps Whitepaper

- 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 Convention

- Define and document a naming convention
 - You can use this list as a starting point

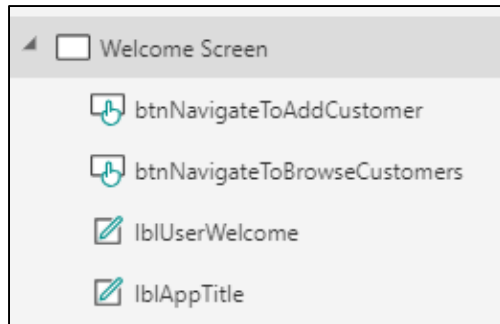
button	btn
camera control	cam
canvas	can
card	crd
collection	col
combo box	cmb
date picker	dte
drop down	drp
radio button	rad
form	frm
gallery	gal

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



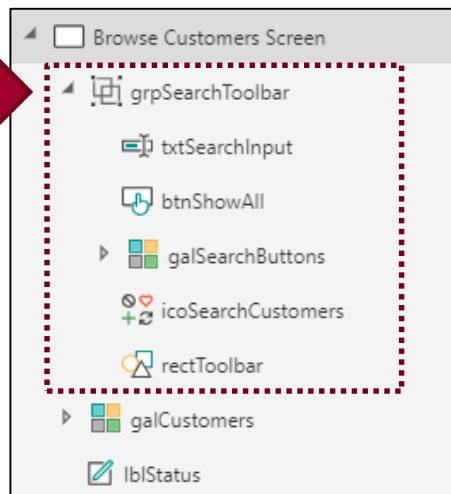
Keeping Screens Maintainable

- Each control name should be easy to read & understand

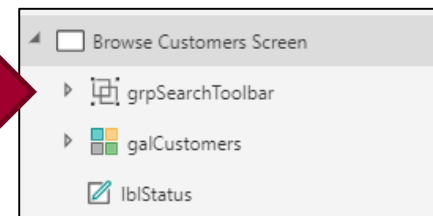


- Use grouping to isolate set of controls with single purpose

Expanded Group

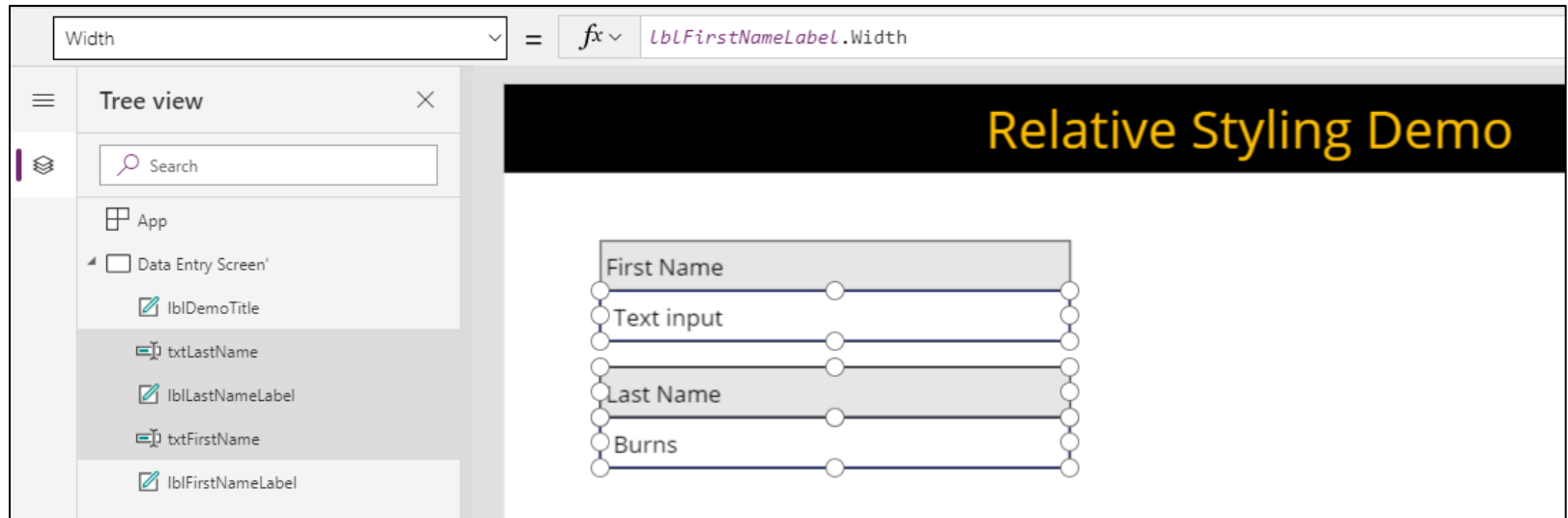


Collapsed Group



Relative Styling

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



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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

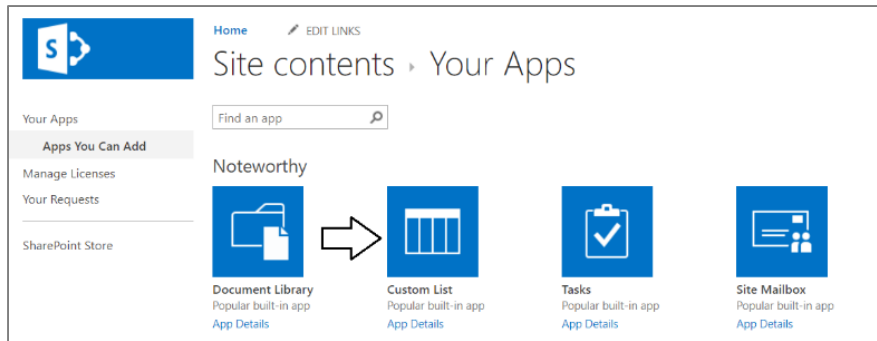
