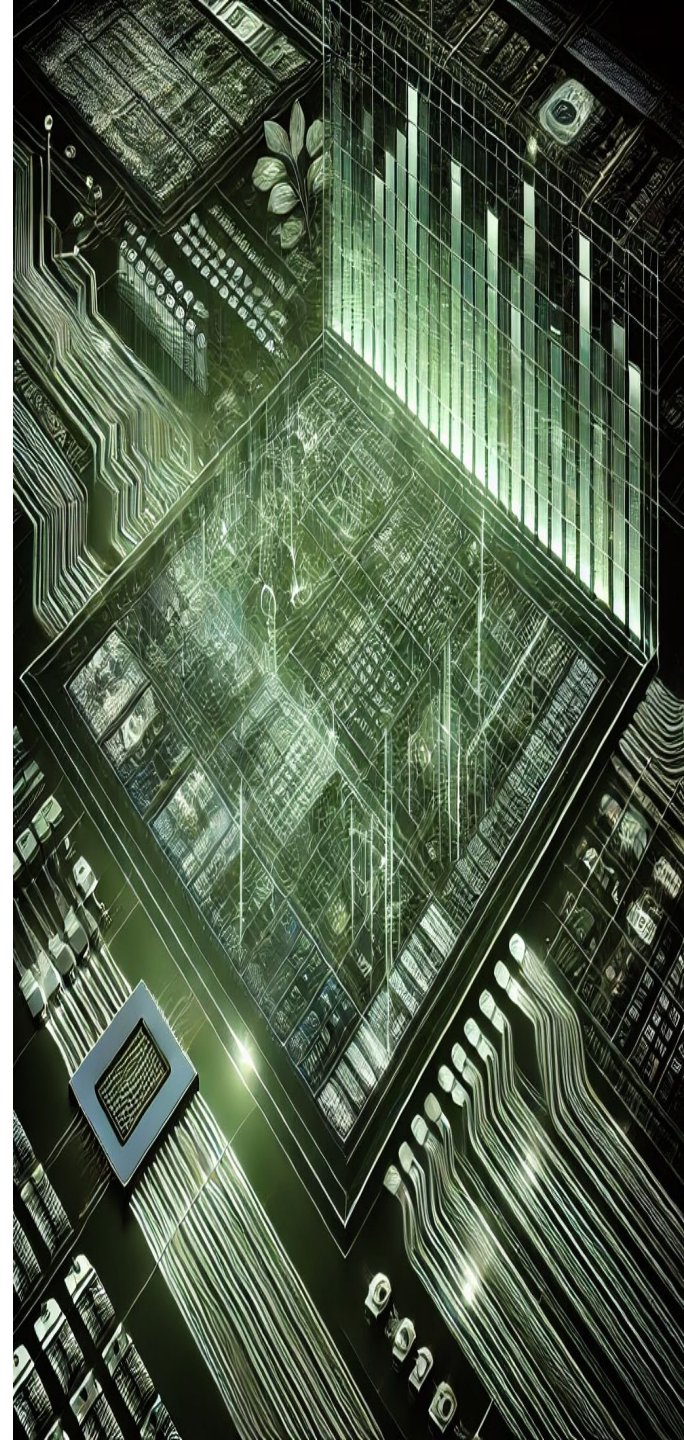


Technology Update: Beyond Spreadsheets – Generative AI and the Evolution of the Accounting Profession

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Belk College of Business
UNC Charlotte

NCACPA
Business & Industry Spring Conference
June 5, 2025
Greensboro, NC



Artificial Intelligence (AI)

- AI is a branch of computer science that enables machines to perform tasks that usually require human intelligence
- Examples:
 - Playing Chess
 - Computer Vision
 - Autonomous Driving



AI – Some Additional Terms

- Generative AI is a type of AI that can create new content, such as images, text, or music, based on training data
- Large Language Models are a type of generative AI that uses machine learning to analyze and generate human-like text

ChatGPT

- ChatGPT is a large language model, generative AI created by OpenAI
- ChatGPT was released for public use on November 30, 2022
- ChatGPT has experienced explosive growth
- The current estimate is that there are 300-400 million users
- GPT stands for Generative Pre-trained Transformer





ChatGPT

- ChatGPT is a text-based interface that starts with a prompt (the text you input) and then produces output text based on your prompt
- It is chat-based, meaning each exchange builds on the context of the previous conversation

ChatGPT Example

  ChatGPT ▾



Write a short poem about a funny accountant



The funny accountant, with numbers so neat,
Wears socks with calculators on both of his feet.
He balances books with a grin and a quirk,
Cracking jokes while he dives into paperwork.

He'll count up your pennies, he'll track every dime,
But somehow he'll rhyme while he's saving you time.
With laughter and ledgers, his work is pure gold—
A jester with spreadsheets, a joy to behold!



Get citation



Message ChatGPT



ChatGPT can make mistakes. Check important info.



ChatGPT Example - Continued

  ChatGPT ▾



The accountant's name is Mary



Mary the accountant, sharp as a tack,
Balances the books with humor and tact.
Her calculator clicks like a musical beat,
And jokes about taxes? She can't be beat!

She finds every dollar with laughter and cheer,
Cracking up clients year after year.
A queen of the ledgers, with wit that's so airy,
There's no one quite like accountant Mary!



Get citation



Message ChatGPT



ChatGPT can make mistakes. Check important info.

?

ChatGPT Example - Continued

  ChatGPT ▾



Use iambic pentameter like Shakespeare did



Fair Mary, master of the ledger's art,
With nimble fingers, swift and full of grace,
She counts the coin with laughter in her heart,
And balances accounts with merry face.

"Thy taxes, sir, are but a jest," she'll say,
"Yet fear not, for I shall set all aright!"
She spins her quill, as if it were a play,
And charms the sums to dance into the night.

Her numbers sing, her wit doth brightly shine,
For Mary's craft is truly most divine!

     ▾



Get citation



Message ChatGPT



Prompt Engineering

- Keys to writing good prompts:
 - Start with a clear and specific prompt that tells ChatGPT what you want to do:
 - Be specific by adding context
 - Who is the audience?
 - Where will it appear?
 - Be specific about the output you want
 - Is it an email?
 - A blog post?
 - Be clear by adding one or more examples
 - Use follow-up prompts to help fine-tune your query

ChatGPT – Prompt Design Example

Memo

To: Jack

From: [Your Name]

Date: [Insert Date]

Subject: Feedback on Performance and Areas for Growth

Write a memo to an employee named Jack, who is an accounting associate who is good at technical tasks, manages his time well, takes initiative but struggles when he is working with a team

Hi Jack,

I wanted to take a moment to provide you with some feedback on your performance. Your technical skills and ability to manage your time efficiently have not gone unnoticed. You consistently take initiative in handling your tasks, which is a significant strength in your role as an accounting associate. Your attention to detail and proactive approach make you a valuable asset to the team.

That said, I've noticed some challenges when it comes to working within a team. While your independent work is excellent, there are times when collaboration and communication within a group setting could be improved. Strengthening these skills will not only benefit the team but also enhance your overall effectiveness in future projects.

I'd like to discuss how we can support you in this area. Whether it's through team-building exercises, collaborative projects, or additional training, I'm here to help. Let's set up a time to meet and discuss a plan moving forward.

Keep up the great work on the technical front, and let's work together to build your teamwork skills.

Best regards,

[Your Name]

[Your Position]



ChatGPT – Prompt Design Example, Cont.

make the memo more direct

Memo

To: Jack

From: [Your Name]

Date: [Insert Date]

Subject: Performance Feedback and Teamwork Improvement

Jack,

You've been doing a great job with technical tasks and managing your time efficiently. Your ability to take initiative and handle your responsibilities independently is a strong asset.

However, I've noticed that working within a team is an area where you struggle. Collaboration and communication with your teammates need improvement. This is important for the overall success of our projects.

Let's focus on building your teamwork skills. I'd like to schedule a time to discuss specific steps you can take to improve in this area.

Thank you,

[Your Name]

[Your Position]



ChatGPT – Prompt Design Example, Cont.

make the memo more empathetic

Memo

To: Jack

From: [Your Name]

Date: [Insert Date]

Subject: Feedback on Performance and Team Collaboration

Hi Jack,

First, I want to recognize the hard work you've been putting into your technical tasks. Your ability to manage your time and take initiative has been a huge asset to the team, and I really appreciate the dedication you bring to your work.

That said, I've noticed some challenges when it comes to working within the team. I understand that teamwork can sometimes be difficult, especially when you're used to working independently. Improving in this area will help you work more effectively with others and contribute even more to our projects.

I'd like to support you in developing your teamwork skills. Let's schedule a time to discuss some strategies and approaches that could help you feel more comfortable and confident when collaborating with the team.

I'm confident that with a bit of focus, you'll continue to excel in all areas of your role.

Best regards,

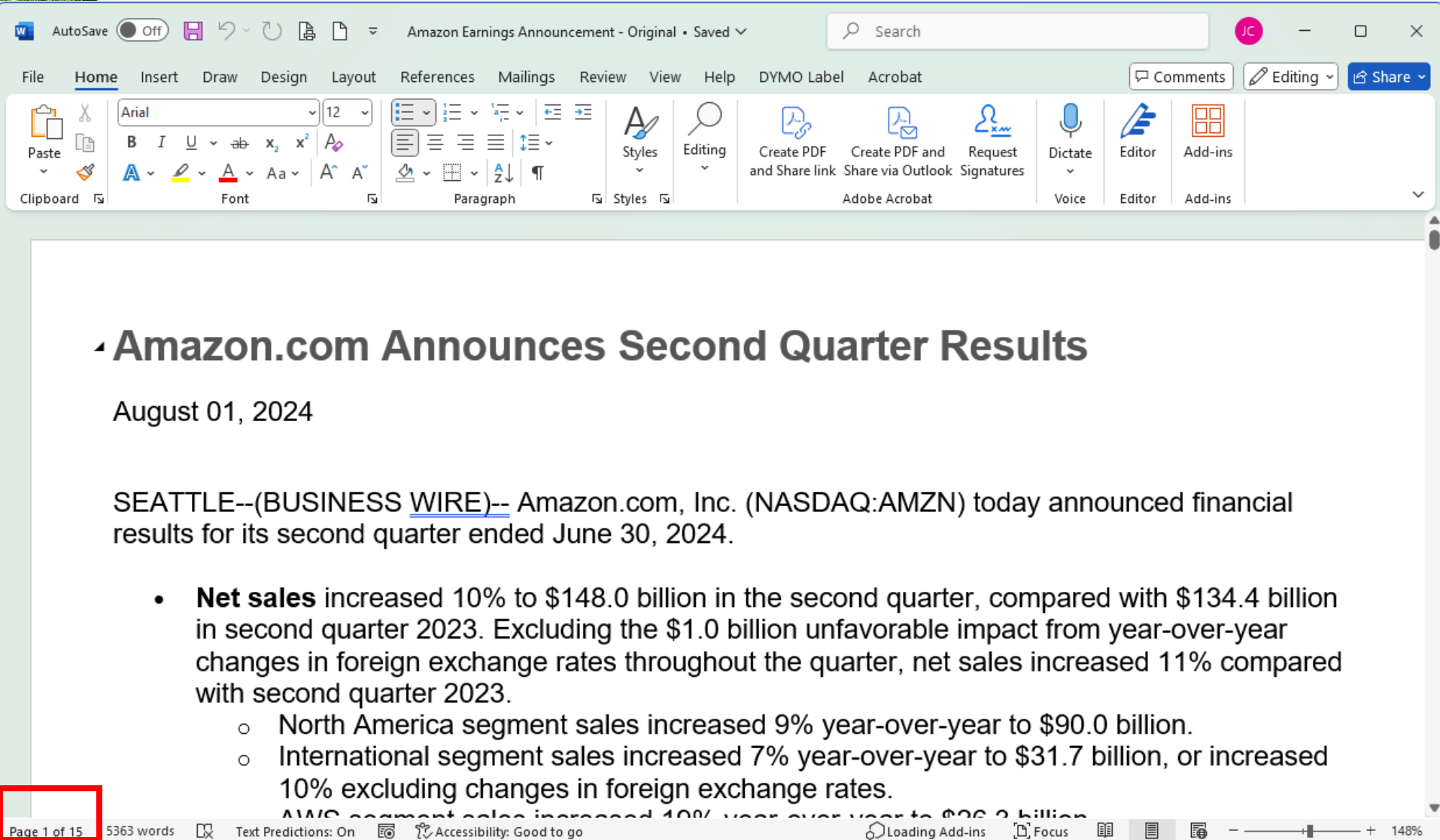
[Your Name]

[Your Position]

Other Example Uses for ChatGPT

- Summarizing documents
- Generating ideas
- Writing Excel macros

ChatGPT – Summarizing Text



The screenshot shows a Microsoft Word application window. The title bar reads 'Amazon Earnings Announcement - Original • Saved'. The ribbon is set to 'Home', showing options for Font, Paragraph, Styles, and Editing. The document content begins with a section header 'Amazon.com Announces Second Quarter Results' followed by the date 'August 01, 2024'. The main text starts with 'SEATTLE--(BUSINESS WIRE)-- Amazon.com, Inc. (NASDAQ:AMZN) today announced financial results for its second quarter ended June 30, 2024.' This is followed by a bulleted list of financial highlights. The status bar at the bottom indicates 'Page 1 of 15', '5363 words', and 'Text Predictions: On'.

AutoSave Off Amazon Earnings Announcement - Original • Saved Search

File Home Insert Draw Design Layout References Mailings Review View Help DYMO Label Acrobat Comments Editing Share

Paste Clipboard Font Paragraph Styles Editing Adobe Acrobat Voice Editor Add-ins

Amazon.com Announces Second Quarter Results

August 01, 2024

SEATTLE--(BUSINESS WIRE)-- Amazon.com, Inc. (NASDAQ:AMZN) today announced financial results for its second quarter ended June 30, 2024.

- Net sales** increased 10% to \$148.0 billion in the second quarter, compared with \$134.4 billion in second quarter 2023. Excluding the \$1.0 billion unfavorable impact from year-over-year changes in foreign exchange rates throughout the quarter, net sales increased 11% compared with second quarter 2023.
 - North America segment sales increased 9% year-over-year to \$90.0 billion.
 - International segment sales increased 7% year-over-year to \$31.7 billion, or increased 10% excluding changes in foreign exchange rates.

Page 1 of 15 5363 words Text Predictions: On Accessibility: Good to go Loading Add-ins Focus 148%

ChatGPT – Summarizing Text

summarize the following: Amazon.com Announces Second Quarter Results

August 01, 2024

SEATTLE--(BUSINESS WIRE)-- Amazon.com, Inc. (NASDAQ:AMZN) today announced financial results for its second quarter ended June 30, 2024.

- Net sales increased 10% to \$148.0 billion in the second quarter

Amazon reported a strong second quarter for 2024, with net sales increasing 10% year-over-year to \$148 billion. Excluding currency impacts, sales grew 11%. North America sales rose 9%, international sales increased 7%, and AWS sales surged 19%. Operating income doubled to \$14.7 billion, and net income nearly doubled to \$13.5 billion. The company also saw a significant increase in cash flow, with free cash flow up to \$53 billion.

Amazon's AWS segment continued to grow rapidly, benefiting from increased cloud adoption and AI capabilities. Amazon also expanded its service offerings, including faster Prime delivery, new AI-powered features, and new partnerships in cloud services. Key highlights included a successful 10th Prime Day, expanded Prime benefits, and new streaming content.

Looking ahead, Amazon expects Q3 2024 net sales to grow between 8% and 11% and operating income between \$11.5 billion and \$15 billion.

ChatGPT – Creating Titles for a Presentation

what are ten titles that could be used for a presentation to a group of CPAs about the accounting profession and large language models

Here are ten title ideas that balance professionalism and intrigue, tailored for a presentation to a group of CPAs about the accounting profession and large language models (LLMs):

1. "Beyond the Ledger: How Large Language Models Are Reshaping Accounting"
2. "From Trial Balance to AI: The Role of LLMs in Modern Accounting"
3. "Audit Meets Algorithm: What CPAs Need to Know About Large Language Models"
4. "The Future Is Now: LLMs and the Evolution of the Accounting Profession"
5. "ChatGPT and the CPA: Risks, Rewards, and Real-World Applications"
6. "Accounting Intelligence: Leveraging LLMs for Efficiency and Insight"
7. "AI-Assisted Accounting: Enhancing Professional Judgment with LLMs"
8. "Balancing Accuracy and Automation: Ethical Considerations for CPAs Using LLMs"
9. "Decoding AI: What Every CPA Should Know About Large Language Models"
10. "Workpapers and Word Vectors: Integrating LLMs Into the CPA Workflow"

Would you like these to be more formal, more playful, or perhaps geared toward a specific topic like audit, tax, advisory, or ethics?

ChatGPT – Write an Excel Macro

Write an Excel Macro that copies the text in a cell and names the file based on an adjacent cell, then moves down a row and does this for all the occupied cells in a file

Here's a VBA macro that will copy text from a specific column, save it as a text file named after an adjacent cell, and continue this process for all occupied cells in the worksheet. The macro assumes that the text to be copied is in Column A and the filenames are in Column B, starting from row 1.

