

# 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



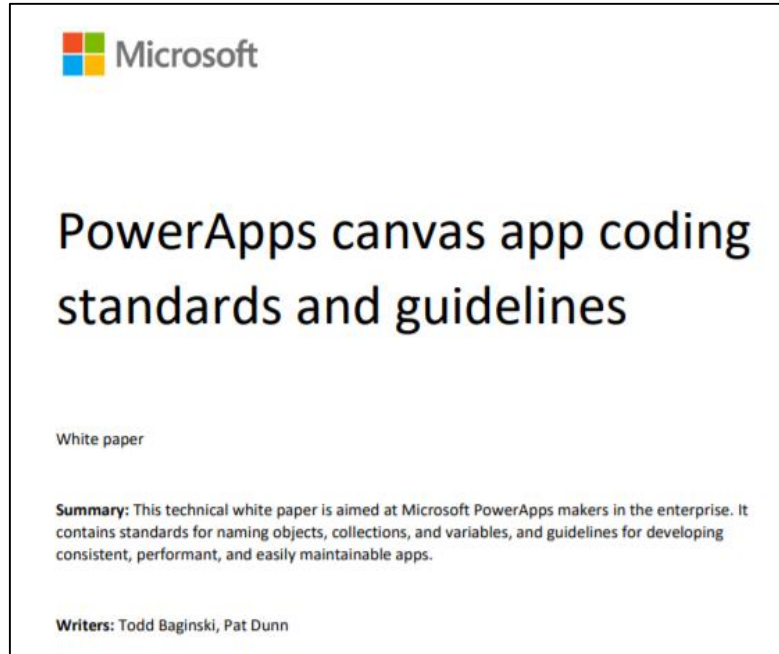
# Challenges with Building Canvas Apps

- 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



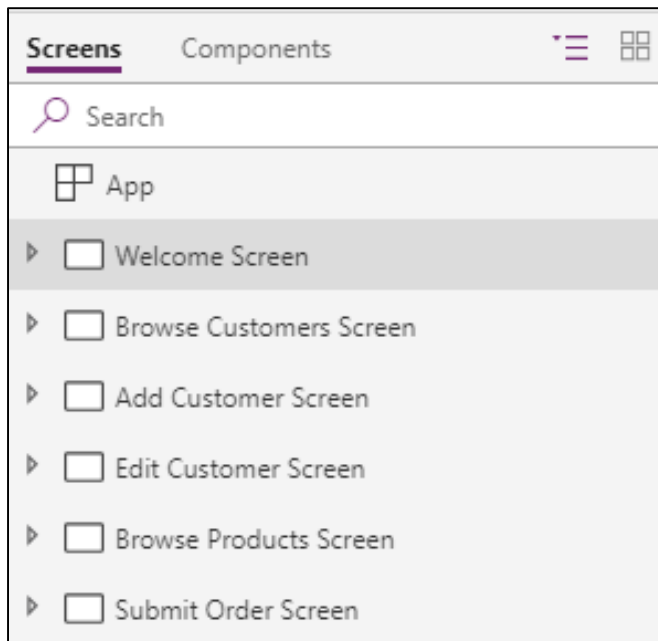
# Read the Canvas Apps Whitepaper

- 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 |

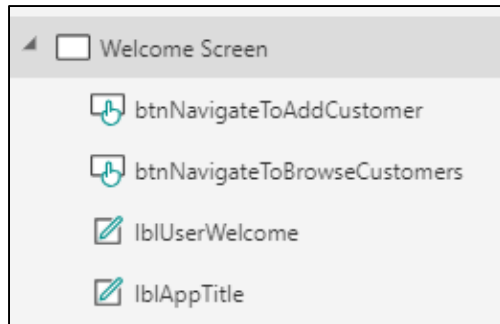
|                          |      |
|--------------------------|------|
| group                    | grp  |
| header page shape        | fdr  |
| html text                | html |
| icon                     | ico  |
| image                    | img  |
| label                    | lbl  |
| page section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





