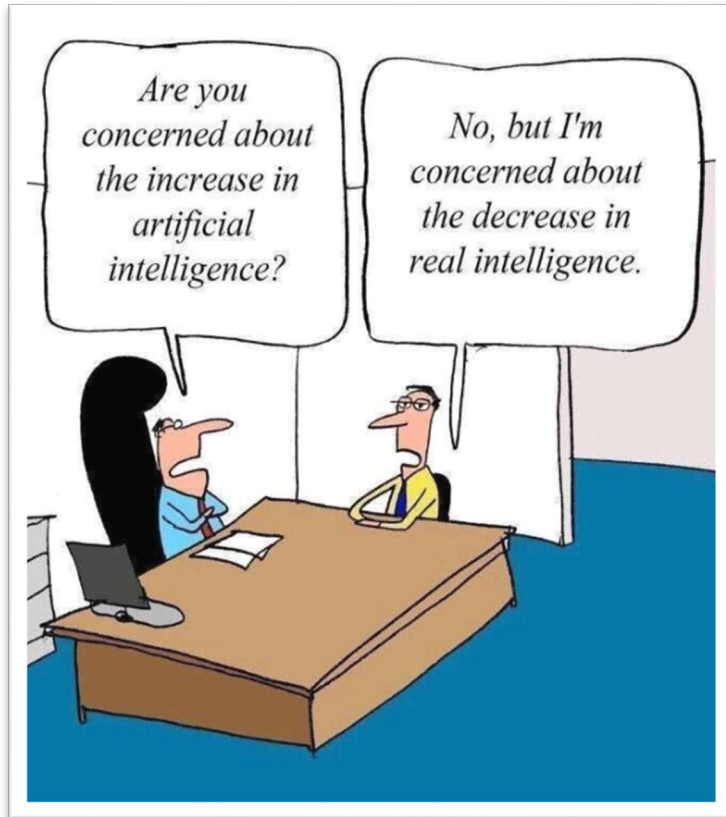


How Can We Use Artificial Intelligence in Internal Audit?



OBJECTIVES

◀ Use Cases

Helping with Data Analytics

Helping with Data Analytics

Prompting with Data Privacy in Mind

Table Name: Transactions		Summarize with PivotTable		Insert Slicer		Export		Refresh		Properties		Open in Browser		Unlink		<input checked="" type="checkbox"/> Header Row		<input type="checkbox"/> First Column	
Resize Table		Remove Duplicates														<input type="checkbox"/> Total Row		<input type="checkbox"/> Last Column	
		Convert to Range														<input checked="" type="checkbox"/> Banded Rows		<input type="checkbox"/> Banded Columns	
Properties		Tools																Table Style Options	
A1																			
	A	B	C	D	E	F													
1	Date	Employee Number	Employee Name	Last 4 of Card	Vendor Name	Transaction Amount													
2	7/1/2022	333330	Tom Seaver	1992	PublicWorks Machinery	\$ 1,077.00													
3	7/1/2022	333332	Steve Carlton	1994	StapleSafari Supplies	\$ 998.00													
4	7/4/2022	333334	Mike Schmidt	1995	AeroChuckle Airways	\$ 3,989.00													
5	7/5/2022	333333	Jim Palmer	1990	AquaFlow Environmental Services	\$ 660.00													
6	7/6/2022	333330	Tom Seaver	1992	PublicWorks Machinery	\$ 719.00													

Table Name: Transaction_Limi		Summarize with PivotTable		Insert Slicer		Export		Refresh	
Resize Table		Remove Duplicates							
		Convert to Range							
Properties		Tools						Extern	
A1								Employee Number	
	A	B	C	D					
1	Employee Number	Employee Name	Last 4 of Card	Individual Transaction Limi					
2	333330	Tom Seaver	1992	\$ 2,500.00					
3	333331	George Brett	1999	\$ 3,000.00					
4	333332	Steve Carlton	1994	\$ 1,000.00					
5	333333	Jim Palmer	1990	\$ 1,000.00					
6	333334	Mike Schmidt	1995	\$ 5,000.00					
7	333335	Rod Carew	1991	\$ 5,000.00					

Helping with Data Analytics

Prompting with Data Privacy in Mind

DA

I have an Excel spreadsheet that contains credit card transactions for several individuals.

On the "PCard_Transactions" worksheet, there is a table called "Transactions". The Transactions table consists of 6 columns.

Column A, with the header "Date", contains the date of the transaction.

Column B, with the header "Employee Number", contains the individual's ID number.

Column C, with the header "Employee Name", contains the individual's name.