VBA Macro Code

1. Press **ALT + F11** to open the VBA editor.
2. Click on **Insert > Module** to create a new module.
3. Copy and paste the code below into the module:

```
vba Copy code

Sub SaveCellsAsTextFiles()
    Dim ws As Worksheet
    Dim i As Long
    Dim lastRow As Long
    Dim textContent As String
    Dim fileName As String
    Dim filePath As String

    ' Set the worksheet
    Set ws = ThisWorkbook.Sheets("Sheet1") ' Change "Sheet1" to your actual sheet name if needed

    ' Define the output folder path (you can change this path as needed)
    filePath = ThisWorkbook.Path & "\Output\"

    ' Create the output folder if it doesn't exist
    If Dir(filePath, vbDirectory) = "" Then
```



A Helpful ChatGPT Recipe

- Frame the problem and ask for common causes
- Ask what data is useful for analyzing the problem and designing action plans
- Ask for action plans to deal with the problem

ChatGPT Recipe Example

Our uncollectible accounts receivable have increased this year from last year. What are the most common causes of this?



An increase in uncollectible accounts receivable (also known as bad debts) typically points to issues in credit management or changes in customer behavior or economic conditions. Common causes include:

1. **Relaxed credit policies** – Extending credit to higher-risk customers or reducing credit evaluation standards can lead to more defaults.
2. **Economic downturn or customer financial stress** – Customers may be less able to pay due to job loss, inflation, or declining sales in their own businesses.
3. **Ineffective collection processes** – Delays in follow-ups, inconsistent communication, or lack of escalation procedures can reduce recovery rates.
4. **Customer base changes** – A shift toward newer, smaller, or less-established customers can increase risk.
5. **Industry-specific issues** – If your industry is experiencing a slowdown, that may impact your customers' ability to pay.
6. **Billing or invoicing errors** – Inaccurate invoices or disputes can delay payment and eventually lead to write-offs.
7. **Internal controls lapses** – Weaknesses in monitoring receivables or enforcing payment terms can result in higher defaults.
8. **Fraudulent accounts** – An uptick in fraudulent or illegitimate customers could increase bad debts.

Would you like help analyzing your accounts receivable data to identify which of these might apply?

ChatGPT Recipe Example – Cont.

What sort of data should I look at to get a better understanding of this

To better understand the increase in uncollectible accounts receivable, you should analyze a combination of accounts receivable, customer, credit, and collections data. Here's a breakdown of key data categories and specific metrics or fields to examine:

1. Aging of Accounts Receivable

- **Accounts Receivable Aging Report:** Compare current and prior year by aging buckets (e.g., 0–30, 31–60, 61–90, >90 days).
- **% of receivables overdue:** How much of the total A/R is overdue compared to last year?

2. Write-Off Trends

- **Write-offs by customer:** Are certain customers or industries responsible for most bad debts?
- **Write-offs by sales rep, region, or product:** Are some segments riskier?
- **Time from invoice to write-off:** How long before accounts are declared uncollectible?

3. Credit Policy & Risk

- **Customer credit limits and scores:** Have you extended credit to more risky customers?
- **Change in average credit score or rating:** Are new customers less creditworthy?
- **Credit approval logs:** Have there been changes in credit approval rates?

4. Collections Activity

- **Collection activity logs:** Number of follow-up calls/emails, timing, and escalation.
- **Days Sales Outstanding (DSO):** Has this metric worsened?
- **Collection effectiveness index (CEI):** How effective are your collections compared to targets?

5. Customer Payment Behavior

- **Payment history and trends:** Are long-time customers starting to pay slower?
- **New vs. existing customers:** Are newer accounts more likely to default?

6. Economic or Industry Indicators

ChatGPT Recipe Example – Cont.

Can you recommend some action plans that I should pursue

Yes, here are targeted action plans you can pursue to address and reduce the rise in uncollectible accounts receivable, organized by focus area:

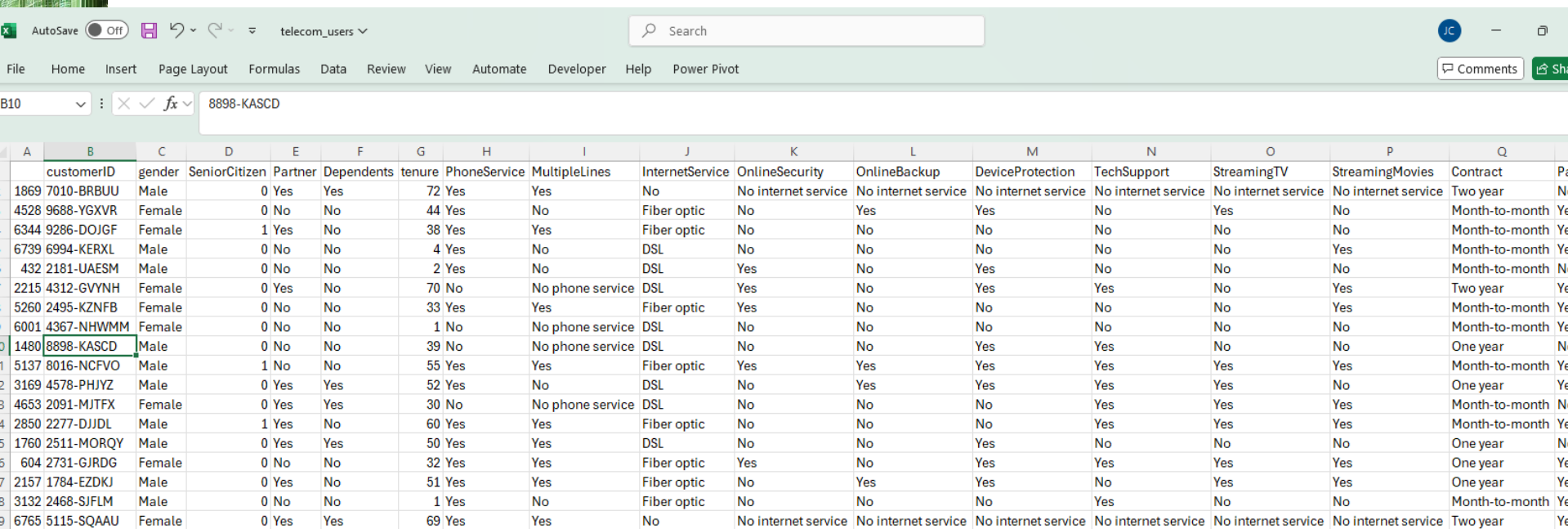
- 1. Credit Policy Tightening** – Reassess credit approval criteria (e.g., use third-party credit scores, review financials). Implement tiered credit limits based on customer risk. Require upfront payments or deposits for new/risky customers.
- 2. Proactive Collections** – Automate reminders (e.g., 7/15/30 days past due). Prioritize high-risk or high-balance accounts. Escalate quickly (e.g., external collections at 60 days). Offer early payment discounts or structured payment plans.
- 3. Billing and Process Review** – Audit invoices for errors or disputes. Ensure billing/contact info is current. Move to electronic invoicing or portals for real-time visibility.
- 4. Monitoring & Reporting** – Create A/R aging dashboards with KPIs like DSO and % overdue. Segment A/R by customer/product/region. Track collector performance and collection effectiveness index.
- 5. Customer Relationship Management** – Assign account managers to key customers. Reach out to customers in distress and offer payment plans. Suspend service for chronically late/defaulting customers.
- 6. Write-Off and Recovery Procedures** – Set clear thresholds for write-off approval. Use third-party collections for aged accounts. Regularly review bad debt allowance.

ChatGPT and Data

- So far, we have been using ChatGPT to generate text. What about using it to analyze data?
- At first, it might not seem to be a good use, but when you recall that data analysis is often preformed by programs, and programs are text, perhaps ChatGPT can be helpful

ChatGPT – Analyzing Data and Making Recommendations

- Data – Customer churn data for a mobile phone company in a .csv file – fields have short names



AutoSave Off | Search | telecom_users | Comments | Share

File Home Insert Page Layout Formulas Data Review View Automate Developer Help Power Pivot

B10 : X ✓ fx 8898-KASCD

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
		customerID	gender	SeniorCitizen	Partner	Dependents	tenure	PhoneService	MultipleLines	InternetService	OnlineSecurity	OnlineBackup	DeviceProtection	TechSupport	StreamingTV	StreamingMovies	Contract	PaymentMethod
		1869 7010-BRBUU	Male	0	Yes	Yes	72	Yes	Yes	No	No internet service	No internet service	No internet service	No internet service	No internet service	No internet service	Two year	No
1		4528 9688-YGXVR	Female	0	No	No	44	Yes	No	Fiber optic	No	Yes	Yes	No	Yes	No	Month-to-month	Yes
2		6344 9286-DOJGF	Female	1	Yes	No	38	Yes	Yes	Fiber optic	No	No	No	No	No	No	Month-to-month	Yes
3		6739 6994-KERXL	Male	0	No	No	4	Yes	No	DSL	No	No	No	No	No	Yes	Month-to-month	Yes
4		432 2181-UAESM	Male	0	No	No	2	Yes	No	DSL	Yes	No	Yes	No	No	No	Month-to-month	No
5		2215 4312-GVYNH	Female	0	Yes	No	70	No	No phone service	DSL	Yes	No	Yes	Yes	No	Yes	Two year	Yes
6		5260 2495-KZNFB	Female	0	No	No	33	Yes	Yes	Fiber optic	Yes	No	No	No	No	Yes	Month-to-month	Yes
7		6001 4367-NHWMM	Female	0	No	No	1	No	No phone service	DSL	No	No	No	No	No	No	Month-to-month	Yes
8		1480 8898-KASCD	Male	0	No	No	39	No	No phone service	DSL	No	No	Yes	Yes	No	No	One year	No
9		5137 8016-NCFVO	Male	1	No	No	55	Yes	Yes	Fiber optic	Yes	Yes	Yes	Yes	Yes	Yes	Month-to-month	No
10		3169 4578-PHIYZ	Male	0	Yes	Yes	52	Yes	No	DSL	No	Yes	Yes	Yes	Yes	No	One year	Yes
11		4653 2091-MJTFX	Female	0	Yes	Yes	30	No	No phone service	DSL	No	No	No	Yes	Yes	Yes	Month-to-month	No
12		2850 2277-DJJDL	Male	1	Yes	No	60	Yes	Yes	Fiber optic	No	No	No	Yes	Yes	Yes	Month-to-month	Yes
13		1760 2511-MORQY	Male	0	Yes	Yes	50	Yes	Yes	DSL	No	No	Yes	No	No	No	One year	No
14		604 2731-GJRDG	Female	0	No	No	32	Yes	Yes	Fiber optic	Yes	No	Yes	Yes	Yes	Yes	One year	Yes
15		2157 1784-EZDKJ	Male	0	Yes	No	51	Yes	Yes	Fiber optic	No	Yes	Yes	No	Yes	Yes	One year	Yes
16		3132 2468-SJFLM	Male	0	No	No	1	Yes	No	Fiber optic	No	No	No	Yes	No	No	Month-to-month	Yes
17		6765 5115-SQAAU	Female	0	Yes	Yes	69	Yes	Yes	No	No internet service	No internet service	No internet service	No internet service	No internet service	No internet service	Two year	Yes

ChatGPT – Analyzing Data and Making Recommendations – Cont.

Describe this data



The dataset contains information about telecom customers with 22 columns and 5,986 rows. Here is a brief overview of the key columns and their contents:

1. **Unnamed: 0:** Appears to be an index column that may not be useful.
2. **customerID:** Unique identifier for each customer.
3. **gender:** Gender of the customer (Male/Female).
4. **SeniorCitizen:** Indicates if the customer is a senior citizen (1 for Yes, 0 for No).
5. **Partner:** Indicates if the customer has a partner (Yes/No).
6. **Dependents:** Indicates if the customer has dependents (Yes/No).
7. **tenure:** Number of months the customer has been with the company.
8. **PhoneService:** Indicates if the customer has phone service (Yes/No).
9. **MultipleLines:** Indicates if the customer has multiple lines (Yes/No/No phone service).
10. **InternetService:** Type of internet service (DSL, Fiber optic, No).
11. **OnlineSecurity, OnlineBackup, DeviceProtection, TechSupport, StreamingTV, StreamingMovies:** Indicate the availability of respective services.
12. **Contract:** Type of contract (Month-to-month, One year, Two year).
13. **PaperlessBilling:** Indicates if the billing is paperless (Yes/No).
14. **PaymentMethod:** Payment method (Electronic check, Mailed check, Bank transfer, Credit card).
15. **MonthlyCharges:** The amount charged to the customer monthly.
16. **TotalCharges:** The total amount charged to the customer, though stored as an object type, which may need cleaning.
17. **Churn:** Indicates if the customer has left the service (Yes/No).

Let me know if you would like further analysis or any specific insights from this data! [~]

ChatGPT – Analyzing Data and Making Recommendations – Cont.

Preform exploratory data analysis with visuals



The dataset contains 22 columns and 5986 rows, with the following key details:

- The dataset appears to be about telecom customers with various attributes related to their service usage, demographics, and churn status.
- Most columns are categorical, such as `gender`, `InternetService`, `PaymentMethod`, and `Churn`.
- The `TotalCharges` column is currently stored as an object, which suggests there might be some non-numeric values that need cleaning.

Let's clean and explore the data visually, focusing on key insights related to churn, service usage, and customer demographics. [↵]

The dataset has been cleaned by converting the `TotalCharges` column to numeric and handling missing values, resulting in 10 rows removed due to missing `TotalCharges`.

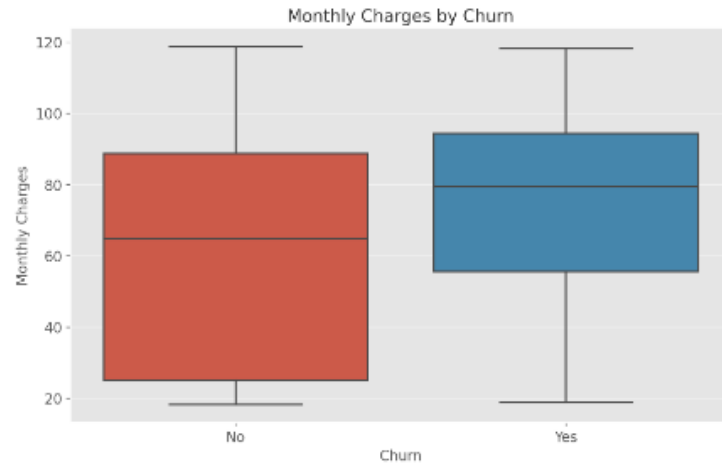
Key Descriptive Statistics:

- The average monthly charge is approximately \$64.85.
- The average total charges are around \$2298.06, with significant variability among customers.
- The average tenure is about 32.5 months, with a maximum tenure of 72 months.
- About 16% of the customers are senior citizens.

ChatGPT – Analyzing Data and Making Recommendations – Cont.

Monthly Charges By Churn

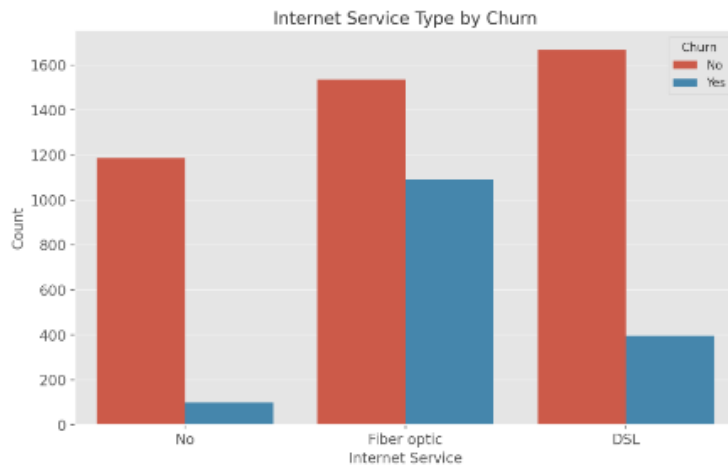
Now interactive! (Beta) 🌟



Preform exploratory data analysis with visuals

Internet Service Type By Churn

Now interactive! (Beta) 🌟



Monthly Charges by Churn: Customers who churn tend to have higher monthly charges, suggesting that higher costs may contribute to churn.

Internet Service Type by Churn: Fiber optic customers have a higher churn rate compared to DSL and those with no internet service, highlighting that service type may influence churn behavior.

ChatGPT – Analyzing Data and Making Recommendations – Cont.

Steps:

Determine the most important factors that drive customer churn

1. **Data Cleaning:** Ensure all data is in the correct format, especially the `TotalCharges` column, which seems to be stored as an object type.
2. **Data Exploration:** Understand the relationships between features and the target variable (`Churn`).
3. **Feature Engineering:** Prepare data for modeling.
4. **Model Training:** Use a model to identify important features driving churn.
5. **Feature Importance Analysis:** Determine the most important factors.

Let's start with data cleaning and exploration.

The analysis identified the most important factors driving customer churn as follows:

1. **TotalCharges:** The total amount charged to the customer.
2. **MonthlyCharges:** The monthly amount charged to the customer.
3. **tenure:** The number of months the customer has been with the company.
4. **Contract:** Type of contract (Month-to-month, One year, Two year).
5. **PaymentMethod:** The method of payment used by the customer.
6. **OnlineSecurity:** Availability of online security service.
7. **TechSupport:** Availability of technical support service.
8. **InternetService:** Type of internet service (DSL, Fiber optic, No).
9. **gender:** Gender of the customer.
10. **PaperlessBilling:** Whether the customer uses paperless billing.

