Designing Interactive Reports in Power BI Desktop

Agenda

- Designing Interactive Reports
- Creating the Top 5 Products List
- Working with Bookmarks and Drillthrough
- Using Report Themes
- Importing Custom Visuals
- Designing Reports for Mobile Devices
- Publishing Power BI Reports

Creating Reports

- Power BI Desktop project contains one report
  - Report within project can contain multiple pages
  - Report pages contains visuals

- Reports can be created using filters
  - You can add visual level filters
  - You can add page level filters
  - You can add drillthrough filters
  - You can add report level filters

FILTERS

Visual level filters

Sales Region (All)

Sales Revenue (All)

Page level filters

Drag data fields here

Drillthrough filters

Drag drillthrough fields here

Report level filters

Drag data fields here

Built-in Visualization Types

- Table and Matrix
- Bar charts and Column charts
- Pie charts and Doughnut chart
- Line chart and Area chart
- Scatter chart and Combo charts
- Card and Multi-row Card
- Treemap
- Ribbon chart
- Waterfall chart
- Funnel chart
- Gauge
- Map and Filled Map
- Slicer
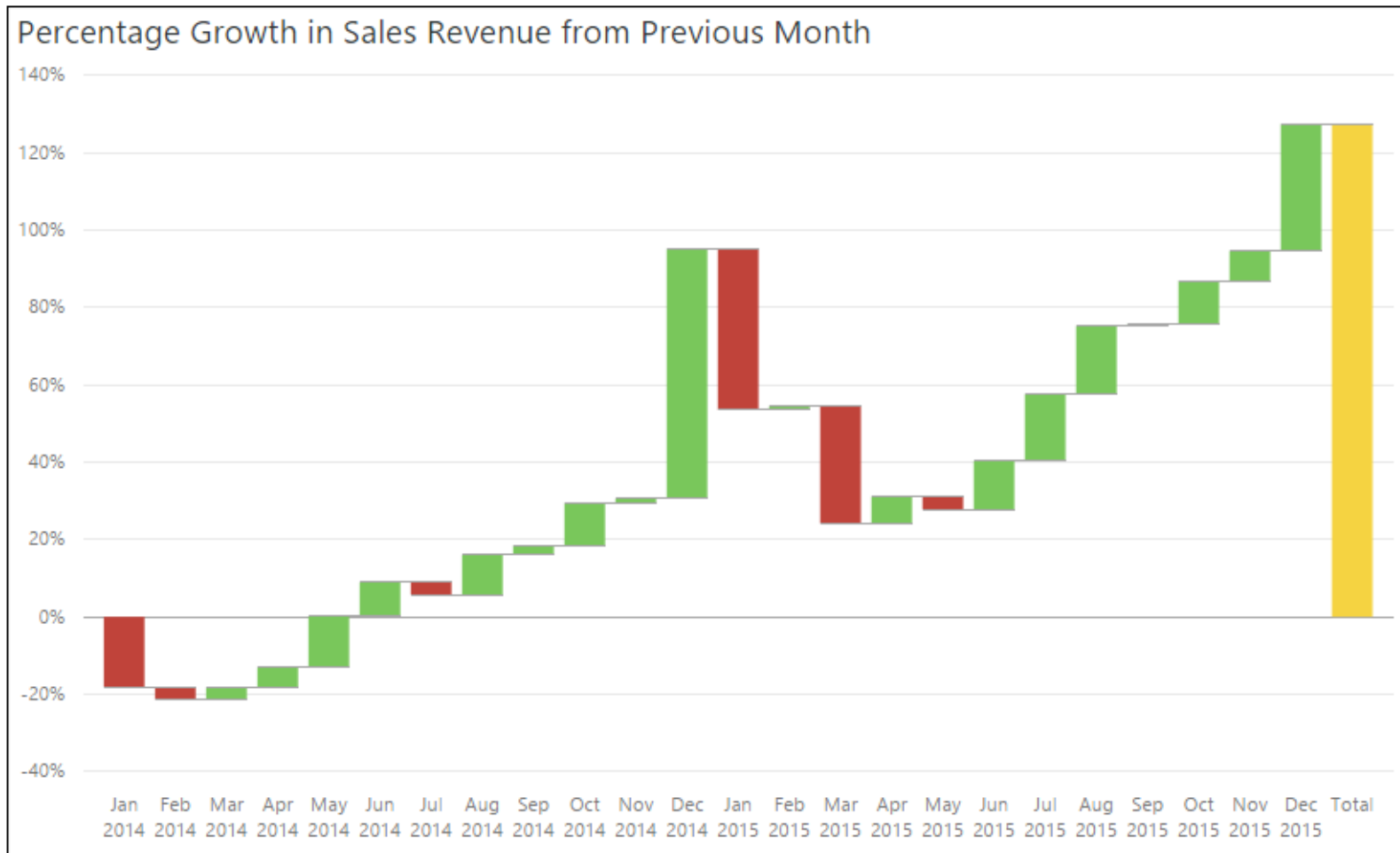- R script visual
- Shape map (in preview)

VISUALIZATIONS >

Example Visual 1: Funnel

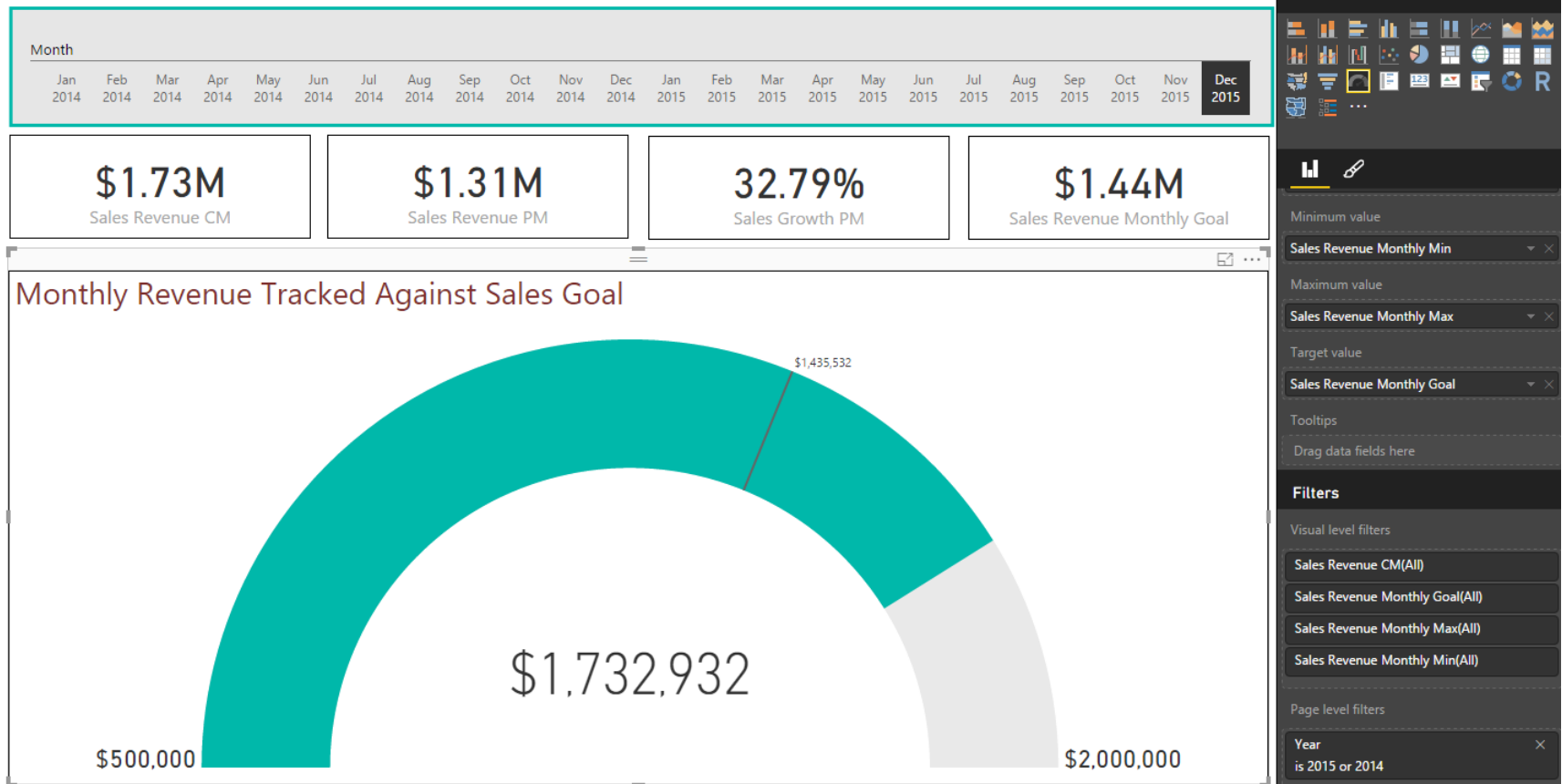- Visualizes distribution across categories as percentage of top value