Column D, with the header "Last 4 of Card", contains the last 4 digits of the card number.

Each individual has their own card, and no individual has the same "Last 4 of Card" as anyone else.

Column E, with the header "Vendor Name", contains the name of the vendor involved in the transaction.

Column F, with the header "Transaction Amount", contains the purchase price for the transaction.

On the "Individual_Transaction_Limits" worksheet, there is a table called "Transaction_Limits". The Transactions_Limit table consists of 4 columns.

Column A, with the header "Employee Number", contains the individual's ID number.

Column B, with the header "Employee Name", contains the individual's name.

Column C, with the header "Last 4 of Card", contains the last 4 digits of the card number.

Each individual has their own card, and no individual has the same "Last 4 of Card" as anyone else.



Column D, with the header "Individual Transaction Limit", contains the maximum purchase price allowed in a single transaction.

Helping with Data Analytics

Prompting with Data Privacy in Mind

Table Name:		Summarize with PivotTable		Insert Slicer		Export Refresh		Properties		Table Style Options	
Transactions		Remove Duplicates		Convert to Range		Open in Browser		Unlink		<input checked="" type="checkbox"/> Header Row <input type="checkbox"/> First Column	
Resize Table										<input type="checkbox"/> Total Row <input type="checkbox"/> Last Column	
										<input checked="" type="checkbox"/> Banded Rows <input type="checkbox"/> Banded Columns	
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>											
	A	B	C	D	E	F					
1	Date	Employee Number	Employee Name	Last 4 of Card	Vendor Name	Transaction Amount					
2											
3											
4											
5											
6											

Table Name:		Summarize with PivotTable		Insert Slicer		Export Refresh	
Transaction_Limit		Remove Duplicates		Convert to Range		Open in Browser	
Resize Table							
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>							
	A1						
	A	B	C	D			
	Employee Number	Employee Name	Last 4 of Card	Individual Transaction Limit			
1							
2							
3							
4							
5							
6							
7							

 Message ChatGPT 

Stepping Past “Predictive Text”

I am performing a risk assessment, flagging high risk transactions. The three biggest risks that I have identified are: 1) Purchases made just below the individual's transaction limit; 2) An individual making multiple transactions with the same vendor on the same day that exceed the individual transaction limit when aggregated; 3) Purchases made on weekends.

I want to add a formula into column G of the Transactions table, titled “Threshold Manipulation” that will check the transaction amount against the individual's transaction limit. If the transaction within \$10 of the individual's transaction limit, give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

Next, I want to add a formula into column H of the Transactions table, titled “Split Transactions” that will aggregate all transactions made on the same day by the same individual with the same vendor and check that amount against the individual's transaction limit. If the aggregation exceeds the individual's transaction limit, give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

Finally, I want to add a formula into column I of the Transactions table, titled “Weekend Transactions” that will look at the date of the transaction. If the transaction occurred on a weekend (Saturday or Sunday), give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

Read


Helping with Data Analytics

Stepping Past “Predictive Text”

I want to add a formula into column G of the Transactions table, titled “Threshold Manipulation” that will check the transaction amount against the individual’s transaction limit. If the transaction within \$10 of the individual’s transaction limit, give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

For Column G (“Threshold Manipulation”):

excel


 Copy code

```
=IF(ABS([@Transaction Amount] - VLOOKUP([@Employee Number], Transaction_Limit, 4, FALSE)) <= 10, "FLAG", "")
```

Next, I want to add a formula into column H of the Transactions table, titled “Split Transactions” that will aggregate all transactions made on the same day by the same individual with the same vendor and check that amount against the individual’s transaction limit. If the aggregation exceeds the individual’s transaction limit, give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

For Column H (“Split Transactions”):

excel


 Copy code

```
=IF(SUMIFS([Transaction Amount], [Employee Number], [@Employee Number], [Vendor Name], [@Vendor Name], [Date], [@Date]) > VLOOKUP([@Employee Number], Transaction_Limit, 4, FALSE), "FLAG", "")
```

Finally, I want to add a formula into column I of the Transactions table, titled “Weekend Transactions” that will look at the date of the transaction. If the transaction occurred on a weekend (Saturday or Sunday), give me the result “FLAG”. If not, make the cell appear blank. Write me this formula.