The most influential factors are related to billing and service terms, such as total charges, monthly charges, and tenure, along with contract type and service availability.

Let me know if you need further analysis or specific insights on any of these factors! [↪]

ChatGPT – Analyzing Data and Making Recommendations – Cont.

Based on the key factors driving customer churn identified from the data, here are targeted strategies to improve customer retention:

Tell me how to improve customer retention based on this data

1. Address High Charges (TotalCharges and MonthlyCharges)

- **Offer Discounts and Promotions:** For customers with high monthly charges, offer personalized discounts, loyalty rewards, or bundled packages that reduce overall costs.
- **Flexible Payment Plans:** Introduce flexible payment options, such as installment plans, for customers with high total charges to ease their financial burden.

2. Improve Tenure (Encourage Longer Stay)

- **Loyalty Programs:** Implement loyalty programs that reward customers for longer tenure, such as free months of service, upgrades, or special perks after a certain period.
- **Contract Renewal Incentives:** Offer incentives for customers who renew their contracts or switch from month-to-month to longer-term contracts (e.g., reduced rates for 12- or 24-month commitments).

3. Optimize Contract Types

- **Promote Long-Term Contracts:** Since shorter contracts are linked with higher churn, promote long-term contracts by highlighting cost savings and added benefits.
- **Reduce Month-to-Month Churn:** Provide additional perks for month-to-month customers, such as free tech support or limited-time offers to extend their stay.

4. Enhance Payment Methods

- **Incentivize Automatic Payments:** Encourage customers to switch to automated payment methods like bank transfers or credit cards by offering small discounts or rewards points.
- **Address Payment Issues Promptly:** Improve customer support for resolving payment issues to reduce frustration and churn related to billing disputes.

5. Boost Service Quality (OnlineSecurity, TechSupport)

- **Improve Technical Support:** Provide fast and more efficient tech support, with options like

Another Use – Custom GPTs

- You can create a custom GPT that is trained on specific documents and does specific tasks
- Example: I train ChatGPT on my class notes and have it create multiple-choice questions for my students

AIS Chapter 14 Information Systems and Controls ▾



How many multiple-choice questions would you like to answer?
You will have two attempts for each question.

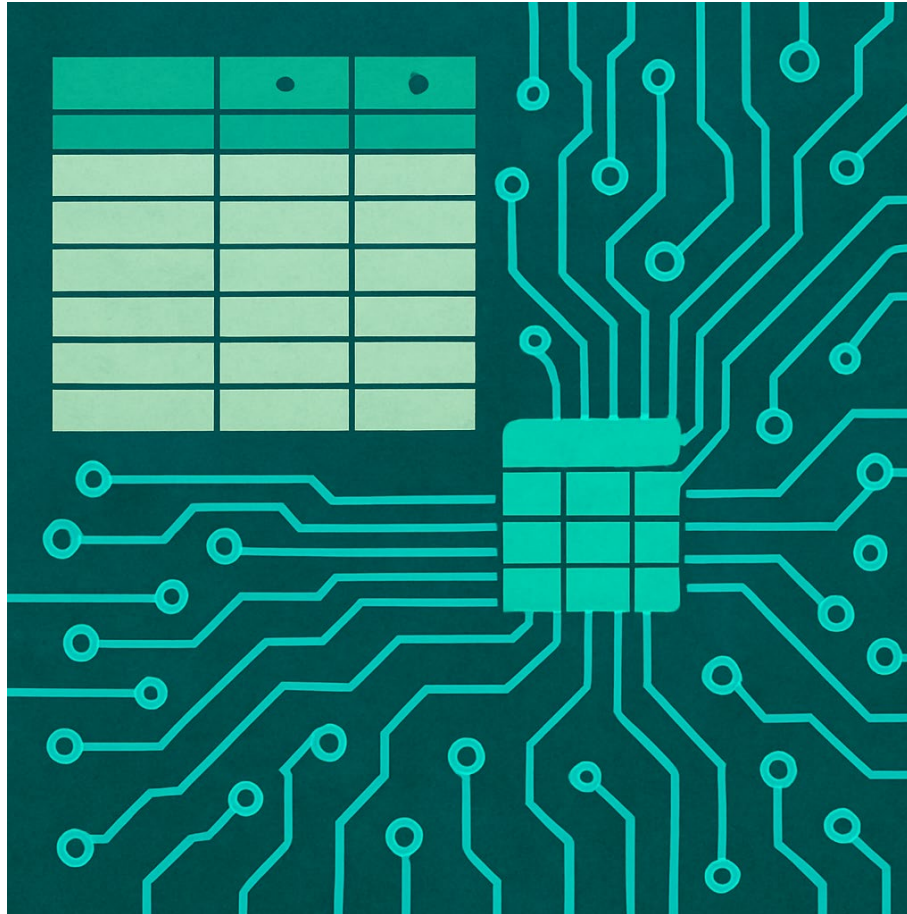
Great! Based on the notes you uploaded from Chapter 14, I'm ready to quiz you.

How many multiple-choice questions would you like to answer?



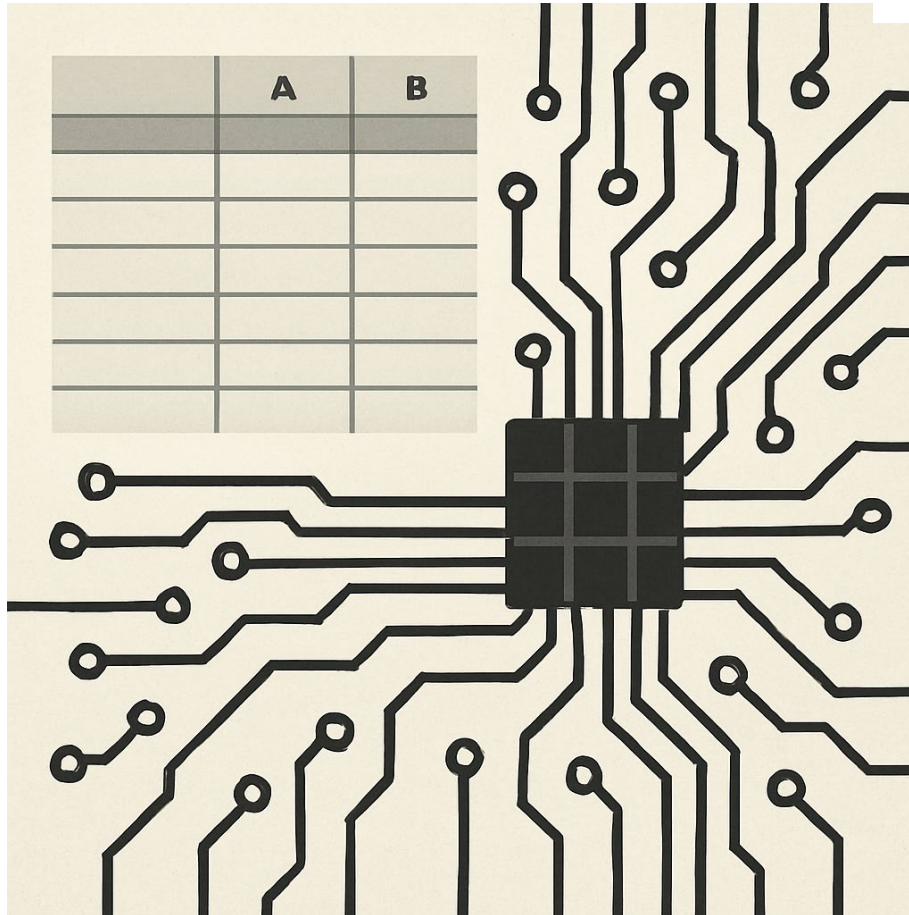
Another Use – Image Creation

create an abstract image that combines circuits and spreadsheets



ChatGPT– Image Creation – Cont.

make the background lighter and the foreground darker



ChatGPT/LLM Risks

- Hallucinations – ChatGPT will often produce text that sounds great but is incorrect
- Classic example:
 - Prompt: When did Leonardo da Vinci paint the Mona Lisa?
 - ChatGPT response: Leonardo da Vinci painted the Mona Lisa in 1815.
 - Correct answer: The Mona Lisa was painted between 1503 and 1506, or perhaps continuing until 1517.
- My example – Citations of research related to Critical Audit Matters – 18 out of 20 were completely fictitious (but sounded good)
- The new, more powerful reasoning models appear to hallucinate at a higher rate, so at this point, the problem is getting worse, not better

ChatGPT/LLM Risks – Continued

- Privacy – When you input your prompt, you are giving that information to OpenAI, and it could be used to train future models
 - You can opt out, but you are trusting OpenAI to follow your request
- Bias – ChatGPT models are trained on existing text; if that text has bias, then the model output will have bias
 - For example, I have asked ChatGPT to write the funny accountant poem 20 or more times, and the accountant has never been a female
 - Other forms of bias can be more subtle
- Lack of Repeatability – the same prompt will typically produce different results each time you run it
 - The same prompt generates different outputs
 - This is just like humans
 - There are model parameters like temperature and Top p that impact how different/random/creative the replies are

ChatGPT/LLM Risks – Continued

- Malicious Use – Tools like this can be used to create misinformation and malware
 - A recent study found that phishing emails created using LLMs were as effective as those created by expert humans. The difference is that LLMs can create them at scale.
- Intellectual Property Rights for LLM Content
 - There are ongoing disputes between intellectual property rights holders and the companies that have trained their models on
 - In addition, copyright in the U.S. is not currently available for material generated by LLMs

ChatGPT/LLM Risks – Continued

- Transparency and Accountability - LLM models cannot currently be audited or verified
- Dependency and Deskilling – As people rely on LLMs, they may reduce their capacity for critical thinking and creativity
 - Studies to date have shown that some workers with LLM augmented jobs show lower job satisfaction

Mitigating ChatGPT/LLM Risk

- Hallucinations – perform a thorough review of LLM output
- Privacy:
 - Develop company policies related to model use and the kind of prompts and data that may be input
 - Consider privately-hosted models to reduce risk
- Bias – Consider bias audits when considering a model for use
- Intellectual Property – Discuss with legal counsel and review agreements with model providers
- Dependency – Cross-train workflows that utilize models to keep skills sharp

ChatGPT Models

Model	Description
4o	Best current general model, trained on Oct 2023 data
4o-mini	Faster, slightly less powerful version of 4o, cheaper if you are paying per token
4	Previous base model, replaced by 4o
4.5	Newest model, in preview mode, higher accuracy rate and lower hallucination rate than 4o
o3-mini	Faster and cheaper per token than 4o, better at logic and reasoning
o3-mini-high	Similar to o3-mini, but puts more compute into reasoning

ChatGPT Competitors

- Google Gemini – a close competitor to ChatGPT, with access to more current data
- Anthropic Claude – another ChatGPT competitor, has strengths in coding and creativity
- Meta Llama – available as an open-source model
- And many, many others including DeepSeek and Grok

ChatGPT and Search Engines

- Remember that ChatGPT and other LLMs are not generally search engines
 - If you want to find the best price on a new set of tires for your car, use a Search Engine
 - Of course, given the value of advertising, you might expect this feature to become increasingly common
 - And, in reverse, you would also expect search engine companies to start offering LLM features
 - These lines will continue to blur



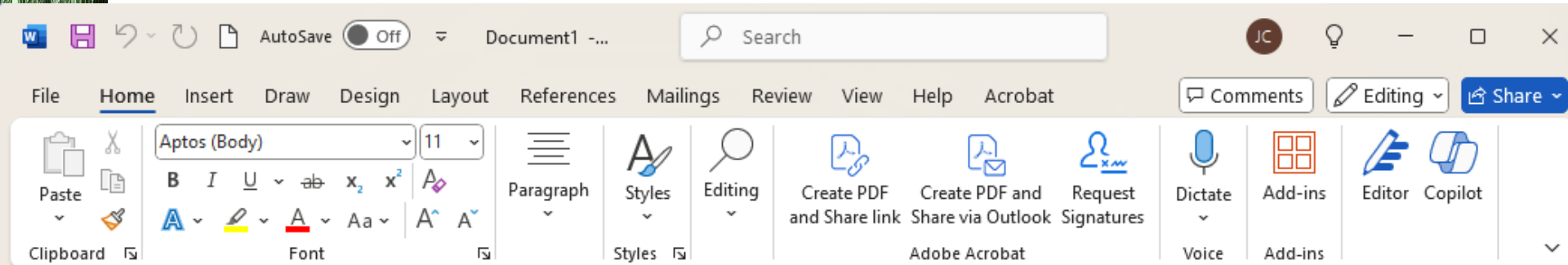
ChatGPT – What Is It Really - Conclusion

- ChatGPT is a solid assistant for many tasks
- Think of it like an intern that you hired for the summer
- It can do some basic tasks well
- One more time
 - Never ask it to do something you could not do yourself
 - Never send ChatGPT output to someone else without a thorough review

Microsoft Copilot

- To date, Microsoft has invested an estimated \$13 billion in OpenAI, the creators of ChatGPT
- Copilot is moving some of the tasks that a large language model, generative AI like ChatGPT can perform inside Office applications
- Microsoft also uses the Copilot brand in other products and offerings
- Copilot Pro is currently offered to Office 365 users for a fee of \$20 per month
- Copilot features will be introduced in Waves. Currently Wave 2 has been released.

Copilot for Word - Create



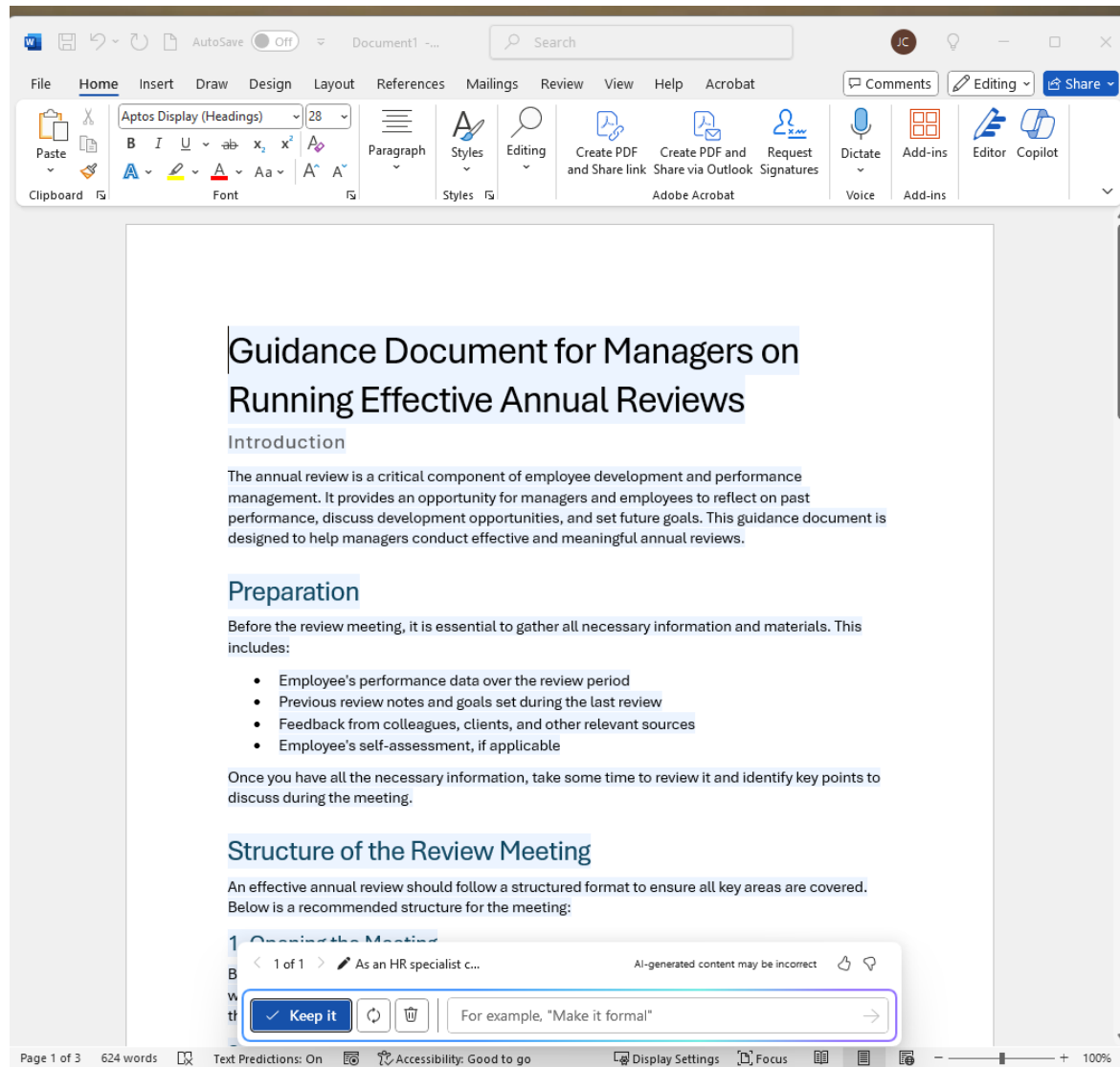
Draft with Copilot

As an HR specialist create a guidance document for managers about how to run an effective annual review with employees. Remember to not just focus on historic performance but also about development and future goals. Produce a checklist for managers that they can use to ensure they've hit all of the points in their review.

