

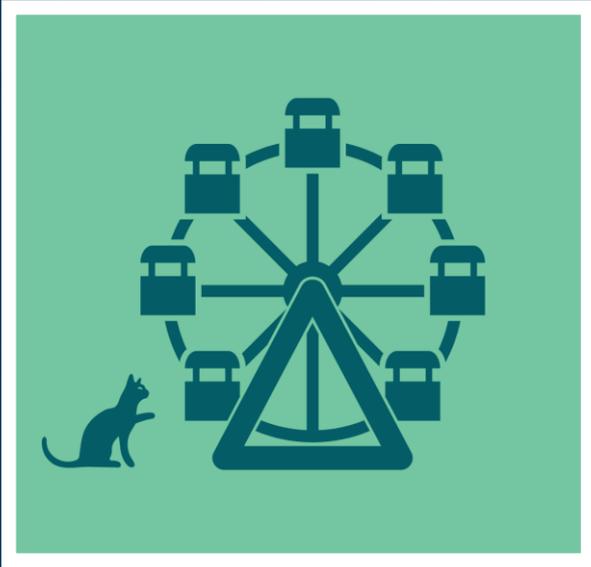
# Data Cleaning in Introductory Accounting: What, Why, and How

Jennifer Cainas, DBA, CPA

Tracie Miller, Ph.D., CPA

Wendy Tietz, Ph.D., CMA, CSCA, CPA, CGMA, MCT

September 16, 2022



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# Webinar Features and CPE Credit

Q&A

Asking Questions



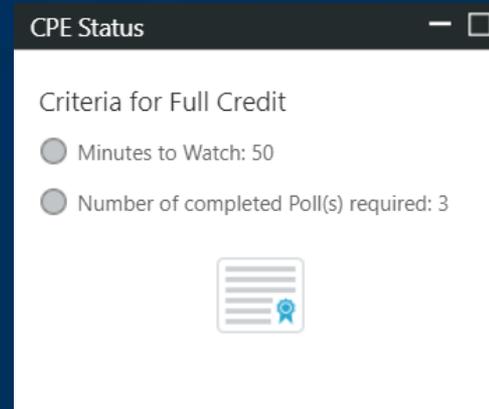
Closed Captioning



Help



CPE Credit



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# Moderator

**Jodi L. Ryan, CAE**  
Director, Member Engagement  
IMA



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# Featured Presenter

**Jennifer Cainas, DBA, CPA**  
Associate Dean and  
Professor of Instruction  
University of South Florida



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# Jennifer M. Cainas's Biography

- Jennifer M. Cainas, DBA, CPA, is a professor of instruction and associate dean and the Muma College of Business at the University of South Florida. Dr. Cainas primarily teaches introductory financial and managerial accounting, but has also taught Intermediate Financial Accounting, Cost Accounting, and Accounting Information Systems. During her teaching career, she has taught and mentored over 25,000 business students and has won numerous teaching awards at the college, university, state, and national level.
- She is a member of the American Accounting Association, the Institute of Management Accountants, and the Florida Institute of Certified Public Accountants. She has been very active within the American Accounting Association, most recently serving on the Management Accounting Section Teaching Symposium Committee (2021-2022).
- Jennifer is a co-author of a managerial accounting textbook with Pearson Education. She is passionate about student success and engagement, as well as helping other faculty members develop effective teaching methods.

# Featured Presenter

**Tracie Miller, Ph.D., CPA**  
Lead Faculty  
Franklin University



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# Tracie L. Miller's Biography

- Tracie L. Miller (Nobles), Ph.D., CPA, is the lead faculty for the B.S. Accounting program at Franklin University. She has extensive teaching experience including faculty appointments at Austin Community College, Texas State University, Aims Community College, and The University of Texas-Austin.
- She serves in numerous leadership roles for American Accounting Association, American Institute of CPAs, Teachers of Accounting at Two-Year Colleges, and Texas Society of CPAs. Dr. Miller received her doctoral degree from Texas A&M University. Her research interest includes financial literacy education, culturally responsive teaching, and online learning. She has public accounting experience with Deloitte Tax LLP.
- Dr. Miller has received several teaching and professional awards including the AAA / J. Michael and Mary Anne / Deloitte Foundation Cook Prize, TXCPA Outstanding Accounting Educator, and AICPA Bea Sanders Award. Dr. Miller is also an author of several accounting textbooks published by Pearson.

# Featured Presenter

**Wendy Tietz, Ph.D., CMA, CSCA,  
CPA, CGMA, MCT**  
Professor  
Kent State University



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# Wendy M. Tietz's Biography

- Wendy M. Tietz, PhD, CPA, CGMA, CMA, CSCA, MCT, is an accounting professor at Kent State University where she teaches introductory financial and managerial accounting in a variety of formats as well as advanced management accounting and advanced accounting analytics and technology. She has taught more than 20,000 students to date and has received several teaching awards, including the American Accounting Association Cook Deloitte Foundation Prize for undergraduate teaching, and the IMA R. Lee Brummet Exemplary Educator Award.
- Dr. Tietz is active in the Institute of Management Accounting, the American Accounting Association, and several other professional accounting organizations. She is also the co-author of two introductory accounting textbooks with Pearson Education. She is passionate about teaching accounting and using educational technology to enhance student engagement.

# Learning Objectives

1. Define data cleaning (ETL).
2. Describe why data cleaning is important in introductory accounting.
3. Apply a data cleaning project to an accounting course.

# Poll Question 1

What classes do you teach? (Please select all that apply)

- a. Financial accounting
- b. Managerial accounting
- c. Other accounting
- d. Not teaching currently



# Poll Question 1 Results: (Placeholder)

# What is ETL?

First step in data analysis involves preparing the data

- **Extract** – obtain the data
- **Transform** – clean and combine data from multiple sources
- **Load** – load data into software such as Power BI or Tableau



# Why is ETL important at intro level?



Shows that accounting is not just DRs and CRs



Builds data literacy



Understand that data is not “clean”



Provides a real-world, career-ready skill

# KAT Concession Supply

- KAT Concession Supply is a fictitious company
- >300 records in each data set
- Different data sets for Excel, Alteryx + Power BI, Tableau + Tableau Prep, and Google Sheets



# Six possible software tools



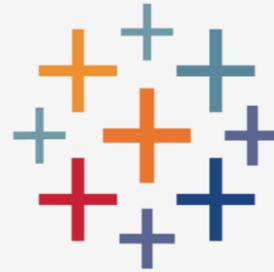
Excel



Power BI



ALTERYX



+ a b l e a u<sup>®</sup>

Tableau Prep



Google Sheets

## Poll Question 2

What software tools have you used in your classes?  
*(Choose all that apply)*

- a. Excel
- b. Tableau
- c. Power BI
- d. None/NA



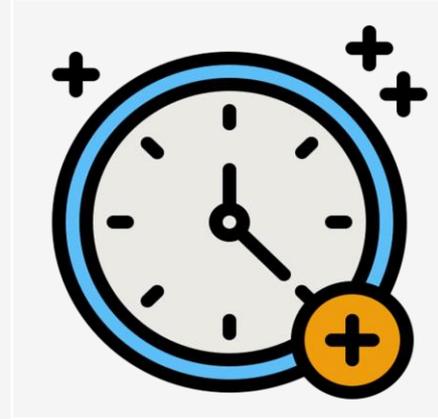
# Poll Question 2 Results: (Placeholder)

# Two difficulty levels



**Beginner**

20 – 30 minutes

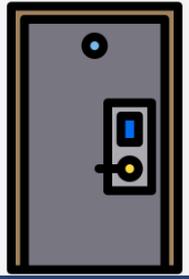
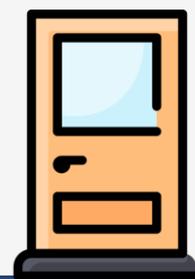
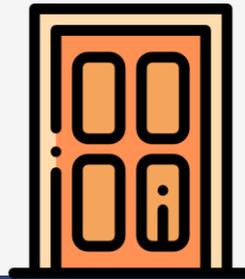
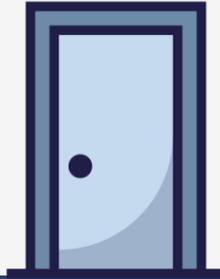
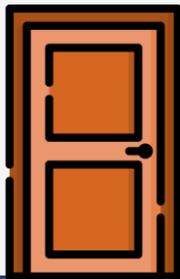
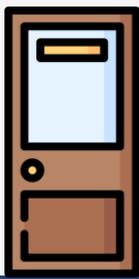
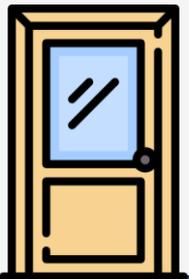


**Intermediate**

45 – 60 minutes

# Seven possible project assignments

1. Excel beginner
2. Excel intermediate
3. Alteryx + Power BI beginner
4. Alteryx + Power BI intermediate
5. Tableau + Tableau Prep beginner
6. Tableau + Tableau Prep intermediate
7. Google Sheets



# Projects

- Students download data set
- Students use real software
- Projects are preparing students for real-life with these skills of **using software** and basic skills such as **downloading** and **saving** files

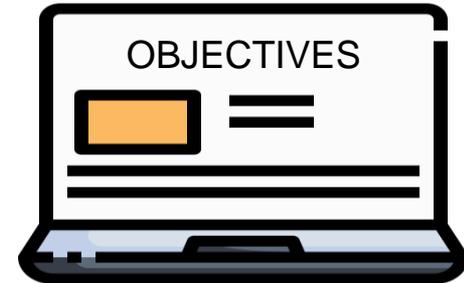
# All data cleaning projects include

- Step-by-step tutorial videos
- Student guide
- Teaching notes
- Data set (editable)
- Assumes no prior software knowledge
- Can be completed in 20 – 60 minutes

# ETL project learning objectives

After completing the project, students will be able to:

1. **Define** ETL and **describe** its importance
2. **Apply** data cleaning techniques
3. **Analyze** data



# Why the different software tools?

- **Excel** is a familiar tool for most students and is accessible by most students
- **Alteryx** and **Tableau Prep** are both leading ETL tools on the market
- **Power BI** and **Tableau** are leading visualization tools
- **Google Sheets** is available for students who only have a Chromebook

# KAT Concession Supply projects

- Start with step-by-step tutorial videos
- No prior knowledge assumed
- Each project has two parts:
  - Data cleaning
  - Dashboard creation

Next up, Part 1 from the Excel  
beginner tutorial video

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No prior software knowledge assumed

