



# Enhancing SharePoint Solutions with REST & JS

**Jared Matfess**

*Solution Principal, Slalom*

**#SPSTC**

**slalom**



Technology Delivered



Thank you  
#SPSTC

sponsors!



## Jared Matfess

Solution Principal, Slalom Consulting

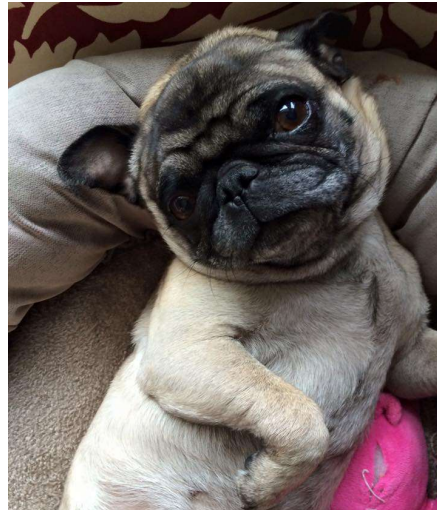


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<https://meetup.com/ctspug>



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- Microsoft MVP
- Technology Consultant
- Craft Beer Snob



slalom

## Our Services

We bring experience, expertise, and big ideas to the table—plus the tactical chops to bring those ideas to life. Whether you need to grow and scale, do more with less, or improve customer experiences, we can support you at any stage of your strategic journey. And more important, identify and build the capabilities you need to solve problems and evolve long after we've left.



### Information Management and Analytics

Leverage the right data in your big data through a technology-agnostic approach to generate consumable information and enact solutions.

- Data Visualization and Discovery
- Information Strategy
- Analytics
- Data Management
- Business Intelligence



### Strategy & Operations and Organizational Effectiveness

Link your strategic vision with executable techniques to gain alignment and drive untapped potential and value to your organization ~ Unleash business value from your processes and people through improvements in strategy, culture, and role clarity.

- Strategy Advisory
- Business Transformation
- Performance Improvement
- Mergers & Acquisitions



### Customer Engagement

Create intimate, meaningful and authentic relationships that connect your customers to your brand by engaging with them on their terms.

- CRM
- Differentiated Digital Experiences
- Marketing Execution
- Customer Centric-Organizational Alignment
- Customer Innovation Facilitation



### Delivery Leadership

Realize the business value of your most strategic initiatives by making your methods and practices more agile to deliver results.

- Program and Project Management
- Business and Technical Analysis
- Quality Assurance
- Agile and Delivery



### Experience Design

User experience design is the art and science of crafting how something works and how users interact with it. We combine research, strategy, and design to create digital experiences that spark your users ... and your bottom line.

- Digital Strategy
- Interactive Engineering
- Experience Design
- Product Incubation



### Technology Enablement

Our teams build exceptional apps, improve your customer relationships, design content experiences that boost engagement, and bring agile best practices to bear on each and every project.

- Software Engineering
- Portals and Collaboration
- Next Generation Infrastructure



## Slalom Minneapolis



[See photos](#) [See outside](#)

### Slalom Consulting ★

[Website](#) [Directions](#)

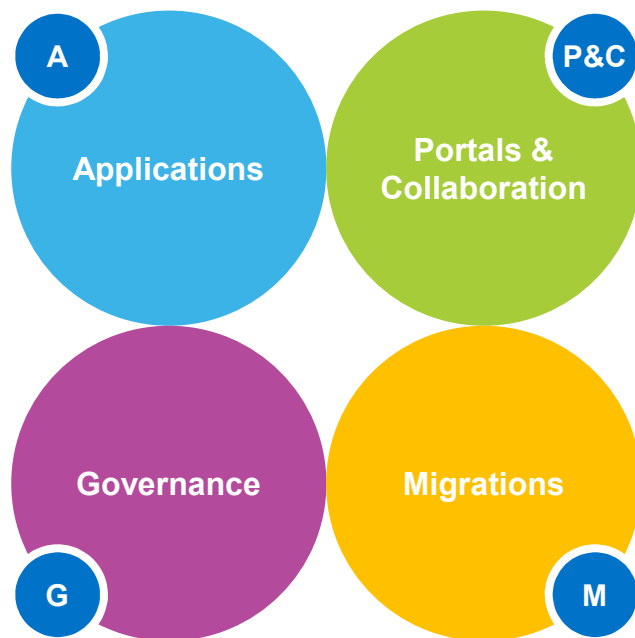
5.0 ★★★★★ 1 Google review

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**Phone:** (612) 338-1111

## Featured SharePoint & Office 365 Services



### Applications

Automating business processes through workflow driven solutions.