For Column I (“Weekend Transactions”):

excel

 Copy code

```
=IF(OR(TEXT([@Date], "ddd") = "Sat", TEXT([@Date], "ddd") = "Sun"), "FLAG", "")
```


Helping with Data Analytics

G3 $\text{=IF(ABS([@[Transaction Amount]] - VLOOKUP([@[Employee Number]], Transaction_Limits, 4, FALSE)) <= 10, "FLAG", "")}$

	A	B	C	D	E	F	G	H	I
1	Date	Employee Number	Employee Name	Last 4 of Car	Vendor Name	Transaction Amount	Threshold Manipulation	Split Transaction	Weekend Transactions
3	7/1/2022	333332	Steve Carlton	1994	StapleSafari Supplies	\$ 998.00	FLAG		
94	8/25/2022	333334	Mike Schmidt	1995	MunicipalMind Advisors	\$ 4,999.99	FLAG		
137	9/19/2022	333334	Mike Schmidt	1995	CitySizzle Caterers	\$ 4,999.00	FLAG		
142	9/22/2022	333334	Mike Schmidt	1995	CitySizzle Caterers	\$ 4,990.00	FLAG		
209	10/31/2022	333334	Mike Schmidt	1995	ExpressPenguin Delivery	\$ 4,991.00	FLAG		
243	11/18/2022	333333	Jim Palmer	1990	CivicWatch Security	\$ 990.00	FLAG		
261	11/30/2022	333332	Steve Carlton	1994	PenPals Office Essentials	\$ 990.00	FLAG		
504	4/19/2023	333330	Tom Seaver	1992	CommunityConnect Telecom	\$ 2,493.00	FLAG		
530	5/4/2023	333334	Mike Schmidt	1995	TownTable Treasures	\$ 4,999.00	FLAG		

H41 $\text{=IF(SUMIFS([Transaction Amount], [Employee Number], [@[Employee Number]], [Vendor Name], [@[Vendor Name]], [Date], [@[Date]]) > 500, "FLAG", "")}$

	A	B	C	D	E	F	G	H	I
1	Date	Employee Number	Employee Name	Last 4 of Car	Vendor Name	Transaction Amount	Threshold Manipulation	Split Transaction	Weekend Transactions
41	7/26/2022	333333	Jim Palmer	1990	CityVista Builders	\$ 510.00		FLAG	
42	7/26/2022	333333	Jim Palmer	1990	CityVista Builders	\$ 510.00		FLAG	
319	1/3/2023	333333	Jim Palmer	1990	MufflerMirth Components	\$ 627.00		FLAG	
320	1/3/2023	333333	Jim Palmer	1990	MufflerMirth Components	\$ 500.00		FLAG	
484	4/7/2023	333333	Jim Palmer	1990	UrbanHarbor Shipping	\$ 350.00		FLAG	
485	4/7/2023	333333	Jim Palmer	1990	UrbanHarbor Shipping	\$ 350.00		FLAG	
486	4/7/2023	333333	Jim Palmer	1990	UrbanHarbor Shipping	\$ 350.00		FLAG	

I160 $\text{=IF(OR(TEXT([@Date], "ddd") = "Sat", TEXT([@Date], "ddd") = "Sun"), "FLAG", "")}$

	A	B	C	D	E	F	G	H	I
1	Date	Employee Number	Employee Name	Last 4 of Car	Vendor Name	Transaction Amount	Threshold Manipulation	Split Transaction	Weekend Transactions
160	10/2/2022	333330	Tom Seaver	1992	Pioneer Infrastructure Group	\$ 409.00			FLAG
499	4/15/2023	333330	Tom Seaver	1992	CityRide Transportation	\$ 97.00			FLAG
620	6/25/2023	333330	Tom Seaver	1992	GreenSpace Landscapers	\$ 2,067.00			FLAG

October 2022

Su	Mo	Tu	We	Th	Fr	Sa	Su
25	26	27	28	29	30	31	
2	3	4	5	6	7	8	9
16	17	18	19	20	21	22	23
23	24	25	26	27	28	29	30
30	31	1	2	3	4	5	6

Staff Development

New Employee – Asking Open Ended Questions

I am an internal auditor for a local government. Currently, I am working on an audit of asset management.

Rewrite this sentence into three different versions where the question is open ended instead of closed: Is there an established structure of timing on maintenance of inventory?



