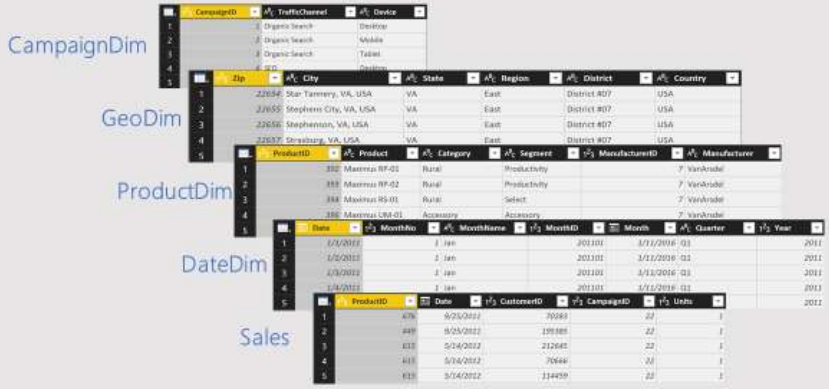

Power BI
Power BI Advanced
Shape Your Data into a Data Model with M
slalom

Module 2 Lab:
Import and basic transform

Module 2 Lab: Import Multiple Tables from a Single Source

If the Source mirrors the Table required by the Model, import multiple tables at once



Student Notes

Step by Step

VERSION CHECK!!

Objective: Import multiple worksheets from an Excel file in one step

1. **Get** Data > from Excel
   C:\Power BI_Adv_M\VansArsdel_Actuals.xlsx
2. **Select** the following Tables (All but CustomerDim):
   a) CampaignDim
   b) GeoDim
   c) ProductDim
   d) DateDim
   e) Sales
3. In GeoDim, **change** the [ZIP] Data Type to Text

Module 2 Lab: Create CatSegDim (Category Segment)

Extract unique combinations of Categories & Segments from the Product Dimension

CatSegDim is a **Degenerate Dimension**
It is extracted from the data in the fact table.

Student Notes

Step by Step

Objective: Create the Product Category Dimension by extracting Categories from the ProductDim

1. From the View ribbon **check** "Always Allow"
2. **Duplicate** the *ProductDim* query
3. **Highlight** [Category] and [Segment], and **Remove other columns**
4. **Highlight** [Category] and [Segment], and **Remove Duplicates**
5. **Add Column** > **Add Index Column** starting at 1, with column name [CatSegID]
6. **Reorder Columns:** [CatSegID], [Category], [Segment]
7. **Rename** the query "CatSegDim"

Module 2 Lab: Update Product Dim

Power BI

Apply new CatSegID field to the Product Dimension

Student Notes

Step by Step

Objective: Update the Product Category ID in the ProductDim

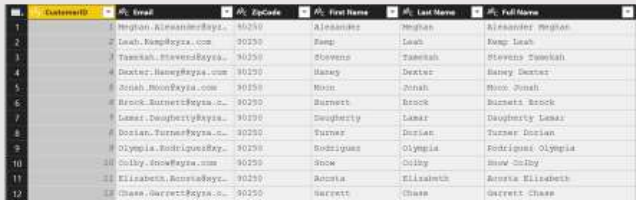
1. Select the *ProductDim* query
2. From Home Ribbon > Merge Queries > **Select** ProductDim
   a) From *ProductDim*, **highlight** [Category] and [Segment]
   b) From *CatSegDim*, **highlight** [Category] and [Segment]
   c) Note the Join Kinds available, and leave **Left Outer**
   d) **Expand** the [NewColumn] > **Select** [CatSegID] and **deselect** "Use Original column name as prefix"
3. **Remove columns:** [Category], [Segment], [Manufacturer ID],and [Manufacturer].
   a) Hint: There is only one manufacturer name and one manufacturer ID, so we don't need this information!
4. **Reorder columns**: [ProductID], [CatSegID], [Product], [Unit Price], [Unit Cost]