### Portals & Collaboration

Building rich Intranets and enabling enterprise collaboration.

### Governance

Setting the foundation for enabling user adoption & ongoing platform maintainability.

### Migrations

Partnering on upgrades and migration to SharePoint & Office 365 from legacy systems.

## Resources (Slides + Code)



<https://github.com/JaredMatfess/SPSTC>

# Quick Tangents..

- Citizen Developer
- SharePoint Framework
- InfoPath / PowerApps





# My Target Audience

- Power User / Maybe Jr. Developer
- Want to learn how to build a cool quick webpart
- Not really about writing a ton of code
- Maybe some JavaScript experience or at least can copy & paste
- Anyone that'll sit for an hour and let me talk

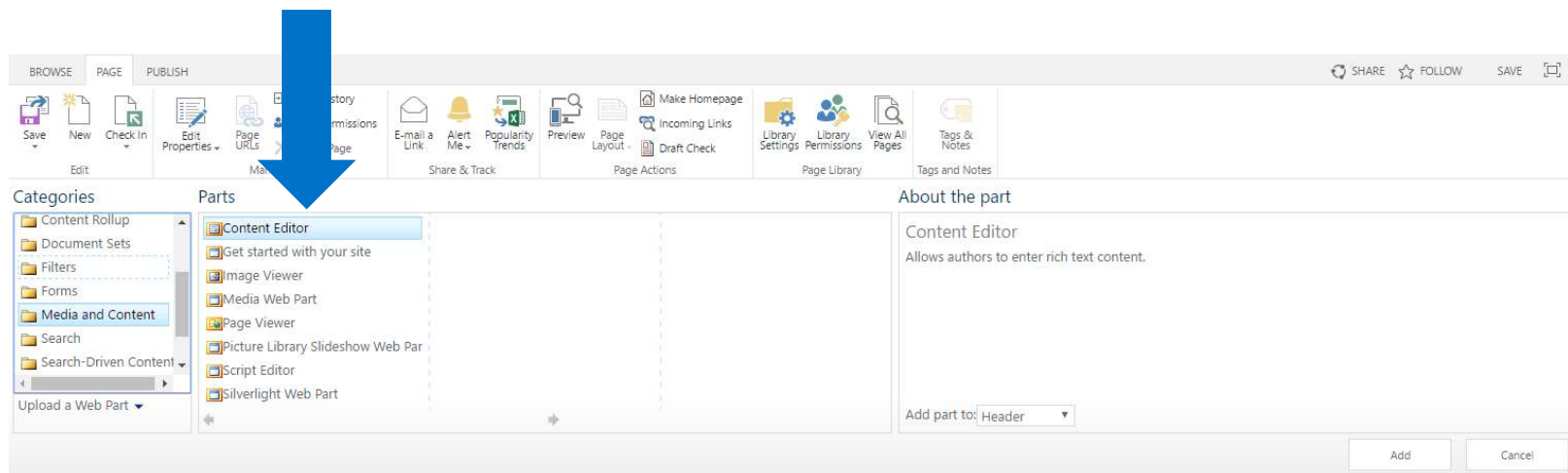


# What I'm not going to talk about...

- Frameworks
- MVC/MVVM
- Webpack
- Typescript
- Angular
- Object Oriented Programming
- SharePoint Framework