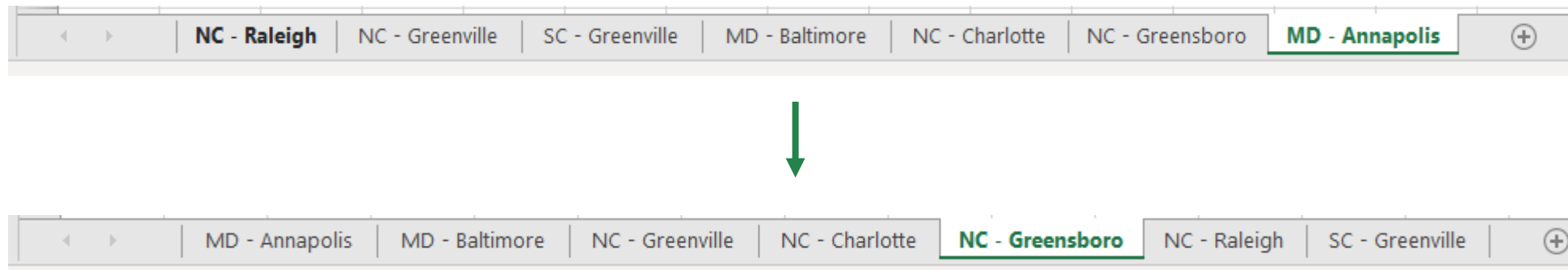
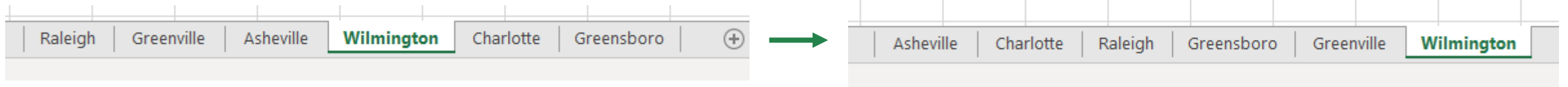
1. How is the timing of inventory maintenance structured within the organization?
2. What procedures are in place to schedule the maintenance of inventory?
3. How does the organization determine the timing for maintaining its inventory?



Time Savings/Efficiency Gains

Time Savings/Efficiency Gains

Alphabetizing Excel Tabs



Time Savings/Efficiency Gains

Alphabetizing Excel Tabs

I have a workbook with numerous tabs. List all the ways I can put them into alphabetical order without manually clicking and dragging them.



There are a few ways to sort the worksheets (tabs) in an Excel workbook alphabetically without manually clicking and dragging them. Here are the methods:

Method 1: Using VBA (Visual Basic for Applications)

You can use a VBA macro to sort your worksheet tabs alphabetically. Here are the steps:

1. Open the VBA Editor:

- Press `Alt + F11` to open the VBA Editor.
- Insert a new module: Right-click on any of the items in the Project Explorer, then choose `Insert` > `Module`.

2. Enter the VBA Code:

- Copy and paste the following code into the module window:

```
vba Copy code

Sub SortSheetsAlphabetically()
    Dim i As Integer, j As Integer
    For i = 1 To ThisWorkbook.Sheets.Count - 1
        For j = i + 1 To ThisWorkbook.Sheets.Count
            If UCase(ThisWorkbook.Sheets(i).Name) > UCase(ThisWorkbook.Sheets(j).Name)
                ThisWorkbook.Sheets(i).Move After:=ThisWorkbook.Sheets(j)
            End If
        Next j
    Next i
End Sub
```

3. Run the Macro:

- Press `F5` to run the macro, or go back to Excel and run it from `Developer` > `Macros`.

Time Savings/Efficiency Gains

Creating multiple folders

I am using windows and trying to add 150 folders inside of a folder called "Audit Documentation". I want each one to be named consecutively, with the first folder having the name "01" and the last folder having the name "150". Is there a way I can automate this instead of creating them all manually?

Time Savings/Efficiency Gains

Creating multiple folders

I am using windows and trying to add 150 folders inside of a folder called "Audit Documentation". I want each one to be named consecutively, with the first folder having the name "01" and the last folder having the name "150". Is there a way I can automate this instead of creating them all manually?



Yes, you can automate this process using a simple batch script in Windows. Here's how you can do it:

1. **Open Notepad** (or any text editor).
2. **Copy and paste** the following script into Notepad:

```
batch                                                                    Copy code

@echo off
setlocal enabledelayedexpansion

REM Change directory to the target folder
cd "C:\path\to\Audit Documentation"

REM Loop to create folders from 01 to 150
for /l %%i in (1,1,150) do (
    set num=%%i
    if %%i lss 10 set num=0%%i
    md !num!
)
```

Make sure to replace `C:\path\to\Audit Documentation` with the actual path to your "Audit Documentation" folder.

3. **Save the file** with a `.bat` extension. For example, you can save it as `create_folders.bat`.
4. **Run the batch file** by double-clicking it. This will create 150 folders named "01" to "150" inside your "Audit Documentation" folder.