325/2000

Generate

Copilot for Word - Create



The screenshot displays the Microsoft Word interface with the 'Home' tab selected. The ribbon shows various editing tools like Paste, Font, Paragraph, Styles, and Editing. The main document area contains a title 'Guidance Document for Managers on Running Effective Annual Reviews' and an 'Introduction' section. The text describes the annual review as a critical component of employee development. Below this is a 'Preparation' section with a bulleted list of items to gather before a review meeting. The 'Structure of the Review Meeting' section follows, mentioning a structured format. At the bottom, a Copilot chat window is open, showing a prompt 'As an HR specialist C...' and a response 'For example, "Make it formal"'. The status bar at the bottom indicates 'Page 1 of 3', '624 words', and 'Accessibility: Good to go'.

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

Paste Font Paragraph Styles Editing Create PDF and Share link Create PDF and Share via Outlook Request Signatures Dictate Add-ins Editor Copilot

Guidance Document for Managers on Running Effective Annual Reviews

Introduction

The annual review is a critical component of employee development and performance management. It provides an opportunity for managers and employees to reflect on past performance, discuss development opportunities, and set future goals. This guidance document is designed to help managers conduct effective and meaningful annual reviews.

Preparation

Before the review meeting, it is essential to gather all necessary information and materials. This includes:

- Employee's performance data over the review period
- Previous review notes and goals set during the last review
- Feedback from colleagues, clients, and other relevant sources
- Employee's self-assessment, if applicable

Once you have all the necessary information, take some time to review it and identify key points to discuss during the meeting.

Structure of the Review Meeting

An effective annual review should follow a structured format to ensure all key areas are covered. Below is a recommended structure for the meeting:

1. Opening the Meeting

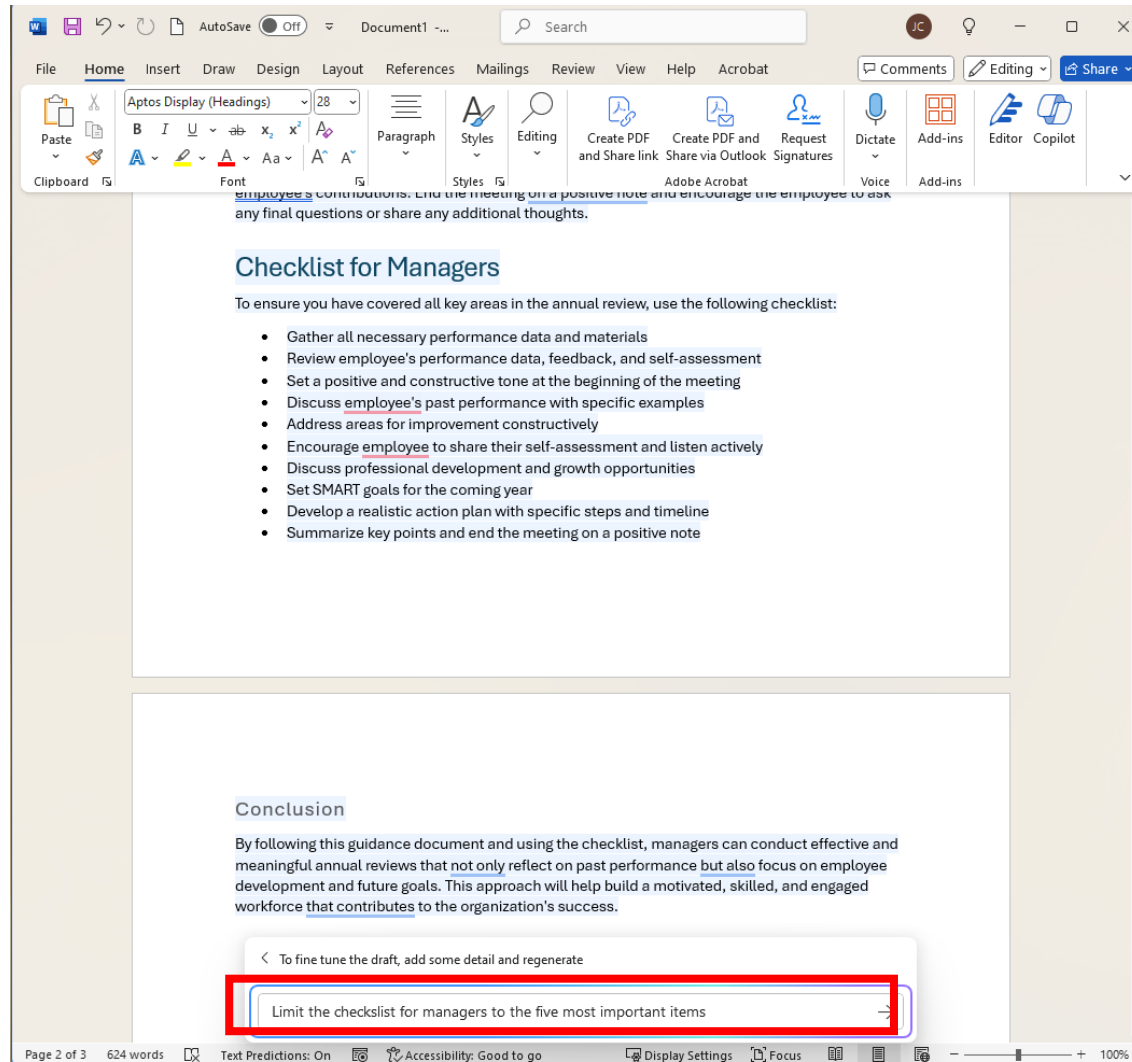
As an HR specialist C...

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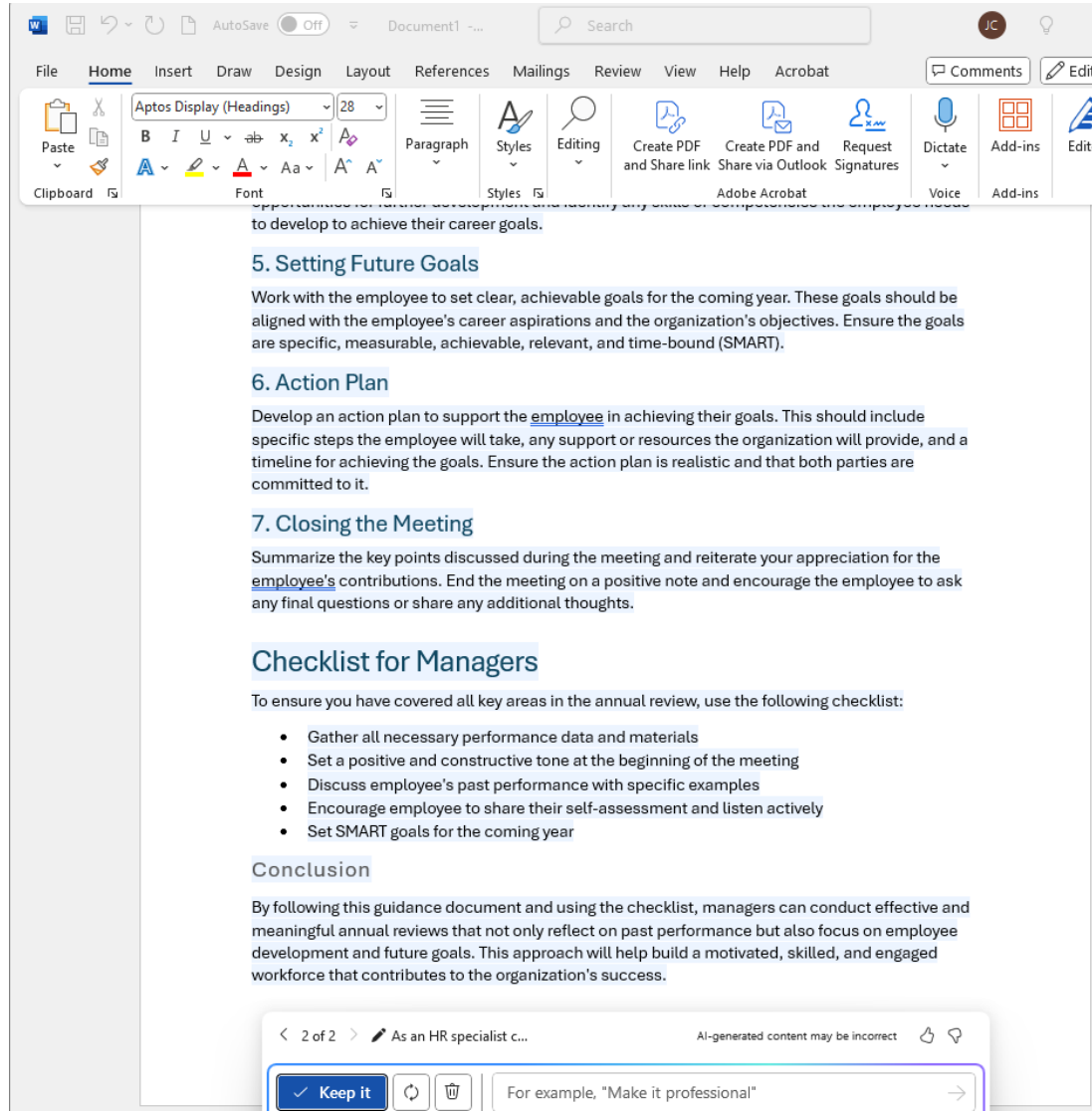
Keep it For example, "Make it formal"

Page 1 of 3 624 words Text Predictions: On Accessibility: Good to go Display Settings Focus 100%

Copilot for Word - Create



Copilot for Word - Create



The screenshot displays the Microsoft Word application window. The title bar shows "Document1 - Word". The ribbon is set to "Home", with the "Font" group selected. The font face is "Aptos Display (Headings)" and the size is "28". The document content includes several sections: "5. Setting Future Goals", "6. Action Plan", "7. Closing the Meeting", "Checklist for Managers", and "Conclusion". The text is generated by Copilot, as indicated by the "As an HR specialist c..." prompt at the bottom. A status bar at the bottom shows "2 of 2" and "AI-generated content may be incorrect". A "Keep it" button is visible in the bottom right corner.

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

Clipboard Paste Font Paragraph Styles Editing Create PDF and Share link Create PDF and Share via Outlook Request Signatures Dictate Add-ins Edit

to develop to achieve their career goals.

5. Setting Future Goals

Work with the employee to set clear, achievable goals for the coming year. These goals should be aligned with the employee's career aspirations and the organization's objectives. Ensure the goals are specific, measurable, achievable, relevant, and time-bound (SMART).

6. Action Plan

Develop an action plan to support the employee in achieving their goals. This should include specific steps the employee will take, any support or resources the organization will provide, and a timeline for achieving the goals. Ensure the action plan is realistic and that both parties are committed to it.

7. Closing the Meeting

Summarize the key points discussed during the meeting and reiterate your appreciation for the employee's contributions. End the meeting on a positive note and encourage the employee to ask any final questions or share any additional thoughts.

Checklist for Managers

To ensure you have covered all key areas in the annual review, use the following checklist:

- Gather all necessary performance data and materials
- Set a positive and constructive tone at the beginning of the meeting
- Discuss employee's past performance with specific examples
- Encourage employee to share their self-assessment and listen actively
- Set SMART goals for the coming year

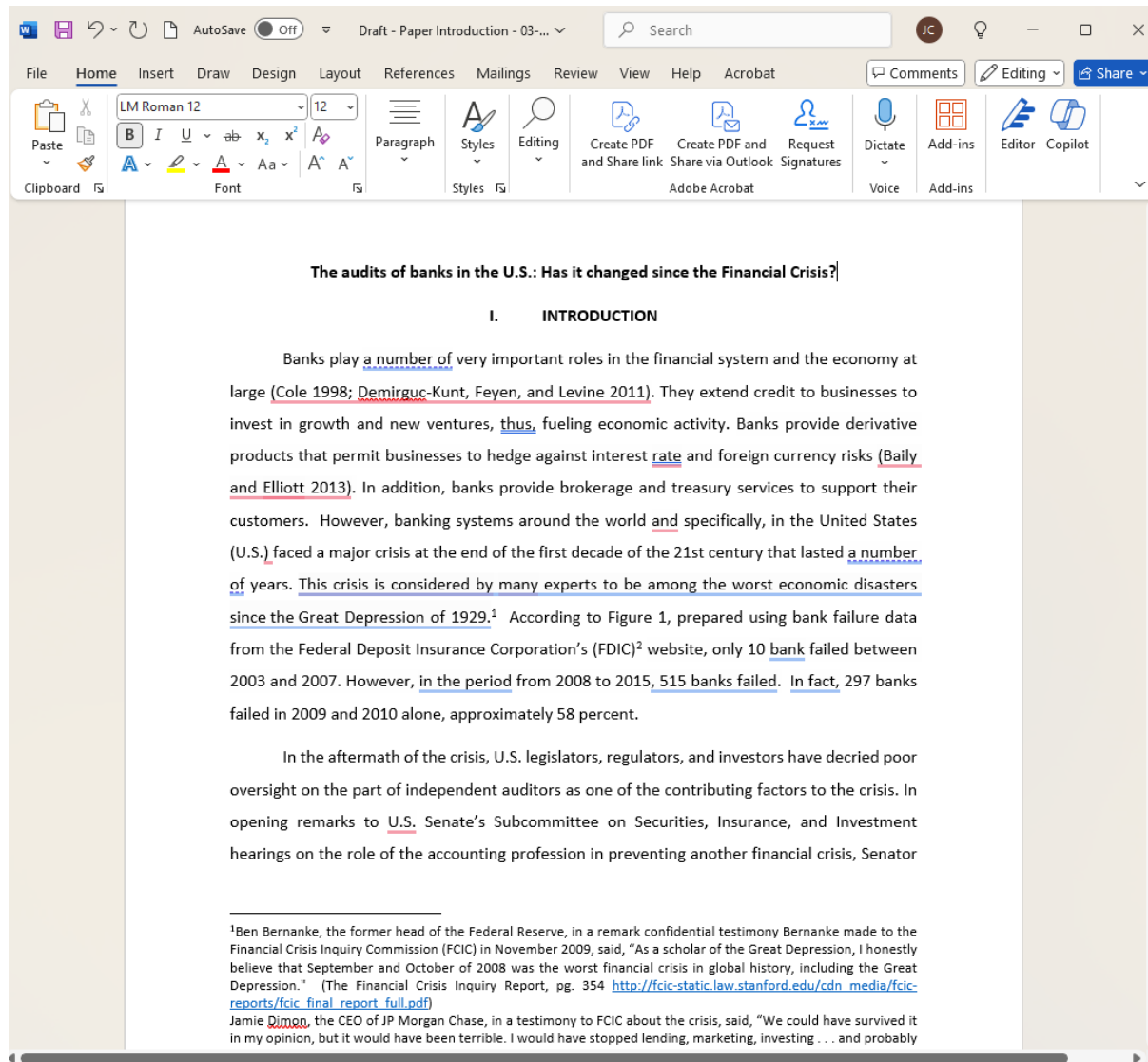
Conclusion

By following this guidance document and using the checklist, managers can conduct effective and meaningful annual reviews that not only reflect on past performance but also focus on employee development and future goals. This approach will help build a motivated, skilled, and engaged workforce that contributes to the organization's success.

< 2 of 2 > As an HR specialist c... AI-generated content may be incorrect

Keep it For example, "Make it professional"

Copilot for Word - Edit



The screenshot displays the Microsoft Word application window. The title bar shows the file name "Draft - Paper Introduction - 03-..." and standard window controls. The ribbon is set to the "Home" tab, with the "Font" group selected, showing "LM Roman 12" and "12" for the font face and size. The "Paragraph" group is also visible. The document content is as follows:

The audits of banks in the U.S.: Has it changed since the Financial Crisis?