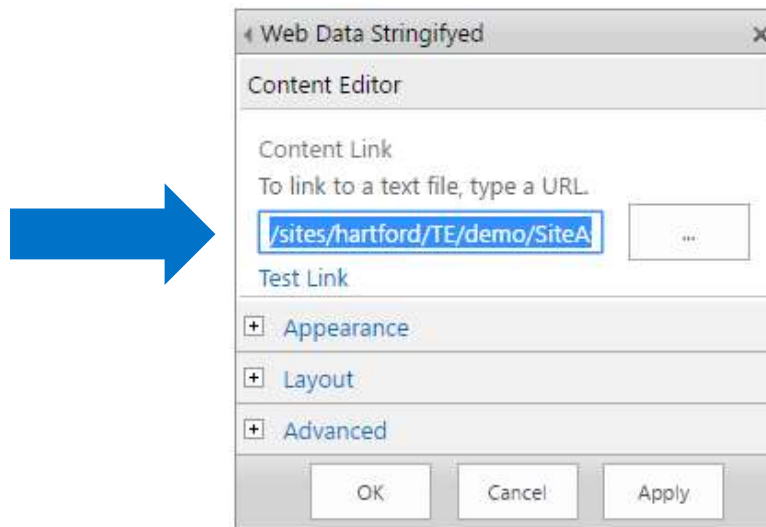


# Getting started



Get comfortable with a Content Editor

# Getting started



Get even more comfortable with Content Link!

# jQuery & AJAX

- jQuery is an awesome JavaScript library for updating the DOM
- AJAX allows you to make asynchronous call for SharePoint REST endpoint
- Success callback function is where you can do something with the data that's returned from the AJAX call
- The URL parameter of your AJAX function is where you specify the endpoint

# Examples

- **/\_api/web** – Properties of the site (web) that you are currently in
- **/\_api/web/lists** – Site lists
- **/\_api/web/SiteGroups** – SharePoint Groups in that site
- **/\_api/search** – Search REST API



**AJAX calls run under the context of the current user accessing the script!**



# Moment.js 2.17.1

- Fantastic for formatting dates to something useful (example)

```
<d:Created m:type="Edm.DateTime">2016-12-04T14:50:00Z</d:Created>
```

**12/4/2016** or **12/4** or **12/4/16**

- Can also perform calculations such as add a week, subtract a week, etc.

**Demos!**

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# Demo 1

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.12.4/jquery.min.js"></script>
<script>
$(document).ready(function() {

    $.ajax({
        url: _spPageContextInfo.webAbsoluteUrl + "/_api/web/", //Gets details on the current Web
        method: "GET",
        headers: {"accept": "application/json;odata=verbose"},
        success: function(xData, request){
            var q = JSON.stringify(xData.d);
            $('#div#WebDetails').append(q); //Append stringified text to WebDetails DIV
            console.log(xData); //Log xData to console
        },
        error: function(message){
            console.log(message); //Error message for AJAX call
        }
    });
});
</script>