Time Savings/Efficiency Gains

Creating multiple folders



Yes, you can automate this process using a simple batch script in Windows. Here's how you can do it:

1. Open Notepad (or any text editor).
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cd "C:\path\to\Audit Documentation"

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for /l %i in (1,1,150) do (
    set num=%i
    if %i lss 10 set num=0%i
    md !num!
)
```

Make sure to replace `C:\path\to\Audit Documentation` with the actual path to your "Audit Documentation" folder.

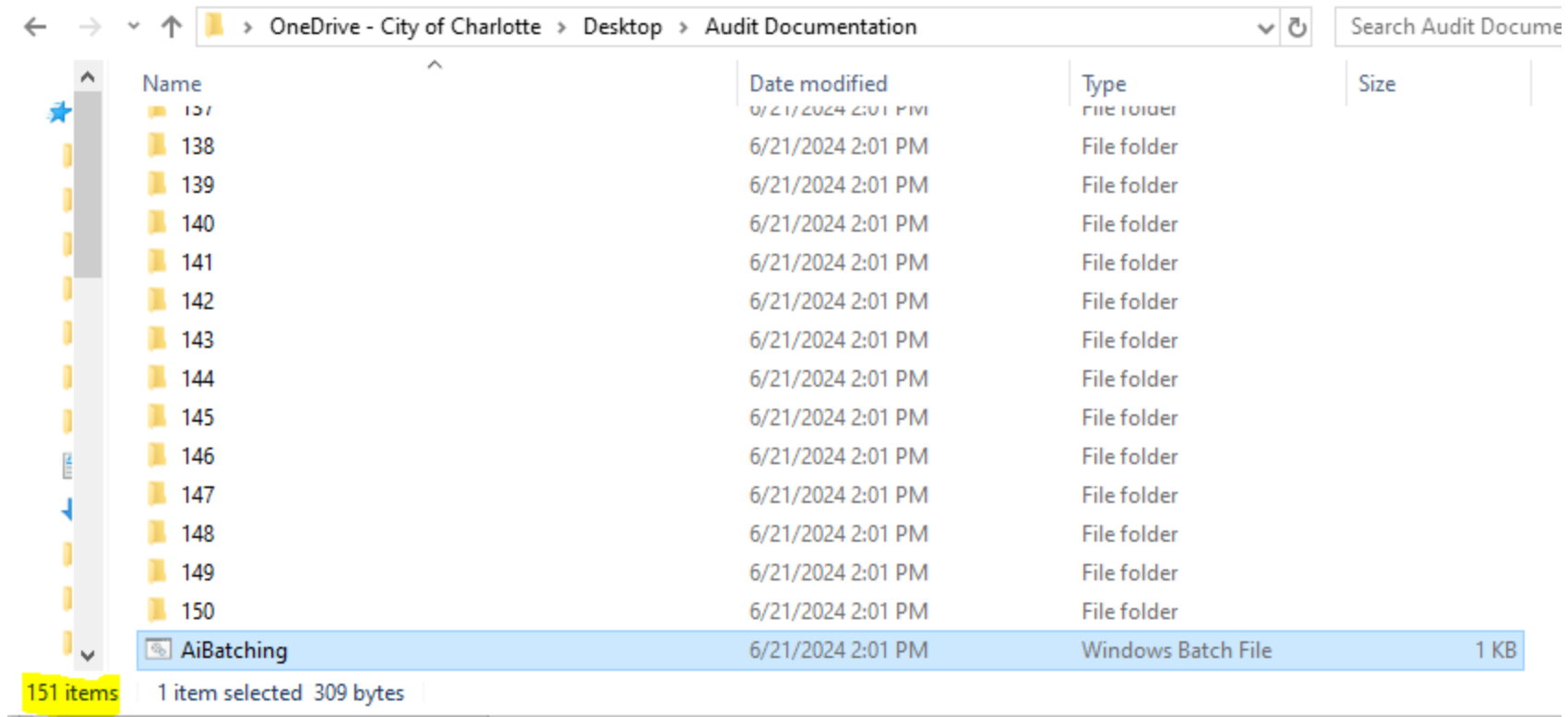
3. Save the file with a `.bat` extension. For example, you can save it as `create_folders.bat`.
4. Run the batch file by double-clicking it. This will create 150 folders named "01" to "150" inside your "Audit Documentation" folder.

Here's a brief explanation of the script:

- `@echo off` prevents the commands from being displayed in the command prompt window.
- `setlocal enabledelayedexpansion` enables the use of delayed variable expansion, which allows us to modify variables within a loop.
- `cd "C:\path\to\Audit Documentation"` changes the current directory to your target folder.
- The `for /l %i in (1,1,150)` loop runs from 1 to 150.
