Case 21-9c

Data Analytics in Excel

Toolkit Section IV – Exercise Handout

Background

You have just been assigned to the Big Box Retail Store (the "Company") audit engagement. Big Box Retail Store is a private company that owns and operates large retail stores across the United States and the territory of Puerto Rico. Jodi Smith, the engagement senior, has assigned you the task of scoping the Company's store locations to determine which locations will be selected for the annual physical inventory count observation. Performance materiality has been calculated as $15 million.

To assist you, Ms. Smith has provided you a Microsoft Excel file that contains (1) the ***inventory detail*** that shows the ***inventory balances*** by retail location and brand and (2) visualizations that Ms. Smith created to analyze the population.

If you need help, ask your professor for additional assistance.

Technical Exercise

Refer to **Toolkit Section IV – Exercise Inventory Detail.xlsx** to determine which locations you think should be subjected to a physical inventory count observation.

Part 1 (20 minutes)**: Review and Interpret Inventory Visualizations**

Ms. Smith has already created the below visualizations to analyze the population, using **Toolkit Section IV – Exercise Inventory Detail.xlsx**. Ms. Smith has asked that you review and analyze the visualizations and has given you questions to help guide you.

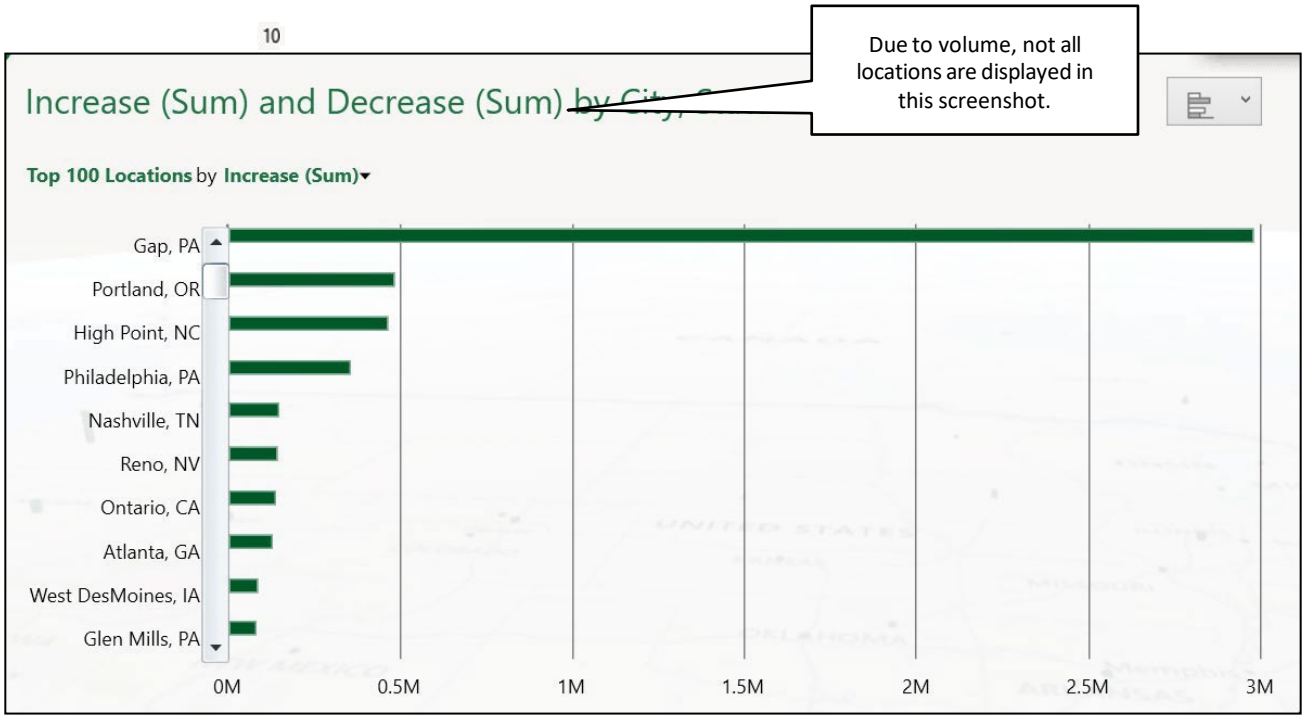
Write your responses below and be prepared to discuss your answers with the class.

The above visualization (shown in Microsoft 3D Maps) provides a map of the geographic distribution of inventory as well as the value of inventory. **NOTE:** You can refer to the map in **Toolkit Section IV Exercise Inventory Detail.xlsx**, since the picture here is not interactive.