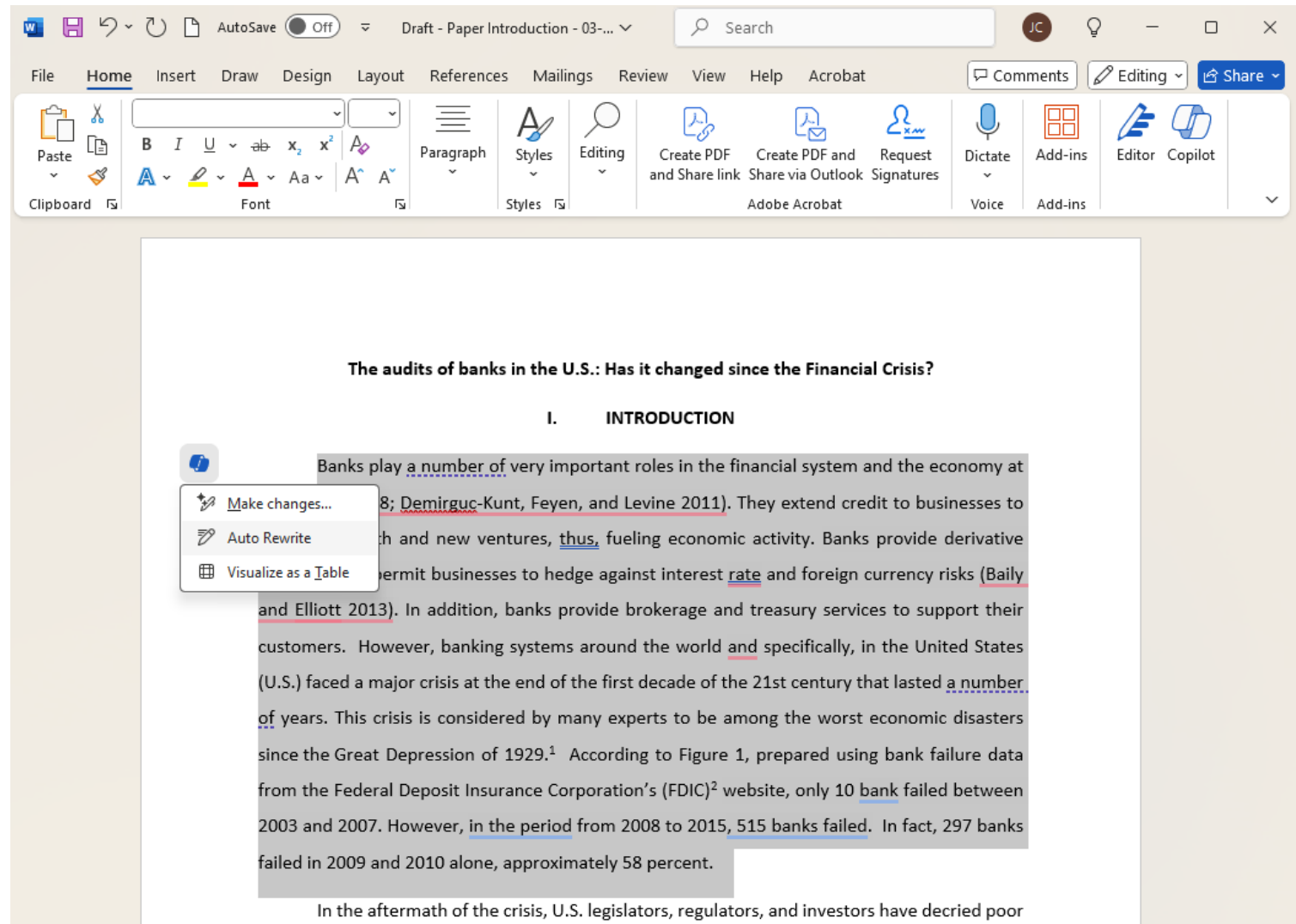
I. INTRODUCTION

Banks play a number of very important roles in the financial system and the economy at large (Cole 1998; Demirguc-Kunt, Feyen, and Levine 2011). They extend credit to businesses to invest in growth and new ventures, thus, fueling economic activity. Banks provide derivative products that permit businesses to hedge against interest rate and foreign currency risks (Baily and Elliott 2013). In addition, banks provide brokerage and treasury services to support their customers. However, banking systems around the world and specifically, in the United States (U.S.) faced a major crisis at the end of the first decade of the 21st century that lasted a number of years. This crisis is considered by many experts to be among the worst economic disasters since the Great Depression of 1929.¹ According to Figure 1, prepared using bank failure data from the Federal Deposit Insurance Corporation's (FDIC)² website, only 10 bank failed between 2003 and 2007. However, in the period from 2008 to 2015, 515 banks failed. In fact, 297 banks failed in 2009 and 2010 alone, approximately 58 percent.

In the aftermath of the crisis, U.S. legislators, regulators, and investors have decried poor oversight on the part of independent auditors as one of the contributing factors to the crisis. In opening remarks to U.S. Senate's Subcommittee on Securities, Insurance, and Investment hearings on the role of the accounting profession in preventing another financial crisis, Senator

¹Ben Bernanke, the former head of the Federal Reserve, in a remark confidential testimony Bernanke made to the Financial Crisis Inquiry Commission (FCIC) in November 2009, said, "As a scholar of the Great Depression, I honestly believe that September and October of 2008 was the worst financial crisis in global history, including the Great Depression." (The Financial Crisis Inquiry Report, pg. 354 http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_full.pdf)
Jamie Dimon, the CEO of JP Morgan Chase, in a testimony to FCIC about the crisis, said, "We could have survived it in my opinion, but it would have been terrible. I would have stopped lending, marketing, investing . . . and probably

Copilot for Word - Edit



The screenshot displays the Microsoft Word application window. The title bar shows "Draft - Paper Introduction - 03-...". The ribbon is set to the "Home" tab, with the "Font" group expanded. The "Copilot" button is visible in the top right corner of the ribbon. The main document area contains the following text:

The audits of banks in the U.S.: Has it changed since the Financial Crisis?

I. INTRODUCTION

Banks play a number of very important roles in the financial system and the economy at 8; Demirguc-Kunt, Feyen, and Levine 2011). They extend credit to businesses to h and new ventures, thus, fueling economic activity. Banks provide derivative permit businesses to hedge against interest rate and foreign currency risks (Baily and Elliott 2013). In addition, banks provide brokerage and treasury services to support their customers. However, banking systems around the world and specifically, in the United States (U.S.) faced a major crisis at the end of the first decade of the 21st century that lasted a number of years. This crisis is considered by many experts to be among the worst economic disasters since the Great Depression of 1929.¹ According to Figure 1, prepared using bank failure data from the Federal Deposit Insurance Corporation's (FDIC)² website, only 10 bank failed between 2003 and 2007. However, in the period from 2008 to 2015, 515 banks failed. In fact, 297 banks failed in 2009 and 2010 alone, approximately 58 percent.

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A context menu is open over the text "Banks play a number of very important roles in the financial system and the economy at 8; Demirguc-Kunt, Feyen, and Levine 2011). They extend credit to businesses to h and new ventures, thus, fueling economic activity. Banks provide derivative permit businesses to hedge against interest rate and foreign currency risks (Baily and Elliott 2013). In addition, banks provide brokerage and treasury services to support their customers. However, banking systems around the world and specifically, in the United States (U.S.) faced a major crisis at the end of the first decade of the 21st century that lasted a number of years. This crisis is considered by many experts to be among the worst economic disasters since the Great Depression of 1929.¹ According to Figure 1, prepared using bank failure data from the Federal Deposit Insurance Corporation's (FDIC)² website, only 10 bank failed between 2003 and 2007. However, in the period from 2008 to 2015, 515 banks failed. In fact, 297 banks failed in 2009 and 2010 alone, approximately 58 percent." The menu options are:

- Make changes...
- Auto Rewrite
- Visualize as a Table

Copilot for Word - Edit

The screenshot displays the Microsoft Word application window. The title bar indicates the document is "Draft - Paper Introduction - 03-...". The ribbon is set to the "Home" tab, showing options for Clipboard, Font, Paragraph, Styles, and Editing. The document content is as follows:

The audits of banks in the U.S.: Has it changed since the Financial Crisis?

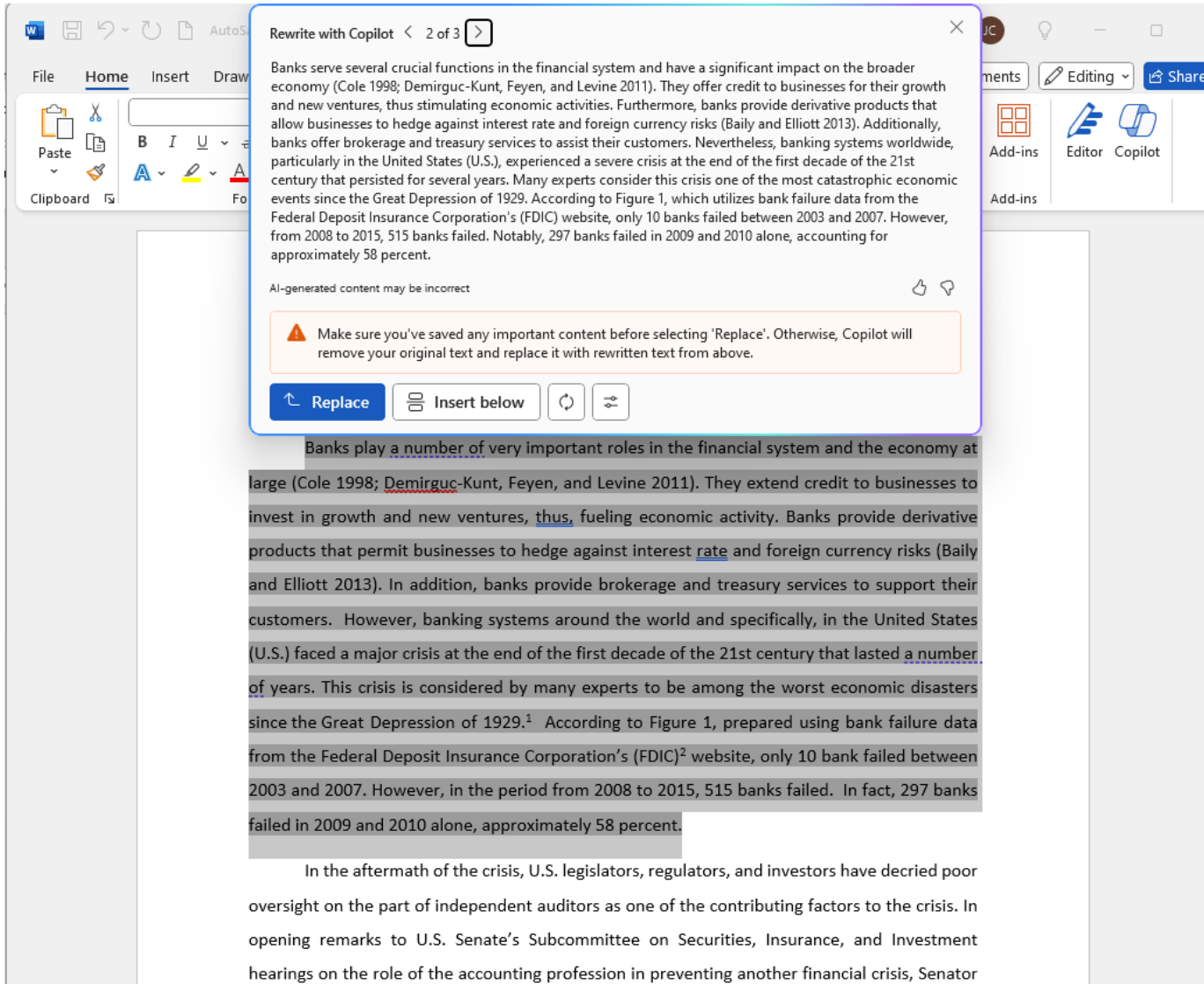
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A Copilot sidebar is open on the right, titled "Rewrite with Copilot < 1 of 3 >". It contains a rewritten version of the paragraph above. Below the text, it states "AI-generated content may be incorrect" with a thumbs up and thumbs down icon. A warning message at the bottom says: "Make sure you've saved any important content before selecting 'Replace'. Otherwise, Copilot will remove your original text and replace it with rewritten text from above." At the bottom of the sidebar are buttons for "Replace", "Insert below", and a refresh icon.

Page 1 of 54 175 of 14785 words

Copilot for Word - Edit



Rewrite with Copilot < 2 of 3

Banks serve several crucial functions in the financial system and have a significant impact on the broader economy (Cole 1998; Demirguc-Kunt, Feyen, and Levine 2011). They offer credit to businesses for their growth and new ventures, thus stimulating economic activities. Furthermore, banks provide derivative products that allow businesses to hedge against interest rate and foreign currency risks (Baily and Elliott 2013). Additionally, banks offer brokerage and treasury services to assist their customers. Nevertheless, banking systems worldwide, particularly in the United States (U.S.), experienced a severe crisis at the end of the first decade of the 21st century that persisted for several years. Many experts consider this crisis one of the most catastrophic economic events since the Great Depression of 1929. According to Figure 1, which utilizes bank failure data from the Federal Deposit Insurance Corporation's (FDIC) website, only 10 banks failed between 2003 and 2007. However, from 2008 to 2015, 515 banks failed. Notably, 297 banks failed in 2009 and 2010 alone, accounting for approximately 58 percent.

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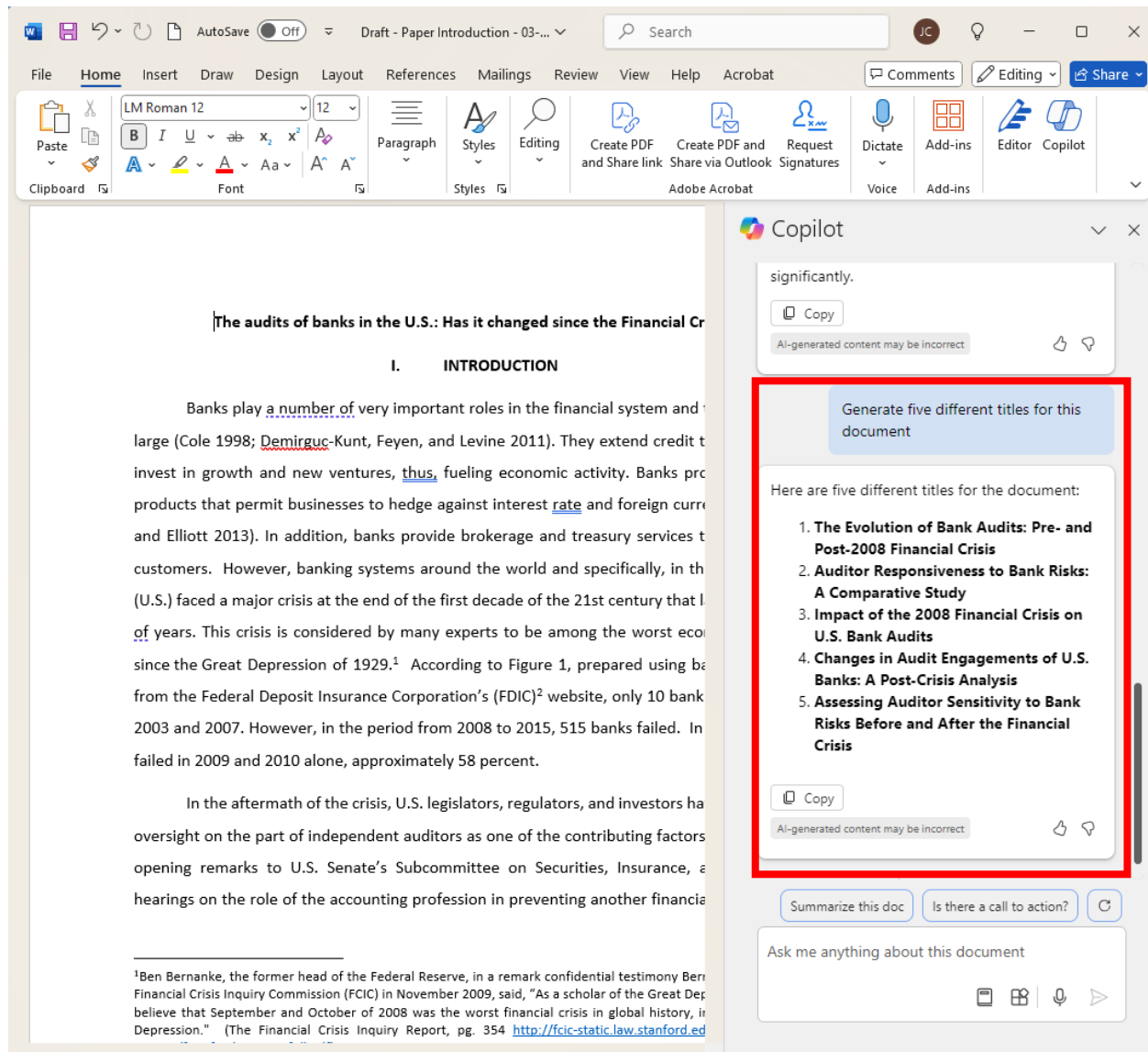
⚠ Make sure you've saved any important content before selecting 'Replace'. Otherwise, Copilot will remove your original text and replace it with rewritten text from above.

↶ Replace 📄 Insert below ↻ 🔁

Banks play a number of very important roles in the financial system and the economy at large (Cole 1998; Demirguc-Kunt, Feyen, and Levine 2011). They extend credit to businesses to invest in growth and new ventures, thus, fueling economic activity. Banks provide derivative products that permit businesses to hedge against interest rate and foreign currency risks (Baily and Elliott 2013). In addition, banks provide brokerage and treasury services to support their customers. However, banking systems around the world and specifically, in the United States (U.S.) faced a major crisis at the end of the first decade of the 21st century that lasted a number of years. This crisis is considered by many experts to be among the worst economic disasters since the Great Depression of 1929.¹ According to Figure 1, prepared using bank failure data from the Federal Deposit Insurance Corporation's (FDIC)² website, only 10 bank failed between 2003 and 2007. However, in the period from 2008 to 2015, 515 banks failed. In fact, 297 banks failed in 2009 and 2010 alone, approximately 58 percent.

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Copilot for Word – Edit/Create



The screenshot shows the Microsoft Word interface with the Copilot sidebar on the right. The document title is "Draft - Paper Introduction - 03-...". The Copilot sidebar is highlighted with a red box, showing a prompt to generate five different titles for the document. The document content is visible in the background.