- `set num=%i` stores the current loop number in the `num` variable.
- The `if %i lss 10 set num=0%i` line ensures that numbers less than 10 are prefixed with a zero.
- `md !num!` creates a directory with the name stored in `num`.

Time Savings/Efficiency Gains

Creating multiple folders



Time Savings/Efficiency Gains

I am copying something over from a system into Excel, but I can only go line by line. This means from Excel I need to press ALT Tab to switch to the website, then press the down arrow, then CTRL C, then ALT Tab to switch back to Excel, then press the down arrow, then CTRL V each time. How can I automate this?

Time Savings/Efficiency Gains

I am copying something over from a system into Excel, but I can only go line by line. This means from Excel I need to press ALT Tab to switch to the website, then press the down arrow, then CTRL C, then ALT Tab to switch back to Excel, then press the down arrow, then CTRL V each time. How can I automate this?

Steps to Automate with VBA


1. Open the VBA Editor:

- Press **Alt + F11** in Excel to open the VBA editor.
- In the editor, go to **Insert** → **Module** to create a new module.

2. Write the VBA Code:

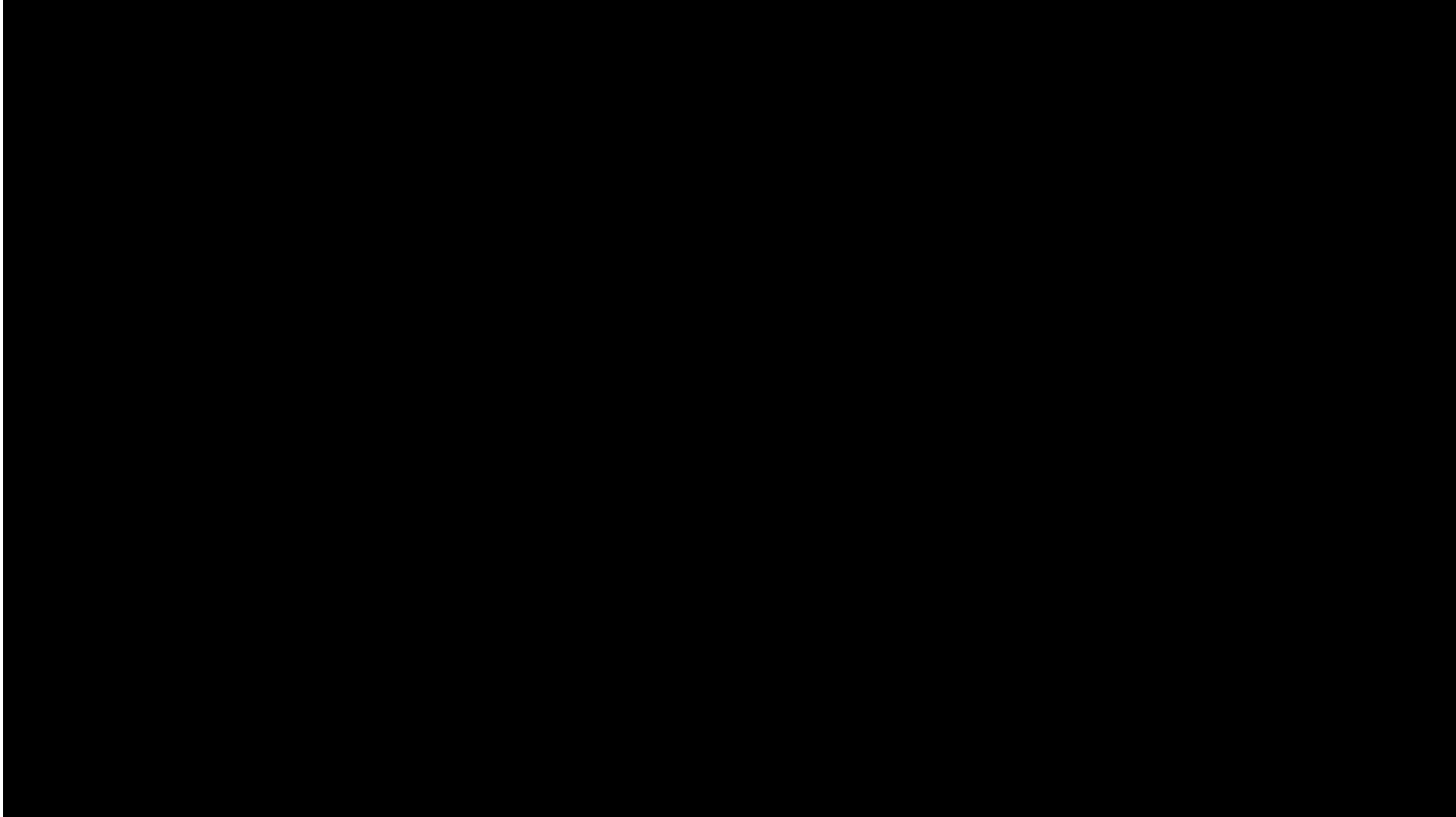
- Paste the following code into the module:

vba

 Copy code