# Step 01

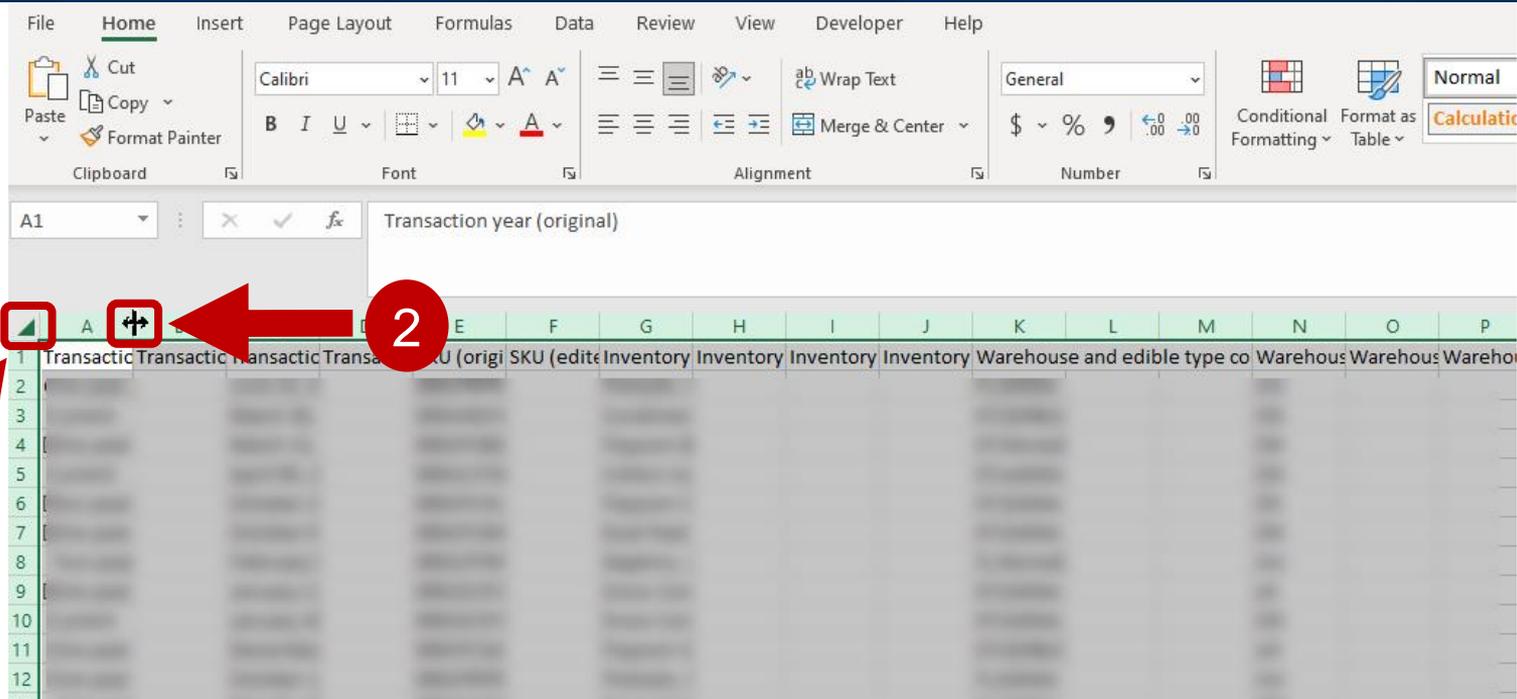
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Open Excel file and ready it for use

# Open the Excel file

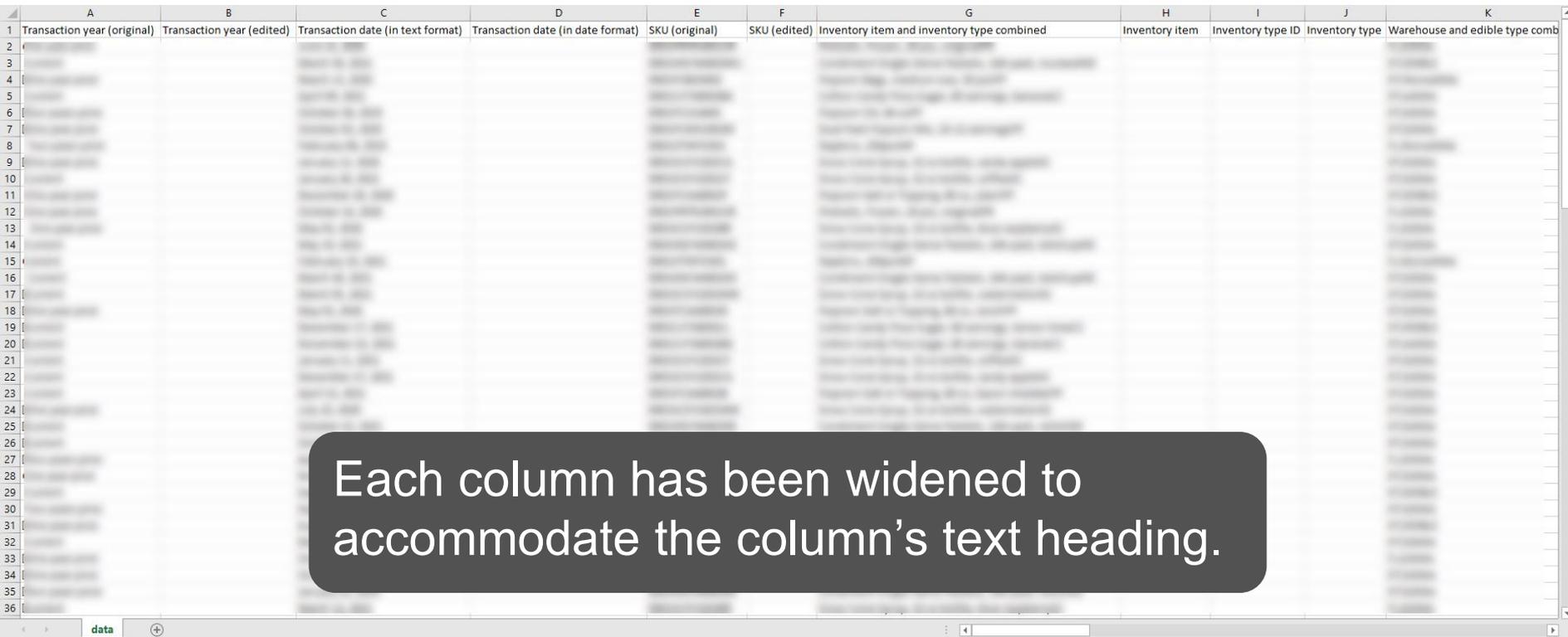
The screenshot displays the Microsoft Excel interface. The ribbon at the top includes the following tabs: File, Home, Insert, Page Layout, Formulas, Data, Review, View, Developer, and Help. The Home tab is active, showing toolbars for Clipboard, Font, Alignment, Number, Styles, Cells, Editing, and Analysis. The spreadsheet area shows a grid with columns labeled A through AC and rows numbered 1 through 36. The formula bar at the top indicates the active cell is A1, containing the text "Transaction year (original)". The spreadsheet content is mostly blurred, but the header row (row 1) is legible and contains the following text: "Transactic Transactic Transactic Transactic SKU (orig SKU (edit Inventory Inventory Inventory Inventory Warehouse and edible type co Warehouse Warehouse Warehouse Edible or Customer Customer Customer Customer Sales rep Sales rep Sales rep Sales rep Quantity Quantity Selling pri Se".

# Widen all columns to fit



Click the Select All button in the top left corner. Then double-click the boundary line between the Column A and Column B headings.

# Widen all columns to fit



The image shows a screenshot of an Excel spreadsheet with 12 columns (A through K) and 36 rows. The columns are labeled as follows:

	A	B	C	D	E	F	G	H	I	J	K
1	Transaction year (original)	Transaction year (edited)	Transaction date (in text format)	Transaction date (in date format)	SKU (original)	SKU (edited)	Inventory item and inventory type combined	Inventory item	Inventory type ID	Inventory type	Warehouse and edible type comb
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
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33											
34											
35											
36											

A dark grey callout box is overlaid on the bottom right of the spreadsheet, containing the text: "Each column has been widened to accommodate the column's text heading."

# Step 02

---

Find and remove duplicate records

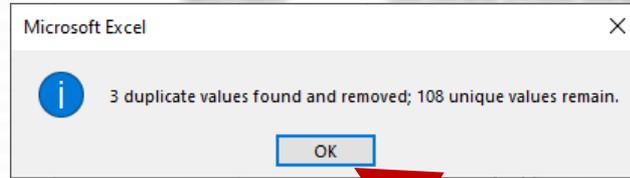
# Remove duplicate records

Mac: The dialog box looks different but functions the same.

The screenshot shows the Microsoft Excel interface with the 'Remove Duplicates' dialog box open. The dialog box has a title bar with a question mark and a close button. Below the title bar, it says 'To delete duplicate values, select one or more columns that contain duplicates.' There are two buttons: 'Select All' and 'Unselect All'. A checkbox labeled 'My data has headers' is checked. Below this is a list of columns with checkboxes: 'Transaction year (original)', 'Transaction year (edited)', 'Transaction date (in text format)', 'Transaction date (in date format)', 'SKU (original)', and 'SKU (edited)'. At the bottom right of the dialog box is an 'OK' button. Three red arrows with numbers 1, 2, and 3 point to the 'Remove Duplicates' button in the ribbon, the 'Select All' button, and the 'OK' button respectively.

On the Data tab, click Remove Duplicates. In the Remove Duplicates dialog box, click Select All. Then click OK.

# Remove duplicate records



A pop-up message will let you know how many duplicate values were found and removed. Click OK.

# Step 03

---

Remove spaces and nonprinting characters from text

# Remove spaces and nonprinting characters from text

	A
1	Transaction year (original)
2	One year prior
3	Current
4	One year prior
5	Current
6	Two years prior
7	One year prior
8	Two years prior
9	One year prior
10	Current
11	One year prior
12	One year prior

# Remove spaces and nonprinting characters from text

VLOOKUP    X    ✓    fx    =TRIM(CLEAN(A2))

	A	B	C
1	Transaction year (original)	Transaction year (edited)	Transaction date (in text format)
2	One year prior	=TRIM(CLEAN(A2))	
3	Current		
4	One year prior		
5	Current		
6	Two years prior		
7	One year prior		
8	Two years prior		
9	One year prior		
10	Current		
11	One year prior		
12	One year prior		
13	One year prior		
14	Current		
15	Current		



Click in Cell B2 and type:  
**=TRIM(CLEAN(A2))**  
Then hit Enter.