Module 2 Lab: Create Customer Dimension

Power BI

Using a *garbage* column to fill out CustomerDim

Key Formulas:
Text.PositionOf()
Text.Start()
Text.Range()



Student Notes

Step by Step

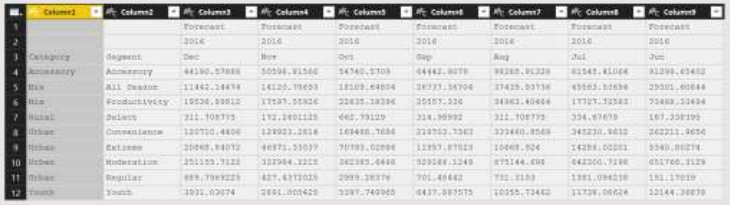
Objective: Create a First, Last, and Full Name columns based on the Email Name column.

1. Use **Recent Sources** to get *CustomerDim* from Excel
2. Change the ZipCode column data type to TEXT
3. Split by Delimiter Custom ": " colon space
4. Replace to Remove (and)
5. Add Column to find Text.PositionOf() the comma
   a) Add Column > Custom Column
   b) Name = "Separator"
   c) Formula = Text.PositionOf([Email Name.2],",")
6. Use position of comma to split Last Name and First Name
   Add Columns for First Name, Last Name and Full Name
   Last Name = Text.Start([Email Name.2],[Separator])
   First Name = Text.Range([Email Name.2],[Separator]+2)
   Full Name = [First Name] & " " & [Last Name]

Module 3 Lab: Create Budget Fact

Power BI

Import CSV, remove blank rows, and rename query to BudgetFact_Data



Student Notes

Step by Step

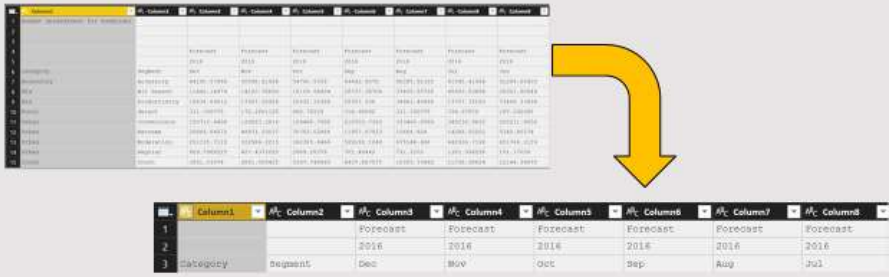
Objective: Create the Budget Fact

1. **Import** CSV document "C:\Power BI_Adv_M\VanArsdel_Budget.csv"
2. **Rename** query from ***VanArsdel_Budget*** to *BudgetFact_Data*
3. **Remove Rows > Remove Top Rows**, enter **3** (to remove the first 3 rows)

Module 3 Lab: Create Budget Fact

Power BI

Create a Duplicate, and Extract just the Header Rows into a separate query



Student Notes

Step by Step

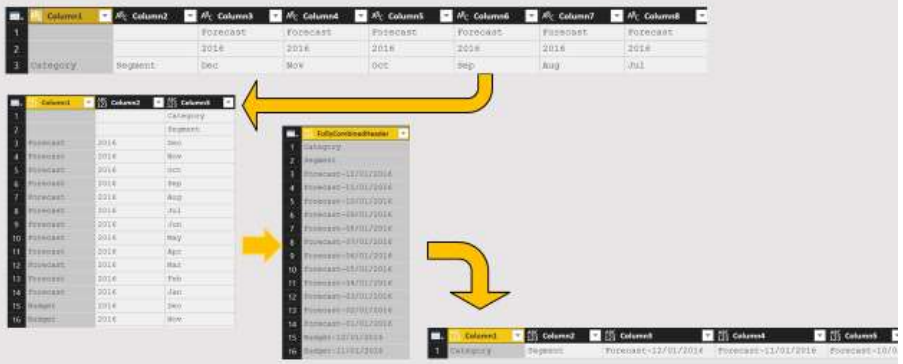
Objective: To Create a Header which combines the first three rows