	Batman Action Figure A super hero who sometimes plays the role of a dark knight.	Quantity 1		ADD TO CART
	Captain America Action Figure A super action figure that protects freedom and the American way of life.	Quantity 1		ADD TO CART
	GI Joe Action Figure A classic action figure from the 1970s.	Quantity 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



galCustomers

- Create a gallery to display 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
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galSearchButtons

- Create a search toolbar

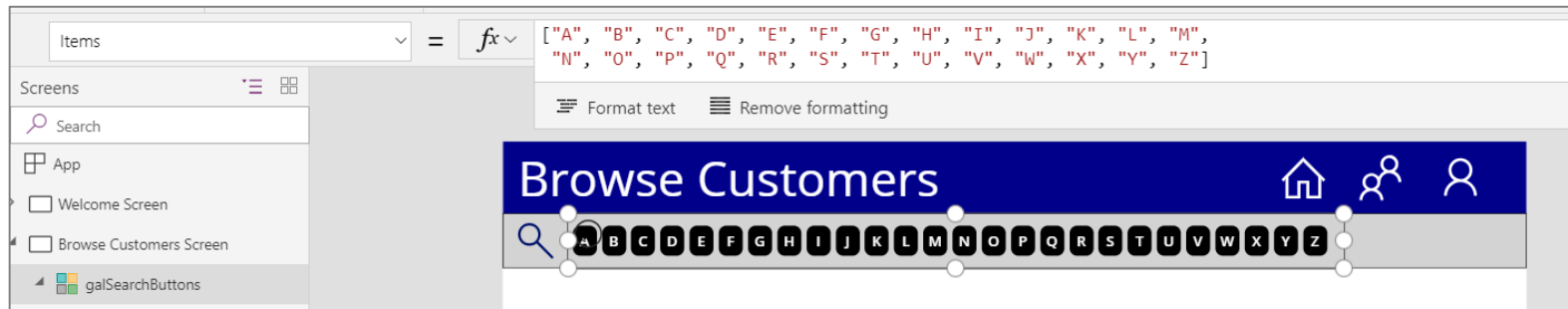


Table Functions

- Each table represented as a value
 - Table can be passed as argument
 - Table can be returned by function
- Functions that return tables
 - Filtering: `Filter`, `Search`
 - Sorting: `Sort`, `SortByColumns`
 - Shaping: `AddColumns`, `DropColumns`, `RenameColumns`
 - Grouping: `GroupBy`, `Ungroup`