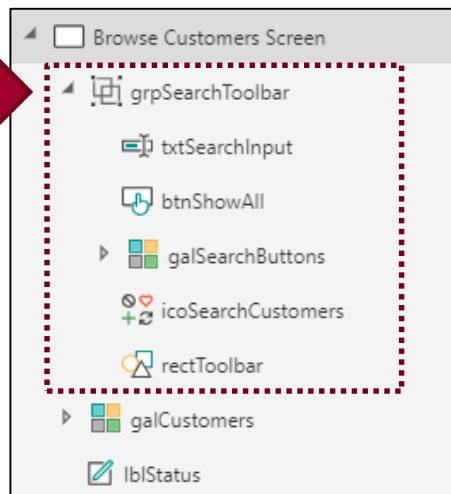
# Keeping Screens Maintainable

- Each control name should be easy to read & understand

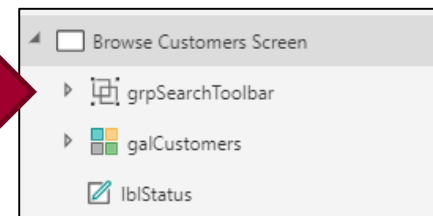


- Use grouping to isolate set of controls with single purpose

Expanded Group

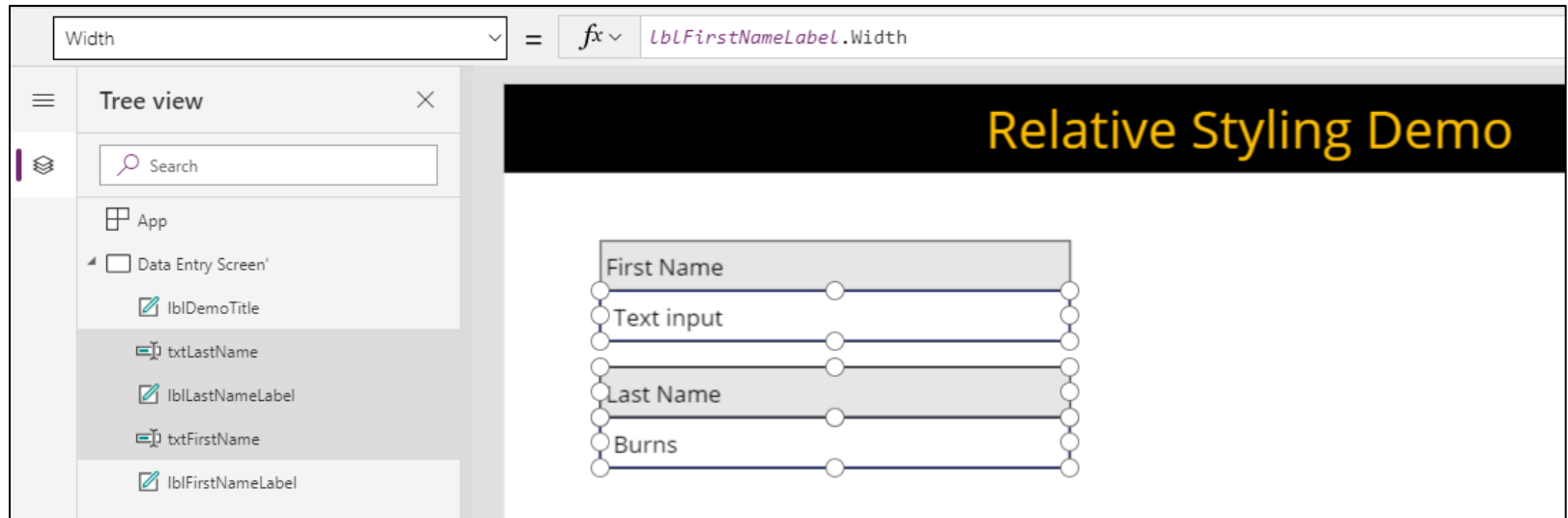


Collapsed Group



# 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

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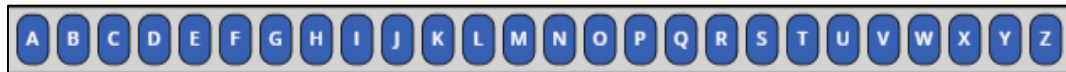


# Displaying Repeating Items using Galleries









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




|   |  |  |
|---|--|--|
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- A set of command buttons