<div id="WebDetails"></div>
```

# Demo 1 Result

## Web Data Stringified

```
[{"__metadata":{"id":"https://twodegrees1.sharepoint.com/sites/hartford/TE/demo/_api/Web","uri":"https://twodegrees1.sharepoint.com/sites/hartford/TE/demo/_api/Web","type":"SP.Web"},"FirstUniqueAncestorSe
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{"__metadata":{"type":"SP.ChangeToken"},"StringValue":"1;2;c9cf6313-70f0-418f-bdc8-81b33c835404;636164837397270000;46572606"},"CustomMasterUrl":"/sites/hartford/_catalogs/masterpage/seattle.master","Description":"","DocumentLibraryCalloutOfficeWebAppPreviewersDisabled":false,"EnableMir
81b33c835404;636164837397270000;46572606"},"IsMultilingual":false,"Language":1033,"LastItemModifiedDate":"2016-12-04T21:28:58Z","LastItemUserModifiedDate":"2016-12-04T21:28:58Z","MasterUrl":"/sites/hartford/_catalogs/masterpage/seattle.master","NoCrawl":false,"OverwriteTranslationsOnChange":false,"QuickLaunchEnabled":true,"RecycleBinEnabled":true,"ServerRelativeUrl":"/si
Portal","TreeViewEnabled":false,"UIVersion":15,"UIVersionConfigurationEnabled":false,"Url":"https://twodegrees1.sharepoint.com/sites/hartford/TE/demo","WebTemplate":"CMSPUBLISHING"]}
```

## Demo 2

Orders Table

Order Number	Order Amount	CS Agent	Order Status	Last Update	Items
SLALOM-001	229.34	11	Received	2016-12-02T05:00:00Z	[object Object]
SLALOM-002	334.58	13	Shipped	2016-12-21T05:00:00Z	[object Object]
SLALOM-003	112.52	13	In-Process	2016-12-14T05:00:00Z	[object Object]
SLALOM-004	72.89	50	In-Process	2016-12-04T05:00:00Z	[object Object]
SLALOM-005	45.19	11	Shipped	2016-11-24T05:00:00Z	[object Object]
SLALOM-006	1200.13	13	Received	2016-11-30T05:00:00Z	[object Object]
SLALOM-007	632.21	11	Shipped	2016-12-02T05:00:00Z	[object Object]
SLALOM-007	24.97	11	Received	2016-12-06T05:00:00Z	[object Object]
SLALOM-009	28.92	13	In-Process	2016-12-14T05:00:00Z	[object Object]
SLALOM-010	12.11	11	Shipped	2016-12-14T05:00:00Z	[object Object]
SLALOM-011	12.22	50	In-Process	2016-12-04T05:00:00Z	[object Object]
SLALOM-012	29.82	50	Received	2016-12-04T05:00:00Z	[object Object]

# Data Tables

## Slalom Orders

Show  entries

Search:

Order Number	Order Amount	Items	Customer Service Agent	Order Status	Last Updated
SLALOM-011	12.22	Paper,Paper clips	Scott Cieslak	In-Process	12/04/16
SLALOM-012	29.82	Paper,Paper clips,Envelopes	Scott Cieslak	Received	12/04/16
SLALOM-004	72.89	Ruler,Pens,Rubber bands,Folders	Scott Cieslak	In-Process	12/04/16
SLALOM-005	45.19	Paper,Paper clips,Envelopes	Jared Matfess	Shipped	11/24/16
SLALOM-001	229.34	Pencils,Folders,Envelopes	Jared Matfess	Received	12/02/16
SLALOM-007	632.21	Ruler,Pens,Paper,Stapler	Jared Matfess	Shipped	12/02/16
SLALOM-010	12.11	Stapler	Jared Matfess	Shipped	12/14/16
SLALOM-007	24.97	Stapler,Envelopes	Jared Matfess	Received	12/06/16
SLALOM-009	28.92	Paper,Envelopes,Folders	Heidi Lamar	In-Process	12/14/16
SLALOM-002	334.58	Paper,Envelopes,Folders,Rubber bands,Ruler	Heidi Lamar	Shipped	12/21/16

Showing 1 to 10 of 12 entries

Previous  2 Next



# Upcoming Events Webpart

## EVENTS

Apr

8

Sat

**SharePoint Saturday Nashville**  
Saturday, April 8th 2017  
8:00 AM - 5:00 PM  
Nashville, TN  
[Add to calendar](#)

Apr

29

Sat

**SharePoint Saturday Houston**  
Saturday, April 29th 2017  
8:00 AM - 5:00 PM  
Houston, TX  
[Add to calendar](#)

May

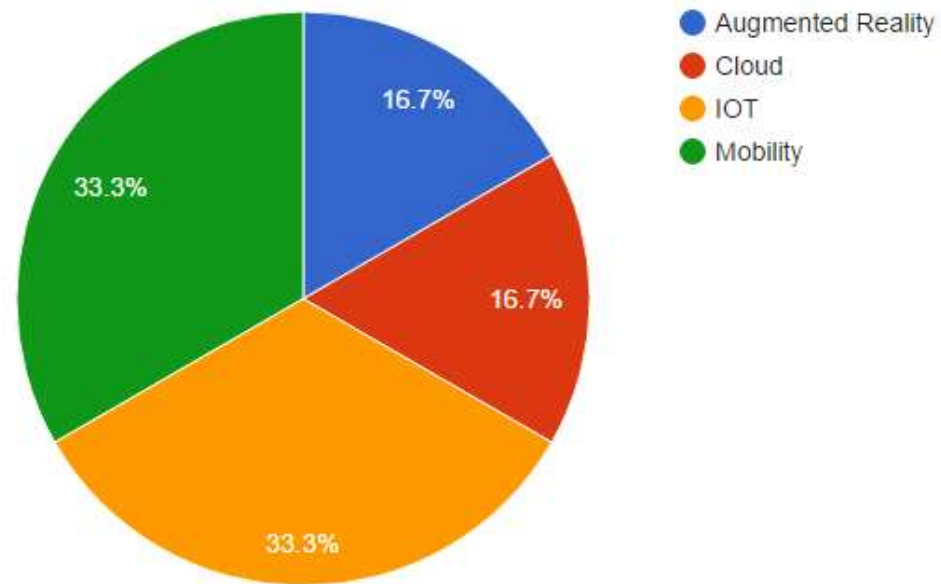
6

Sat

**SharePoint Saturday Twin Cities**  
Saturday, May 6th 2017  
8:00 AM - 5:00 PM  
Bloomington, MN  
[Add to calendar](#)

# Google Charts – List API

Ideas Submitted by Category



# UNDERSCORE.JS

- Lightweight JavaScript Library that provides useful utility functions
- Very helpful when dealing with arrays and preparing data

**where** `_where(list, properties)`

Looks through each value in the **list**, returning an array of all the values that contain all of the key-value pairs listed in **properties**.

