

Building a Canvas App with a Shopping Cart



Agenda

- Caching State using Variables and Collections
- Using a Collection to Track Shopping Cart Data
- Using Patch Instead of an Edit Form
- Writing Shopping Cart Data to Back to SharePoint
- Designing Reusable Components



Designing with Variables and Collections

- Context variables
 - Created as primitive, record or table at screen scope
 - Managed using `UpdateContext` and `Navigate`
- Global variables
 - Created as primitive, record or table at app scope
 - Created and managed using `Set` function
- Collections
 - Created as tables at app scope
 - Managed using `Collect`, `Clear` and `ClearCollect`
 - Can be stored to local device using `SaveData` & `LoadData`



Code Naming Conventions

- Consistent naming conventions for variables & collections
 - Names should indicate type, purpose and scope
 - Collection names start with **col** such as **colProductCatalog**
 - Global variable names start with **gbl** such as **gblCustomApiUrl**
 - Context variables start with **loc** such as **locCustomerFilter**

Collections

- colLastOrderDetails
- colNavigationTable
- colProductCatalog**
- colShoppingCart
- colLastOrder

colProductCatalog

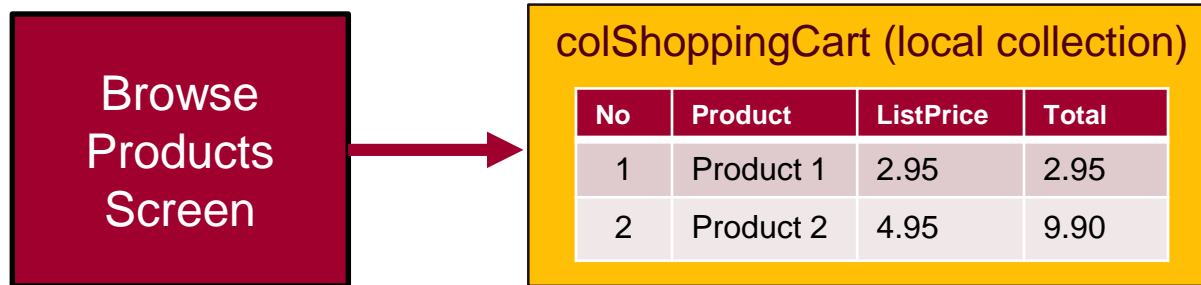
Here's a preview of the first 5 items in this collection
[Learn about working with collections](#)

Category	Description	ListPr...	Product
Action Figures	A super hero who sometimes plays the role of a dark knight.	14.95	Batman Action Figure
Action Figures	A super action figure that protects freedom and the American way of life.	12.95	Captain America Action F