- A products list and a shopping cart

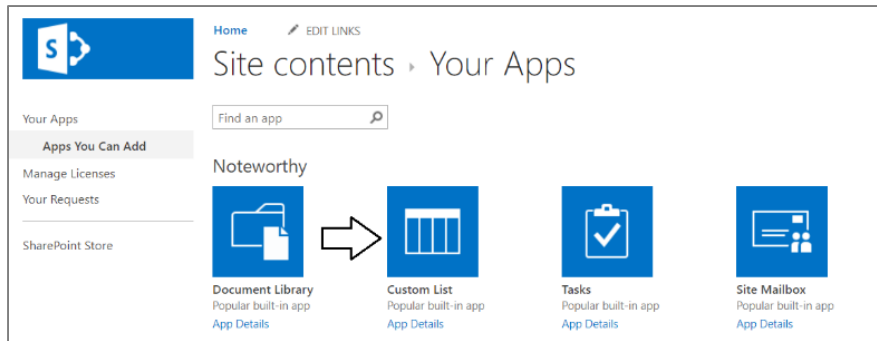
|   |   |               |   |             |
|---|---|---------------|---|-------------|
|  | <b>Batman Action Figure</b><br>A super hero who sometimes plays the role of a dark knight.                        | Quantity<br>1 |  | ADD TO CART |
|  | <b>Captain America Action Figure</b><br>A super action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

|   |  |   |
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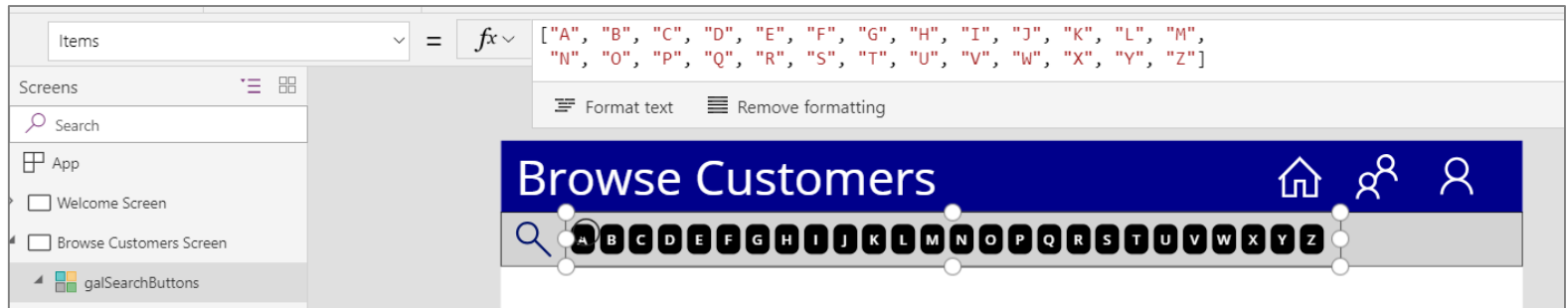
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# Creating galSearchButtons

- 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

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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, a preview of the form layout is shown. The form is titled 'frmAddCustomer' and contains two columns of data cards, each with a text box and a label:

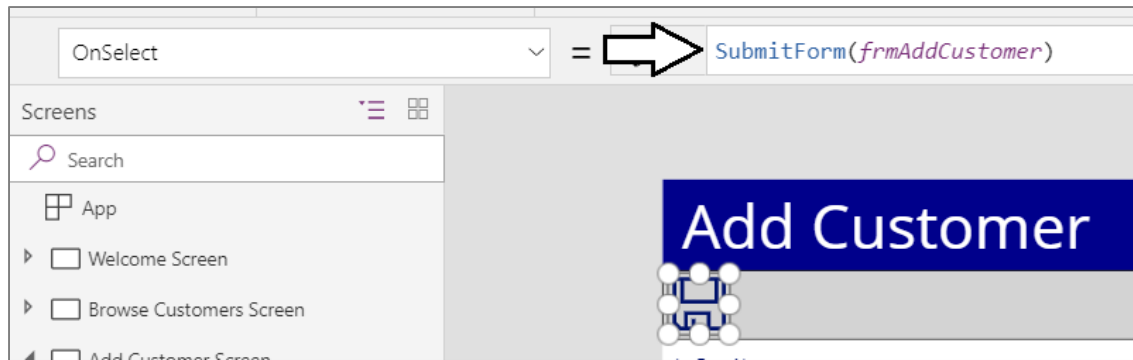
- Left Column:**
  - \* First Name (text box)
  - Company (text box)
  - Work Phone (text box)
  - Address (text box)
  - State (text box)
- Right Column:**
  - \* Last Name (text box)
  - \* Email Address (text box)
  - Home Phone (text box)
  - City (text box)
  - Zipcode (text box)