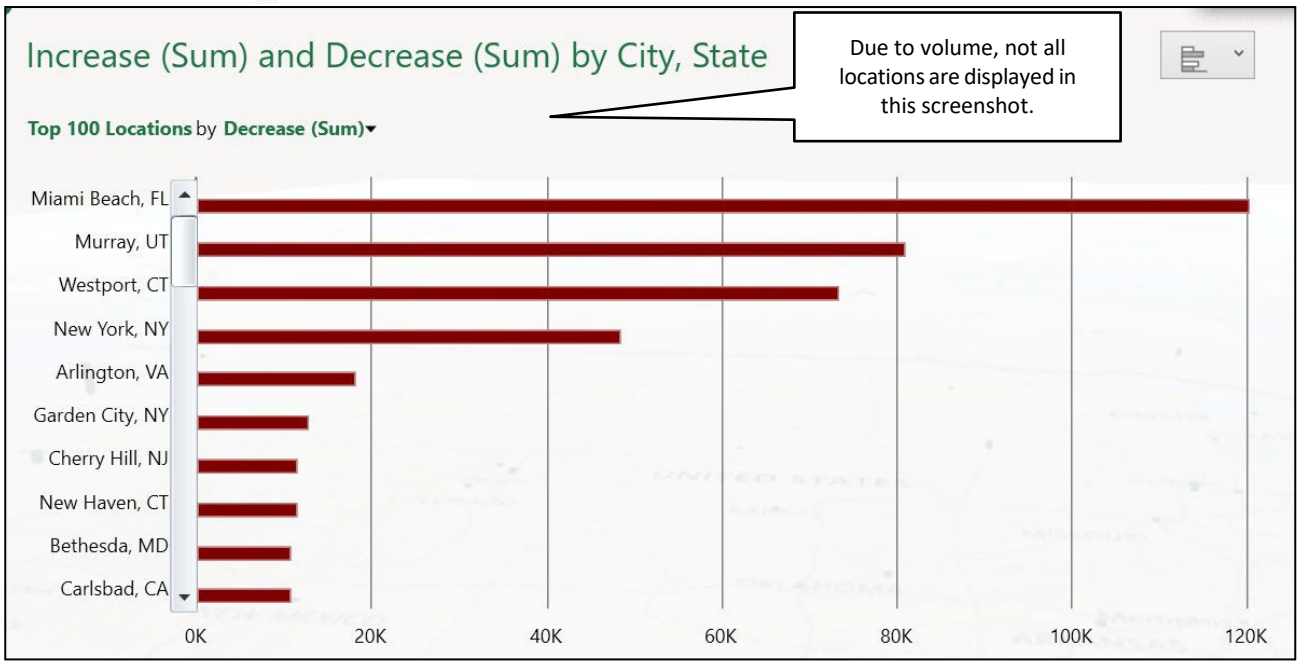
HINT: You can access Microsoft 3D Maps in **Toolkit Section IV – Exercise Inventory Detail.xlsx** by clicking "Insert" in the ribbon at the top and selecting "3D Maps" and "Open 3D Maps". Select the "Inventory Balances" option in the "Launch 3D Maps" pop- up box. If you unable to access the maps, you can create a pivot table to show the inventory by location. If you have never created a pivot table before or need a reminder, click here for step-by-step instructions.

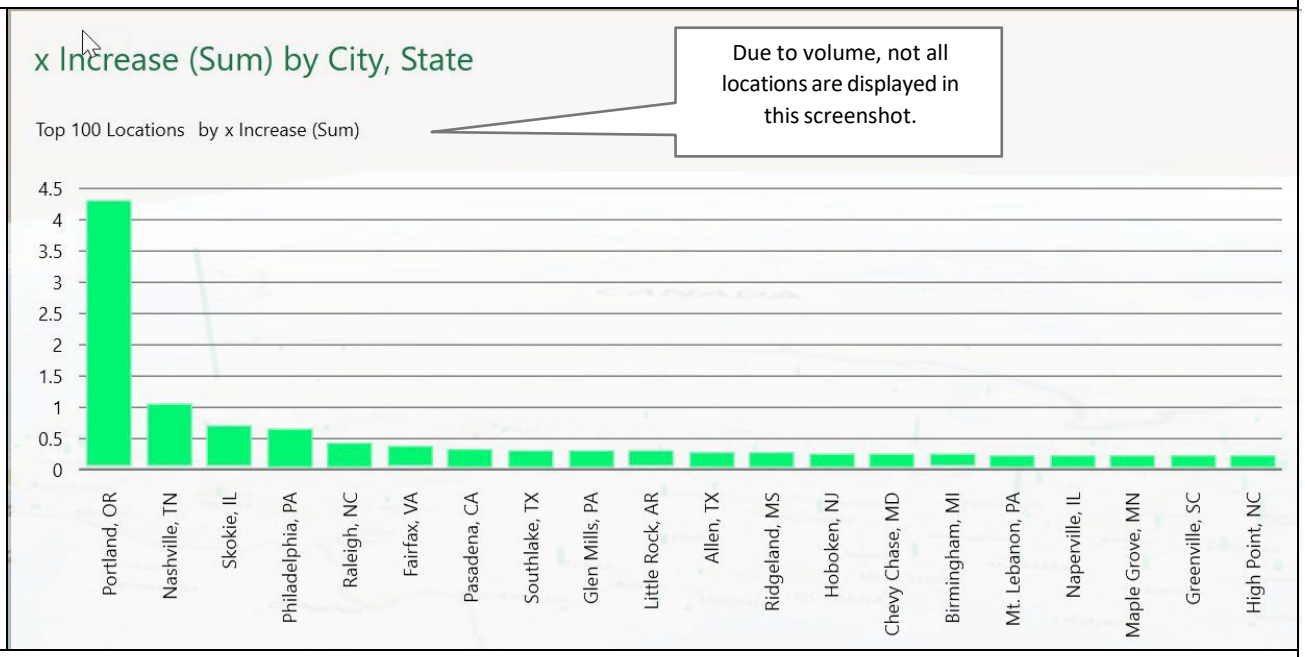
Which locations appear to have the three largest inventory balances?	
Is the inventory balance at any of these locations greater than performance materiality ($15 million)?	
Why do you think the size of the recorded balance would matter in determining which locations to select for a physical inventory count?	