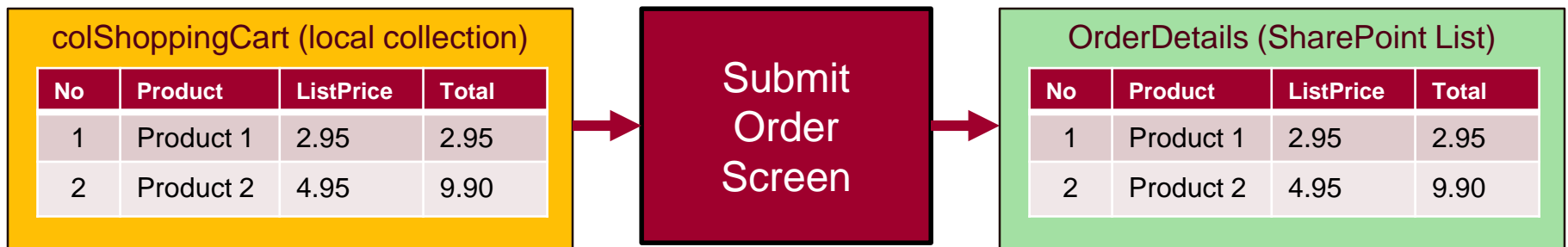


Designing Canvas Apps using Collections

- Browse Products Screen allows user to build collection

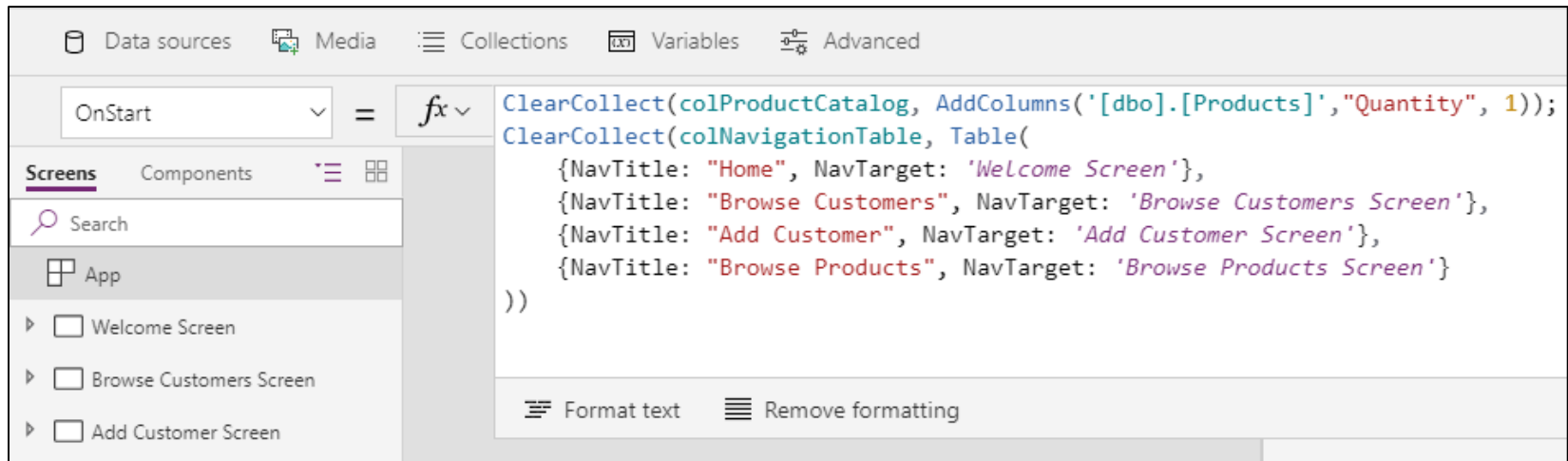


- Submit Order Screen allows user to save to SharePoint



App OnStart

- App **OnStart** property used to initialize state in app
 - Event provides support for initializing state in app at startup
 - Commonly used to initialize global variables and collections
 - Right-click **App** in left navigation to run **OnStart** while in editor



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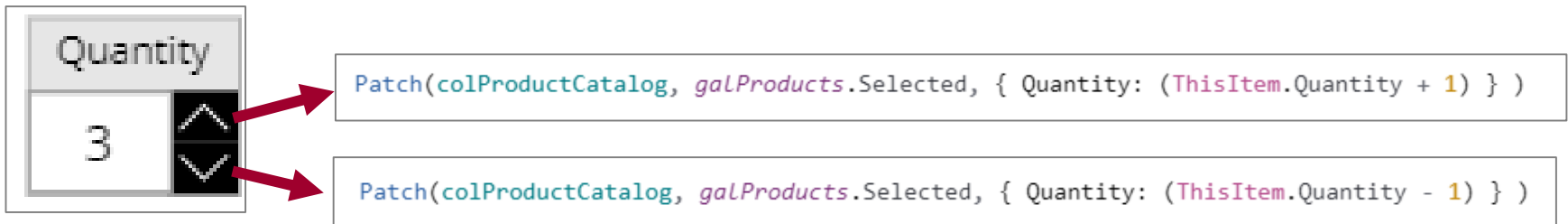
Updatable Collection Columns

- Often helpful to add updatable column to collections

```
ClearCollect(colProductCatalog, AddColumns('[dbo].[Products]', "Quantity", 1));
```

	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 3	ADD TO CART

- Columns updated using calls to Patch





DEMO

Designing A UI Experience with a Shopping Cart

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Using Patch Instead of an Edit Form

- Sometimes edit forms are not the best option
 - **Patch** function used to create and update records in data source

```
Patch(
    '[dbo].[Orders]',
    Defaults('[dbo].[Orders]'),
    {
        CustomerId: galCustomers.Selected.CustomerId,
        OrderAmount: Sum(
            colShoppingCart,
            Total
        ),
        OrderDate: Today()
    }
)
```

- **Patch** function can be used with **ForAll** to insert multiple records

```
ForAll(
    colShoppingCart,
    Patch(
        '[dbo].[OrderDetails]',
        Defaults('[dbo].[OrderDetails]'),
        {
            OrderId: First(colLastOrder).OrderId,
            ProductId: ProductId,
            Quantity: Quantity,
            Total: Total
        }
    )
)
```