```
Sub AutomateCopyPaste()  
    Dim i As Integer  
    Dim TotalLoops As Integer  
  
    ' Prompt user for the number of rows to process  
    TotalLoops = InputBox("Enter the number of rows to process:", "Automation")  
  
    For i = 1 To TotalLoops  
        ' Switch to the other application (ALT+TAB)  
        Application.SendKeys "%{TAB}", True  
        Application.Wait Now + TimeValue("00:00:01") ' Wait 1 second  
  
        ' Send the Down Arrow key
```

Time Savings/Efficiency Gains



Time Savings/Efficiency Gains

If I wanted to change the time to be .25 seconds, what would I change TimeValue("00:00:01") to?



To change the wait time to **0.25 seconds**, you would use:

vba

Copy code

```
Application.Wait Now + TimeValue("00:00:00.25")
```

However, the `TimeValue` function in VBA doesn't support fractions of a second. Instead, use a combination of `Application.Wait` or a precise delay using a `DoEvents` loop for shorter intervals.

Here's the updated VBA macro with precise 0.25-second delays using the `Timer` and `DoEvents` approach:

vba

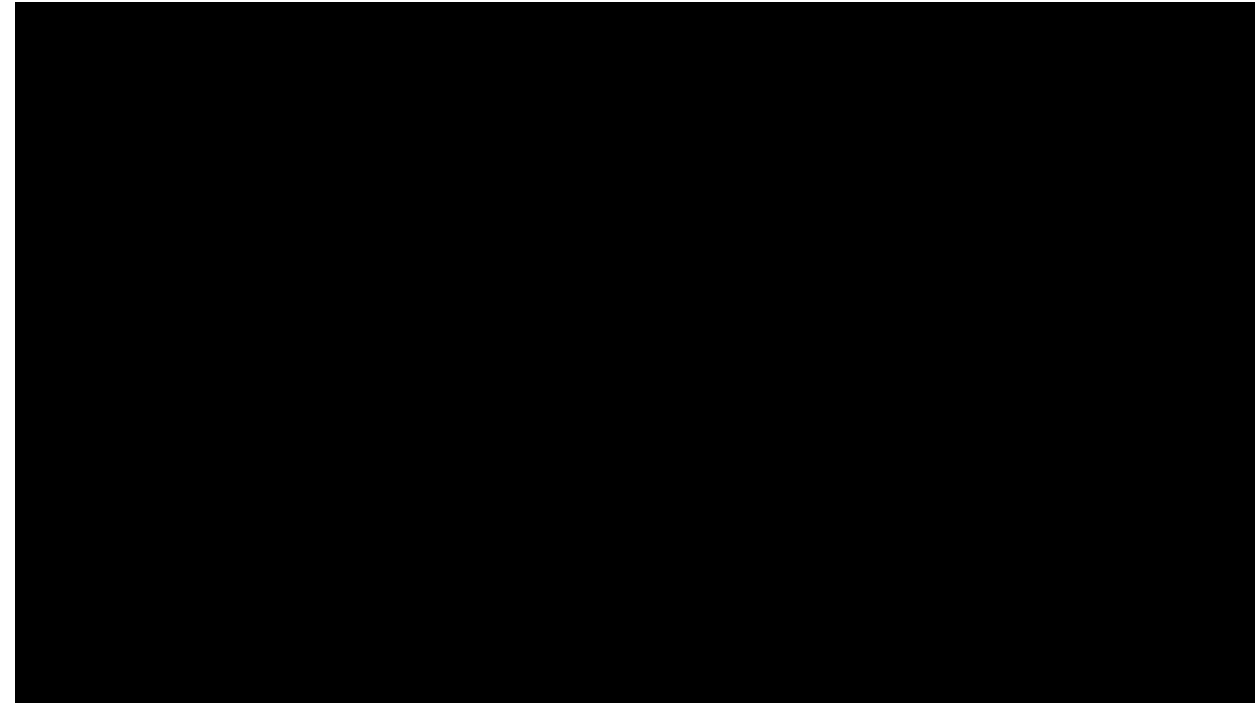
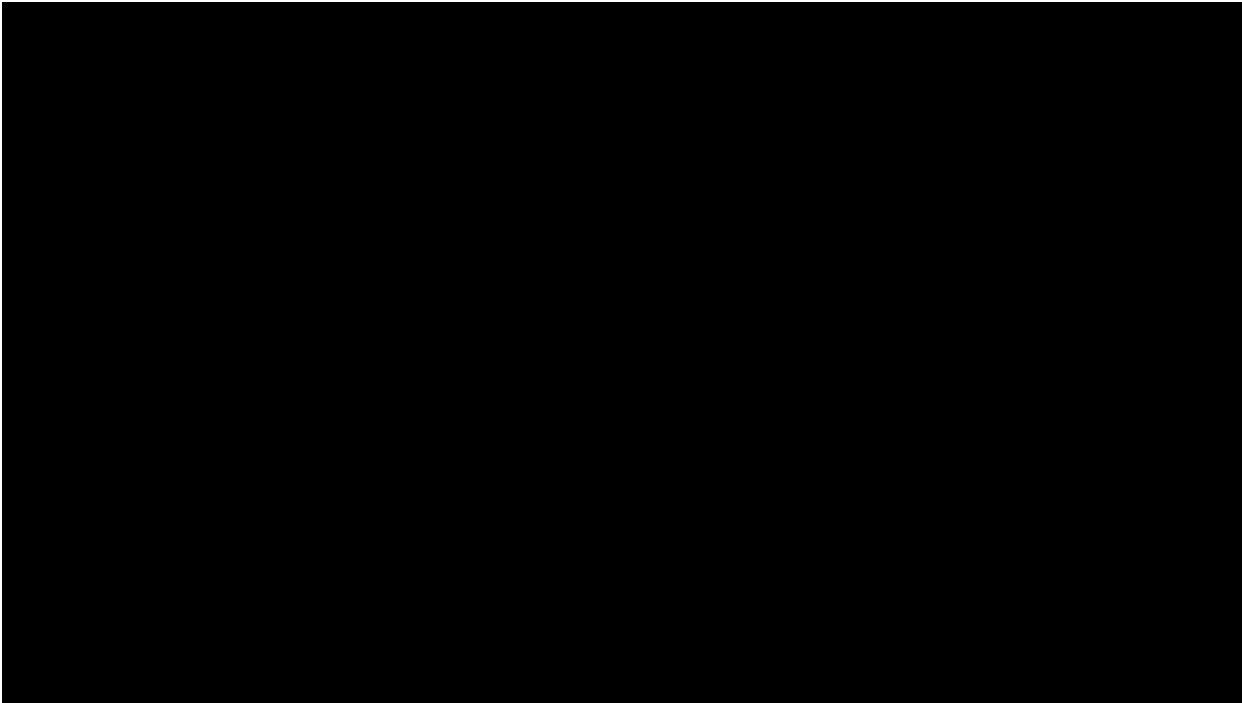
Copy code

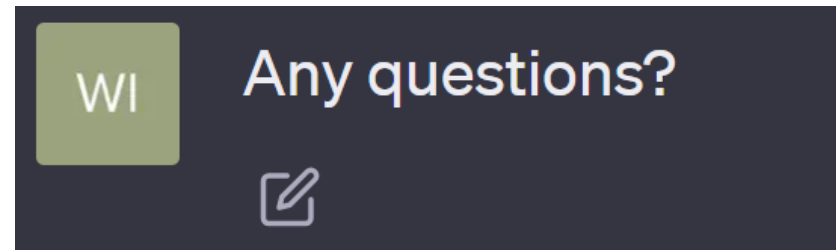
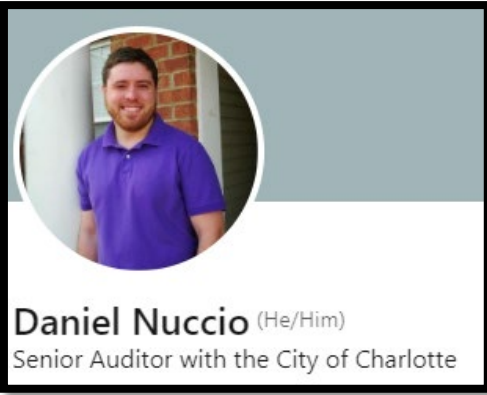
```
Sub AutomateCopyPaste()  
    Dim i As Integer  
    Dim TotalLoops As Integer
```

Time Savings/Efficiency Gains

Old

New





Feel free to email me!

Danny Nuccio – daniel.nuccio@charlottenc.gov