# Remove spaces and nonprinting characters from text

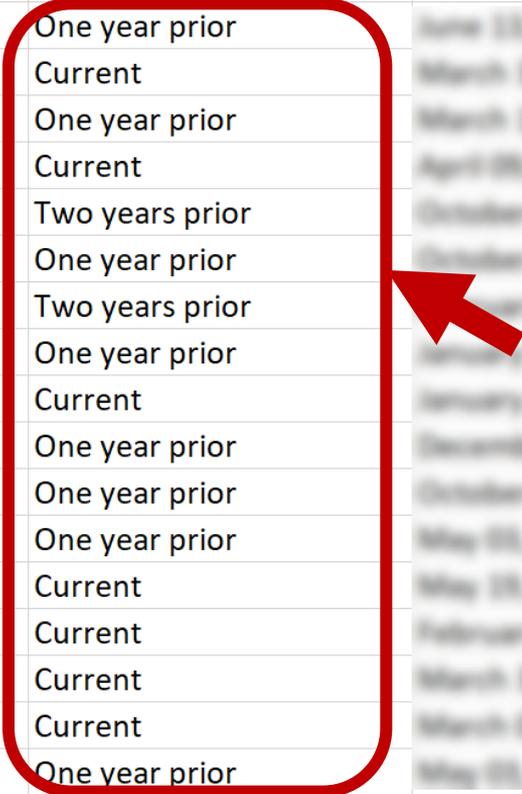
	A	B
1	Transaction year (original)	Transaction year (edited)
2	One year prior	One year prior
3	Current	
4	One year prior	
5	Current	



Double-click the Fill handle

# Remove spaces and nonprinting characters from text

	A	B	C
1	Transaction year (original)	Transaction year (edited)	Transaction date (in text format)
2	One year prior	One year prior	June 15, 2020
3	Current	Current	March 20, 2020
4	One year prior	One year prior	March 15, 2020
5	Current	Current	April 20, 2020
6	Two years prior	Two years prior	October
7	One year prior	One year prior	October
8	Two years prior	Two years prior	October
9	One year prior	One year prior	May 15, 2020
10	Current	Current	May 15, 2020
11	One year prior	One year prior	February 15, 2020
12	One year prior	One year prior	March 20, 2020
13	One year prior	One year prior	March 20, 2020
14	Current	Current	May 15, 2020
15	Current	Current	February 15, 2020
16	Current	Current	March 20, 2020
17	Current	Current	March 20, 2020
18	One year prior	One year prior	May 15, 2020



Column B data  
has been  
**TRIMMED** and  
**CLEANED**

# Step 04

---

Find and replace text

# Replace “coffee” in Column H with “cola”

H
Inventory item
Pretzels, Frozen, 24 pcs, original
Condiment Single-Serve Packets, 144-pack, mustard
Popcorn Bags, medium size, 50 pcs
Cotton Candy Floss Sugar, 60 servings, banana
Popcorn Oil, 64 oz
Dual Pack Popcorn Mix, 10-12 servings
Napkins, 250pcs
Snow Cone Syrup, 32 oz bottle, candy apple
Snow Cone Syrup, 32 oz bottle, coffee
Popcorn Salt or Topping, 80 oz, plain
Pretzels, Frozen, 24 pcs, original

# Replace “coffee” in Column H with “cola”

1

2

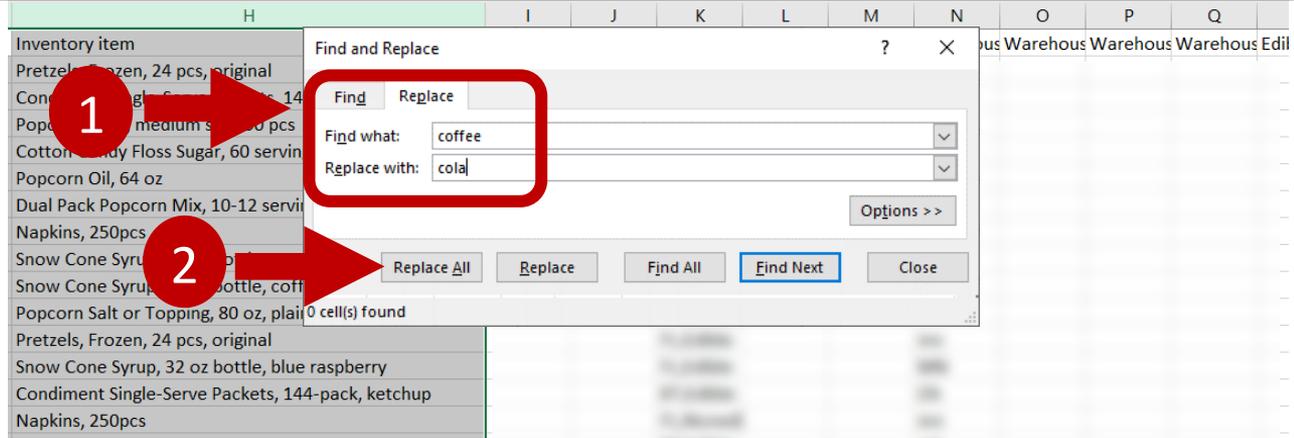
3

Select Column H. On the Home tab, click Find & Select. In the drop-down menu, click Find.

	H	I	J	K	L	M	N	O	P
Inventory item	Inventory	Inventory	Warehouse and edible type cor	Warehous	Warehous	Warehous	Warehous	Warehous	Warehous
Pretzels, Frozen, 24 pcs, original			FL;Edible			mn			
Condiment Single-Serve Packets, 144-pack			KT;Edible			Oh			
Popcorn Bags, medium size, 50 pcs			FL;Nonedi			mn			
Cotton Candy Floss Sugar, 60 servings,									
Popcorn Oil, 64 oz									
Dual Pack Popcorn Mix, 10-12 servings									
Napkins, 250pcs									
Snow Cone Syrup, 32 oz bottle, candy a									
Snow Cone Syrup, 32 oz bottle, coffee									
Popcorn Salt or Topping, 80 oz, plain									
Pretzels, Frozen, 24 pcs, original			FL;Edible			mn			
Snow Cone Syrup, 32 oz bottle, blue raspberry			FL;Edible			MN			
Condiment Single-Serve Packets, 144-pack, ketchup			KT;Edible			Oh			
Napkins, 250pcs			FL;Nonedi			mn			
Condiment Single-Serve Packets, 144-pack, ketchup			KT;Edible			oH			

# Replace “coffee” in Column H with “cola”

In the Find and Replace dialog box, click the Replace tab. Then type “coffee” for Find what and type “cola” for Replace with. Finally, click Replace All.



Mac: At the top of the Find dialog box, type “coffee” for Find what. Click Replace at the bottom of the dialog box and type “cola” for Replace with. Click Replace All.

# Replace “coffee” in Column H with “cola”

The screenshot shows an Excel spreadsheet with column H highlighted in green. The spreadsheet contains various inventory items. A 'Find and Replace' dialog box is open, with the 'Replace All' button highlighted. A red arrow points from the 'Replace All' button to a 'Microsoft Excel' pop-up message box that says 'All done. We made 74 replacements.' The message box has an 'OK' button. The 'Find and Replace' dialog box also has an 'OK' button and an 'Options >>' button.

H	I	J	K
Inventory item	Inventory	Inventory	Warehouse and
Pretzels, Frozen, 24 pcs, original			
Condiment Single-Serve Packets, 144-pack, mustard			
Popcorn Bags, medium size, 50 pcs			
Cotton Candy Floss Sugar, 60 servings, banana			
Popcorn Oil, 64 oz			
Dual Pack Popcorn Mix, 10-12 servings			
Napkins, 250pcs			
Snow Cone Syrup, 32 oz			
Snow Cone Syrup, 32 oz			
Popcorn Salt or Toppin			
Pretzels, Frozen, 24 pcs			
Snow Cone Syrup, 32 oz			
Condiment Single-Serv			
Napkins, 250pcs			
Condiment Single-Serve Packets, 144-pack, ketchup			
Snow Cone Syrup, 32 oz bottle, watermelon			

A pop-up message will let you know how many replacements were done. Click OK. Then click Close.

# Step 05

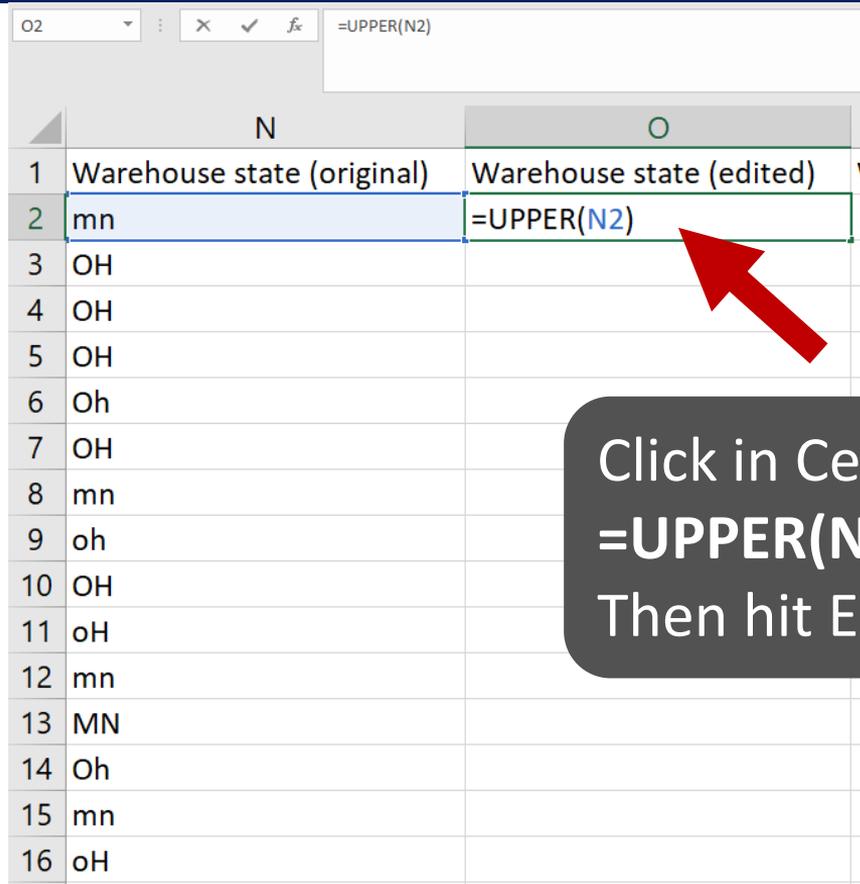
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Change a field to UPPER case

# Change Warehouse state (Column N) to uppercase

	N
1	Warehouse state (original)
2	mn
3	OH
4	OH
5	OH
6	Oh
7	OH
8	mn
9	oh
10	OH
11	oH
12	mn

# Change Warehouse state (Column N) to uppercase



The screenshot shows an Excel spreadsheet with two columns: 'N' (Warehouse state (original)) and 'O' (Warehouse state (edited)). The formula bar at the top shows '=UPPER(N2)'. A red arrow points to cell O2, which contains the formula '=UPPER(N2)'. The spreadsheet data is as follows:

	N	O
1	Warehouse state (original)	Warehouse state (edited)
2	mn	=UPPER(N2)
3	OH	
4	OH	
5	OH	
6	Oh	
7	OH	
8	mn	
9	oh	
10	OH	
11	oH	
12	mn	
13	MN	
14	Oh	
15	mn	
16	oH	

Click in Cell O2 and type:  
**=UPPER(N2)**  
Then hit Enter.

# Change Warehouse state (Column N) to uppercase

	N	O
1	Warehouse state (original)	Warehouse state (edited)
2	mn	MN
3	OH	OH
4	OH	OH
5	OH	OH
6	Oh	OH
7	OH	OH
8	mn	MN
9	oh	OH
10	OH	OH
11	oH	OH
12	mn	MN
13	MN	MN
14	Oh	OH
15	mn	MN
16	oH	OH



Double-click the Fill handle to copy the formula down the rest of the column.