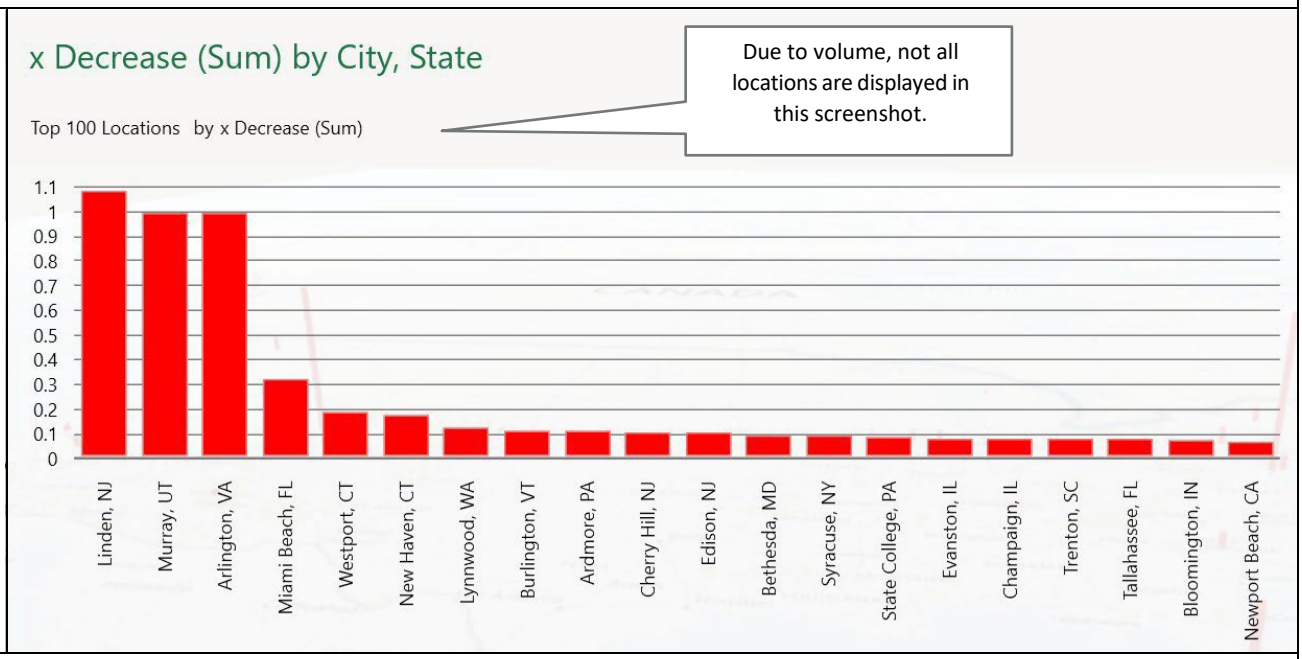
The visualization below depicts the period-over-period increase of the inventory balance by retail store location.



The visualization below depicts the period-over-period decrease of the inventory balance by retail store location.