Example Visual 2: Waterfall

- Visualizes series-based data with positive and negative values

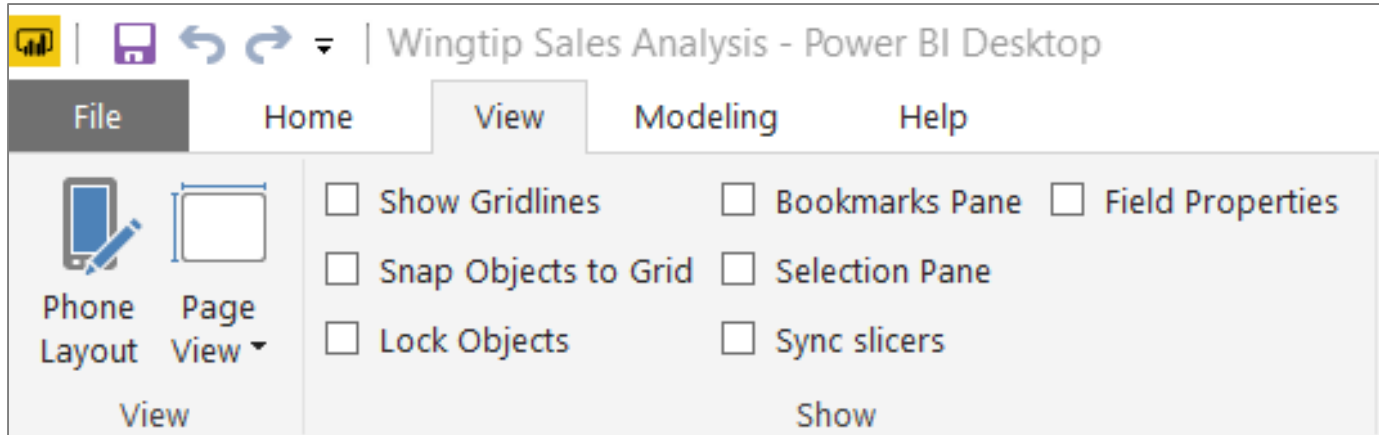Percentage Growth in Sales Revenue from Previous Month

Example Visual 3: Gauge Visual

- Visualizes how measured value is tracking against goal or budget

Report Designer Modes and Panes

- **Show Gridlines** mode adds visual guides to report

- **Snap Objects to Grid** mode helps with object placement

- **Lock Objects** mode used to prevent accidental moving

- **Bookmarks Pane** used to create and manage bookmarks

- **Selection Pane** used to select, order, hide & show visuals

- **Sync slicers** pane used for advanced slicer control

- **Field Properties** used to add field description

Lock Objects Mode

- Prevents accident movement of report objects
  - Locks Objects setting is not saved at project level

Field Proprties Pane

- Allows data model author to add field description

- Data model consumer can see description as tooltip in fields list

Selection Pane

- Provides control over object on a page
  - You can control whether visual is visible or hidden
  - You can change ordering to control what is on top
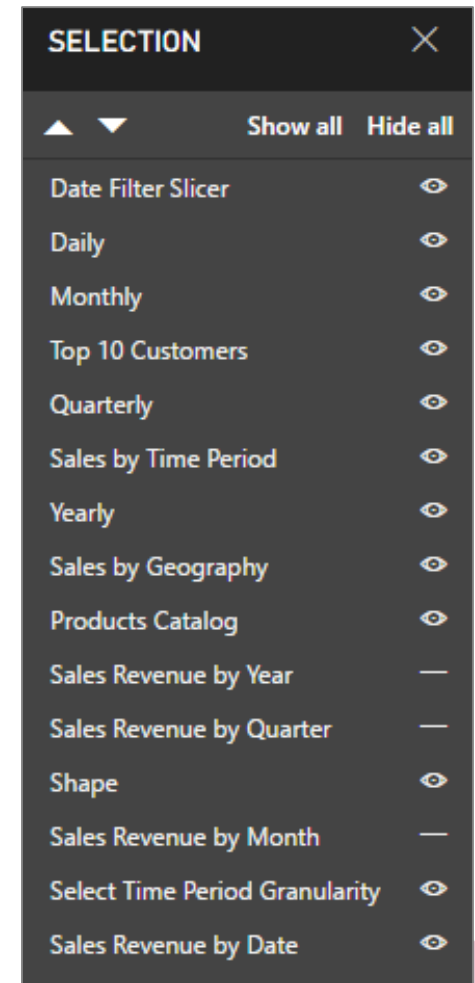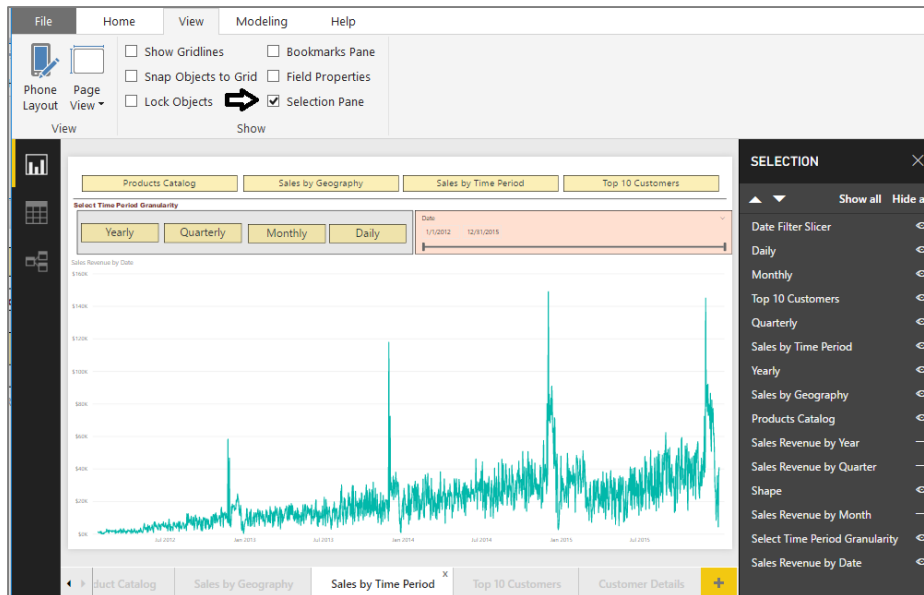
Designing Reports with Interactive Filtering

- ## Slicers
  - Provide report consumers with intuitive filtering

- ## Visual Highlighting
  - Filtering applied when user clicks on a visual data element

- ## Drilldown Mode
  - Allows report consumer to drill into field hierarchy
    e.g. Sales Region > State > City > Zipcode

- ## Drillthrough Pages
  - Allows report consumer to navigate to drillthrough page

Slicer with Text Field

- Slicer support List and Dropdown modes
  - Slicer create in List mode by default
  - Slicer switched to dropdown mode to conserve vertical space

Horizontal Responsive Slicers

- Slicer **Orientation** can be set to **Horizontal**
  - Horizontal slicer supports **Responsive** mode
  - Makes it possible to show many slicer choices at once
  - provides best filtering experience for mobile devices

Slicers with Date Fields

- Slicers with Date fields provide 7 different modes
  - Between, Before and After provide sliders and date pickers

Between
Before
After
List
Dropdown
Relative

First Purchase Date

| 4/1/2012 | 10/1/2012 |

- Relative mode filter based on current date (e.g. last 30 days)