# Step 06

---

Format as currency

# Format Columns AE through AI as currency

	AE	AF	AG	AH	AI
1	COGS per unit	Total revenue	Total COGS	Gross profit	Sales tax
2	11	126	66	60	9.19
3	10	688	430	258	35.77
4	9	184	72	112	4.23
5	10	930	310	620	18.6
6	6	518	222	296	13.46
7	4	216	72	144	3.88
8	2	90	36	54	0.81
9	5	234	45	189	0
10	6	920	240	680	23
11	5	585	225	360	38.61
12	16	666	288	378	13.98

# Format Columns AE through AI as currency

	AE	AF	AG	AH	AI
1	<b>COGS per unit</b>	<b>Total revenue</b>	<b>Total COGS</b>	<b>Gross profit</b>	<b>Sales tax</b>
2	14	462	196	266	17.55
3	3	780	117	663	23.4
4	15	770	330	440	10.78
5	6	629	222	407	25.16
6	10	950	500	450	17.1
7	14	1204	602	602	40.93



Select Cells AE2:AI2. Then hit Ctrl+Shift+down arrow on your keyboard to select all the rows.

Mac: Command+Shift+down arrow

# Format Columns AE through AI as currency

The screenshot shows the Microsoft Excel interface with the Home tab selected. The ribbon includes options for Clipboard, Font, and Alignment. The active cell is AE2, and the formula bar shows the value 11. The spreadsheet data is as follows:

	AE	AF	AG	AH	AI
1	COGS per unit	Total revenue	Total COGS	Gross profit	Sales tax
2	11	126	66	60	9.19
3	10	688	430	258	35.77
4	9	184	72	112	4.23
5	10	930	310	620	18.6
6	6	518	222	296	13.46
7	4	216	72	144	3.88
8	2	90	36	54	0.81
9	5	234	45	189	0
10	6	920	240	680	23
11	5	585	225	360	38.61
12	16	666	288	378	13.98
13	9	1035	405	630	27.94
14	10	153	90	63	8.26
15	1	72	18	54	1.58
16	6	448	168	280	8.06
17	6	759	198	561	23.52
18	3	150	45	105	1.95
19	15	1155	525	630	8.08

The Number formatting drop-down menu is open, showing various options. The 'Currency' option is highlighted, and a red arrow points to it. Another red arrow points to the Number formatting drop-down icon on the ribbon.

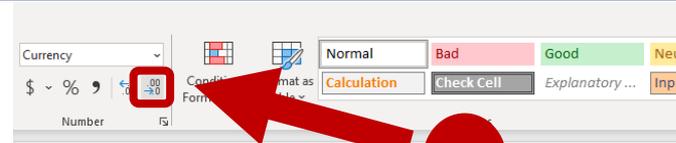
1

2

Select Cells AE2:AI301. On the Home tab, click the Number formatting drop-down icon. In the drop-down menu, click Currency.

# Format Columns AE through AI as currency

Now select Cells AE2:AH2 (we are not including Column AI this time) and hit Ctrl+Shift+down arrow to select all the rows. Then, on the Home tab, click the decrease decimal icon twice.



AE	AF	AG	AH	AI
COGS per unit	Total revenue	Total COGS	Gross profit	Sales tax
\$11	\$126	\$66	\$60	\$9.19
\$10	\$688	\$430	\$258	\$35.77
\$9	\$184	\$72	\$112	\$4.23
\$10	\$930	\$310	\$620	\$18.60
\$6	\$518	\$222	\$296	\$13.46
\$4	\$216	\$72	\$144	\$3.88
\$2	\$90	\$36	\$54	\$0.81
\$5	\$270	\$45	\$189	\$0.00
\$6	\$360	\$240	\$680	\$23.00
\$5	\$450	\$225	\$360	\$38.61
\$16	\$666	\$288	\$378	\$13.98
\$9	\$1,035	\$405	\$630	\$27.94
\$10	\$153	\$90	\$63	\$8.26
\$1	\$72	\$18	\$54	\$1.58
\$6	\$448	\$168	\$280	\$8.06
\$6	\$759	\$198	\$561	\$23.52
\$3	\$150	\$45	\$105	\$1.95
\$15	\$1,155	\$525	\$630	\$8.08

# Format Columns AE through AI as currency

	AE	AF	AG	AH	AI
1	<b>COGS per unit</b>	<b>Total revenue</b>	<b>Total COGS</b>	<b>Gross profit</b>	<b>Sales tax</b>
2	\$14	\$462	\$196	\$266	\$17.55
3	\$3	\$780	\$117	\$663	\$23.40
4	\$15	\$770	\$330	\$440	\$10.78
5	\$6	\$629	\$222	\$407	\$25.16
6	\$10	\$950	\$500	\$450	\$17.10
7	\$14	\$1,204	\$602	\$602	\$40.93
8	\$12	\$1,050	\$420	\$630	\$2.10
9	\$5	\$714	\$210	\$504	\$19.27
10	\$10	\$1,376	\$430	\$946	\$38.52
11	\$12	\$242	\$132	\$110	\$7.74
12	\$4	\$96	\$32	\$64	\$2.01
13	\$10	\$496	\$160	\$336	\$4.96
14	\$5	\$528	\$220	\$308	\$6.33
15	\$11	\$550	\$220	\$330	\$11.00

Now we have Columns AE through AI formatted as currency

Data set has been cleaned!



**All steps are depicted in  
tutorial videos**

---

No prior software knowledge assumed

# Poll Question 3

What does ETL stand for?

- a. Extract, Transform, and Locate
- b. Expand, Transfer, and Load
- c. Extract, Transform, and Load
- d. Expand, Transform, and Locate



# Poll Question 3 Results: (Placeholder)

# 7 requirements in Beginner Excel project

1. Widen all columns to automatically fit the contents
2. Find and remove duplicate records
3. Remove unwanted characters such as numbers, spaces, and nonprintable characters from fields
4. Find and replace text with replacement text
5. Change the case of a text field to uppercase or lowercase
6. Format numbers
7. Create a two-visualization interactive dashboard

# Intermediate & Advanced Projects

## 1. **Intermediate projects**

- Approximately 16 requirements
- 3-visualization dashboard

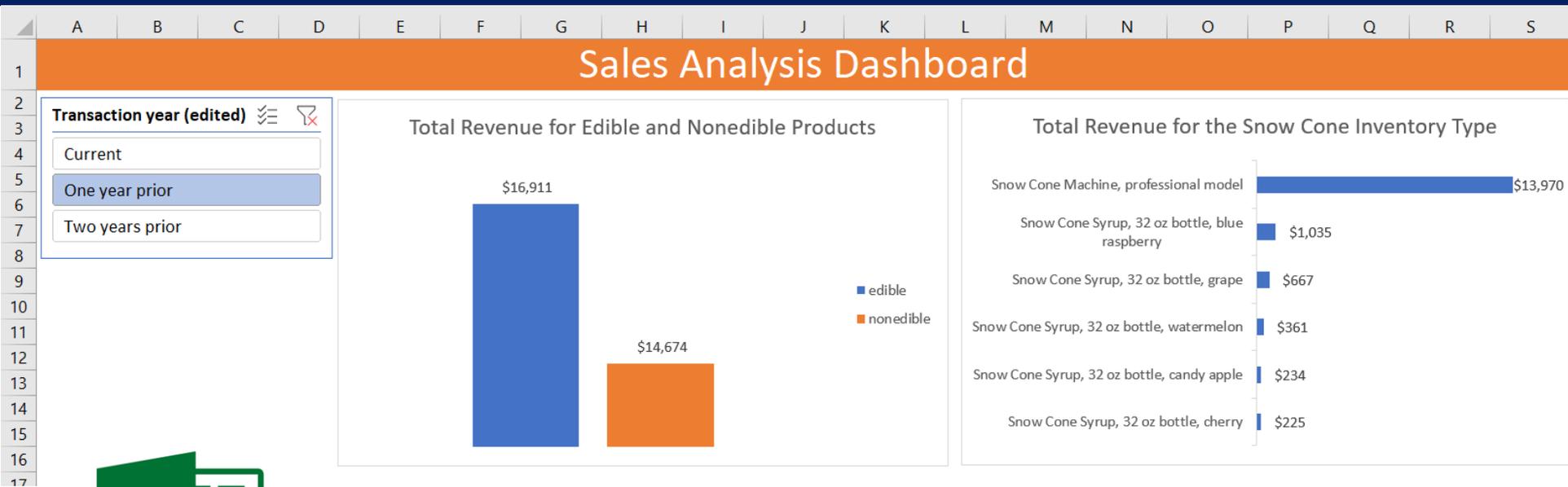
## 2. **Advanced projects**

- Approximately 25 requirements
- 4-visualization dashboard
- Appropriate for honors students or for classes beyond introductory accounting