Creating a Search Filter

OnSelect = `fx` `UpdateContext({ locCustomerFilter: ThisItem.Value })`

Tree view

Search

galSearchButtons

btnSearchCustomers

Browse Customers

A B C D E F G H I J K L M N O P Q R

Vivian Bird

Clarence Bishop

Items = `fx`

Tree view

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





DEMO

Filtering Data in a Table

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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 shows a list of data cards and screens:

- ▶ 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

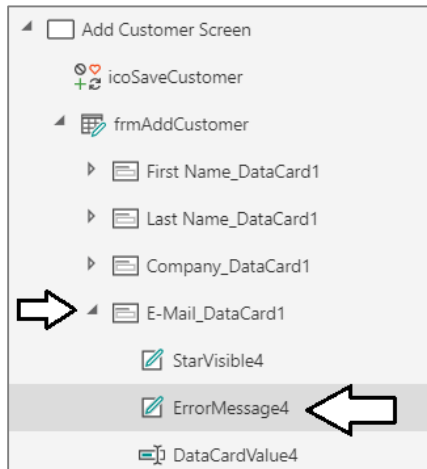
On the right, the main design area shows the layout of the 'frmAddCustomer' form. It features two columns of data cards, each with a text box and a label:

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

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



Form Validation



This screenshot shows the 'Add Customer' form. The form has a blue header with the title 'Add Customer'. Below the header, there are four text input fields:

- First Name: Bob
- Last Name: Barker
- Company: The Price Is Right
- E-Mail: bob

Below the E-Mail field, there is a red error message: "E-Mail address is not properly formatted." An arrow points to this message.



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Standard View Form for Modern List

Home

CP

Critical Path Labs Team Site

Edit

Share

Copy link

Delete

Flow

Expenses

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
Printer Paper	Office Supplies	3/1/2018	\$480.00
Azure HDInsight Subscription	Research & Development	3/15/2018	\$500.00

Edit all

Copy link

Customize

Electricity Bill

Expense *

Electricity Bill

Category

Operations

Date

2/5/2018

Amount

\$338.00

Attachments

Add or remove attachments



Standard Edit Form for Modern List

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CP

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Edit

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Expenses

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
Printer Paper	Office Supplies	3/1/2018	\$480.00
Azure HDInsight Subscription	Research & Development	3/15/2018	\$500.00

Save

Cancel

Copy link

Customize

Electricity Bill

Expense *

Electricity Bill

Category

Operations

Date

2/5/2018

Amount

338

Attachments

Add attachments

Save

Cancel



Customizing SharePoint List Forms

Home

CP Critical Path Labs Team Site

+ New Quick edit Export to Excel Flow **PowerApps** ...

Expenses

Create an app
Customize forms

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

The screenshot displays the Microsoft PowerApps environment for customizing a form. The top navigation bar includes the PowerApps logo and a 'Back to SharePoint' link. The main menu bar contains 'File', 'Insert', 'View', 'Action', and 'Home'. The 'View' tab is active, showing a ribbon with 'Data sources', 'Media', 'Collections', 'Variables', and 'Advanced'. The 'Data sources' section shows a formula bar with 'DataSource = Expenses'.

The left sidebar, titled 'Screens', contains a search bar and a list of screens: 'SharePointIntegration', 'FormScreen1', 'Label1', and 'SharePointForm1'. 'SharePointForm1' is selected, showing a list of data cards: 'ID_DataCard1', 'Amount_DataCard1', 'Date_DataCard1', 'Title_DataCard1', and 'DataCard2'.