First Purchase Date

| Last | 30 | Days |

3/31/2018 - 4/29/2018

Slicer Sync

- Slicer visual & filtering can be synchronized across pages
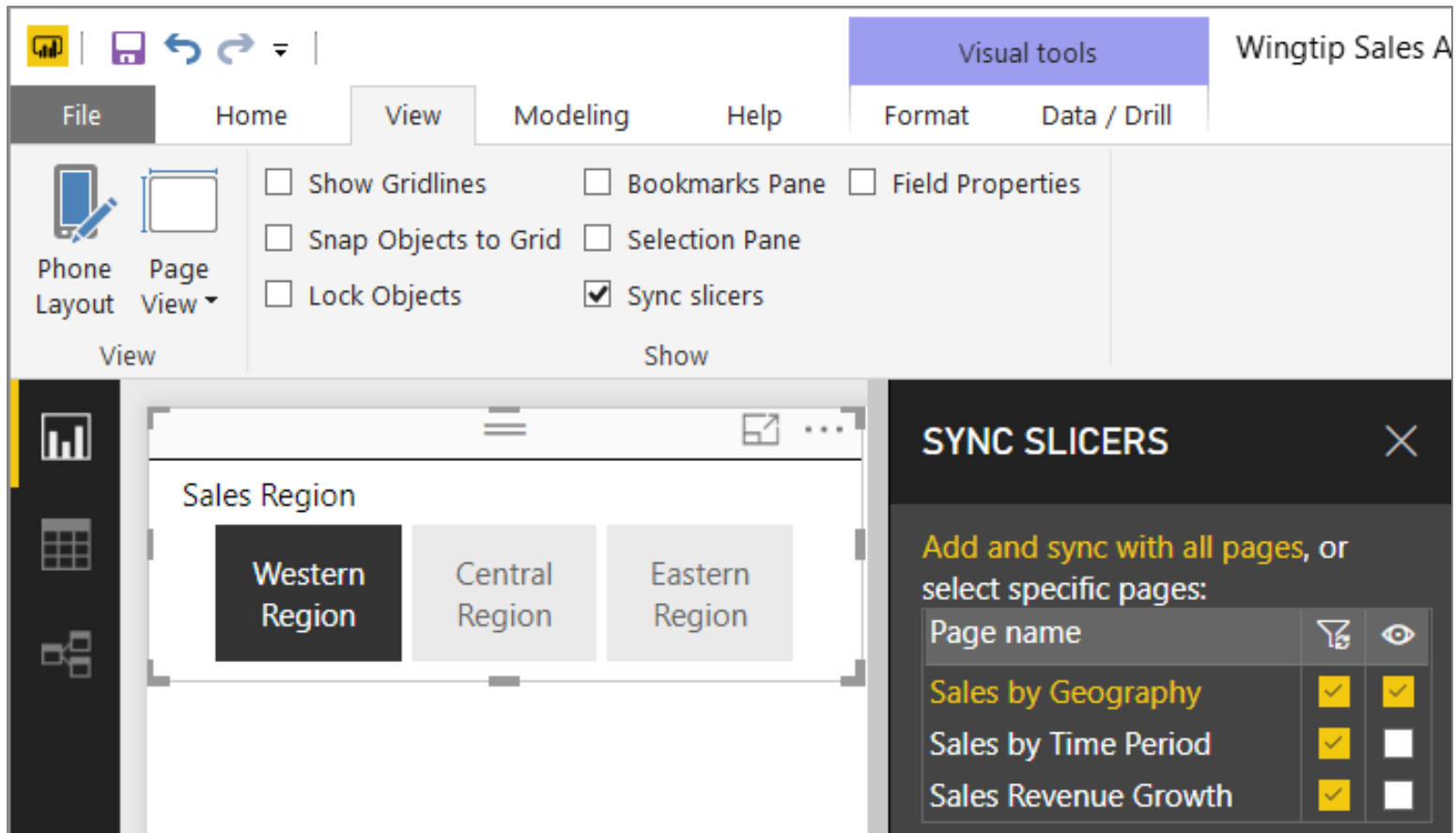
User Interaction with Slicers & Highlighting

- Provides user with interactive filtering control

Edit Highlight Interactions Across Visuals

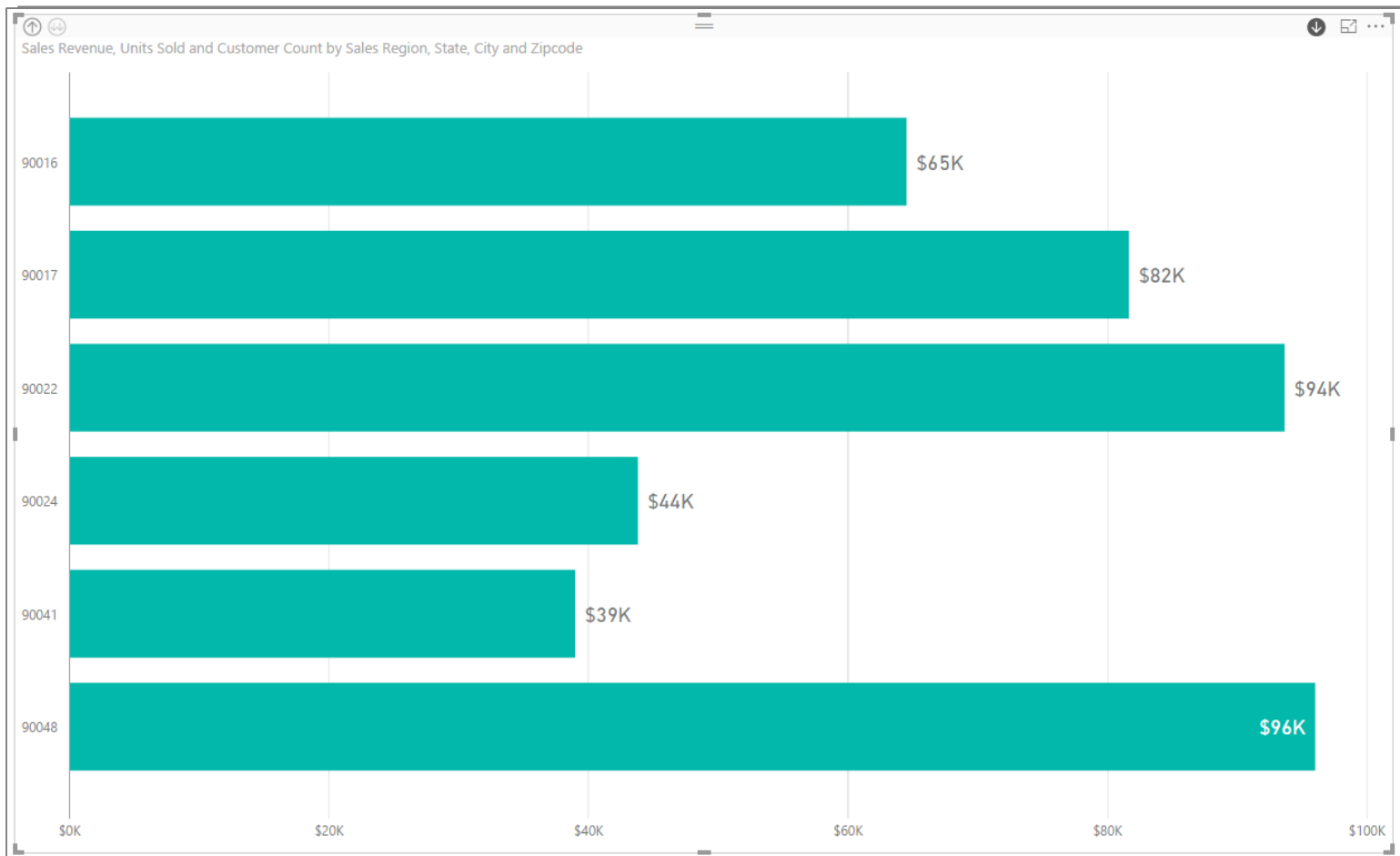- Click **Edit interactions** button on **Format** tab of ribbon
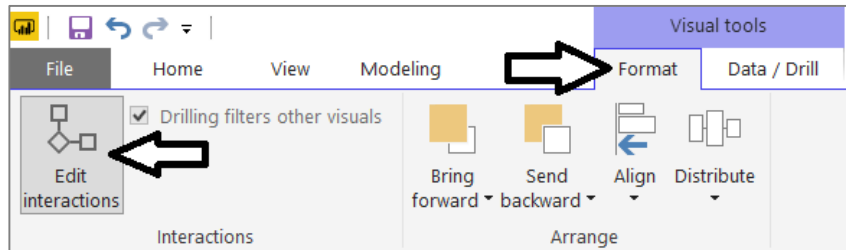
- Select a visual and then configure interactions with other visuals
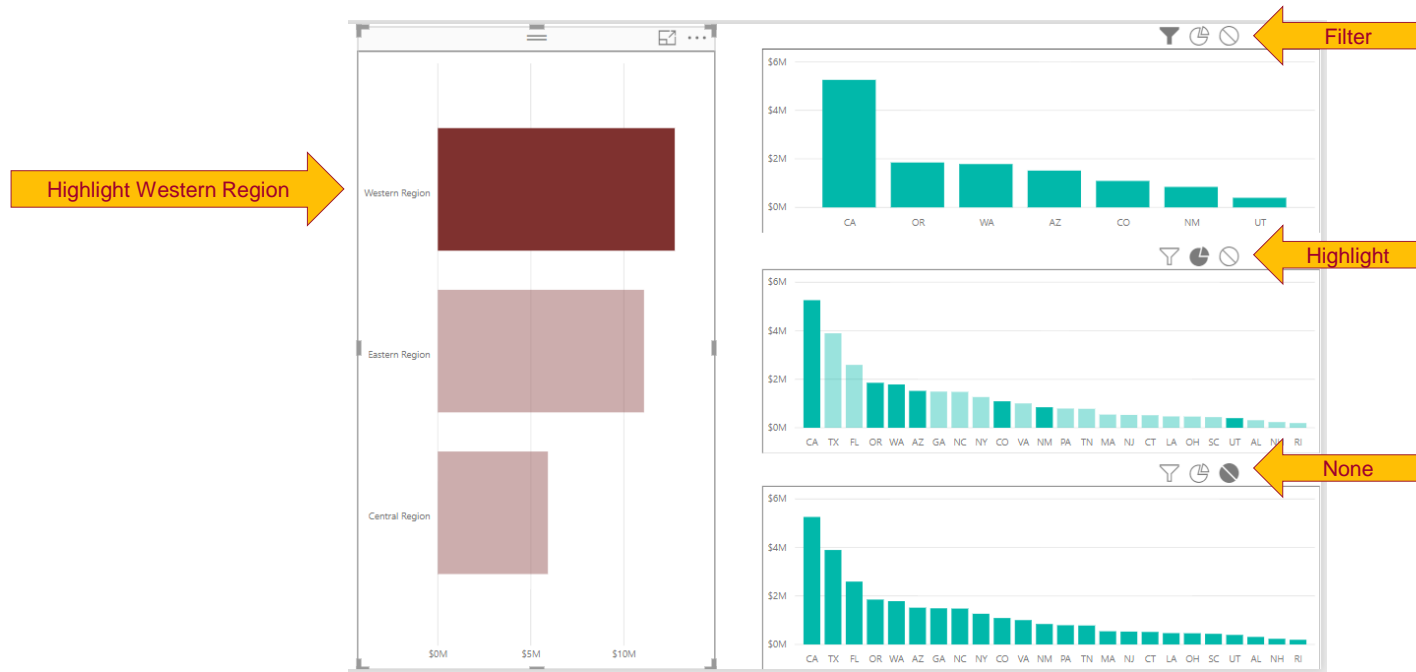
User Interaction using Drill Actions