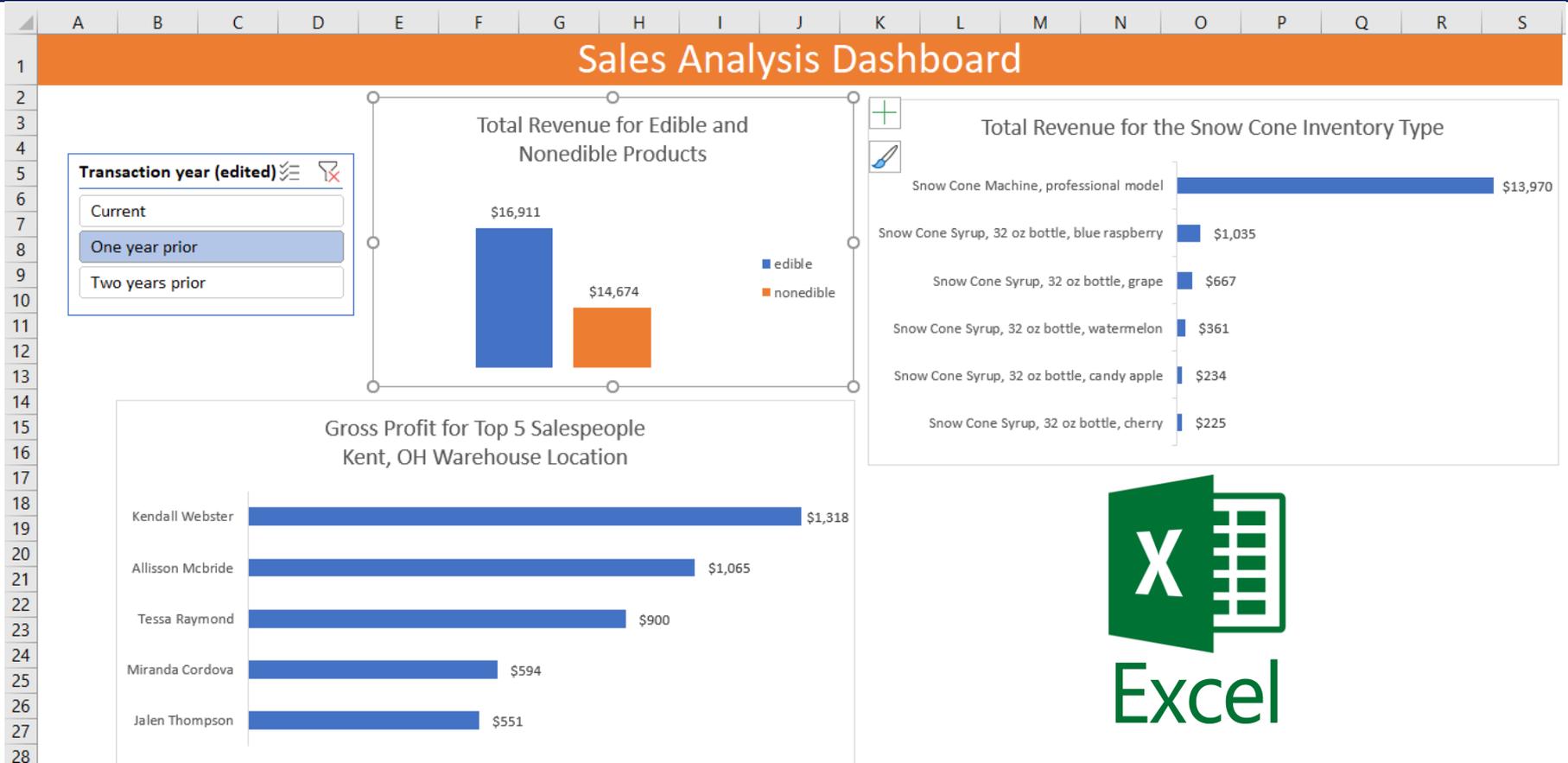


End result: Dashboards for  
each project

# Excel beginner dashboard



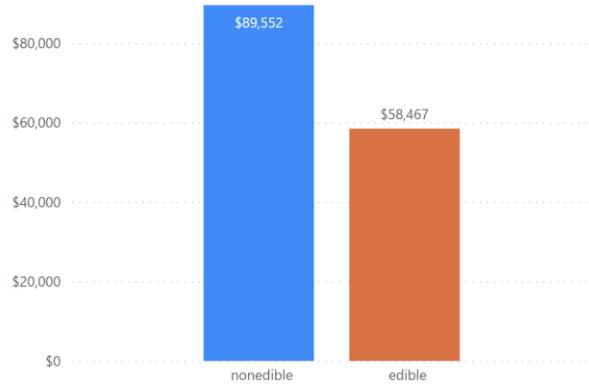
# Excel intermediate dashboard



# Alteryx + Power BI beginner dashboard



Total Revenue for Edible and Nonedible Products

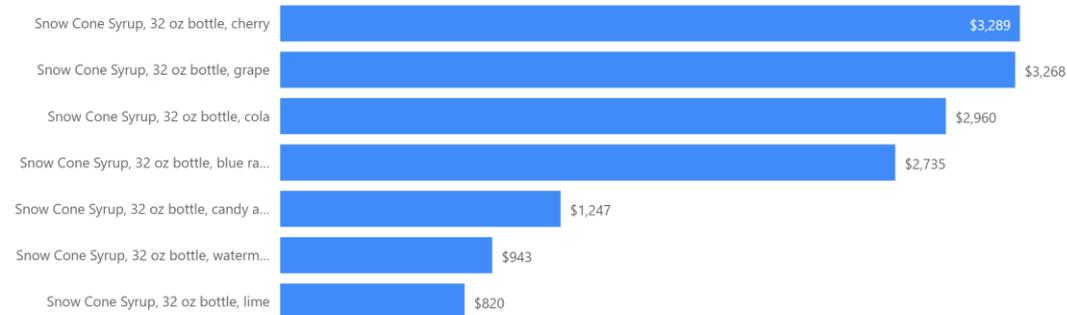


Transaction year

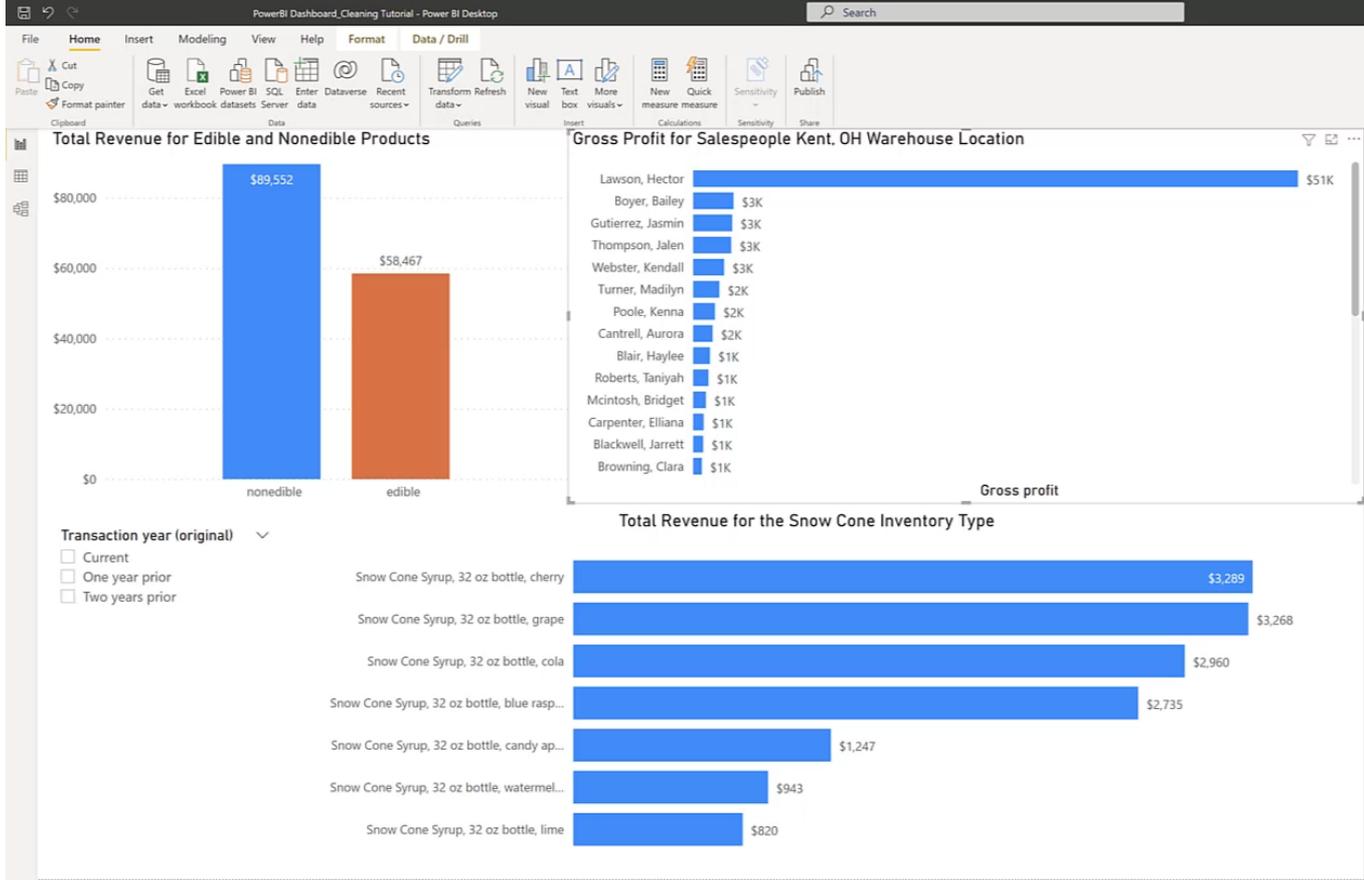
- Current
- One year prior
- Two years prior



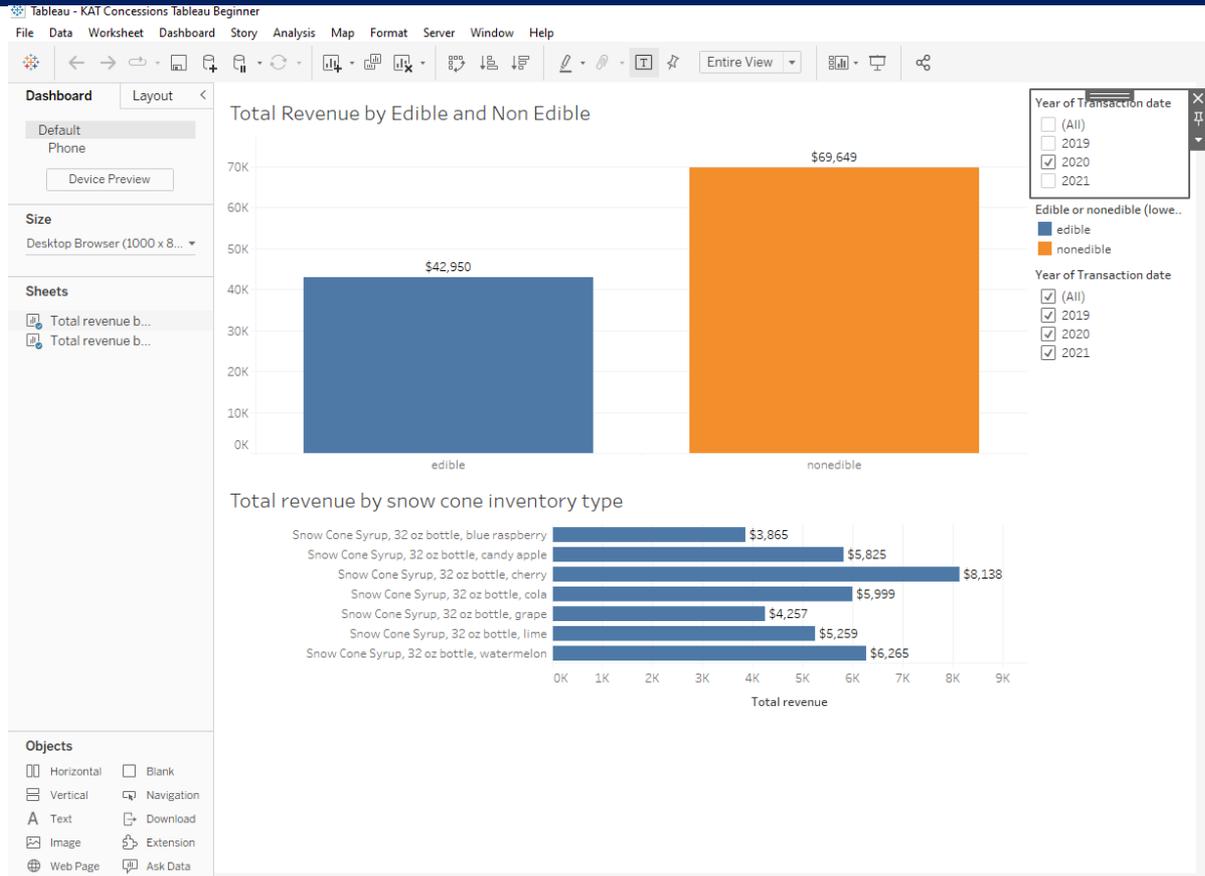
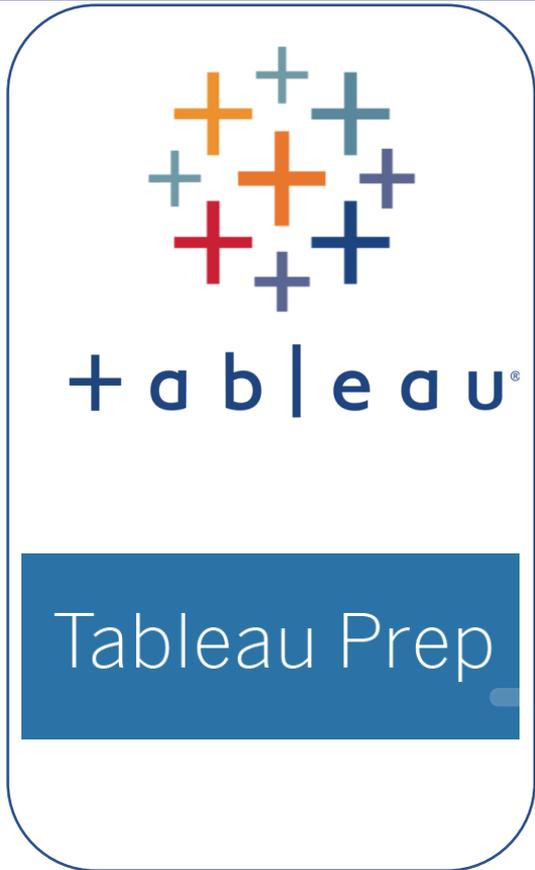
Total revenue for the Snow Cone Inventory Type