The audits of banks in the U.S.: Has it changed since the Financial Cr

I. INTRODUCTION

Banks play a number of very important roles in the financial system and large (Cole 1998; Demirgüç-Kunt, Feyen, and Levine 2011). They extend credit to invest in growth and new ventures, thus, fueling economic activity. Banks provide products that permit businesses to hedge against interest rate and foreign currency (U.S.) faced a major crisis at the end of the first decade of the 21st century that lasted for years. This crisis is considered by many experts to be among the worst economic since the Great Depression of 1929.¹ According to Figure 1, prepared using data from the Federal Deposit Insurance Corporation's (FDIC)² website, only 10 banks failed in 2003 and 2007. However, in the period from 2008 to 2015, 515 banks failed. In 2009 and 2010 alone, approximately 58 percent.

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¹Ben Bernanke, the former head of the Federal Reserve, in a remark confidential testimony before the Financial Crisis Inquiry Commission (FCIC) in November 2009, said, "As a scholar of the Great Depression, I believe that September and October of 2008 was the worst financial crisis in global history, in the Depression." (The Financial Crisis Inquiry Report, pg. 354 <http://fcic-static.law.stanford.edu>)

Copilot

significantly.

Copy

AI-generated content may be incorrect

Generate five different titles for this document

Here are five different titles for the document:

1. The Evolution of Bank Audits: Pre- and Post-2008 Financial Crisis
2. Auditor Responsiveness to Bank Risks: A Comparative Study
3. Impact of the 2008 Financial Crisis on U.S. Bank Audits
4. Changes in Audit Engagements of U.S. Banks: A Post-Crisis Analysis
5. Assessing Auditor Sensitivity to Bank Risks Before and After the Financial Crisis

Copy

AI-generated content may be incorrect

Summarize this doc Is there a call to action?

Ask me anything about this document

Copilot for Word - Summarize

The screenshot displays the Microsoft Word interface with the Copilot sidebar on the right. The document title is "Draft - Paper Introduction - 03-...". The ribbon shows the "Home" tab with various formatting options. The Copilot sidebar contains two main sections: "Understand" and "Ask". The "Understand" section has a prompt "Summarize this doc [in 3 key points]". The "Ask" section has a prompt "How can I more concisely describe [time management?]". At the bottom of the sidebar, there is a red box highlighting a prompt: "Summarize this document in three paragraphs". Below this prompt are icons for document, table, and voice input, followed by a right-pointing arrow.

The audits of banks in the U.S.: Has it changed since the Financial Cr

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Page 1 of 54 14785 words Text Predictions: On Accessibility: Investigate Display Settings Focus 100%

A vertical, high-contrast photograph of a modern building facade. The image shows a grid-like pattern, likely a glass curtain wall, reflecting light and showing architectural details. The perspective is looking up, emphasizing the height and scale of the structure. The lighting is dramatic, with strong highlights and deep shadows, creating a sense of depth and texture.



Copilot for Word – Ask Questions

The audits of banks in the U.S.: Has it changed since the Financial Crisis?

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In the aftermath of the crisis, U.S. legislators, regulators, and investors have placed more oversight on the part of independent auditors as one of the contributing factors to the crisis. In opening remarks to U.S. Senate's Subcommittee on Securities, Insurance, and Credit, hearings on the role of the accounting profession in preventing another financial crisis, U.S. Senator Charles Schumer (D-NY) said:

¹Ben Bernanke, the former head of the Federal Reserve, in a remark confidential testimony before the Financial Crisis Inquiry Commission (FCIC) in November 2009, said, "As a scholar of the Great Depression, I believe that September and October of 2008 was the worst financial crisis in global history, in the history of the United States." (The Financial Crisis Inquiry Report, pg. 354 <http://fcic-static.law.stanford.edu>)

Copilot Summary: The 2008 financial crisis severely weakened the U.S. banking system, leading to the failure of 515 banks between 2008 and 2015, compared to just 10 between 2003 and 2007, with major institutions like Lehman Brothers collapsing. ¹ ²

- **Criticism of Auditors:** In the aftermath of the crisis, auditors faced criticism for not identifying financial irregularities that contributed to the collapse of numerous banks, resulting in several high-profile lawsuits against major accounting firms like Ernst & Young, KPMG, PwC, and Deloitte. ³ ⁴
- **Changes in Auditor Responsiveness:** The study finds that auditors are more responsive to bank credit and liquidity risks in the post-crisis period, evidenced by higher audit fees and longer audit report lags, although their sensitivity to interest rate risks did not change significantly. ⁵ ⁶

AI-generated content may be incorrect. 6 References

Change topic

Summarize this doc Is there a call to action?

What risks are auditors more sensitive to after the financial crisis?

Page 1 of 54 14785 words Text Predictions: On Accessibility: Investigate Display Settings Focus 100%

Copilot for Word – Ask Questions

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Copilot

Changes in auditor responsiveness: This study finds that auditors are more responsive to bank credit and liquidity risks in the post-crisis period, evidenced by higher audit fees and longer audit report lags, although their sensitivity to interest rate risks did not change significantly. (5) (6)

AI-generated content may be incorrect

6 References

What risks are auditors more sensitive to after the financial crisis?

After the financial crisis, auditors became more sensitive to **credit risks** and **liquidity risks**. This is evidenced by higher audit fees and longer audit report lags associated with these risks in the post-crisis period. However, their sensitivity to **interest rate risks** did not change significantly.

Copy

AI-generated content may be incorrect

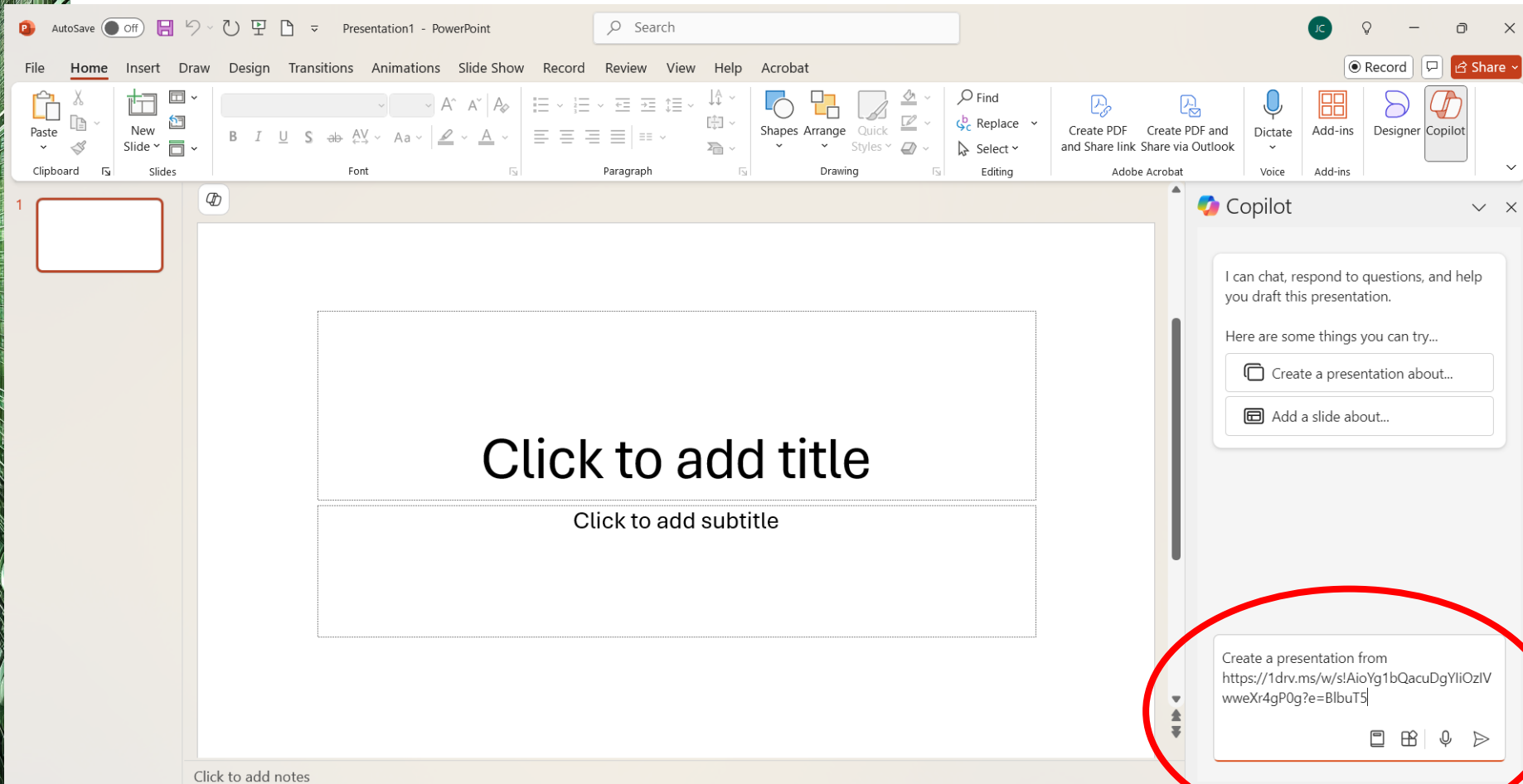
Summarize this doc Is there a call to action?

Ask me anything about this document

Copilot in Word - Observations

- So far, I am impressed with Copilot in Word
- It does a good job when working on a current document
- It also does a good job of creating documents where the subject is reasonably common

Copilot – PowerPoint - Create



The screenshot shows the Microsoft PowerPoint application window. The title bar indicates 'Presentation1 - PowerPoint'. The ribbon is set to 'Home', showing options for Clipboard, Slides, Font, Paragraph, Drawing, Editing, and Adobe Acrobat. The main slide area contains a large text box with the placeholder text 'Click to add title' and a subtitle box below it with the text 'Click to add subtitle'. On the right side, the Copilot sidebar is open, displaying a chat interface. The sidebar header says 'Copilot' and includes a search icon. The chat area contains the text: 'I can chat, respond to questions, and help you draft this presentation. Here are some things you can try...'. Below this, there are two buttons: 'Create a presentation about...' and 'Add a slide about...'. At the bottom of the sidebar, there is a text input field with the text: 'Create a presentation from https://1drv.ms/w/s!AioYg1bQacuDgYliOzIV wweXr4gP0g?e=BlbuT5'. To the right of the input field are icons for attachments, a microphone, and a send button. A red circle highlights the bottom section of the Copilot sidebar, including the input field and icons.

AutoSave Off

Presentation1 - PowerPoint

Search

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Acrobat

Record Share

Paste New Slide

Clipboard Slides

Font

Paragraph

Drawing

Editing

Adobe Acrobat

Dictate

Add-ins

Designer

Copilot

1

Click to add title

Click to add subtitle

Click to add notes

Copilot

I can chat, respond to questions, and help you draft this presentation.

Here are some things you can try...

Create a presentation about...

Add a slide about...

Create a presentation from
<https://1drv.ms/w/s!AioYg1bQacuDgYliOzIVwweXr4gP0g?e=BlbuT5>

Copilot – PowerPoint - Create

The screenshot displays the Microsoft PowerPoint application interface. The title bar at the top indicates the file is 'Presentation1 - PowerPoint'. The ribbon menu is set to the 'Home' tab, showing options for File, Home, Insert, Draw, Design, Transitions, Animations, Slide Show, Record, Review, View, Help, and Acrobat. The main slide area features a dark blue background with the text 'AMAZON.COM SECOND QUARTER 2024 FINANCIAL RESULTS' in large, white, sans-serif font. A vertical blue line is positioned to the right of the text. On the left, a slide thumbnail pane shows a list of slides, with the first slide highlighted. The right-hand side of the interface includes a 'Copilot' panel. This panel contains a section titled 'Definitions and Contact Information' with a warning that 'AI-generated content may be incorrect'. Below this, it states: 'Here's a draft of Amazon Earnings Announcement.docx as a presentation. I've drafted 22 slides and made some changes based on your doc:'. A bulleted list follows: 'Included speaker notes containing additional details', 'Added images to make your deck more engaging', and 'Applied layouts to organize slides'. It also mentions 'You can also use Designer for adjusting layouts.' and another warning about AI-generated content. At the bottom of the Copilot panel is a 'Change topic' button and a text input field with the placeholder 'Ask me anything about this presentation'. The status bar at the very bottom shows 'Slide 1 of 22', 'Accessibility: Investigate', and a search bar.

AutoSave Off Presentation1 - PowerPoint Search

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Acrobat

Paste New Slide Clipboard Slides Font Paragraph Drawing Editing Adobe Acrobat Voice Add-ins Designer Copilot

AMAZON.COM SECOND QUARTER 2024 FINANCIAL RESULTS

Copilot

• Definitions and Contact Information
AI-generated content may be incorrect

Here's a draft of Amazon Earnings Announcement.docx as a presentation.
I've drafted 22 slides and made some changes based on your doc:

- Included speaker notes containing additional details
- Added images to make your deck more engaging
- Applied layouts to organize slides

You can also use **Designer** for adjusting layouts.
AI-generated content may be incorrect

Change topic

Ask me anything about this presentation

This presentation was automatically generated by PowerPoint Copilot based on content found in this document:
<https://11drv.ms/bw/s!AicYx1bQscuDeYliOzIVunpYx4aP0a?e=BlbuT5>

Slide 1 of 22 Accessibility: Investigate

Copilot – PowerPoint – Create

The screenshot shows the Microsoft PowerPoint application interface. The main slide is titled "SPORTS AND STREAMING RIGHTS" and contains the following bulleted list:

- NBA Streaming Rights
 - Secured for 11 seasons
 - Starting in 2025-26
- Exclusive NHL Coverage
 - Exclusive home of Monday Night National Hockey League games
 - Coverage in Canada

Below the list, the text reads: "We have secured expansive streaming rights for the NBA for 11 seasons starting in 2025-26. Additionally, we are now the exclusive home of Monday Night National Hockey League games in Canada."

The Copilot sidebar on the right displays a draft of an Amazon Earnings Announcement presentation. It includes a section titled "Definitions and Contact Information" and a note: "Here's a draft of Amazon Earnings Announcement.docx as a presentation. I've drafted 22 slides and made some changes based on your doc:". The sidebar also lists several changes made to the presentation, such as including speaker notes, adding images, and applying layouts. At the bottom of the sidebar, there is a text input field with the prompt "Ask me anything about this presentation".

Copilot – PowerPoint - Summarize

AutoSave On

Understanding the New Revenue Recognition Update - Fi... • Last Modified: Just now

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Acrobat

Paste Slides Font Paragraph Drawing Editing Create PDF Create PDF and Share link Share via Outlook Dictate Add-ins Designer Copilot

Clipboard Font Adobe Acrobat Voice Add-ins

1 Understanding the New Revenue Recognition Update

2 Course Overview

3 Acknowledgment

4 Background - Timeline

5 Background - Objective

6 Background - Purpose of Guidance

7 Background - Legacy U.S. and IFRS

Understanding the New Revenue Recognition Update

Dr. Jack Cathey
November 16, 2015

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Click to add notes

Slide 1 of 206 Accessibility: Investigate

Copilot – PowerPoint - Summarize

The screenshot shows the Microsoft PowerPoint interface with the Copilot sidebar on the right. The main slide is titled "Understanding the New Revenue Recognition Update" by Dr. Jack Cathey, dated November 16, 2015. The Copilot sidebar is open, displaying a summary of the deck and a list of main ideas.

Understanding the New Revenue Recognition Update
Dr. Jack Cathey
November 16, 2015

Summarize this presentation

Here's a summary of the deck:
Main ideas:

- **Revenue Update:** The new revenue recognition standard aims to provide a single, comprehensive model for all contracts with customers to improve comparability across industries and markets. ¹
- **Five-Step Approach:** The standard

What is the New Revenue Recognition Update?

How does the update affect the presentation and disclosure in financial statements?

Ask me anything about this presentation

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Copilot – PowerPoint - Questions

The screenshot displays the Microsoft PowerPoint interface. The main slide, titled "Understanding the New Revenue Recognition Update" in green text, is presented by Dr. Jack Cathey on November 16, 2015. The slide features the UNC Charlotte logo and a disclaimer at the bottom: "This document and the content within is limited solely for educational purposes and access is restricted to students enrolled in this course. This document and the content within may not be redistributed, reproduced, repurposed, or extracted for outside use." The Copilot sidebar on the right is active, showing a question: "How does the update affect the presentation and disclosure in financial statements?" and a detailed answer: "The update requires entities to disclose qualitative and quantitative information about contracts with customers, significant judgments in applying the revenue standard, and any assets recognized from the costs to obtain or fulfill a contract. It also affects the statement of financial position, which will include receivables, contract assets, and contract liabilities." Below the answer, there is a follow-up question: "How does the update affect the presentation and disclosure in financial statements?" and a search bar: "What is the New Revenue Recognition Update?". The bottom of the Copilot sidebar has a text input field: "Ask me anything about this presentation". The PowerPoint status bar at the bottom indicates "Slide 1 of 206" and "Accessibility: Investigate".

AutoSave On Understanding the New Revenue Recognition Update - Fi... Last Modified: 22m ago

File Home Insert Draw Design Transitions Animations Slide Show Record Review View Help Acrobat

Paste Slides Font Paragraph Drawing Editing Create PDF and Share link Create PDF and Share via Outlook Dictate Add-ins Designer Copilot

1 2 3 4 5 6 7 8 9 10 11 12

Understanding the New Revenue Recognition Update

Dr. Jack Cathey
November 16, 2015

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Click to add notes

Slide 1 of 206 Accessibility: Investigate

Copilot

How does the update affect the presentation and disclosure in financial statements?