```
_where(listOfPlays, {author: "Shakespeare", year: 1611});  
=> [{title: "Cymbeline", author: "Shakespeare", year: 1611},  
    {title: "The Tempest", author: "Shakespeare", year: 1611}]
```

# Dealing with lots of data

- Who's ever deal with SharePoint's 5,000 item limit before?



My sample:



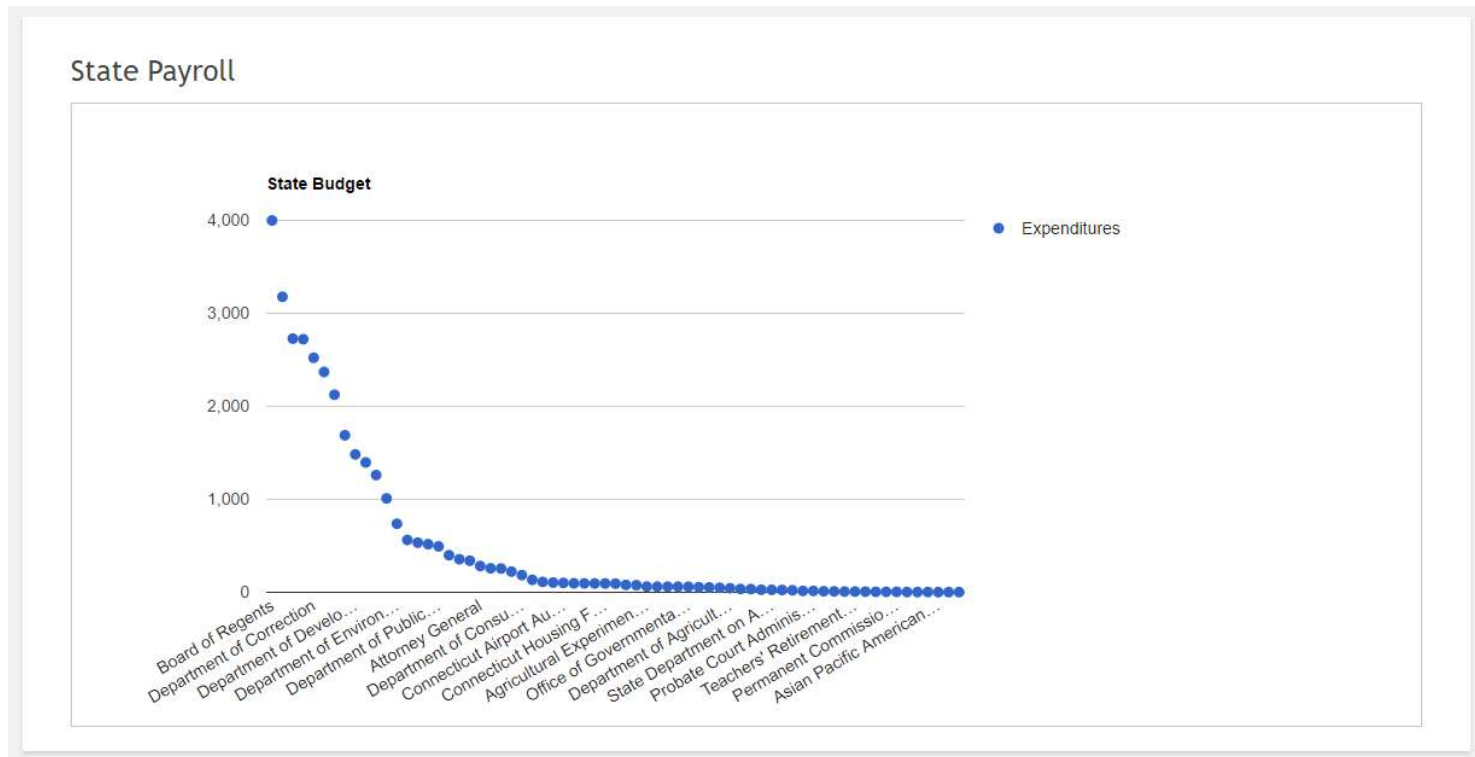
StatePayroll

List

33497



# “Big Data” Reporting





# How did I build it? Search!

- SharePoint Search can return millions of records
- SharePoint Supports 30,000,000 items per list
- SharePoint's Search engine has a REST API!



# Managed Properties

- In order to leverage Search you'll need to create Managed Properties
- Recommend mapping crawled properties to existing managed properties
- Site Settings > Search and offline availability > Reindex site

## Reindex site

Marking this site for reindexing will enable this site to be picked up during the next scheduled search crawl.

REINDEX SITE

# SharePoint Designer Workflows

Build {...} Dictionary (Output to Variable: RequestHeaders )

then Set Variable: URL to [%Workflow Context:Current Site URL%]..

then Call [%Variable: URL%] HTTP web service with request (ResponseContent to Variable: ResponseContent |ResponseHeaders to Variable: ResponseHeaders |ResponseStatusCode to Variable: responseCode )

then Log REST Response: [%Variable: responseCo... to the workflow history list

then Get d/results from Variable: ResponseContent (Output to Variable: Items )

then Count Items in Variable: Items (Output to Variable: count )

then Log [%Variable: count%] items to the workflow history list

then Set Variable: LoopCounter to 0

## Loop: Iterate over results

The contents of this loop will run repeatedly while: Variable: LoopCounter is less than Variable: count

Get d/results[%Variable: LoopCounter%] from Variable: ResponseContent (Output to Variable: CurrentItem )

then Get Title from Variable: CurrentItem (Output to Variable: Title )

then Log [%Variable: Title%] to the workflow history list

then Calculate Variable: LoopCounter plus 1 (Output to Variable: calc )

then Set Variable: LoopCounter to Variable: calc

Transition to stage

Go to End of Workflow

# SharePoint Designer Workflow Tips

- Syntax can be a pain
- E-mail response headers & response content for troubleshooting