# Alteryx + Power BI intermediate dashboard



# Tableau + Tableau Prep beginner dashboard



# Tableau + Tableau Prep intermediate dashboard

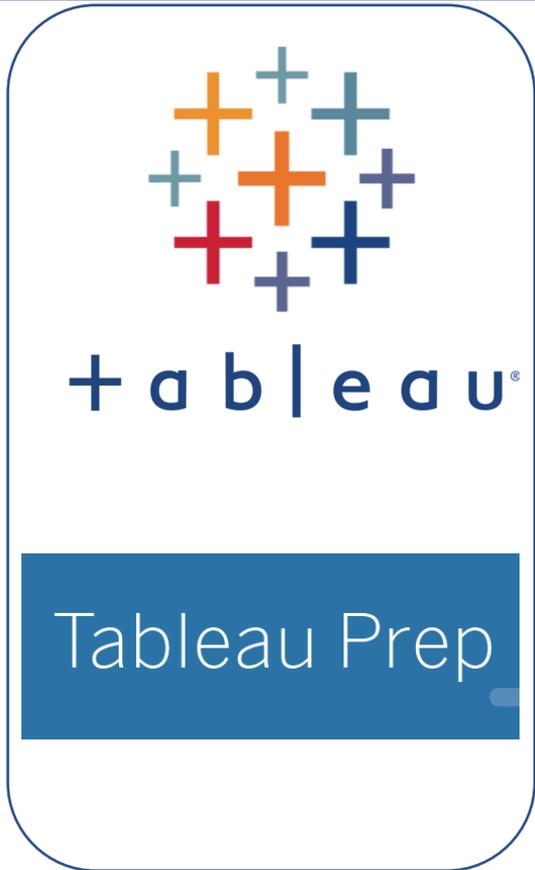


Tableau - KAT Concessions Tableau Dashboard Intermediate Answer Key

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Dashboard Layout

Default  
Phone  
Device Preview

Size  
Desktop Browser (1000 x 8...)

Sheets

- Edible and non ...
- Total revenue b...
- Gross Profit by ...

Objects

- Horizontal
- Vertical
- Text
- Image
- Web Page
- Blank
- Navigation
- Download
- Extension
- Ask Data

Tiled Floating

Show dashboard title

### Total Revenue by Edible and Non Edible

Category	Revenue
nonedible	\$319,300
edible	\$159,285

### Gross Profit for Salespeople in Kent, OH

Salesperson	Gross Profit
Webster, Kendall	\$70,770
Huerta, Kaley	\$25,938
Nguyen, Cheyanne	\$22,985
Gutierrez, Jasmin	\$7,059
Sami, Sapir	\$4,814
Mcbride, Allison	\$4,203
Raymond, Tessa	\$4,047
Carpenter, Elliana	\$3,971
Thompson, Jalen	\$3,566
Clarke, Phoenix	\$3,278
Strickland, Krish	\$2,989
Turner, Madilyn	\$2,983
Cordova, Miranda	\$2,977
Dunlap, Amir	\$2,871

### Total revenue by snow cone inventory type

Snow Cone Syrup, 32 oz bottle, ...	Total revenue
cherry	\$8,138
watermelon	\$6,265
cola	\$5,999
candy apple	\$5,825
lime	\$5,259
grape	\$4,257
blue raspberry	\$3,865

Year of Transaction date

- (All)
- 2019
- 2020
- 2021

Edible or nonedible (lowe...)

- edible
- nonedible

Year of Transaction date

- (All)
- 2019
- 2020
- 2021

Year of Transaction date

- (All)
- 2019
- 2020
- 2021

Data Source: Edible and non edible, Total revenue by snow cone inve..., Gross Profit by salesperson, Dashboard 1

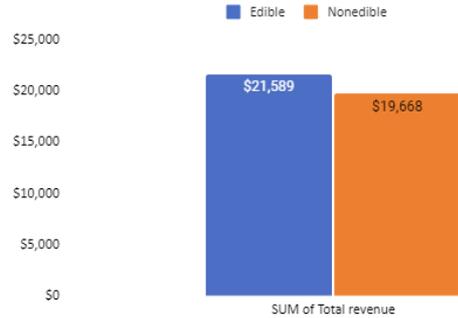
# Google Sheets dashboard

## Data Analysis Dashboard

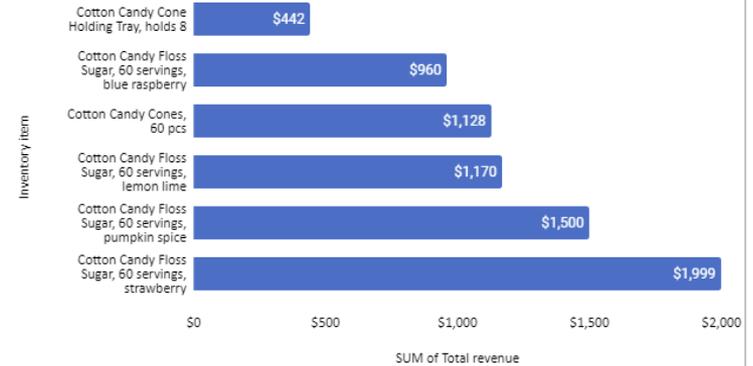


Transaction year (edit... 1 of 3 ▾)

### Total Revenue for Edible and Nonedible Products



### Total Revenue for the Cotton Candy Inventory Type



# Google Sheets



data ▾

dashboard ▾

# General teaching strategy



Step-by-step  
instructions



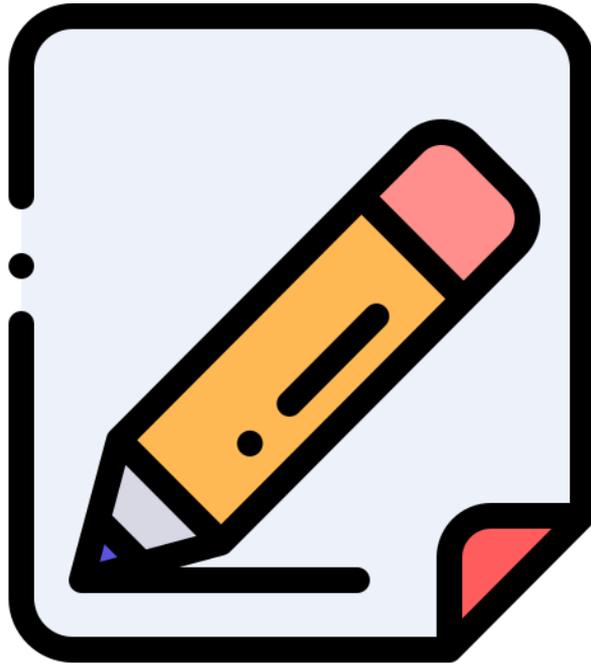
No prior  
knowledge needed

...for instructors and students

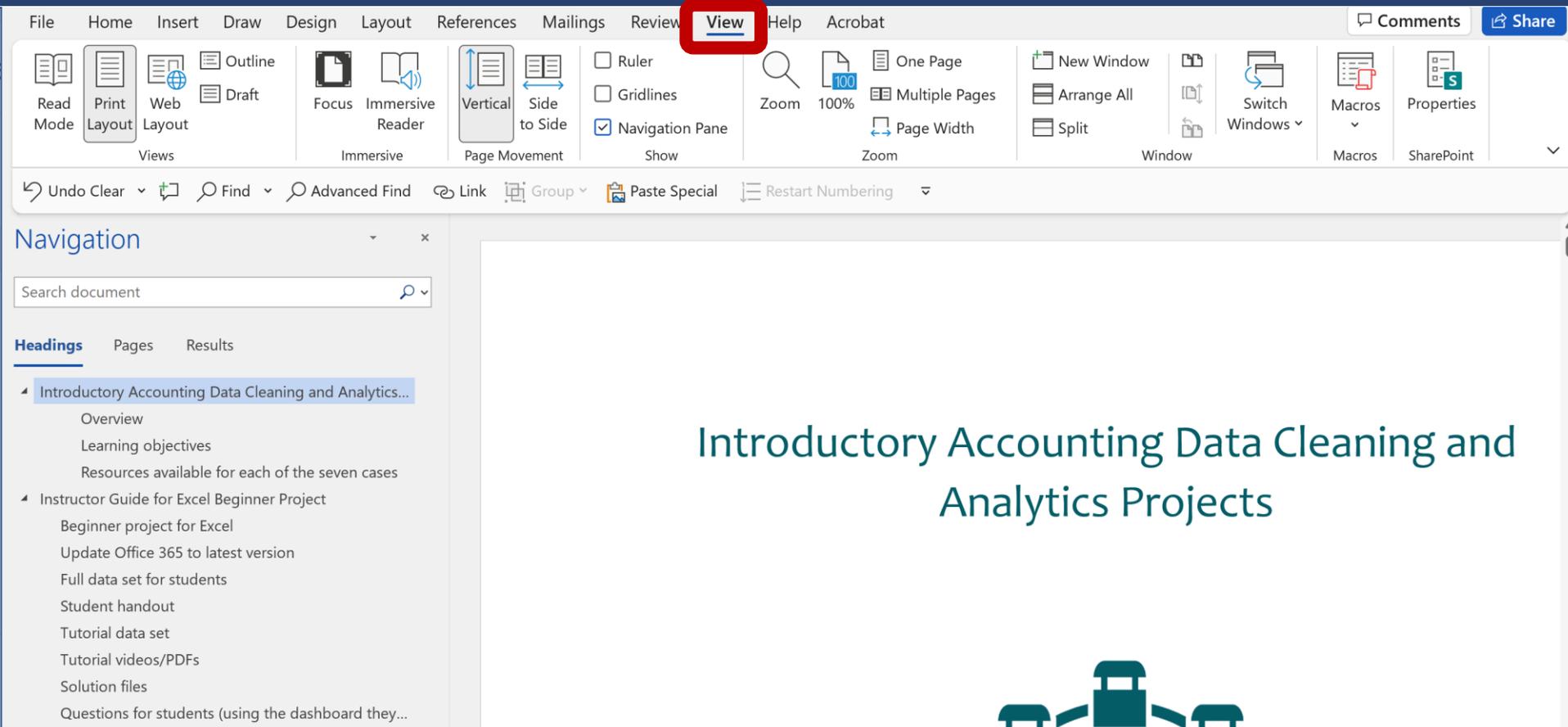
# All ETL projects include

- Project student guide
- Step-by-step tutorial videos (close captioned)
- Scripted tutorial videos slides (pdf)
- Tutorial data set
- Project data set (editable)
- Discussion questions
- Solution files