The central canvas shows a custom form titled 'This is a Custom Form'. The form contains the following fields:

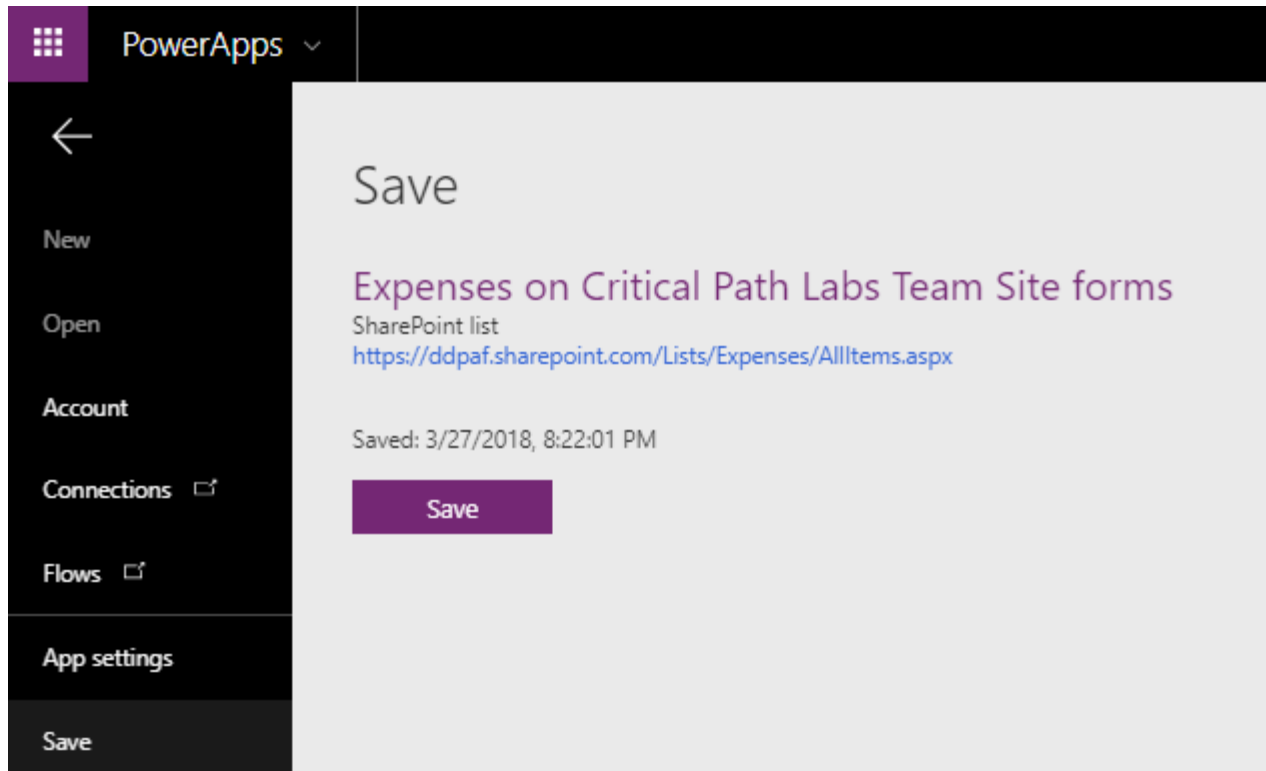
- ID: 1
- Expense: Verizon - Telephone and Internet
- Category: Operations
- Date: 1/1/2018
- Amount: 923

The right sidebar contains two panels: 'Data' and 'EDIT SharePointForm1'. The 'Data' panel shows the 'Expenses' data source with a list of fields: ID, Expense, Category, Date, Amount, and Modified. The 'EDIT SharePointForm1' panel shows the form's properties, including 'Properties', 'Rules', and 'Advanced' tabs. The 'Properties' tab is active, showing the form's layout, default mode, position, size, color, border, and visibility.