1. **Duplicate** query BudgetFact_Data rename to "BudgetFact"
2. **Keep Rows > Keep Top Rows,** enter **3** (to keep the first three rows)

Module 3 Lab: Create Budget Fact

Power BI

Transpose headers, combine into a single column, and transpose back



Student Notes

Step by Step

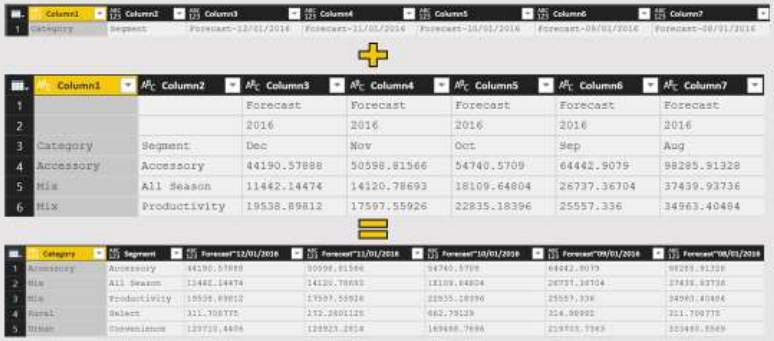
Objective: To Create a Header which combines the first three rows

1. Transform > Transpose
2. Add Column > Custom Column
3. **Add Column** to combine month and year into a date
   a) **Add Column > Custom Column**
   b) Name = "Budget Month"
   c) Formula = *try Date.From ([Column3] & [Column2]) otherwise null*
4. **Add Column** to combine Month and Scenario
   a) **Add Column > Custom Column**
   b) Name = "***FullyCombinedHeader***"
   c) Formula = *if Text.Length([Column3]) > 3 then [Column3] else [Column1] & "~" & Date.ToText([Budget Month], "M/D/YYYY")*
   d) Hint: Day did not come through correctly, as it is case sensitive. Update to "MM/dd/yy"
5. **Remove** all columns except for [FullyCombinedHeader]
6. **Transform** > **Transpose** to transpose back to wide

Module 3 Lab: Create Budget Fact

Power BI

Append BudgetFact_Data to the bottom of the headers, then remove the extraneous header rows, finally set first row as header



	Column1	Column2	Column3	Column4	Column5	Column6	Column7
1			Forecast	Forecast	Forecast	Forecast	Forecast
2			2016	2016	2016	2016	2016
3	Category	Segment	Dec	Nov	Oct	Sep	Aug
4	Accessory	Accessory	44190.57888	50598.81566	54740.5709	64442.9079	98285.91328
5	Mix	All Season	11442.14474	14120.78693	18109.64804	26737.36704	37439.93736
6	Mix	Productivity	19538.89812	17597.55926	22835.18396	25557.336	34963.40484

Student Notes

Step by Step

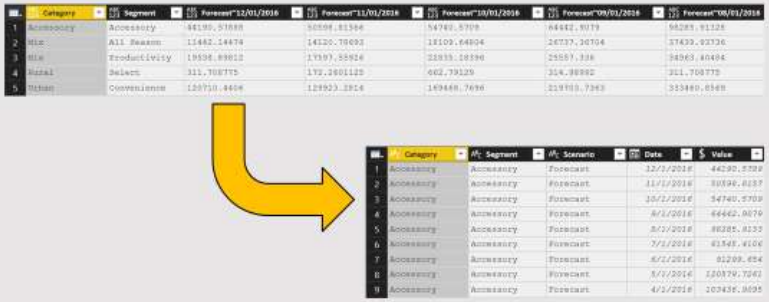
Objective: To Append the new header row to the data to create the new wide data table with a single header row

1. **Append** query *BudgetFact_Data*
2. **Use First Row as Header** to promote the newly fixed header row
3. **Remove Rows** > **Remove Top Rows**, enter **3** (to remove the first 3 rows – the old header rows)