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Capturing Return Value from Patch

```
ClearCollect(
    collastOrder,
    Patch(
        '[dbo].[Orders]',
        Defaults('[dbo].[Orders]'),
        {
            CustomerId: galCustomers.Selected.CustomerId,
            OrderAmount: Sum(
                colShoppingCart,
                Total
            ),
            OrderDate: Today()
        }
    )
);
ClearCollect(
    collastOrderDetails,
    ForAll(
        colShoppingCart,
        Patch(
            '[dbo].[OrderDetails]',
            Defaults('[dbo].[OrderDetails]'),
            {
                OrderId: First(collastOrder).OrderId,
                ProductId: ProductId,
                Quantity: Quantity,
                Total: Total
            }
        )
    )
);
```

CustomerId	OrderAmount	OrderDate	OrderId
10	44.85	4/3/2019	14

collastOrder

Id	OrderId	ProductId	Quantity	Total
36	14	1	1	14.95
37	14	4	2	19.9
38	14	6	10	10

collastOrderDetails




Populating UI from Cached State

CustomerId	OrderAmount	OrderDate	OrderId
10	44.85	4/3/2019	14

collLastOrder

Id	OrderId	ProductId	Quantity	Total
36	14	1	1	14.95
37	14	4	2	19.9
38	14	6	10	10

collLastOrderDetails



Order Confirmation

[Home](#)[Browse Customers](#)[Add Customer](#)[Browse Products](#)

The Order Has Been Submitted Successfully

Order Information




Order ID:

Order Date:

Order Amount:

Customer Shipping Address:

Items purchased in Order #0014

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	

Shopping Cart Total: \$44.85



DEMO

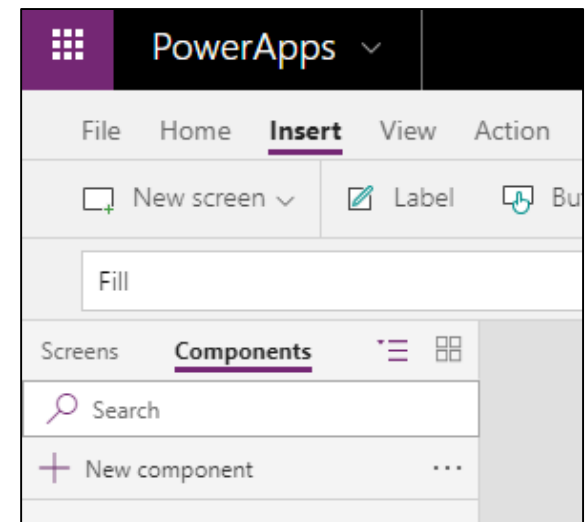
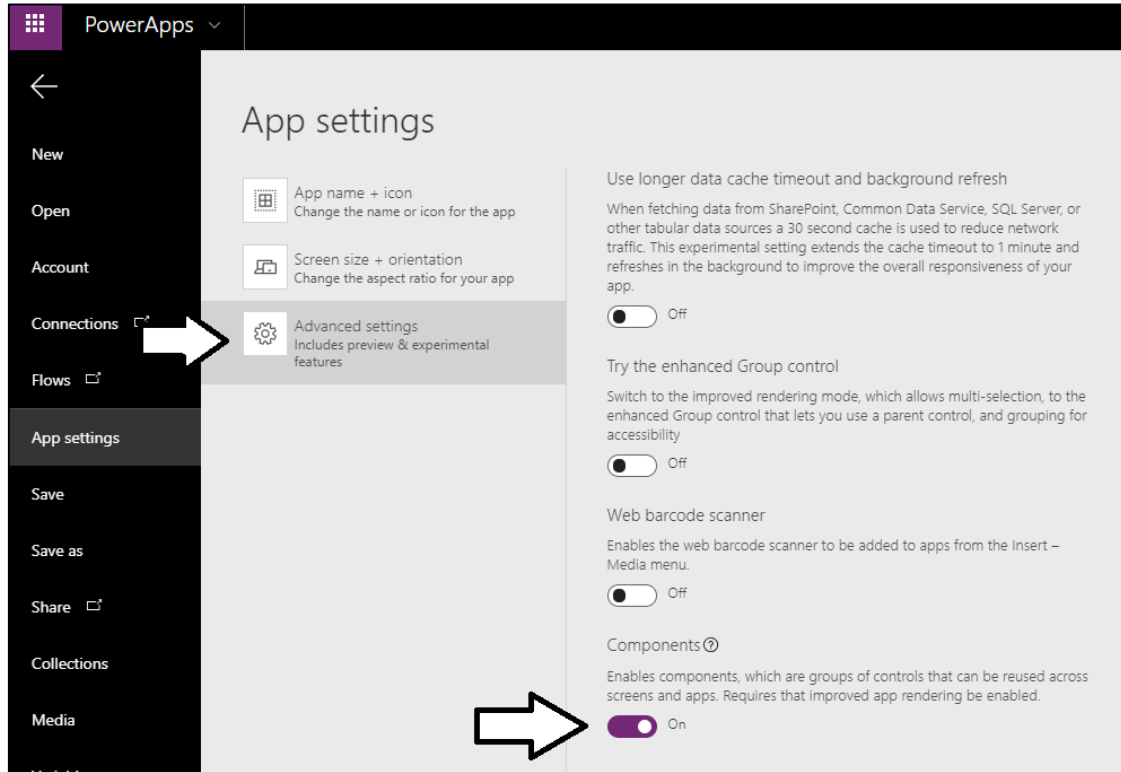
Writing Orders and Order Details to SharePoint using Patch