- Drill Actions supported when using hierarchies
  - You must enabled drilldown mode in visual

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Ranking Products By Sales using RANKX

- ## DAX provides RANKX function for ranking
  - ### Can be used to track top 5 products by sales revenue

```
Product Rank =
RANKX(
    ALL(Products),
    CALCULATE( SUM(Sales[SalesAmount]) )
)
```

  - ### You can sort and filter on output of RANKX function

Product Rank ▲	Product	Sales Revenue
1	Flying Squirrel	$3,828,783
2	Twitter Follower Action Figure	$3,508,806
3	Godzilla Action Figure	$2,970,735
4	Personal Commuter Chopper	$2,613,193
5	Red Stomper Bully	$2,538,233

Product Rank ^

is less than or equal t... ⬧

Show items when the value:

is less than or equal to ▼

5

⦿ And   ◯ Or

▼
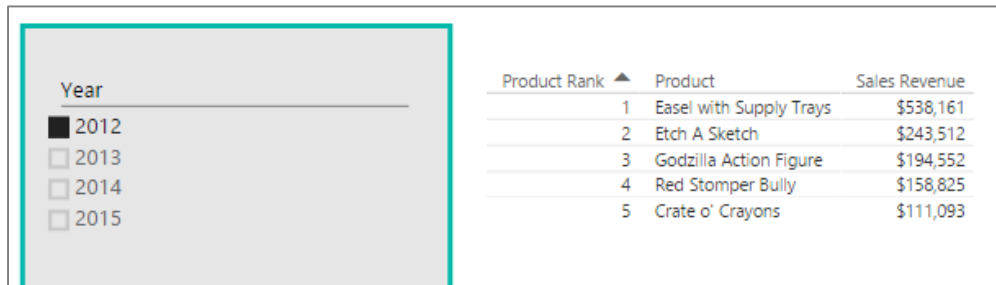
➡ Apply filter

Problems with the Filter Context

- RANKX function is affected by filter context
  - Sometimes you get the results you are expecting

Product Rank ▲	Product	Sales Revenue
1	Easel with Supply Trays	$538,161
2	Etch A Sketch	$243,512
3	Godzilla Action Figure	$194,552
4	Red Stomper Bully	$158,825
5	Crate o' Crayons	$111,093

Year
- 2012
- 2013
- 2014
- 2015

  - Sometimes you might get unexpected results

Product Rank ▲	Product	Sales Revenue
2	Twitter Follower Action Figure	$3,508,806
3	Godzilla Action Figure	$2,970,735

Year
- 2012
- 2013
- 2014
- 2015

Category
- Action Figures
- Arts and Crafts
- Remote Control Vehicles

Writing Context Aware DAX Code

- ## When using RANKX…
  - It's recommended to call **HASONEVALUE** function
  - When calling ALL function, pass one or more columns

```
Product Rank =
IF(
  HASONEVALUE(Products[Product]),
  RANKX(
    ALL( Products[Subcategory], Products[Product] ),
    CALCULATE( SUM(Sales[SalesAmount]) )
  )
)
```

  - Ranking function now evaluates product ranking for specific Category

Year		Product Rank ▲	Product	Sales Revenue
☐ 2012		1	Twitter Follower Action Figure	$3,508,806
☐ 2013		2	Godzilla Action Figure	$2,970,735
☐ 2014		3	Captain America Action Figure	$855,607
☐ 2015		4	Spiderman Action Figure	$698,614
		5	Perry the Platypus Action Figure	$654,110

Category
■ Action Figures
☐ Arts and Crafts
☐ Remote Control Vehicles

- Adding new column to table creates new problem
  - Ranking run separately for each separate Product Image
  - Every product has unique Product Image and is given rank of 1

- ## Call to RANKX must be modified again
  - ### You must specify which columns to factor into ranking

```
Product Rank =
IF(
  HASONEVALUE(Products[Product]),
  RANKX(
    ALL( Products[Subcategory], Products[Product], Products[Product Image] ),
    CALCULATE( SUM(Sales[SalesAmount]) )
  )
)
```

  - ### Context-aware DAX code corrects problems with visual

Product Rank ▲	Product	Product Image	Sales Revenue
1	Flying Squirrel		$3,828,783
2	Twitter Follower Action Figure		$3,508,806
3	Godzilla Action Figure		$2,970,735
4	Personal Commuter Chopper		$2,613,193
5	Red Stomper Bully		$2,538,233

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What are Bookmarks

- Snapshot of recorded settings which can include…
  - Current page
  - Filters
  - Slicers
  - Visual sort order
  - Drill location
  - Visibility
  - Spotlighting