The update requires entities to disclose qualitative and quantitative information about contracts with customers, significant judgments in applying the revenue standard, and any assets recognized from the costs to obtain or fulfill a contract. It also affects the statement of financial position, which will include receivables, contract assets, and contract liabilities.

How does the update affect the presentation and disclosure in financial statements?

What is the New Revenue Recognition Update?

Ask me anything about this presentation

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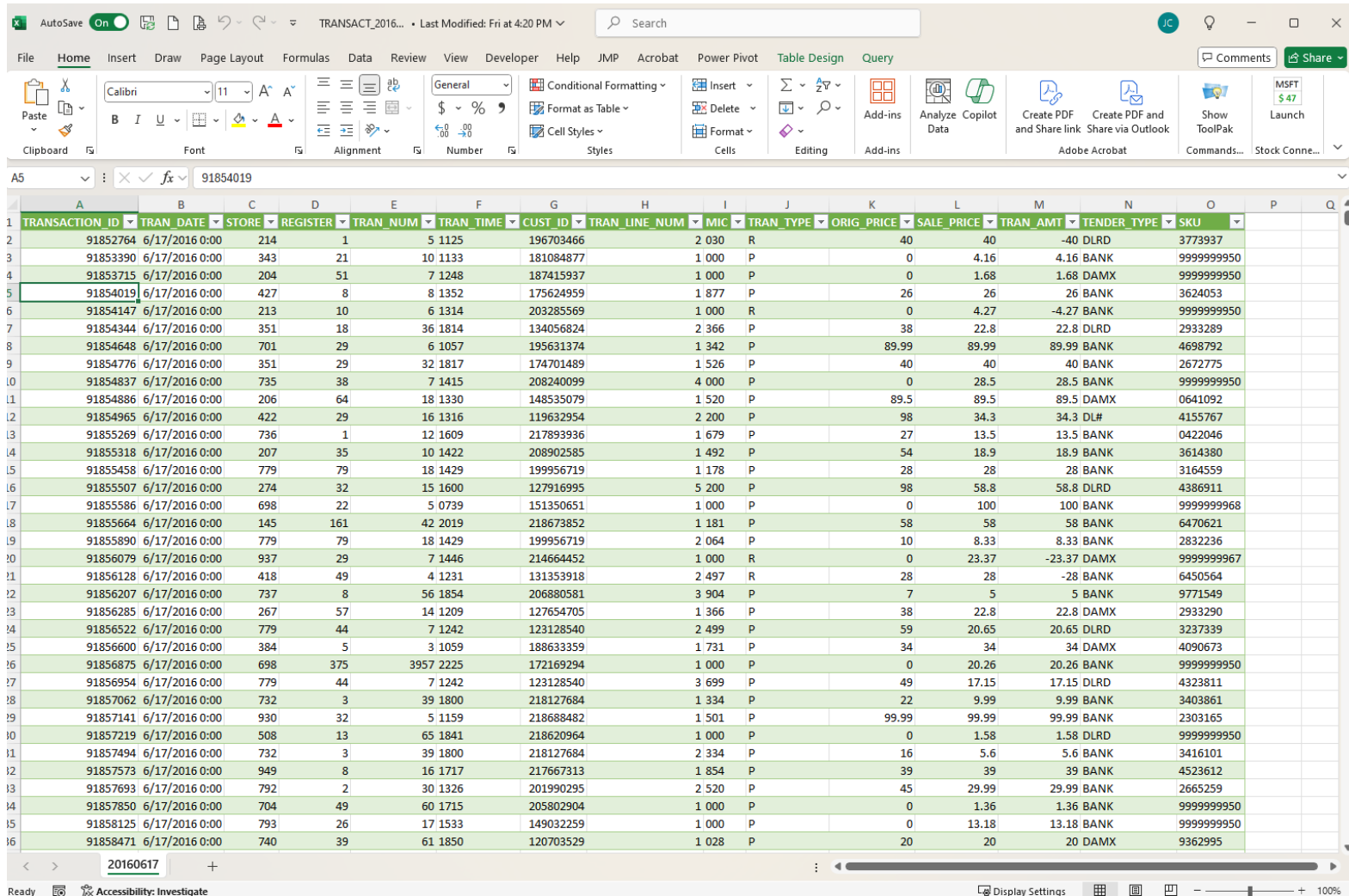


Copilot in PowerPoint - Observations

- This is very much like the observations with Word
 - Good for creating the first draft presentation if you have a base document
 - Good for editing portions of a document
 - Good for summarizing a long PowerPoint

Copilot in Excel

Note: Copilot works best when data is in tables



The screenshot displays the Microsoft Excel interface with a data table. The ribbon includes tabs for File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Developer, Help, JMP, Acrobat, Power Pivot, Table Design, and Query. The Home tab is active, showing options for Clipboard, Font, Alignment, Number, Styles, Cells, Editing, Add-ins, and Data. The data table is located in the worksheet area, starting from cell A1. The table has 17 columns: TRANSACTION_ID, TRAN_DATE, STORE, REGISTER, TRAN_NUM, TRAN_TIME, CUST_ID, TRAN_LINE_NUM, MIC, TRAN_TYPE, ORIG_PRICE, SALE_PRICE, TRAN_AMT, TENDER_TYPE, SKU, and P. The data rows are numbered 1 through 16. The status bar at the bottom shows 'Ready' and 'Accessibility: Investigate'.

TRANSACTION_ID	TRAN_DATE	STORE	REGISTER	TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN_AMT	TENDER_TYPE	SKU	P
91852764	6/17/2016 0:00	214	1	5 1125	196703466	2 030	R			40	40	-40	DLRD	3773937	
91853390	6/17/2016 0:00	343	21	10 1133	181084877	1 000	P			0	4.16	4.16	BANK	999999950	
91853715	6/17/2016 0:00	204	51	7 1248	187415937	1 000	P			0	1.68	1.68	DAMX	999999950	
91854019	6/17/2016 0:00	427	8	8 1352	175624959	1 877	P			26	26	26	BANK	3624053	
91854147	6/17/2016 0:00	213	10	6 1314	203285569	1 000	R			0	4.27	-4.27	BANK	999999950	
91854344	6/17/2016 0:00	351	18	36 1814	134056824	2 366	P			38	22.8	22.8	DLRD	2933289	
91854648	6/17/2016 0:00	701	29	6 1057	195631374	1 342	P			89.99	89.99	89.99	BANK	4698792	
91854776	6/17/2016 0:00	351	29	32 1817	174701489	1 526	P			40	40	40	BANK	2672775	
91854837	6/17/2016 0:00	735	38	7 1415	208240099	4 000	P			0	28.5	28.5	BANK	999999950	
91854886	6/17/2016 0:00	206	64	18 1330	148535079	1 520	P			89.5	89.5	89.5	DAMX	0641092	
91854965	6/17/2016 0:00	422	29	16 1316	119632954	2 200	P			98	34.3	34.3	DL#	4155767	
91855269	6/17/2016 0:00	736	1	12 1609	217893936	1 679	P			27	13.5	13.5	BANK	0422046	
91855318	6/17/2016 0:00	207	35	10 1422	208902585	1 492	P			54	18.9	18.9	BANK	3614380	
91855458	6/17/2016 0:00	779	79	18 1429	199956719	1 178	P			28	28	28	BANK	3164559	
91855507	6/17/2016 0:00	274	32	15 1600	127916995	5 200	P			98	58.8	58.8	DLRD	4386911	
91855586	6/17/2016 0:00	698	22	5 0739	151350651	1 000	P			0	100	100	BANK	999999968	
91855664	6/17/2016 0:00	145	161	42 2019	218673852	1 181	P			58	58	58	BANK	6470621	
91855890	6/17/2016 0:00	779	79	18 1429	199956719	2 064	P			10	8.33	8.33	BANK	2832236	
91856079	6/17/2016 0:00	937	29	7 1446	214664452	1 000	R			0	23.37	-23.37	DAMX	999999967	
91856128	6/17/2016 0:00	418	49	4 1231	131353918	2 497	R			28	28	-28	BANK	6450564	
91856207	6/17/2016 0:00	737	8	56 1854	206880581	3 904	P			7	5	5	BANK	9771549	
91856285	6/17/2016 0:00	267	57	14 1209	127654705	1 366	P			38	22.8	22.8	DAMX	2933290	
91856522	6/17/2016 0:00	779	44	7 1242	123128540	2 499	P			59	20.65	20.65	DLRD	3237339	
91856600	6/17/2016 0:00	384	5	3 1059	188633359	1 731	P			34	34	34	DAMX	4090673	
91856875	6/17/2016 0:00	698	375	3957 2225	172169294	1 000	P			0	20.26	20.26	BANK	999999950	
91856954	6/17/2016 0:00	779	44	7 1242	123128540	3 699	P			49	17.15	17.15	DLRD	4323811	
91857062	6/17/2016 0:00	732	3	39 1800	218127684	1 334	P			22	9.99	9.99	BANK	3403861	
91857141	6/17/2016 0:00	930	32	5 1159	218688482	1 501	P			99.99	99.99	99.99	BANK	2303165	
91857219	6/17/2016 0:00	508	13	65 1841	218620964	1 000	P			0	1.58	1.58	DLRD	999999950	
91857494	6/17/2016 0:00	732	3	39 1800	218127684	2 334	P			16	5.6	5.6	BANK	3416101	
91857573	6/17/2016 0:00	949	8	16 1717	217667313	1 854	P			39	39	39	BANK	4523612	
91857693	6/17/2016 0:00	792	2	30 1326	201990295	2 520	P			45	29.99	29.99	BANK	2665259	
91857850	6/17/2016 0:00	704	49	60 1715	205802904	1 000	P			0	1.36	1.36	BANK	999999950	
91858125	6/17/2016 0:00	793	26	17 1533	149032259	1 000	P			0	13.18	13.18	BANK	999999950	
91858471	6/17/2016 0:00	740	39	61 1850	120703529	1 028	P			20	20	20	DAMX	9362995	

Copilot in Excel – Add a Formula

AutoSave On

TRANSACTION_2016... Last Modified: Fri at 4:20 PM

File Home Insert Draw Page Layout Formulas Data Review View Developer Help JMP Acrobat Power Pivot Table Design Query

Clipboard Font Alignment Number Styles Cells Editing Add-ins Analyze Data Copilot Create PDF and Share link Share via Outlook Adobe Acrobat Show ToolPak Commands... Stock Conne...

A5 : X fx 91854019

	A	B	C	D	E	F	G	H	I	J	K	L	M
	TRANSACTION_ID	TRAN_DATE	STORE	REGISTER	TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN
2	91852764	6/17/2016 0:00	214	1	5 1125	196703466	2 030	R			40	40	
3	91853390	6/17/2016 0:00	343	21	10 1133	181084877	1 000	P			0	4.16	
4	91853715	6/17/2016 0:00	204	51	7 1248	187415937	1 000	P			0	1.68	
5	91854019	6/17/2016 0:00	427	8	8 1352	175624959	1 877	P			26	26	
6	91854147	6/17/2016 0:00	213	10	6 1314	203285569	1 000	R			0	4.27	
7	91854344	6/17/2016 0:00	351	18	36 1814	134056824	2 366	P			38	22.8	
8	91854648	6/17/2016 0:00	701	29	6 1057	195631374	1 342	P			89.99	89.99	
9	91854776	6/17/2016 0:00	351	29	32 1817	174701489	1 526	P			40	40	
10	91854837	6/17/2016 0:00	735	38	7 1415	208240099	4 000	P			0	28.5	
11	91854886	6/17/2016 0:00	206	64	18 1330	148535079	1 520	P			89.5	89.5	
12	91854965	6/17/2016 0:00	422	29	16 1316	119632954	2 200	P			98	34.3	
13	91855269	6/17/2016 0:00	736	1	12 1609	217893936	1 679	P			27	13.5	
14	91855318	6/17/2016 0:00	207	35	10 1422	208902585	1 492	P			54	18.9	
15	91855458	6/17/2016 0:00	779	79	18 1429	199956719	1 178	P			28	28	
16	91855507	6/17/2016 0:00	274	32	15 1600	127916995	5 200	P			98	58.8	
17	91855586	6/17/2016 0:00	698	22	5 0739	151350651	1 000	P			0	100	
18	91855664	6/17/2016 0:00	145	161	42 2019	218673852	1 181	P			58	58	
19	91855890	6/17/2016 0:00	779	79	18 1429	199956719	2 064	P			10	8.33	
20	91856079	6/17/2016 0:00	937	29	7 1446	214664452	1 000	R			0	23.37	
21	91856128	6/17/2016 0:00	418	49	4 1231	131353918	2 497	R			28	28	
22	91856207	6/17/2016 0:00	737	8	56 1854	206880581	3 904	P			7	5	
23	91856285	6/17/2016 0:00	267	57	14 1209	127654705	1 366	P			38	22.8	
24	91856522	6/17/2016 0:00	779	44	7 1242	123128540	2 499	P			59	20.65	
25	91856600	6/17/2016 0:00	384	5	3 1059	188633359	1 731	P			34	34	
26	91856875	6/17/2016 0:00	698	375	3957 2225	172169294	1 000	P			0	20.26	
27	91856954	6/17/2016 0:00	779	44	7 1242	123128540	3 699	P			49	17.15	
28	91857062	6/17/2016 0:00	732	3	39 1800	218127684	1 334	P			22	9.99	
29	91857141	6/17/2016 0:00	930	32	5 1159	218688482	1 501	P			99.99	99.99	
30	91857219	6/17/2016 0:00	508	13	65 1841	218620964	1 000	P			0	1.58	
31	91857494	6/17/2016 0:00	732	3	39 1800	218127684	2 334	P			16	5.6	
32	91857573	6/17/2016 0:00	949	8	16 1717	217667313	1 854	P			39	39	
33	91857693	6/17/2016 0:00	792	2	30 1326	201990295	2 520	P			45	29.99	
34	91857850	6/17/2016 0:00	704	49	60 1715	205802904	1 000	P			0	1.36	
35	91858125	6/17/2016 0:00	793	26	17 1533	149032259	1 000	P			0	13.18	
36	91858471	6/17/2016 0:00	740	39	61 1850	120703529	1 028	P			20	20	

20160617

Copilot (Preview)

- Create formulas
Suggest a formula column
- Understand
Summarize using PivotTables or charts
- Apply color and formatting
Highlight all cells with [incomplete in red]
- Ask Copilot
How do I sum values based on [criteria]

Show data insights

Show a suggestion for a formula column

Suggest conditional formatting

add a column called Discount based on
ORIG_PRICE less SALE_PRICE

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Copilot in Excel – Add a Formula

The screenshot shows the Microsoft Excel interface with the Copilot (Preview) chat window open on the right. The chat window displays a formula suggestion: `=[@[ORIG_PRICE]]-[@[SALE_PRICE]]`. The formula is highlighted in a red box. The background shows a spreadsheet with columns for transaction details and a 'Discount' column.