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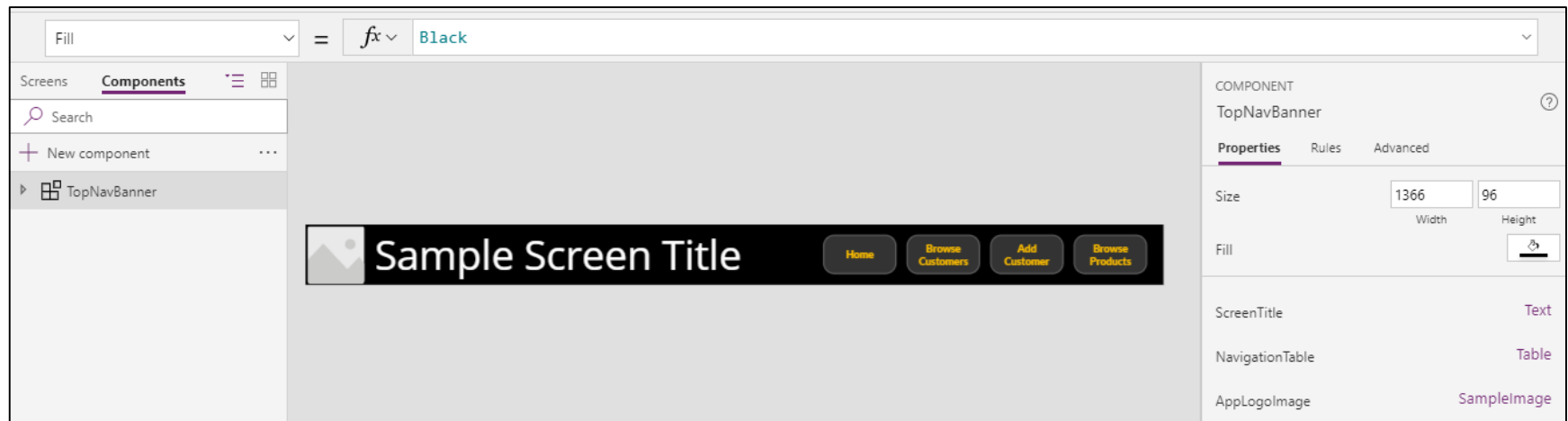
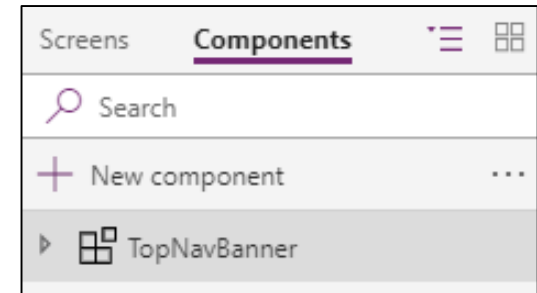


Enabling Components in a Canvas App



Designing Components

- Steps to using components
 - Create new component
 - Add component properties
 - Implement component UI and behavior
 - Add component to screens in your canvas apps



Summary

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