- Bookmarks provide the foundation for story telling
  - Bookmarks are supported in reports only
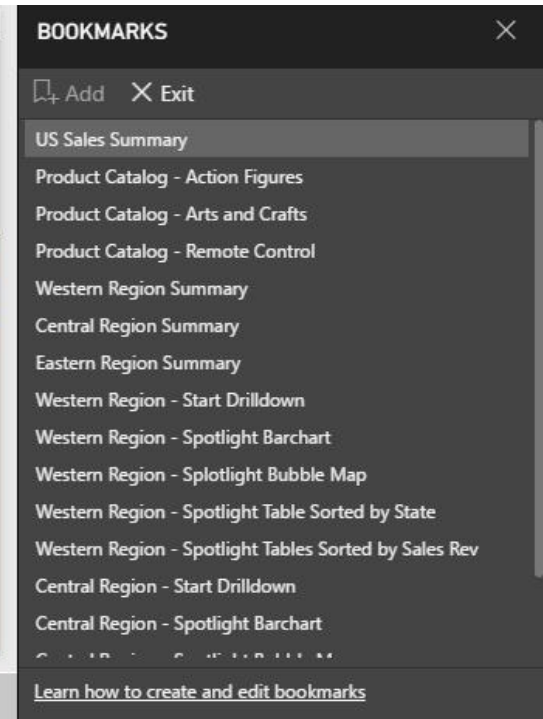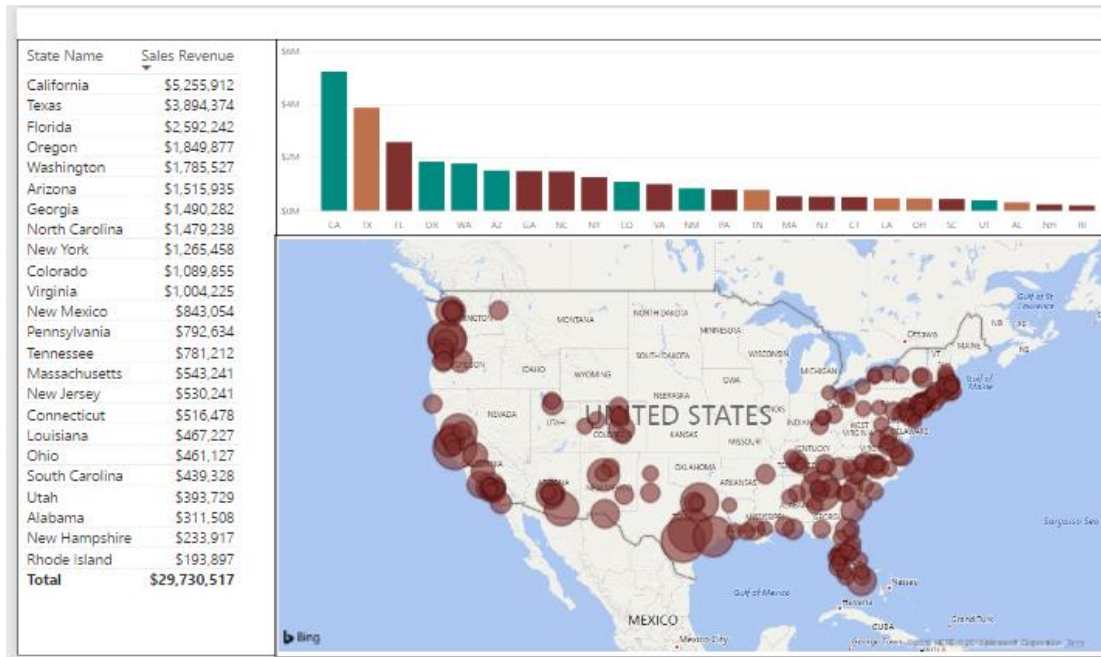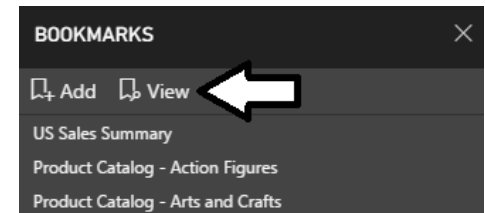 - Bookmarks are **NOT** supported in dashboards

Bookmarks Pane

- Provide ability to create and manage bookmarks
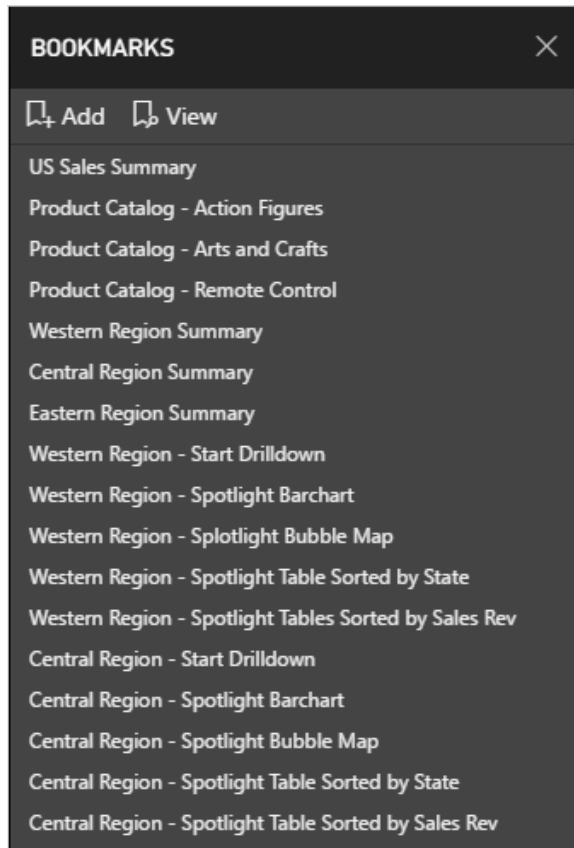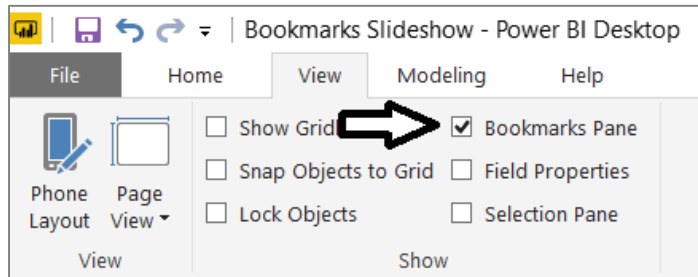
Bookmarks as a Slide Show