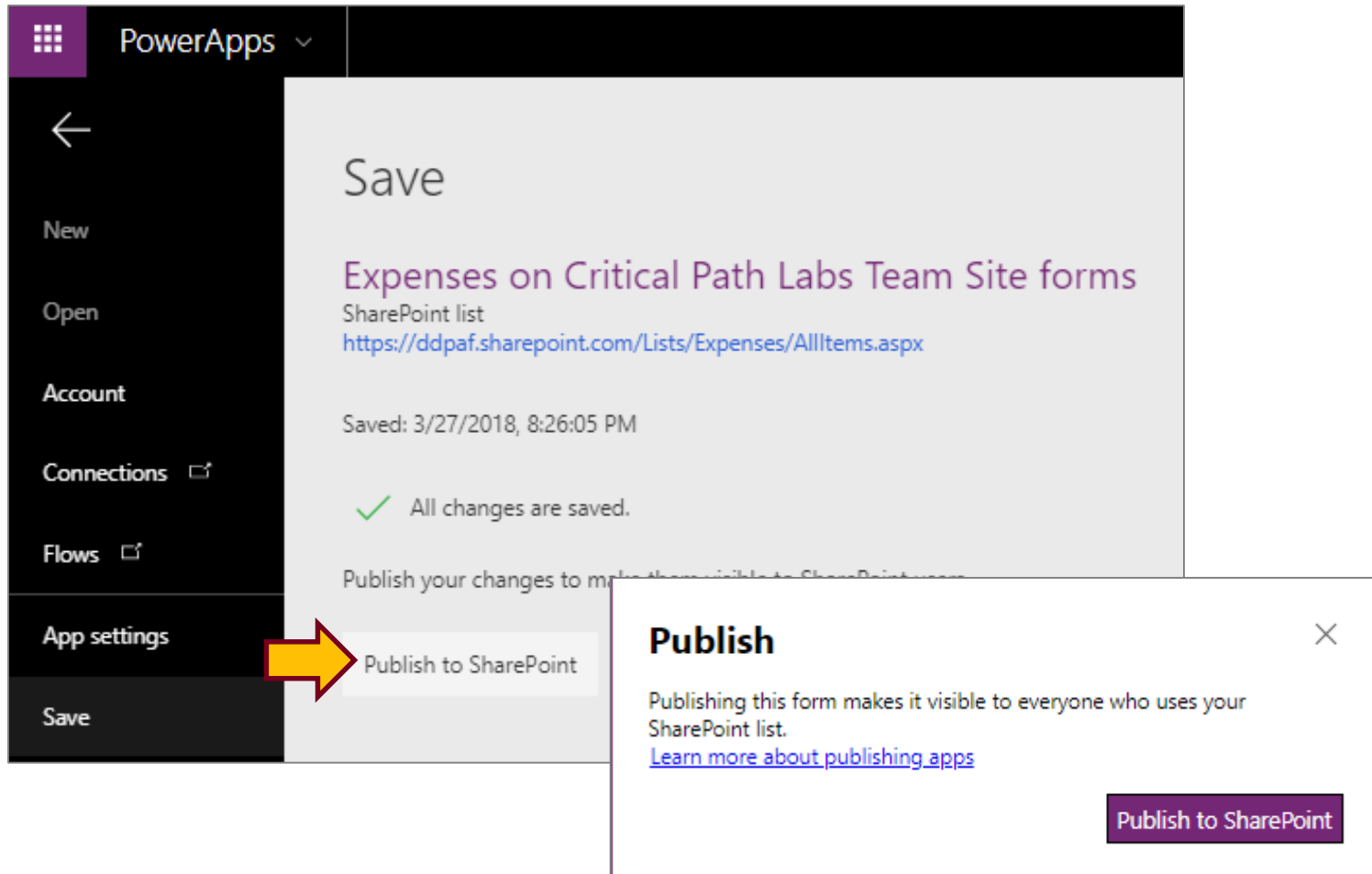
Field	Value
ID	123
Expense	abc
Category	
Date	
Amount	123
Modified	



Saving the Customized Form



Publishing the Form Back to SharePoint



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
<div>✓</div> 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

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