**Response Content:**

{"id": "results": [{"\_id": "21e7670d-4973-4258-926b-2616312ca27d", "uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_metadata(1)"; "etag": "\"4\""; "type": "SP.Data.IdeationCampaignListitem", "FirstUniqueAncestorSecurableObject": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/FirstUniqueAncestorSecurableObject"}}, "RoleAssignments": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/RoleAssignments"}}, "AttachmentFiles": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/AttachmentFiles"}}, "ContentType": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/ContentType"}}, "GetDlpPolicyTip": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/GetDlpPolicyTip"}}, "FieldValuesAsHtml": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/FieldValuesAsHtml"}}, "FieldValuesAsText": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/FieldValuesAsText"}}, "FieldValuesForEdit": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/FieldValuesForEdit"}}, "File": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/File"}}, "Folder": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/Folder"}}, "ParentList": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/ParentList"}}, "Properties": {"\_deferred": {"uri": "https://vtwodegrees1.sharepoint.com/sites/hartford/TE/demo/V\_api/Web/Lists(guid?7cb945eb-a102-4446-bb63-df56bb9b93d9)/\_items(1)/Properties"}}, "FileSystemObjectType": "0", "Id": "1", "ServerRedirectedEmbedUrl": "", "ContentTypeId": "0x0100ADC578CE1B43C845859CF75AD30F0784", "Title": "Amazing Idea 1", "AuthorId": "11", "Modified": "2016-11-26T19:47:51Z", "ID": "1", "EditorId": "11", "Created": "2016-11-26T15:52:41Z", "Attachments": false, "Category": "Augmented Reality", "AverageRating": null, "RatingCount": null, "RatedByStringId": null, "LikeCount": "2", "LikedByStringId": {"\_metadata": {"type": "Collection(Edm.String)", "results": ["11", "50"]}, "Idea\_x0020\_Description": "Bacon ipsum dolor amet tri-tip t-bone bresaola corn turducken tenderloin pork chop boudin meatloaf hamburger chicken ground round prosciutto turkey ribeye. Short loin brisket ribeye turkey tongue pork boudin tri-tip drumstick. Shankle ham hock strip steak, sirloin frankfurter meatloaf prosciutto tenderloin ground beef turkey file mignon. Boudin cupin capicola cow pastrami tail drumstick. 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