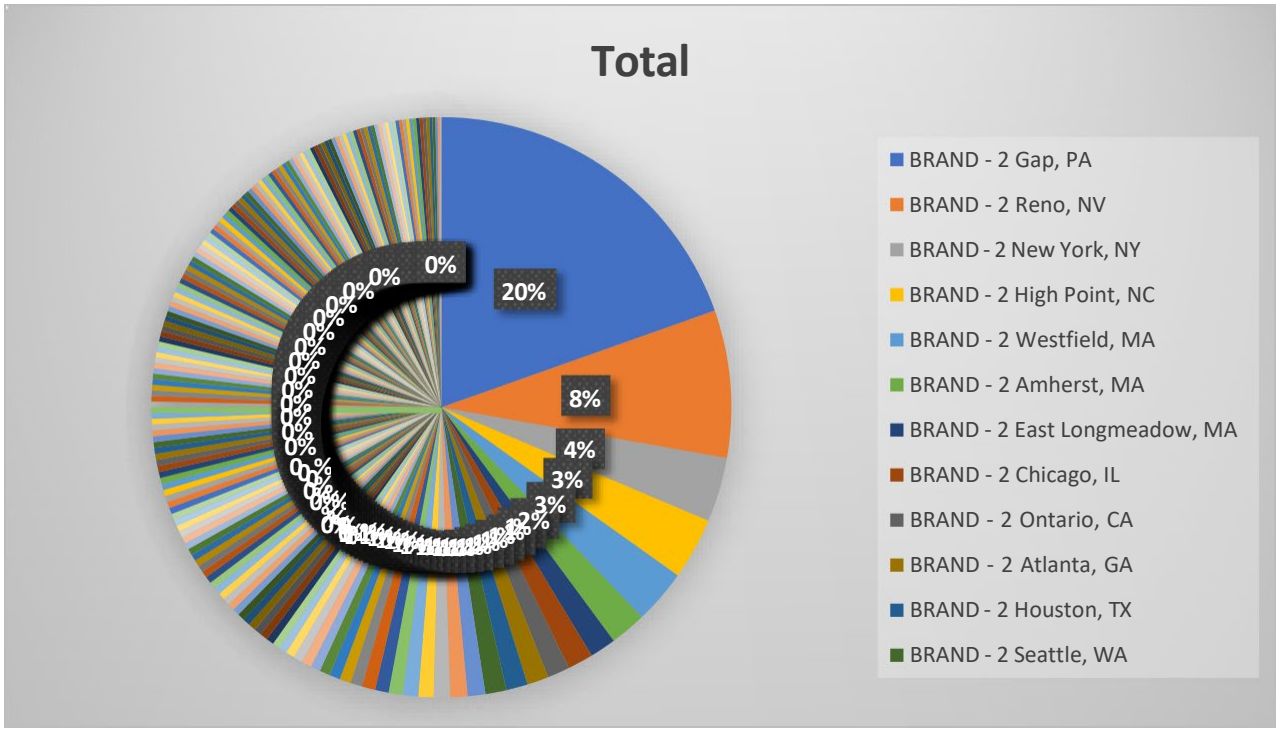






The above visualizations show the 2023 inventory balance *as multiples of* the 2022 inventory balance. The first graph depicts the top locations for which the inventory balance increased, by showing the 2023 inventory balance as a multiple of the 2022 inventory balance (e.g., the Nashville, TN 2023 inventory balance increased 100% from 2022, which shows as a multiple of 1). The second graph depicts the top locations for which the inventory balance decreased.

Which 3 locations had the biggest increases ($) in the inventory balance?	
Which 3 locations had the biggest decreases (%) in the inventory balance?	
For the location with the greatest change, what was the dollar value of the change?	
Why do you think the trends of inventory balances over time at that location would matter in determining which locations to select for a physical inventory count?	