# 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**



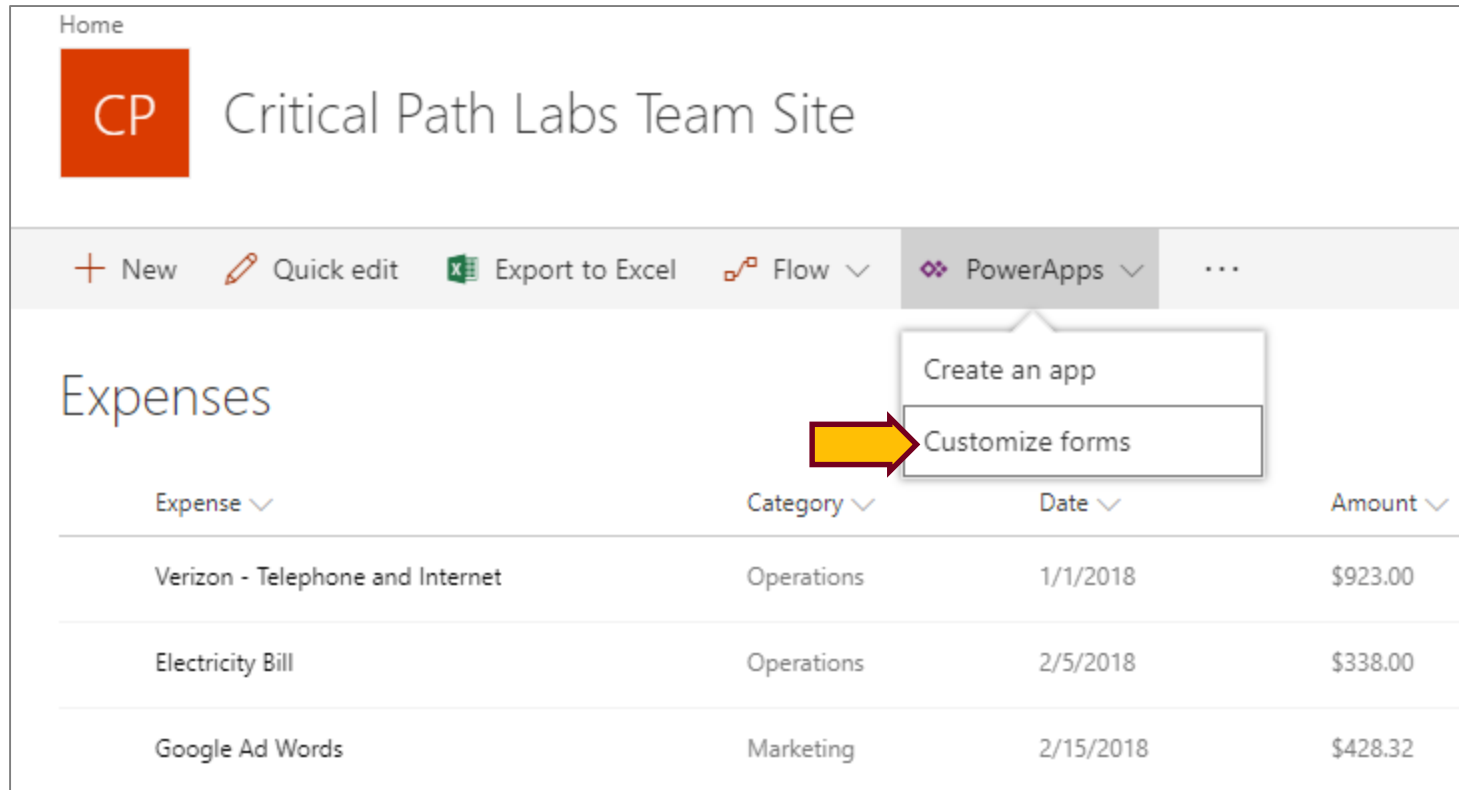
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# Customizing SharePoint List Forms

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



The screenshot shows a SharePoint interface for a list named 'Expenses' on the 'Critical Path Labs Team Site'. The top navigation bar includes links for 'New', 'Quick edit', 'Export to Excel', 'Flow', 'PowerApps', and a menu icon. The 'PowerApps' dropdown menu is open, showing 'Create an app' and 'Customize forms'. A yellow arrow points to the 'Customize forms' option. Below the menu, 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. 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' tab for 'SharePointForm1', with settings for 'Data', '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 1