- Bookmarks can be viewed as slide show
  - Start slide show by clicking View button
  - Consumer can step through one bookmark at a time
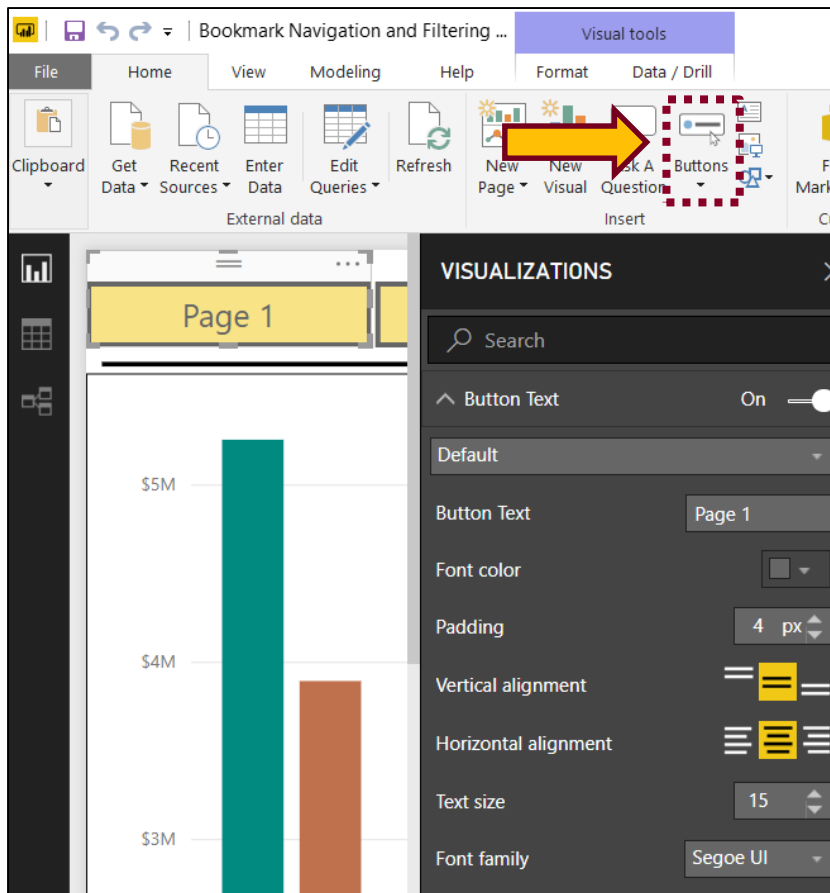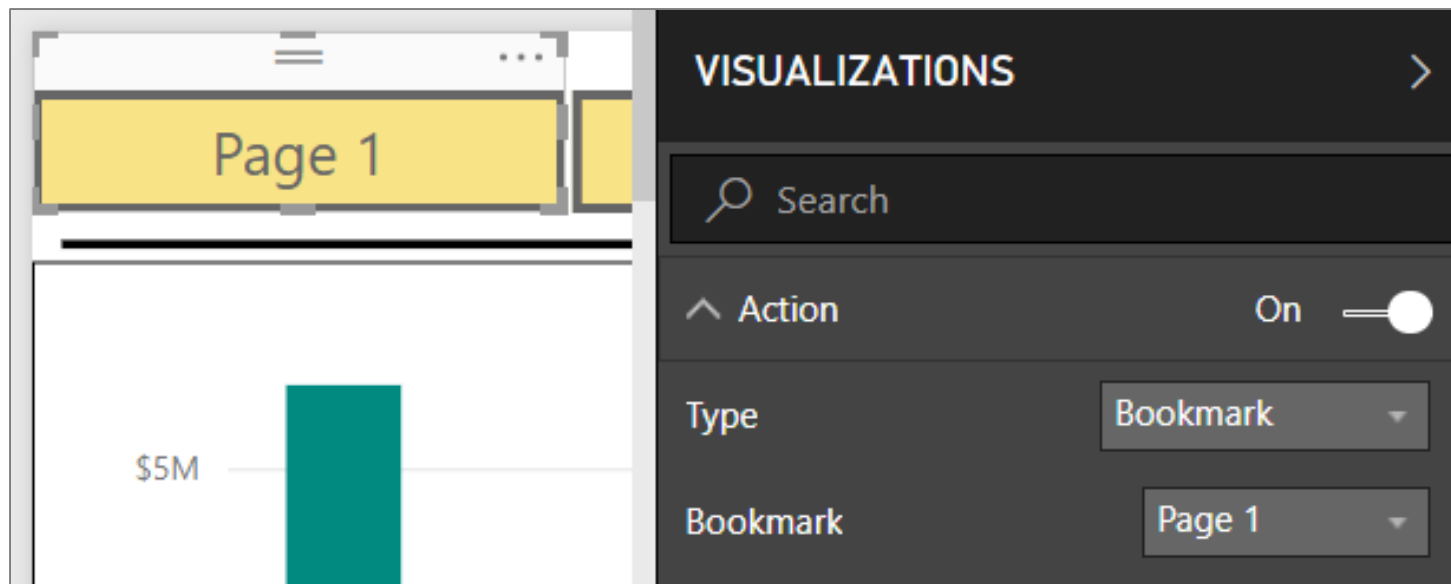
Creating a Button

- Buttons can be added to report pages to apply a bookmark
 - Button can be create with icon and/or text

Button Action Used to Apply Bookmark

- Button action can apply a bookmark
  - Button responds to standard click in Power BI Service
  - Button requires CONTROL + click in Power BI Desktop

Bookmarks Types

- Bookmarks can capture or ignore certain types of data
  - Data (filtering and slicers)
  - Display (visible or hidden)
  - Current Page (page navigation)
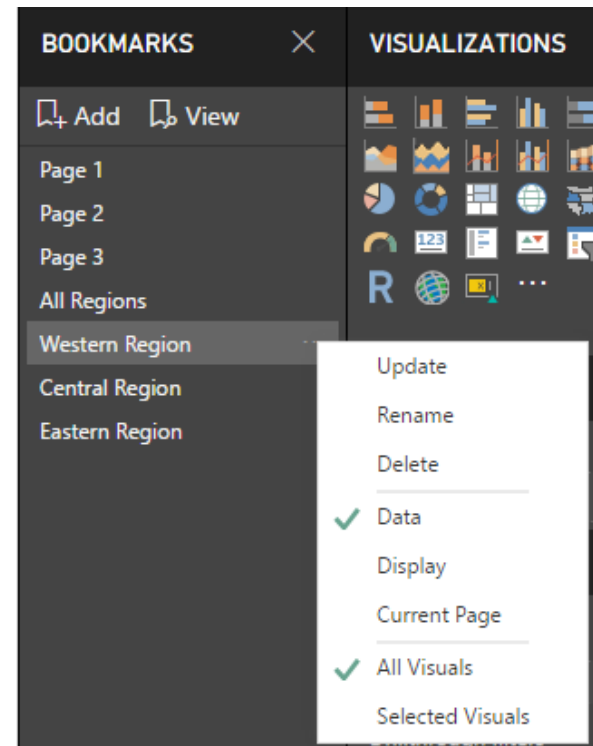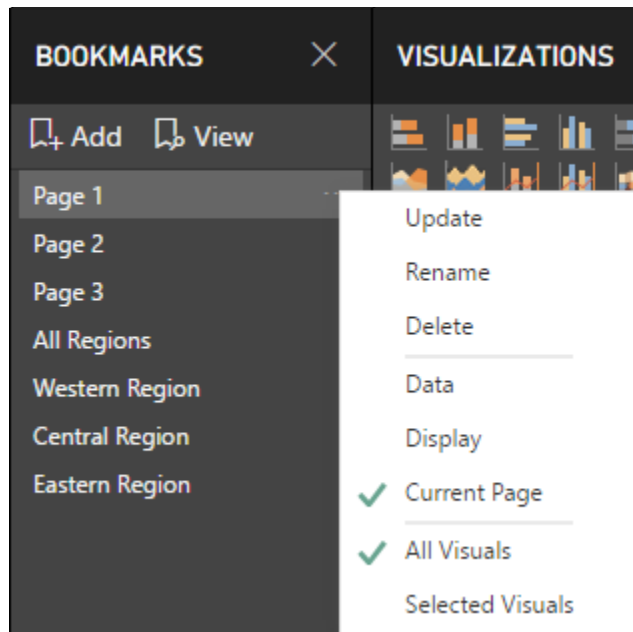
DEMO