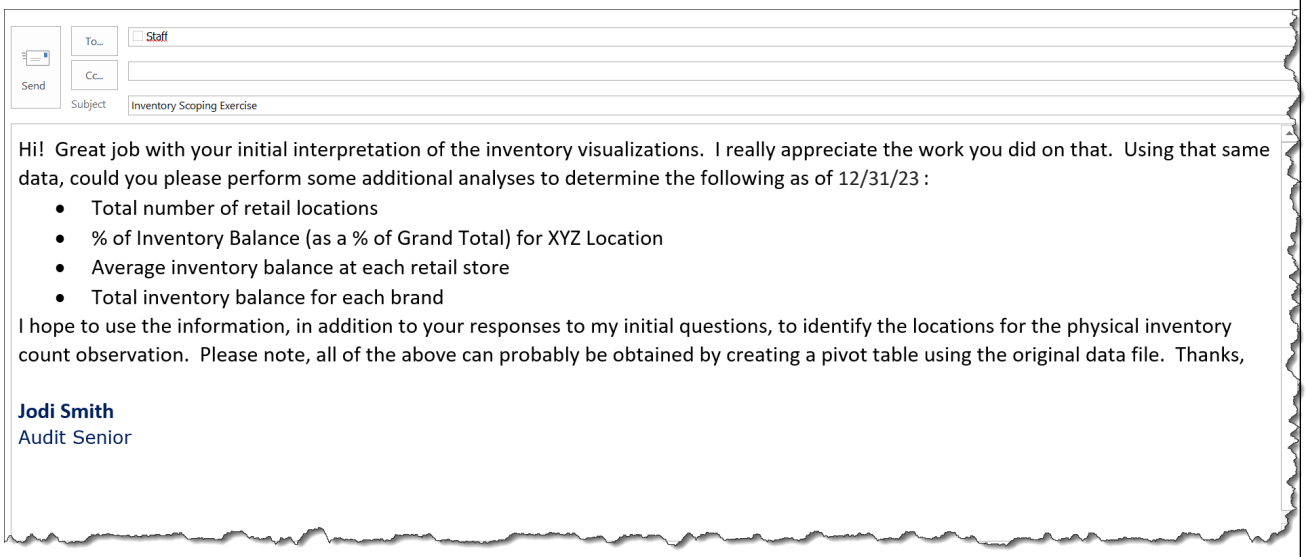


The above visualization provides an overview of the distribution of Brand 2 among all retail locations. Note that in performing risk assessment procedures, the audit team determined that there was a higher risk of material misstatement related to the existence assertion for Brand 2. As a result, Ms. Smith has asked that we include this in our consideration when selecting the locations.

Which location has the largest inventory balance for Brand 2?	
What other brands does the location identified above sell? **HINT:** Using the visualization in **Toolkit Section IV – Exercise Inventory Detail.xlsx**, you can update the filters in the visual on the "Brand by Location" tab of the workbook to select all *Brands* and only the one *City, State*.	
How do you think this information might be used in determining which locations to select?	

Part 2 (15 minutes)**: Perform Additional Analysis using a Pivot Table**

After sending your responses back to the audit senior, Ms. Smith sent you the following e-mail asking you to perform some additional analysis.



To... Staff

Cc...

Send

Subject Inventory Scoping Exercise

Hi! Great job with your initial interpretation of the inventory visualizations. I really appreciate the work you did on that. Using that same data, could you please perform some additional analyses to determine the following as of 12/31/23 :

- Total number of retail locations
- % of Inventory Balance (as a % of Grand Total) for XYZ Location
- Average inventory balance at each retail store
- Total inventory balance for each brand

I hope to use the information, in addition to your responses to my initial questions, to identify the locations for the physical inventory count observation. Please note, all of the above can probably be obtained by creating a pivot table using the original data file. Thanks,

Jodi Smith
Audit Senior

Use the **Toolkit Section IV – Exercise Inventory Detail.xlsx** to complete the analysis and provide the information that Ms. Smith has requested in her email in the table below. If you have never created a pivot table before or need a reminder, click here for step-by-step instructions.

Write your responses in the table below and be prepared to discuss your answer with the class.

Metric	Response
Total Number of retail locations (by city) in 2023:	
Percentage of inventory at cost price balance (as a percentage of the grand total) for the Gap, PA location in 2023:	
Average inventory balance at each retail store in 2023:	
Total inventory balance for each brand in 2023:	

Part 3 (10 minutes)**: Determine Locations Selected**

After receiving your additional analysis, Ms. Smith has asked you to identify the two locations that you think should be selected, based on the results of your analysis. Consider the results from your pivot table analysis as well as the visualizations Ms. Smith provided to you initially. Ms. Smith would like you to include a brief explanation as to why you chose the locations that you did.

Write your responses below and be prepared to discuss your answer with the class.

Site Selection 1: _____

This site was selected for the following reasons:

_____

_____

_____

_____

_____

_____

Site Selection 2: _____

This site was selected for the following reasons:

_____

_____

_____

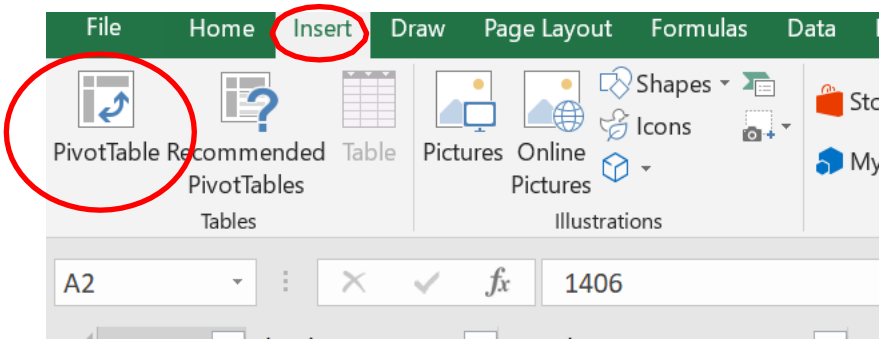
_____

_____

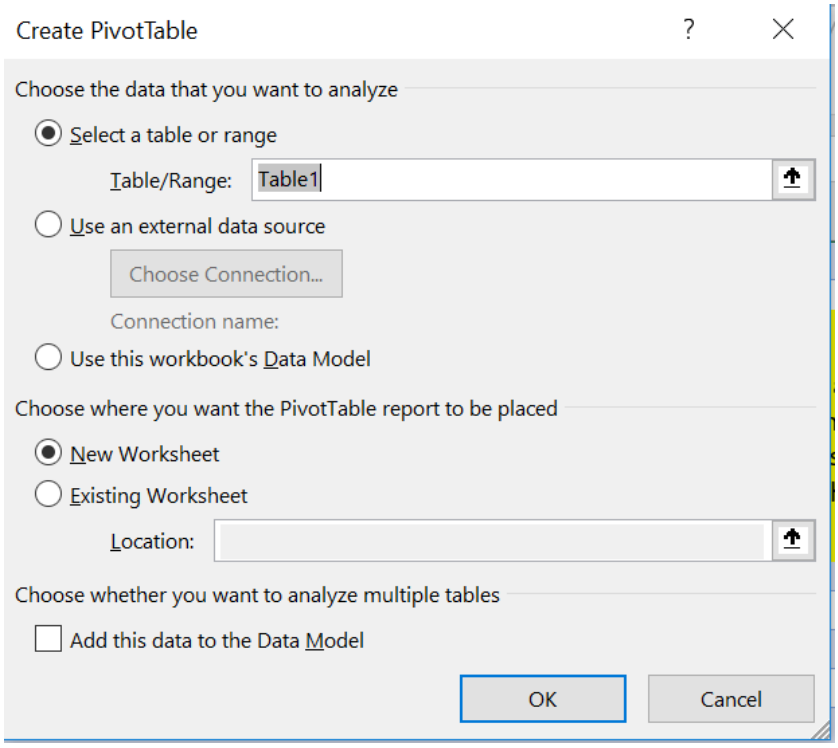
_____

Addendum: Step-By-Step Instructions: Create A Pivot Table

1. To insert a pivot table, select a cell within the table that contains the data you want to use, click "Insert" in the ribbon, then "Pivot Table".

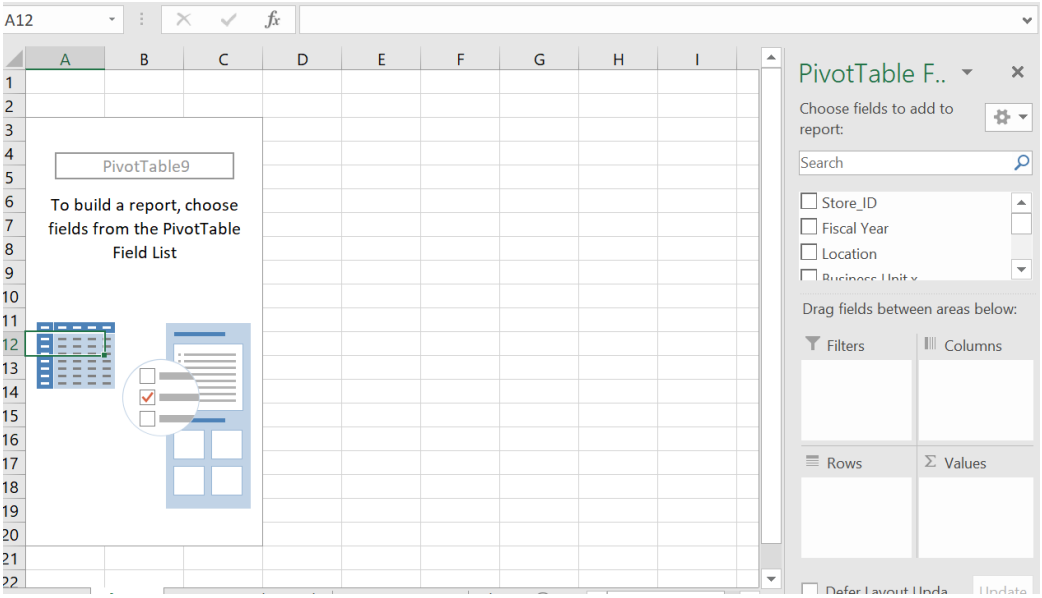


You'll see a pop-up box indicating the Range for the pivot table and the location of the pivot table:

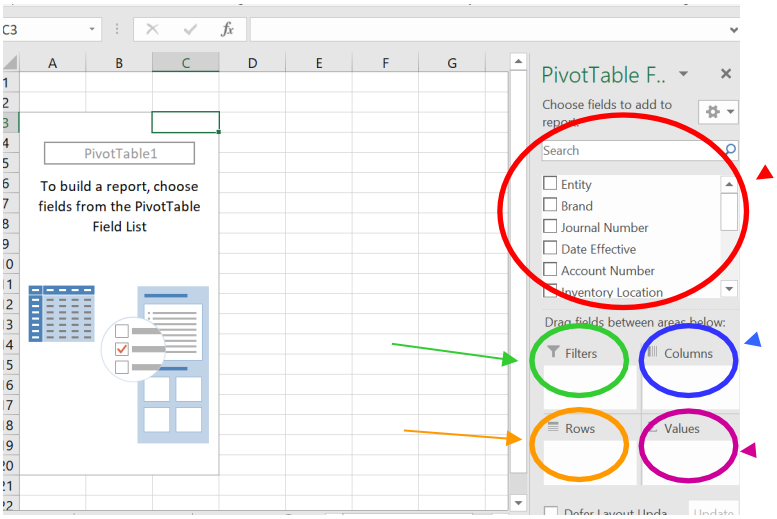


We'll use the default settings, so just click "OK".

Excel will open a new tab called “Sheet 2”. Your tab should look something like this:



PIVOT TABLE REVIEW



Data Fields

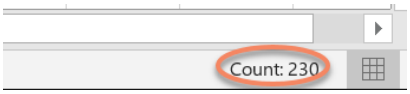
Drag data fields here to create columns

Drag data fields here to fill your matrix

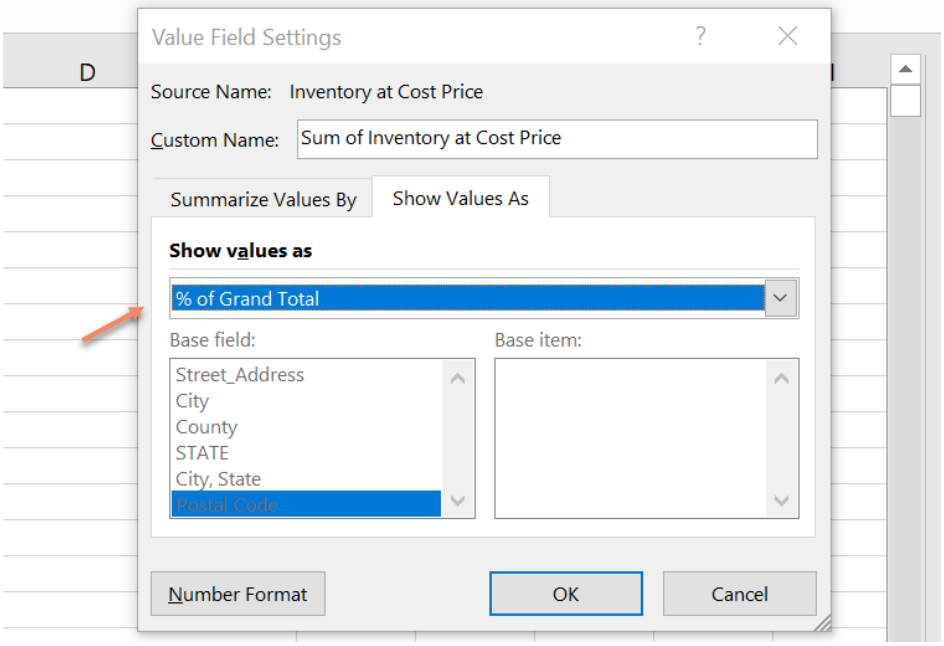
2. Now, let’s create pivot table to answer some of the audit senior’s questions about inventory balances. Let’s rename this tab “Inventory by Location Pivot

   - Drag “Fiscal Year” into the Filters area. Select 2023 from the filter. You may have to click ‘Select Multiple Values’ when filtering the value.

- Drag “Location - City” into the Rows area. The locations (by city) will populate as the rows in your matrix. **HINT:** By highlighting the list of cities in the pivot table you are able to get a count. The count will appear at the bottom right-hand corner of the Excel file.