Layout

Vertical

Fields

ID 123

Expense abc

Category

Date

Amount 123

Modified

EDIT SharePointForm1

Properties Rules fx Advanced

Data Expenses

Layout Vertical

Default mode Edit

Position 0 60

X Y

Size 444 730

Width Height

Color

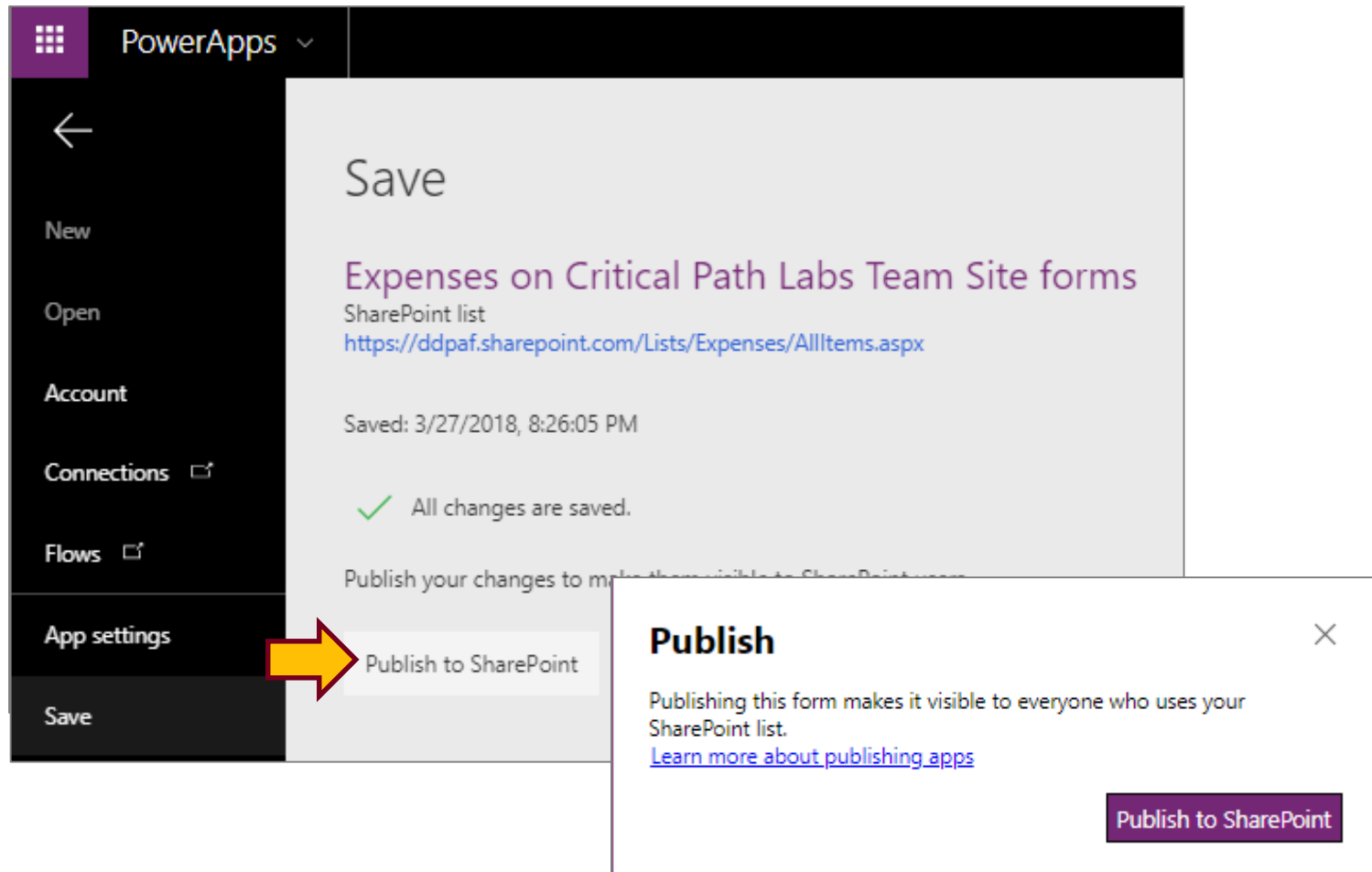
Border 0

Visible On



# 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

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