Working with Bookmarks and Drillthrough

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Report Themes

- Report can be styled using report theme
  - Provides consistency across reports for styling and branding
  - Report theme defined using JavaScript Object Notation (JSON)
  - Today report themes must be defined using JSON editor
  - Microsoft plans to release WYSIWYG theme designer later in 2018
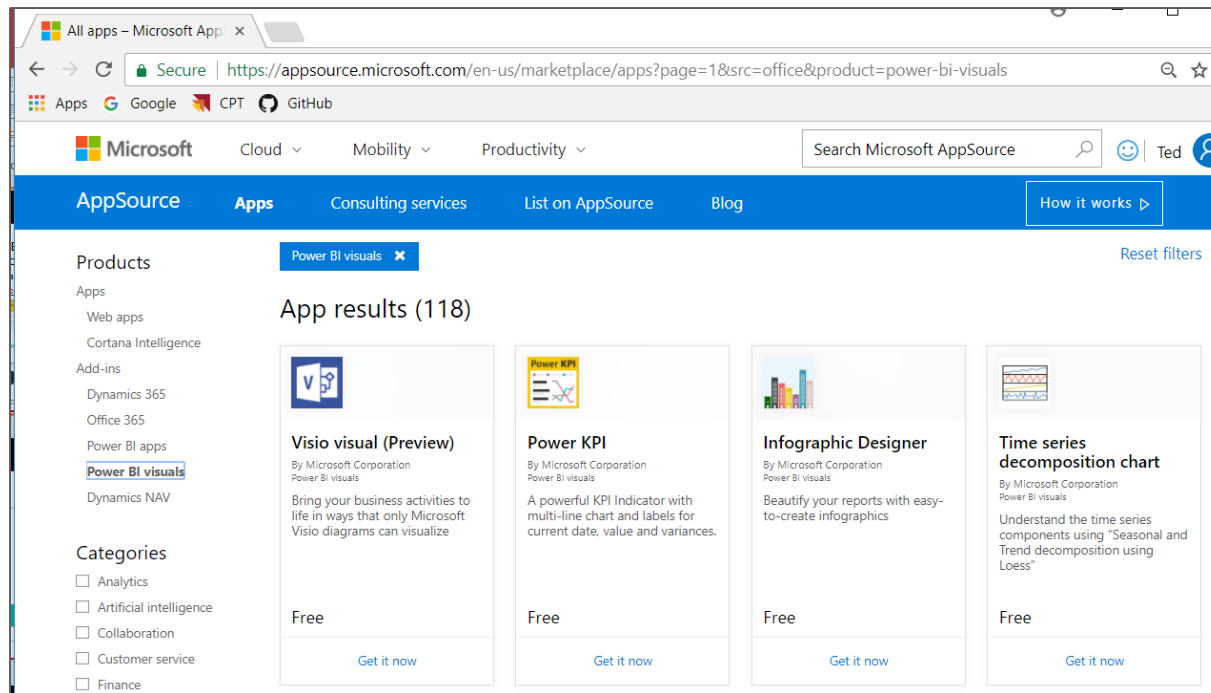
DEMO

Working with Report Themes

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Custom Visuals for Power BI

- Power BI Framework for Visuals is Extensible
  - Developers can extend Power BI with Custom Visuals
  - Microsoft Hosts gallery of custom visuals
  - Gallery located at https://appsource.microsoft.com
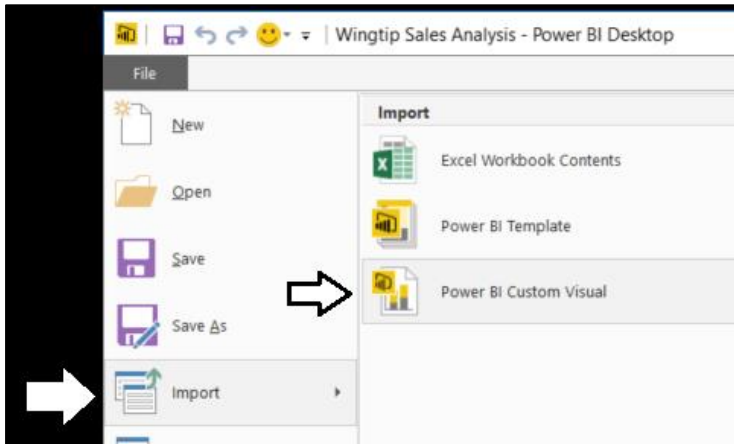
Histogram

- Custom Visual Example 1

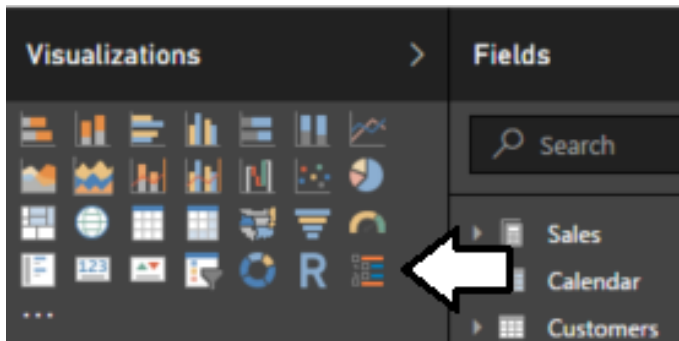# Hierarchy Slicer

- Custom Visual Example 2

Importing a Custom Visual

- Import custom visual into Power BI Desktop project
  - Execute **Import > Power BI Custom Visual** menu command

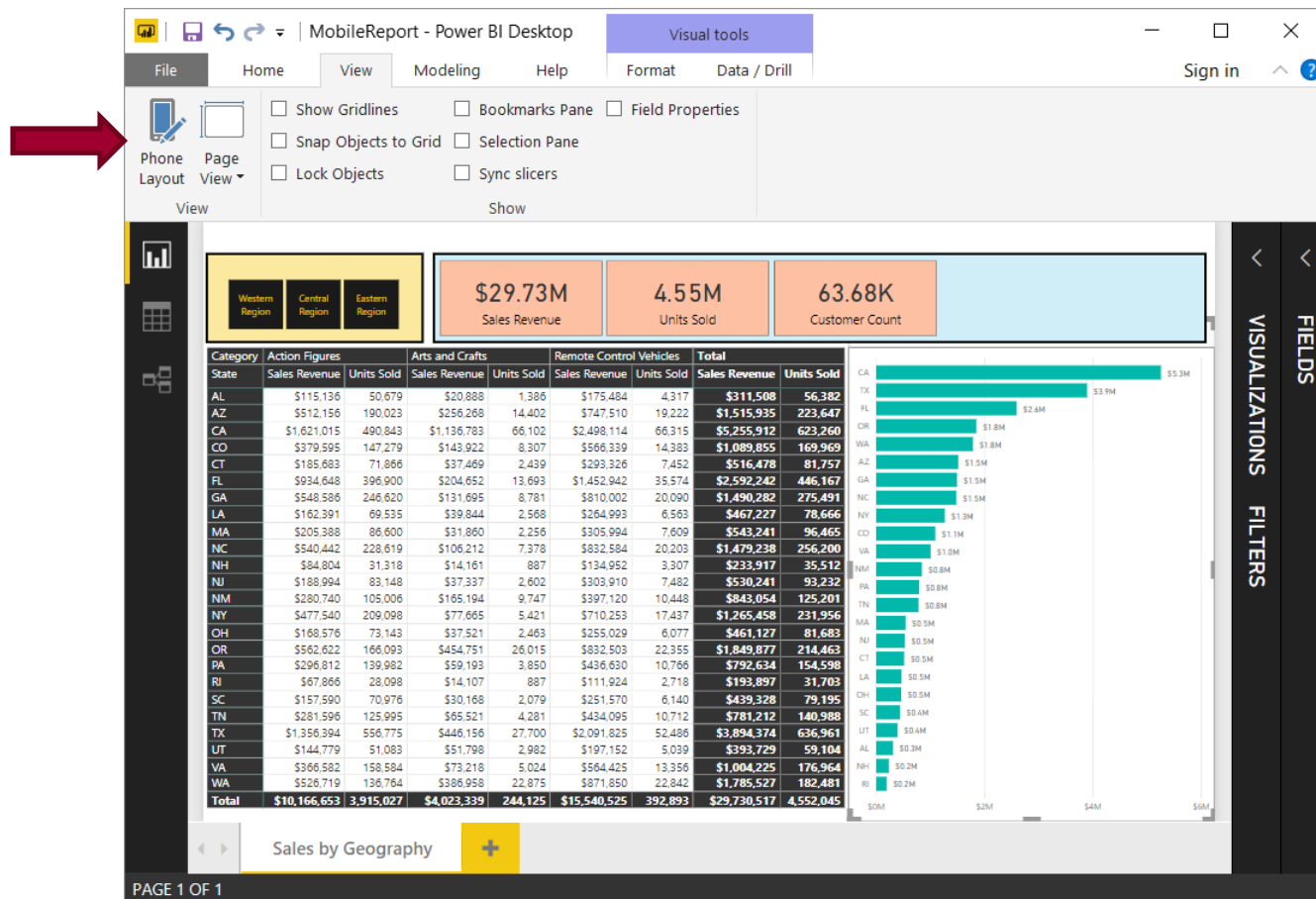 - After import, Custom Visual appears in **Visualizations** list