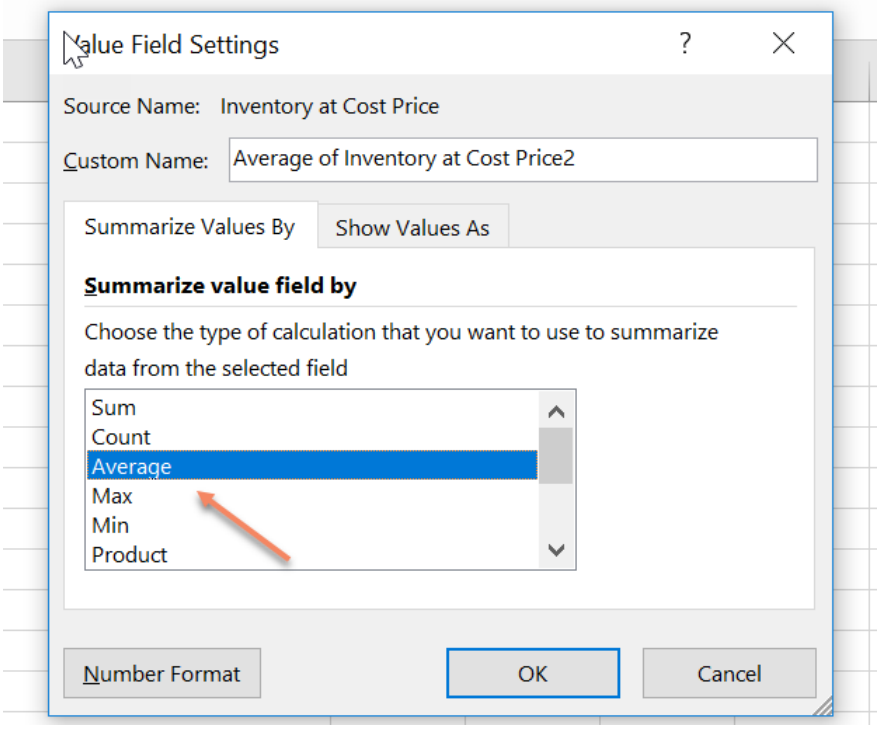


- Drag “Inventory at Cost Price” into the Values area. It will initially populate the column as the Sum. Click “Sum of Inventory Cost Price” in the Values area and select the “Value Field Settings”. In the “Value Field Settings” box click ‘Show Values As’ and select % of Grand Total (see below). Click OK.



You should now see the "Inventory at Cost Price" as a %.

- Drag "Inventory at Cost Price" into the Values area (for a second time). Once again, it will populate the column as the Sum. Click "Sum of Inventory Cost Price" in the Values area and select the "Value Field Settings". In the "Value Field Settings" box select "Average" under 'Summarize Value Field By' (see below). Click OK.



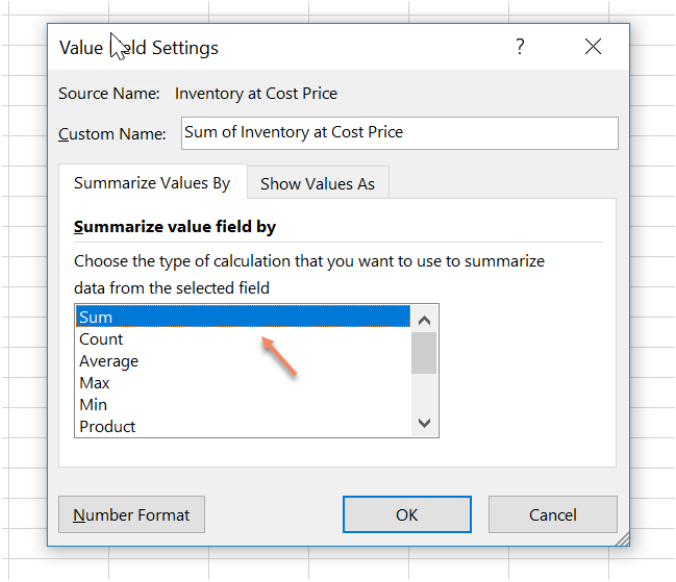
You should now see the Average "Inventory at Cost Price". **HINT:** The Grand Total average will be shown as the bottom of the pivot table.

Your pivot table will look like this:

Fiscal Year	2023	
Row Labels	**Sum of Inventory at Cost Price**	**Average of Inventory at Cost Price2**
Albuquerque	0.14%	6367
Alexandria	0.11%	9828
Allen	0.10%	8965
Allston	0.05%	4310
Alpharetta	0.19%	8662
Amsterdam	0.20%	18050
Ann Arbor	0.16%	7210
Annapolis	0.15%	70076.5
Antwerp	0.16%	1493
Arcadia	0.05%	4863
Ardmore	0.08%	38617.5
Arlington	0.00%	0
Asheville	0.15%	68470.5
Aspen	0.02%	1710

3. Let's create a second pivot table to answer the audit senior's question about Brands. Let's rename this tab "Inventory by Brand Pivot."

   - Complete Step 1 above.
     - Drag "Fiscal Year" into the Filters area. Select 2023 from the filter. You may have to click 'Select Multiple Values' when filtering the value.
     - Drag "Brand" into the Rows area.
     - Drag "Inventory at Cost Price" into the Values area. It should populate the column as the Sum. In the event that it does not, click "Sum of Inventory at Cost Price" in the Values area and select the "Value Field Settings". In the "Value Field Settings" box select "Sum" under 'Summarize Value Field By' (see below). Click OK.



You should now see the Sum of "Inventory at Cost Price". Your pivot table will look like this:

Fiscal Year	2023
Row Labels	**Sum of Inventory at Cost Price**
BRAND - 1	$35,459,926
BRAND - 2	$44,475,520
BRAND - 3	$10,074,532
BRAND - 4	$1,171,065
BRAND - 6	$0
BRAND - 7	$134,624
Grand Total	**$91,315,667.00**