Module 3 Lab: Create Budget Fact

Power BI

Unpivot Forecast Columns, Split and Rename them, then set data types



Student Notes

Step by Step

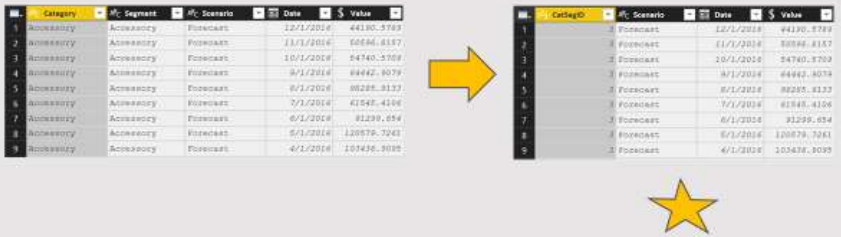
Objective: Create the Budget Fact

1. **Highlight** [Category] and [Segment] and **Transform** > **Unpivot Other Columns**
2. **Highlight** [Attribute] and navigate to Home > Split Column > By Delimiter > **"~"**
3. **Rename:** [Attribute.1] = "Scenario", [Attribute.2] = "Date", [Value] = "Budget Amount"
4. **Change** the Data Types: [Budget Amount] = Fixed Decimal, [Date] = Date

Module 3 Lab: Create Budget Fact

Power BI

Merge in CatSegID and remove extraneous columns



Student Notes

Step by Step

Objective: Merge the queries together to create the final Budget Fact table

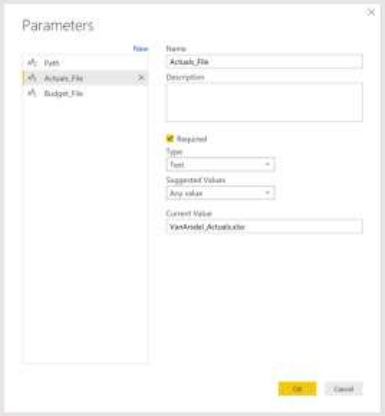
1. Home > **Merge Queries** > Select CatSegDim
   a) From the CatSegDim **highlight** both [Category] and [Segment]
   b) Go back up to BudgetFact, **highlight** both [Category] and [Segment]
   c) Show the Join Kinds available, and leave "Left Outer"
   d) **Expand** [NewColumn] > **Select** "CatSegID" and **deselect "**Use Original column name as prefix"
2. **Remove**: [Category], [Segment]
3. **Reorder:** [CatSegID]**,** [Scenario], [Date], [Budget Amount]
4. **Disable** the load of BudgetFact_Data

Module 4 Lab: Create Parameters

Power BI

Create Parameters

- Actual File
- Budget File
- Path



Student Notes

Step by Step

Objective: Update file paths to use dynamic variables

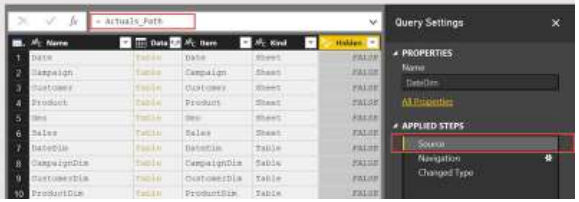
1. From the Home Ribbon > Manage Parameters
2. **Create** a new Parameter
   a) Parameter Name: Path
   b) Type: Text
   c) Current Value = C:\Power BI_Adv_M\
3. **Create** a new Parameter
   a) Parameter Name: Actuals_File
   b) Type: Text
   c) Current Value = VanArsdel_Actuals.xlsx
4. **Create** a new Parameter
   a) Parameter Name: Budget_File
   b) Type: Text
   c) Current Value = VanArsdel_Budget.csv
5. **Update** the text files to ensure the parameter names are consistent