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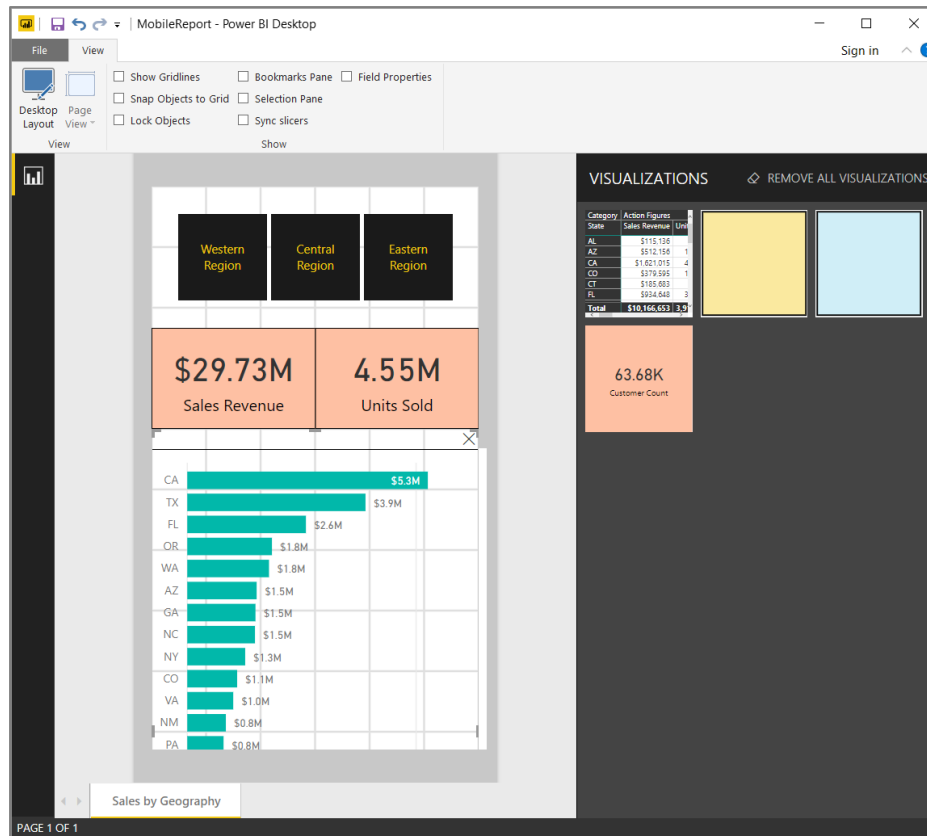- • Publishing Power BI Reports

Designing Reports for Mobile Devices

- Many reports will not render properly on mobile devices
  - Phone Layout used to create separate version for mobile devices

Designing a Phone Layout

- Phone layout view allows you to select specific visuals
  - Only include report visuals that render correctly on mobile devices
 - You position visuals according to form factor of mobile device

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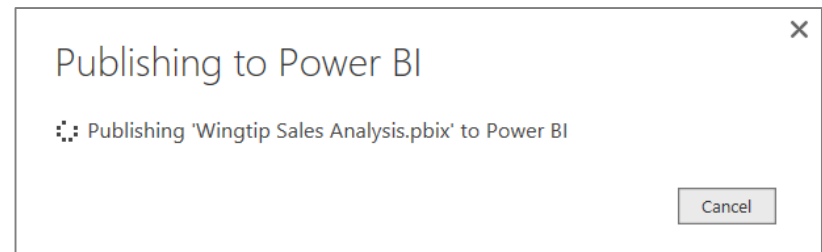- ➤ Publishing Power BI Reports

Publishing a Power BI Desktop Project

- Power BI Desktop provides **Publish** command
  - Used to publish project to Power BI service
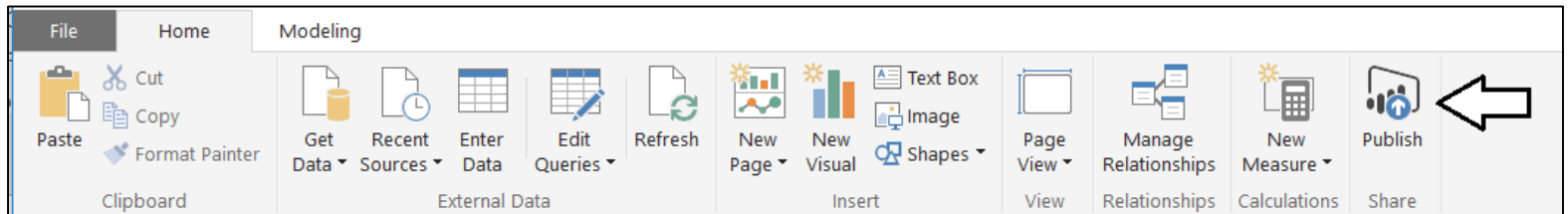
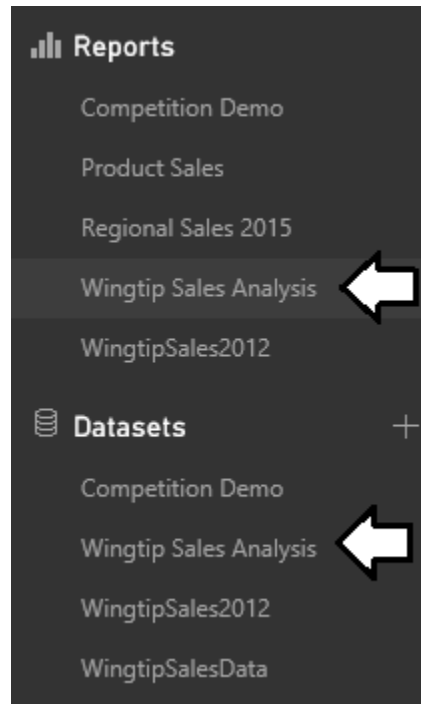 - Requires logging into your Office 365 account

  - Published articles added to a specific workspace

Examining What's Been Published

- What does project publishing add to workspace?
  - One dataset with same name as project
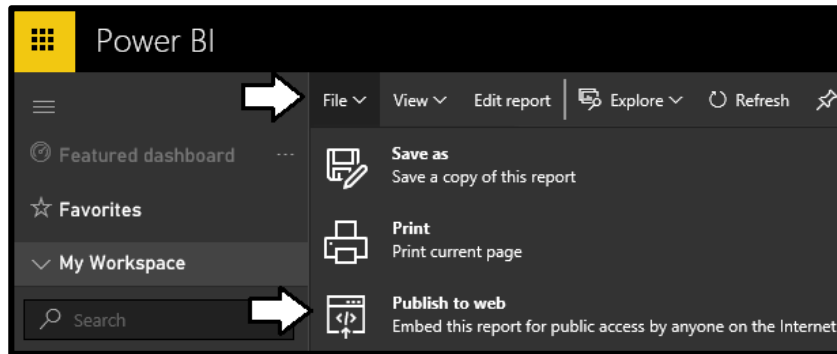 - One report with same name as project

Dataset Configuration

- You can configure Dataset after its been published
    - Configure data source credentials
    - Configure refresh schedule
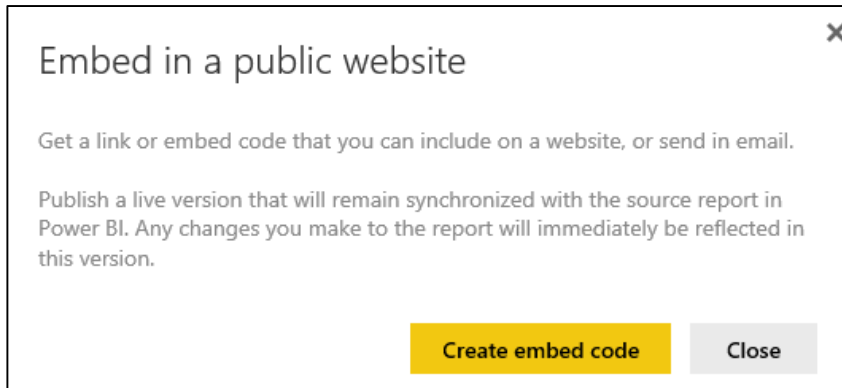   - Configure Row-level Security

Publish to Web

- **Publish to Web** command available on reports
  - Not supported for reports and datasets which implement RLS

  - **Publish to Web** command used to generate embed codes

Generating Embed Codes

- Used to provide anonymous access to report
  - Provide link which can be posted, emailed or texted
  - Provides **iFrame** HTML element for embedding in public web site

DEMO

Using the Publish to Web and Publish to SharePoint Features

Summary

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