# Data sets are editable



# Instructor Guide: Use Navigation Pane in Word



The image shows the Microsoft Word interface. The ribbon is visible at the top, with the 'View' tab highlighted by a red box. The 'View' tab includes options for 'Read Mode', 'Print Layout', 'Web Layout', 'Draft', 'Immersive Reader', 'Page Movement' (Vertical, Side to Side), 'Show' (Ruler, Gridlines, Navigation Pane), 'Zoom' (100%), 'One Page', 'Multiple Pages', 'Page Width', 'New Window', 'Arrange All', 'Split', 'Switch Windows', 'Macros', and 'Properties'. Below the ribbon is the 'Navigation' pane, which is open to the 'Headings' view. The 'Headings' view shows a list of document sections, with 'Introductory Accounting Data Cleaning and Analytics...' selected. The main content area displays the title 'Introductory Accounting Data Cleaning and Analytics Projects'.

File Home Insert Draw Design Layout References Mailings Review **View** Help Acrobat Comments Share

Read Mode Print Layout Web Layout Draft Outline Immersive Reader Focus Immersive Reader Vertical Side to Side Ruler Gridlines Navigation Pane Zoom 100% One Page Multiple Pages Page Width New Window Arrange All Split Switch Windows Macros Properties

Undo Clear Find Advanced Find Link Group Paste Special Restart Numbering

## Navigation

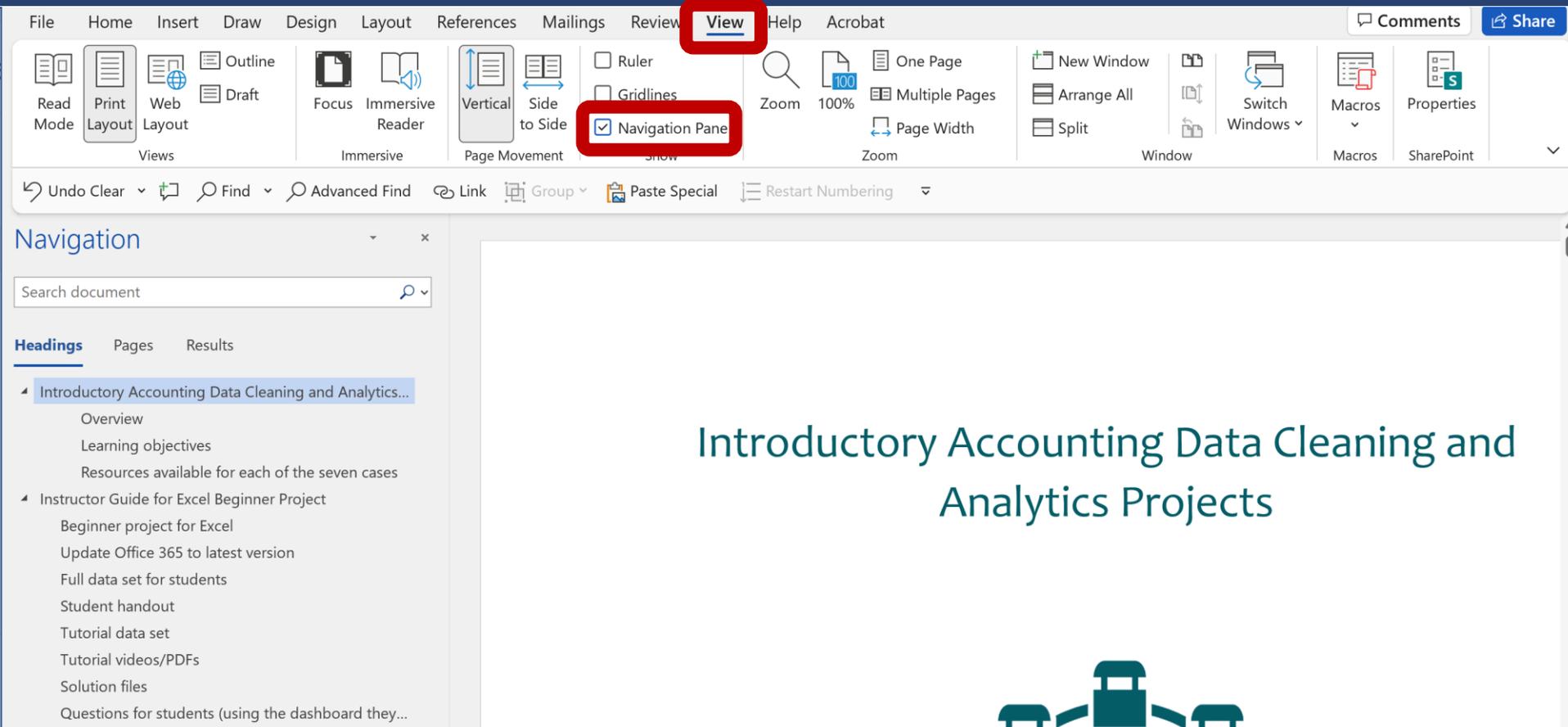
Search document

**Headings** Pages Results

- Introductory Accounting Data Cleaning and Analytics...
  - Overview
  - Learning objectives
  - Resources available for each of the seven cases
- Instructor Guide for Excel Beginner Project
  - Beginner project for Excel
  - Update Office 365 to latest version
  - Full data set for students
  - Student handout
  - Tutorial data set
  - Tutorial videos/PDFs
  - Solution files
  - Questions for students (using the dashboard they...

# Introductory Accounting Data Cleaning and Analytics Projects

# Instructor Guide: Use Navigation Pane in Word



The image shows the Microsoft Word interface. The ribbon is set to the 'View' tab, which is highlighted with a red box. Within the 'View' tab, the 'Navigation Pane' checkbox is checked and also highlighted with a red box. The 'Navigation' pane is open on the left side of the window, showing a search bar and a list of document sections. The main document area displays the title 'Introductory Accounting Data Cleaning and Analytics Projects'.

File Home Insert Draw Design Layout References Mailings Review **View** Help Acrobat

Read Mode Print Layout Web Layout Outline Draft Focus Immersive Reader Vertical Side to Side Ruler Gridlines Navigation Pane Zoom 100% One Page Multiple Pages Page Width New Window Arrange All Split Switch Windows Macros Properties SharePoint

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## Introductory Accounting Data Cleaning and Analytics Projects

# Instructor Guide: Use Navigation Pane in Word

Navigation

Search document

Headings Pages Results

- Introductory Accounting Data Cleaning and Analytics...
  - Overview
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- Instructor Guide for Excel Beginner Project**
  - Beginner project for Excel
  - Update Office 365 to latest version
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  - Student handout
  - Tutorial data set
  - Tutorial videos/PDFs
  - Solution files
  - Questions for students (using the dashboard they...)
  - Commonly asked questions and answers (Excel)
- Instructor Guide for Excel Intermediate Project
  - Intermediate project for Excel
  - Update Office 365 to latest version
  - Full data set for students
  - Student handout
  - Tutorial data set
  - Tutorial videos/PDFs
  - Solution files

## Instructor Guide for Excel Beginner Project

KAT Concessions Supply is a fictitious company that supplies food, paper products, and other items to fairs, amusement parks, and other organizations. Information in the KAT Concession Supply data sets includes information about its sales over a three-year period. The data from KAT Concession Supply has errors and irregularities in it and it must be cleaned so that an interactive dashboard about its operations can be prepared.

“ETL” stands for Extract, Transform, and Load. The ETL process extracts, transforms, and loads data from multiple sources to a data warehouse (single data source) where that data can be used in decision-making. ETL is the foundation for data analytics.

To show students the “why” of ETL, an Excel interactive dashboard will be built after the data cleaning steps are completed. This beginner project includes a two-visualization dashboard.

### Beginner project for Excel

The ETL and other tasks in the beginner version of the Excel data cleaning project are:

1. Widen all columns to automatically fit the contents
2. Find and remove duplicate records
3. Remove unwanted characters such as numbers, spaces, and nonprintable characters from fields
4. Find and replace text with replacement text
5. Change the case of a text field to uppercase or lowercase
6. Format numbers
7. Create a two-visualization interactive dashboard

### Update Office 365 to latest version

To do the project with Excel, students will need to use Microsoft 365. Before starting the project, students need to update their version of Excel. For instructions on how to update the Excel application, search for “how to update Office 365” on the internet. Either Windows or Mac can be used for this project. The instructions included in the step-by-step tutorial video use Excel for Windows, but Excel for

# Instructor Guide: Use Navigation Pane in Word

Navigation

Search document

Headings Pages

- Introductory Account Overview
- Learning objectives
- Resources
- Instructor Guide for Excel Beginner Project**
  - Beginner project for Excel
  - Update Office 365 to latest version
  - Full data set for students
  - Student handout
  - Tutorial data set
  - Tutorial videos/PDFs
  - Solution files
  - Questions for students
  - Commonly asked questions and answers (Excel)
- Instructor Guide for Intermediate Project
  - Update Office 365 to latest version
  - Full data set for students
  - Student handout
  - Tutorial data set
  - Tutorial videos/PDFs
  - Solution files

## Beginner Project

... food, paper products, and other items to  
... in the KAT Concession Supply data sets  
... food. The data from KAT Concession Supply has  
... an interactive dashboard about its

... cess extracts, transforms, and loads data from  
... where that data can be used in decision-

... shboard will be built after the data cleaning  
... visualization dashboard.

... l data cleaning project are:

... s

... aces, and nonprintable characters from fields

... ercase

... icrosoft 365. Before starting the project,  
... ions on how to update the Excel application,

... search for "how to update Office 365" on the internet. Either Windows or Mac can be used for this  
... project. The instructions included in the step-by-step tutorial video use Excel for Windows. but Excel for

# General teaching strategy: Delivery

- Assigned as homework
- Students use step-by-step tutorial videos
- Beginner projects: 20 – 30 minutes to complete
- Full projects: 45 – 60 minutes to complete
- Debrief in class or online

Request **instructor guide** for KAT  
Concession Supply **ETL projects** at  
**<http://tiny.cc/katcs>**



## Poll Question 4

How do you get the instructor guide for the KAT Concession Supply project?