Module 4 Lab: Dynamic Path to Excel Source File

Power BI

Use blank query to create Dynamic Path

- Uses Blank Query
- Populate Advanced Editor of query with text from file provided
- For each query which uses the Excel source, update the Source (applied step) with the new variable name ***=Actuals_Path***



Student Notes

Step by Step

Objective: Create a query to validate if source is Web or Local and resolve path

1. **Create** a new blank query
   a) Query Name: "Actuals_Path"
   b) Text as shown in slide (white box)
2. **Update** Source Applied Step to use Resolved Path = **"**Actuals_Path" to the following Queries:
   - CampaignDim
   - CustomerDim
   - ProductDim
   - CatSegDim
   - DateDim
   - GeoDim
   - SalesFact

Module 4 Lab: Dynamic Path to Excel Source File

Power BI

Use the **Actuals_Path** query as a variable in other queries

- In Advanced Editor, update the Excel source to the new Actuals_Path source.

CampaignDim — Original

```
let
    Source = Excel.Workbook(File.Contents("C:\PowerBI_200_M\PowerBI_200_M_Data.xlsx"), null, true),
    CampaignDim_Table = Source{[Item="CampaignDim",Kind="Table"]}[Data],
    #"Changed Type" = Table.TransformColumnTypes(CampaignDim_Table,{{"CampaignId", type text}, {"Traffic Chann
in
    #"Changed Type"
```

CampaignDim — Updated

```
let
    Source = Actuals_Path,
    Campaign_Sheet = Source{[Item="CampaignDim",Kind="Table"]}[Data],
    #"Changed Type" = Table.TransformColumnTypes(Campaign_Sheet,{{"CampaignID", Int64.Type}, {"Traffic
in
    #"Changed Type"
```

Student Notes

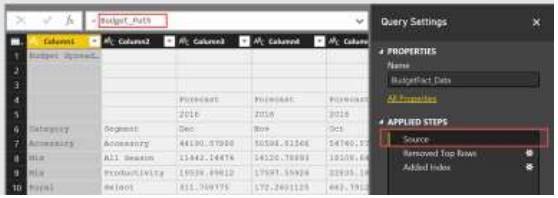
Step by Step

Module 4 Lab: Dynamic Path to CSV Source File

Power BI

Follow a similar patter to make the Budget CSV file dynamic

- Uses Blank Query
- Populate Advanced Editor of query with text from file provided
- For each query which uses the Excel source, update the Source (applied step) with the new variable name
  =Budget_Path



Student Notes

Step by Step

Objective: Update CSV file paths to use dynamic variables

1. **Create** a new blank query
   a) Query Name: "Budget_Path"
   b) Copy in text from Budget_Path.txt

2. **Update** Source Applied Step to use ResolvedBudgetPath = "Budget_Path" to the following Queries:
   - BudgetFact
   - BudgetFact_Data

Module 4 Lab: Create a Change Log

Power BI

Use Enter Data to create a Change Log

- Create a table within query to house the change log
- Name the query **Change Log**
- Update table each time a change is made to the code
- If you decide to load file to data model, then you have the ability to report on current version and last update date

Report

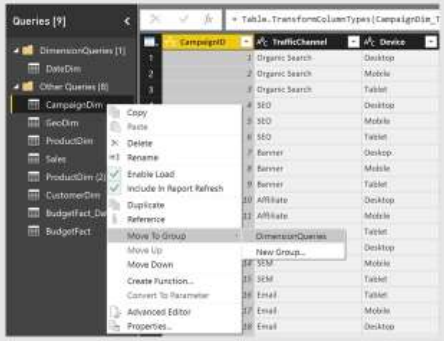
Version	Change	Date
2.00	Version 2 Updates	12/15/16
2.01	Lab Updates	1/3/17

Module 4 Lab: Organize your Queries

Power BI

Use Folders to Group Queries

- Create logical groups to Manage your queries
  - Can create sub-groups
- Use Drag and Drop to move queries to folders



Student Notes

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