- a. Request at <http://tiny.cc/katcs>
- b. Request at [AccountingIsAnalytics.com](http://AccountingIsAnalytics.com)
- c. Ask IMA
- d. Both a and b are correct



# Poll Question 4 Results: (Placeholder)

# How data analytics projects fit together

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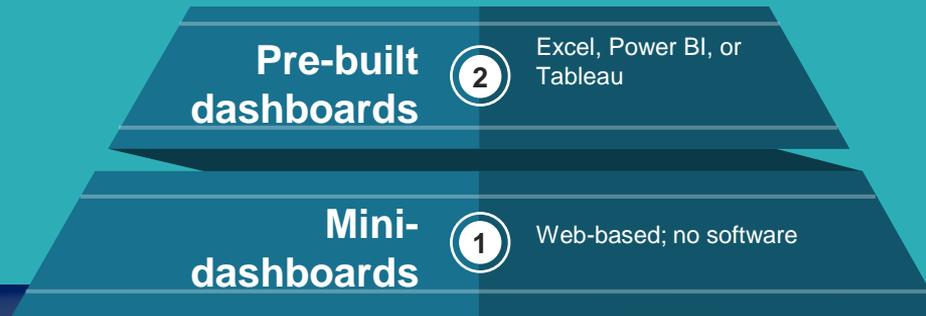
# Data analytics projects in **MyLab** and **AccountingIsAnalytics.com**

**Mini-  
dashboards**

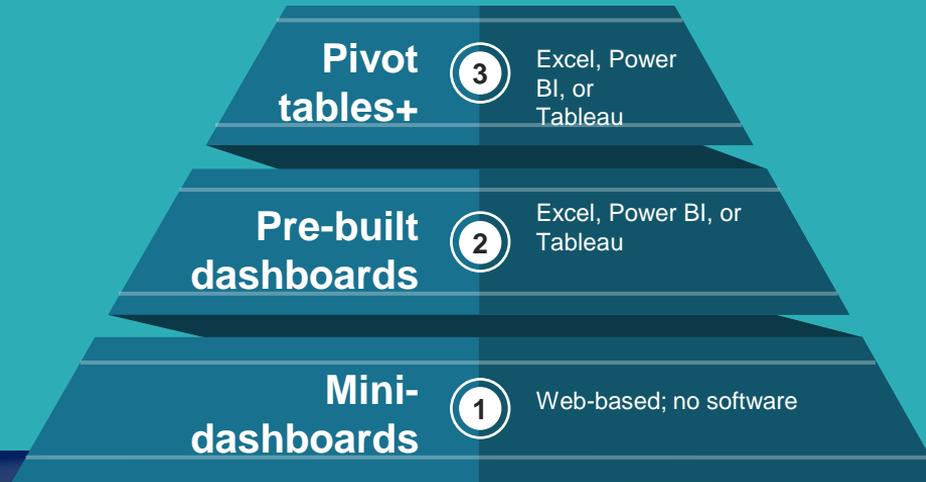
1

Web-based; no software

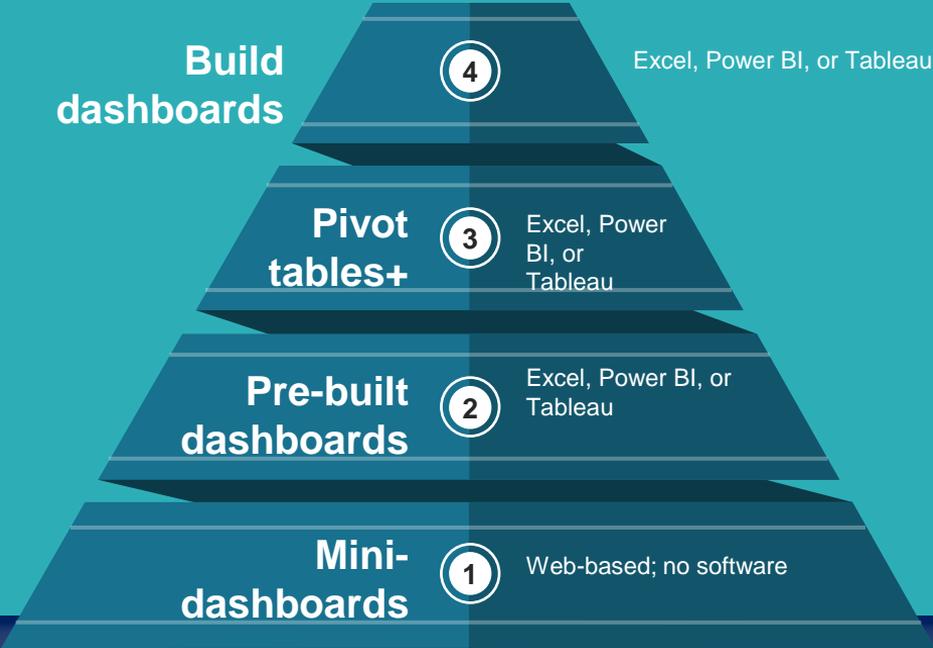
# Data analytics projects in **MyLab** and **AccountingsAnalytics.com**



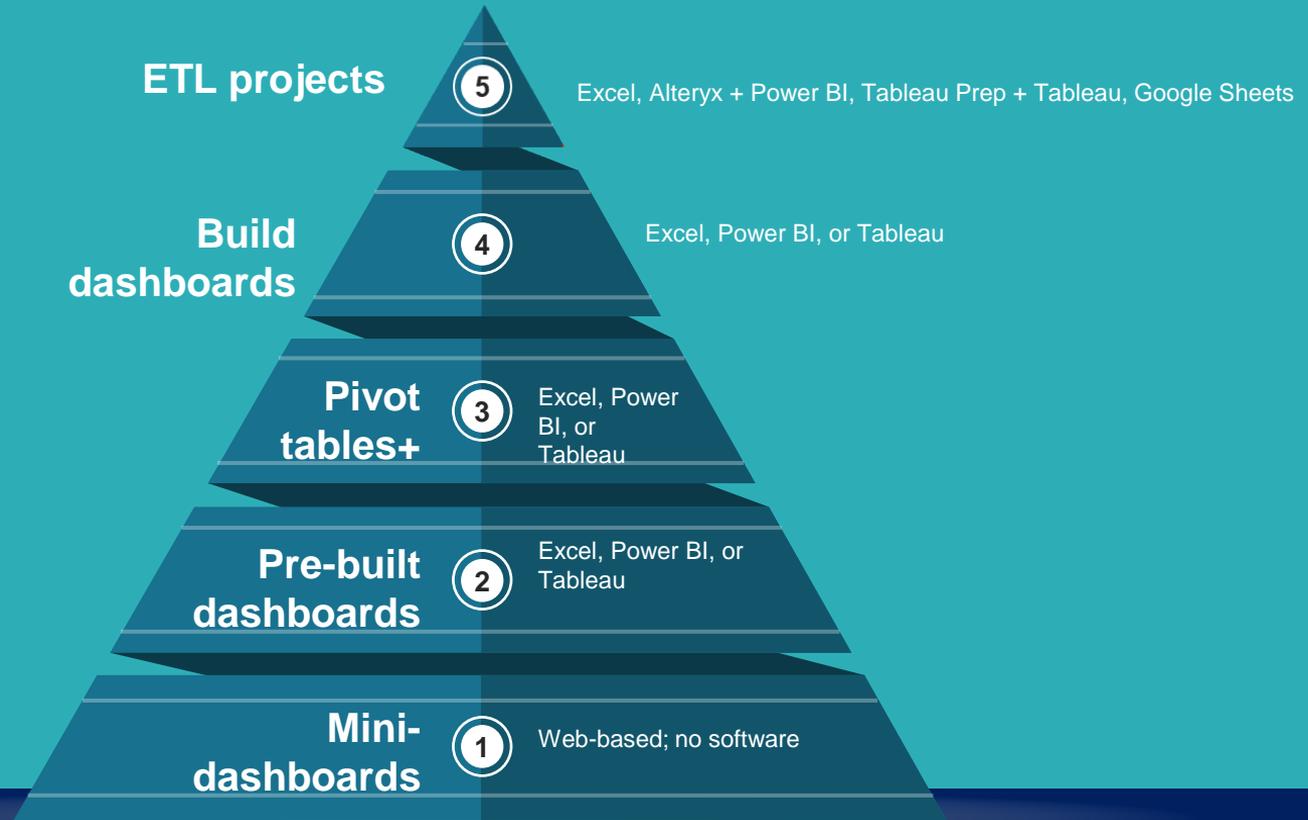
# Data analytics projects in **MyLab** and **AccountingsAnalytics.com**



# Data analytics projects in **MyLab** and **AccountingsAnalytics.com**

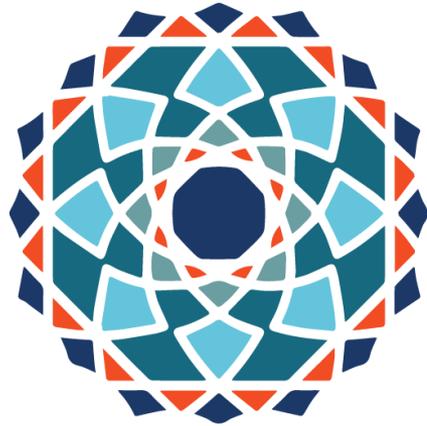


# Data analytics projects in **MyLab** and **AccountingsAnalytics.com**



Request **instructor guide** for KAT  
Concession Supply **ETL projects** at  
**<http://tiny.cc/katcs>**





# Accounting **is** Analytics

*For additional data analytics teaching resources, see  
[AccountingIsAnalytics.com](https://AccountingIsAnalytics.com)*

# Questions and Answers



**Jennifer Cainas, DBA, CPA**  
Associate Dean and  
Professor of Instruction  
University of South Florida



**Tracie Miller, Ph.D., CPA**  
Lead Faculty  
Franklin University



**Wendy Tietz, Ph.D., CMA,  
CSCA, CPA, CGMA, MCT**  
Professor  
Kent State University



**Jodi Ryan, CAE**  
Director, Member  
Engagement  
IMA

# Thank you to Our Featured Presenters!



**Jennifer Cainas, DBA, CPA**  
Associate Dean and  
Professor of Instruction  
University of South Florida



**Tracie Miller, Ph.D., CPA**  
Lead Faculty  
Franklin University



**Wendy Tietz, Ph.D., CMA,  
CSCA, CPA, CGMA, MCT**  
Professor  
Kent State University

# Final Reminders

- ▶ **Complete the Evaluation poll** – 2 options
  - On your screen
  - Evaluation Survey icon at the bottom of your console
- ▶ **Access to your CPE Certificate** – 2 options
  - Click the “CPE” icon at the bottom of your console
  - or
  - Click the link in your post-event e-mail
- ▶ Please print a copy of the CPE certificate for your records.
- ▶ Your CPE credit will be automatically recorded in your transcript.

# Thank you!



The Association of  
Accountants and  
Financial Professionals  
in Business