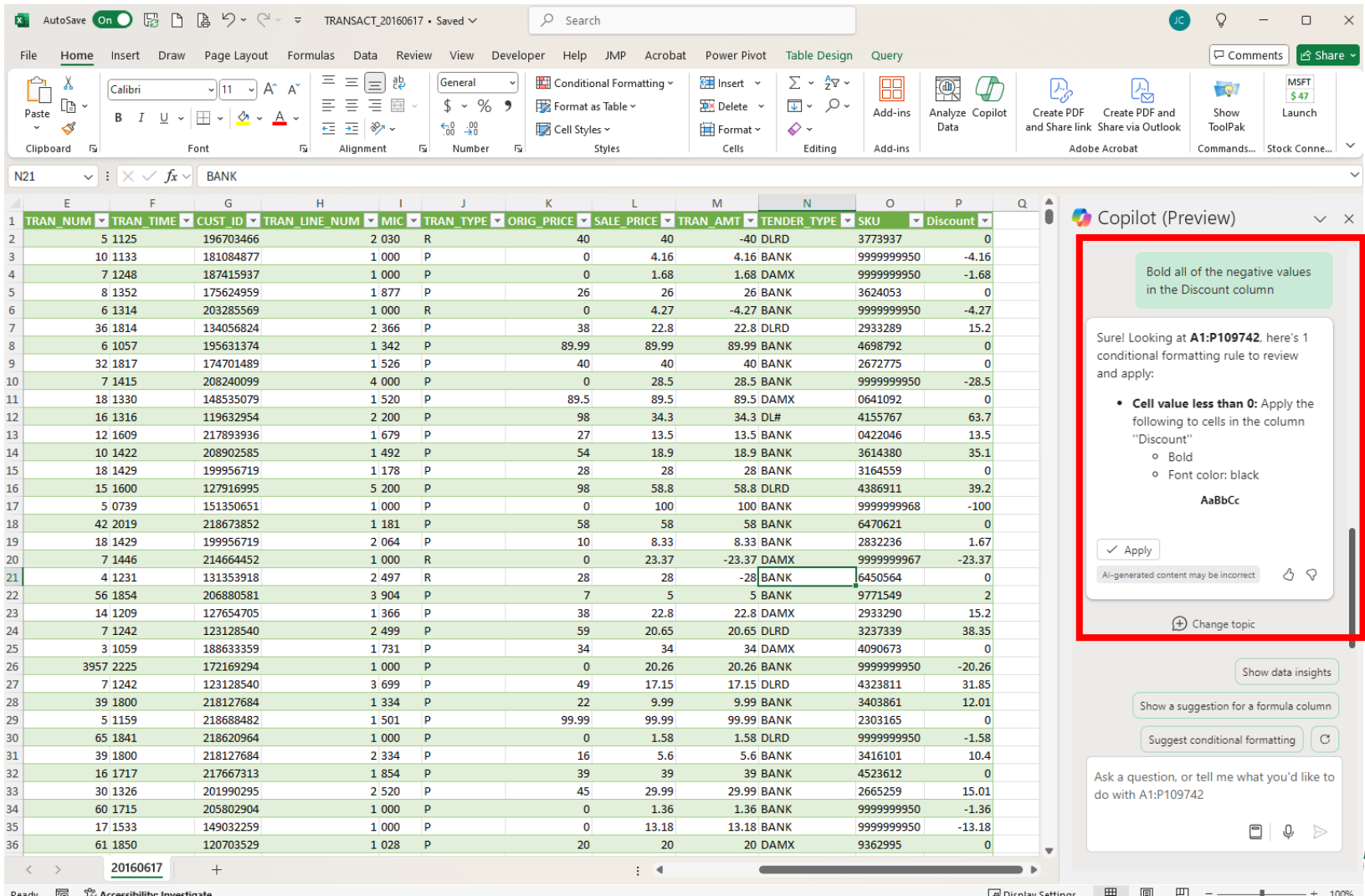
TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN_AMT	TENDER_TYPE	SKU	Discount
5	1125	196703466	2	030	R	40	40	-40	DLRD	3773937	0
10	1133	181084877	1	000	P	0	4.16	4.16	BANK	9999999950	-4.16
7	1248	187415937	1	000	P	0	1.68	1.68	DAMX	9999999950	-1.68
8	1352	175624959	1	877	P	26	26	26	BANK	3624053	0
6	1314	203285569	1	000	R	0	4.27	-4.27	BANK	9999999950	-4.27
36	1814	134056824	2	366	P	38	22.8	22.8	DLRD	2933289	15.2
6	1057	195631374	1	342	P	89.99	89.99	89.99	BANK	4698792	0
32	1817	174701489	1	526	P	40	40	40	BANK	2672775	0
7	1415	208240099	4	000	P	0	28.5	28.5	BANK	9999999950	-28.5
18	1330	148535079	1	520	P	89.5	89.5	89.5	DAMX	0641092	0
16	1316	119632954	2	200	P	98	34.3	34.3	DL#	4155767	63.7
12	1609	217893936	1	679	P	27	13.5	13.5	BANK	0422046	13.5
10	1422	208902585	1	492	P	54	18.9	18.9	BANK	3614380	35.1
18	1429	199956719	1	178	P	28	28	28	BANK	3164559	0
15	1600	127916995	5	200	P	98	58.8	58.8	DLRD	4386911	39.2
5	0739	151350651	1	000	P	0	100	100	BANK	9999999968	-100
42	2019	218673852	1	181	P	58	58	58	BANK	6470621	0
18	1429	199956719	2	064	P	10	8.33	8.33	BANK	2832236	1.67
7	1446	214664452	1	000	R	0	23.37	-23.37	DAMX	9999999967	-23.37
4	1231	131353918	2	497	R	28	28	-28	BANK	6450564	0
56	1854	206880581	3	904	P	7	5	5	BANK	9771549	2
14	1209	127654705	1	366	P	38	22.8	22.8	DAMX	2933290	15.2
7	1242	123128540	2	499	P	59	20.65	20.65	DLRD	3237339	38.35
3	1059	188633359	1	731	P	34	34	34	DAMX	4090673	0
3957	2225	172169294	1	000	P	0	20.26	20.26	BANK	9999999950	-20.26
7	1242	123128540	3	699	P	49	17.15	17.15	DLRD	4323811	31.85
39	1800	218127684	1	334	P	22	9.99	9.99	BANK	3403861	12.01
5	1159	218688482	1	501	P	99.99	99.99	99.99	BANK	2303165	0
65	1841	218620964	1	000	P	0	1.58	1.58	DLRD	9999999950	-1.58
39	1800	218127684	2	334	P	16	5.6	5.6	BANK	3416101	10.4
16	1717	217667313	1	854	P	39	39	39	BANK	4523612	0
30	1326	201990295	2	520	P	45	29.99	29.99	BANK	2665259	15.01
60	1715	205802904	1	000	P	0	1.36	1.36	BANK	9999999950	-1.36
17	1533	149032259	1	000	P	0	13.18	13.18	BANK	9999999950	-13.18
61	1850	120703529	1	028	P	20	20	20	DAMX	9362995	0

The Copilot chat window shows the following message:

Done! I inserted 'Discount' to column P.

Below the message are buttons for 'Undo', 'Show data insights', 'Show a suggestion for a formula column', and 'Suggest conditional formatting'. At the bottom, there is a prompt: 'Ask a question, or tell me what you'd like to do with A1:P109742'.

Copilot in Excel – Format Cells



AutoSave On | TRANSACT_20160617 - Saved | Search

File Home Insert Draw Page Layout Formulas Data Review View Developer Help JMP Acrobat Power Pivot Table Design Query

Clipboard Font Alignment Number Styles Cells Editing Add-ins Analyze Data Add-ins Adobe Acrobat Commands... Stock Connections

N21 | BANK

TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN_AMT	TENDER_TYPE	SKU	Discount
5	1125	196703466	2	030	R	40	40	-40	DLRD	3773937	0
10	1133	181084877	1	000	P	0	4.16	4.16	BANK	9999999950	-4.16
7	1248	187415937	1	000	P	0	1.68	1.68	DAMX	9999999950	-1.68
8	1352	175624959	1	877	P	26	26	26	BANK	3624053	0
6	1314	203285569	1	000	R	0	4.27	-4.27	BANK	9999999950	-4.27
36	1814	134056824	2	366	P	38	22.8	22.8	DLRD	2933289	15.2
6	1057	195631374	1	342	P	89.99	89.99	89.99	BANK	4698792	0
32	1817	174701489	1	526	P	40	40	40	BANK	2672775	0
7	1415	208240099	4	000	P	0	28.5	28.5	BANK	9999999950	-28.5
18	1330	148535079	1	520	P	89.5	89.5	89.5	DAMX	0641092	0
16	1316	119632954	2	200	P	98	34.3	34.3	DL#	4155767	63.7
12	1609	217893936	1	679	P	27	13.5	13.5	BANK	0422046	13.5
10	1422	208902585	1	492	P	54	18.9	18.9	BANK	3614380	35.1
18	1429	199956719	1	178	P	28	28	28	BANK	3164559	0
15	1600	127916995	5	200	P	98	58.8	58.8	DLRD	4386911	39.2
5	0739	151350651	1	000	P	0	100	100	BANK	9999999968	-100
42	2019	218673852	1	181	P	58	58	58	BANK	6470621	0
18	1429	199956719	2	064	P	10	8.33	8.33	BANK	2832236	1.67
7	1446	214664452	1	000	R	0	23.37	-23.37	DAMX	9999999967	-23.37
4	1231	131353918	2	497	R	28	28	-28	BANK	6450564	0
56	1854	206880581	3	904	P	7	5	5	BANK	9771549	2
14	1209	127654705	1	366	P	38	22.8	22.8	DAMX	2933290	15.2
7	1242	123128540	2	499	P	59	20.65	20.65	DLRD	3237339	38.35
3	1059	188633359	1	731	P	34	34	34	DAMX	4090673	0
3957	2225	172169294	1	000	P	0	20.26	20.26	BANK	9999999950	-20.26
7	1242	123128540	3	699	P	49	17.15	17.15	DLRD	4323811	31.85
39	1800	218127684	1	334	P	22	9.99	9.99	BANK	3403861	12.01
5	1159	218688482	1	501	P	99.99	99.99	99.99	BANK	2303165	0
65	1841	218620964	1	000	P	0	1.58	1.58	DLRD	9999999950	-1.58
39	1800	218127684	2	334	P	16	5.6	5.6	BANK	3416101	10.4
16	1717	217667313	1	854	P	39	39	39	BANK	4523612	0
30	1326	201990295	2	520	P	45	29.99	29.99	BANK	2665259	15.01
60	1715	205802904	1	000	P	0	1.36	1.36	BANK	9999999950	-1.36
17	1533	149032259	1	000	P	0	13.18	13.18	BANK	9999999950	-13.18
61	1850	120703529	1	028	P	20	20	20	DAMX	9362995	0

20160617

Copilot (Preview)

Bold all of the negative values in the Discount column

Sure! Looking at A1:P109742, here's 1 conditional formatting rule to review and apply:

- Cell value less than 0: Apply the following to cells in the column "Discount"
 - Bold
 - Font color: black

AaBbCc

Apply

AI-generated content may be incorrect

Change topic

Show data insights

Show a suggestion for a formula column

Suggest conditional formatting

Ask a question, or tell me what you'd like to do with A1:P109742

CAROLINA TTE

Copilot in Excel – Formula Explanations

AutoSave On | copilot-for-excel-finance... | Saved | Search

File Home Insert Draw Page Layout Formulas Data Review View Automate Developer Add-ins Help JMP Acrobat Power Pivot Analytic Solver Data Science Table Design Comments

Clipboard Font Alignment Number Styles Cells Editing Add-ins Add-ins Adobe Acrobat Commands... Stock Conn...

G2: =IF([@[Depreciation Method]]="Straight-Line",ROUND(([@Cost]-[@Salvage Value])/[@Useful Life (Years)]*(YEARFRAC([@Purchase Date],DATE(YEAR([@Purchase Date]),12,31),1)),2),IF([@[Depreciation Method]]="Double-Declining",ROUND(2/[@Useful Life (Years)]*[@Cost]*(YEARFRAC([@Purchase Date],DATE(YEAR([@Purchase Date]),12,31),1)),2),IF([@[Depreciation Method]]="Sum-of-Years-Digits",ROUND(([@Cost]-[@Salvage Value])*(([@Useful Life (Years)]-(YEAR([@Purchase Date]))-2023+1))/(SUM(ROW(INDIRECT("1:"&[@Useful Life (Years)]))))*(YEARFRAC([@Purchase Date],DATE(YEAR([@Purchase Date]),12,31),1)),2),""))

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Asset Name	Purchase Date	Cost	Salvage Value	Useful Life (Years)	Depreciation Method	First-Year Depreciation						
1													
2	Forklift	4/15/2023	32,000	4,000	6	Straight-Line	3,324.20						
3	CNC Machine	9/1/2023	75,000	10,000	5	Double-Declining	9,945.21						
4	Computer System	7/1/2023	15,000	2,000	4	Sum-of-Years-Digits	1,955.34						
5													
6	Add a column to calculate the first-year depreciation for each asset, prorating based on the Purchase Date for 2023, and applying the method specified in the De												
7													
8													
9													
10													
11													
12													
13													

Get Deeper Analysis Results using Python
 Explain this Formula
 Suggest a Formula Column
 Suggest Conditional Formatting
 Summarize using PivotTable or Chart
 Teach Me Something About Excel
 Ask Copilot
 Hide until I Reopen this Document

loan-payment | depreciation | irr-simulation

Ready | Accessibility: Good to go

Copilot in Excel – Formula Explanations

The screenshot displays the Microsoft Excel interface with the Copilot sidebar open on the right. The active worksheet is titled "depreciation" and contains a table with the following data:

	B	C	D	E	F	G	H
1	Purchase Date	Cost	Salvage Value	Useful Life (Years)	Depreciation Method	First-Year Depreciation	
2	4/15/2023	32,000	4,000	6	Straight-Line	3,324.20	
3	9/1/2023	75,000	10,000	5	Double-Declining	9,945.21	
4	7/1/2023	15,000	2,000	4	Sum-of-Years-Digits	1,955.34	
5							
6	Calculate the first-year depreciation for each asset, prorating based on the Purchase Date for 2023, and applying the method specified in the Depreciation Method column.						
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

The Copilot sidebar on the right provides an explanation for the formula in cell G2:

Copilot AI-generated content may be incorrect

This formula calculates the first-year depreciation for an asset based on its depreciation method, prorating the depreciation for the portion of the year the asset was in use. It uses the value in the "Depreciation Method" column to determine the calculation method.

Explanation:

- Outer IF Statement:**
 - Checks the value in the "Depreciation Method" column (`[@Depreciation Method]`) and applies the corresponding depreciation formula.
- Straight-Line Depreciation:**
 - Formula: `ROUND(([@Cost]-[@Salvage Value]]/[@Useful Life (Years)]*(YEARFRAC([@Purchase Date],DATE(YEAR([@Purchase Date]),1,1),DATE(YEAR([@Purchase Date]),1,1))))`

Can you compare the two formulas? What is the purpose of the YEARFRAC function? How do I apply this formula in Excel?

Search for content, ask a question, or tell me what you'd like to do with A1:G4

Copilot in Excel - Analysis

The screenshot displays the Microsoft Excel interface with a data table and the Copilot (Preview) sidebar. The data table has columns: TRAN_NUM, TRAN_TIME, CUST_ID, TRAN_LINE_NUM, MIC, TRAN_TYPE, ORIG_PRICE, SALE_PRICE, TRAN_AMT, TENDER_TYPE, SKU, and Discount. The Copilot sidebar is on the right, showing a prompt to create a pivot table, an analysis of the data, and a generated pivot table.

Copilot (Preview) Sidebar:

create a pivottable that summarizes TRAN_AMT by STORE and TENDER_TYPE

I analyzed data in A1:P109742, and here's what I found:

Sum of TRAN_AMT	TENDER_TYPE
STORE	BANK CASH DAMX
140	3129 74.28 903.89
141	1744 603.1
143	2804 9.99 1577.9
144	2302 39.99 361.43
...	...

+ Add to a new sheet

AI-generated content may be incorrect

Percentage distribution of 'MIC'

How many different 'MIC' are there?

'MIC' with total 'Discount' higher than 48000

Ask a question, or tell me what you'd like to do with A1:P109742

Copilot in Excel - Analysis

The screenshot displays the Microsoft Excel interface with a PivotTable and the Copilot (Preview) sidebar. The PivotTable is titled "Sum of TRAN_AMT" and is filtered by "TENDER_TYPE". The data is organized by "STORE" and "BANK". The Copilot sidebar is on the right, showing a list of recent prompts and a response. A red box highlights the "Add to a new sheet" button and the response text.

PivotTable Data:

STORE	BANK	CASH	DAMX	DL#	DLRD	GIFT	INTL	Grand Total
140		3129.47	74.28	903.89	68.6	762.67	16.35	4955.26
141		1743.53		603.1	16	715.58	-6.12	3072.09
143		2803.91	9.99	1577.87		1303.38		5695.15
144		2302.18	39.99	361.43		1173.97		3877.57
145		3781.26	156.56	1022.34	921.88	974.28		6856.32
146		1497.97	145.49	262.75	2.52	1226.4		3135.13
148		1613.58		395.07	480.04	1173.69		3662.38
150		5032.71		1979.04	103.32	2326.58		9441.65
151		1558.6	29.5	683.03		399.94	-5.94	2665.13
152		1836.47		450.51		533.99		2820.97
153		1882.46		1228.21	2.54	979.04		4092.25
156		4676.03	7.21	240.3	142.88	1245.91		6312.33
161		2683.64		1314.02	49	1266.61		5313.27
162		2500.34	31.15	630.83	3.83	1074.02	-19.53	4220.64
163		6441.74	-17.67	3793.81	169.96	2320.85	-4.8	12703.89
164		4565.23	348	1547.11	150.77	749.19	-69	7291.3
166		8251.41	101.67	1479.19	32.96	2419.22	36	12320.45
167		3043.68	45.87	1576.56	143.51	681.65		5491.27
168		2252.77	127	1223.86	114.47	778.83		4496.93
170		6476.63	26	1017.43	3.53	1652.33		9175.92
171		3217.49		392.15		1268.14	-79	4798.78
172		3755		838.32	85.14	1307.34		5985.8
174		4460.22	2	1116.04	111.42	987.73	1.76	6679.17
176		4451.88	14.99	547.03	46.8	864.87	-44.25	5881.32
179		5064.62	-10.54	1162.58	91.85	949.22		7257.73
201		10784.06	147.62	1498.74	78.27	2163.39	-4.13	14667.95
203		3866.42		604.17	10.15	608.92		5089.66
204		6437.41	50.25	2692.72	3.36	2143.62		11327.36
205		2947.54	0	1167.17	183.56	1422		5720.27
206		7059.56	2.03	3327.33	0	1181.98		11570.9
207		1943.31		338.63		462.13		2744.07

Copilot (Preview) Response:

Here's a PivotTable based on your prompt. See the PivotTable that's above this message for more details.

Done! I added to Sheet1.

Currently, I don't analyze PivotTables and charts in sheets. I can continue to help if you select the source table and try your question again.

Go back to data | Undo

Ask a question, or tell me how I can help

Copilot in Excel - Analysis

The screenshot displays the Microsoft Excel interface with a data table and the Copilot (Preview) sidebar. The data table has columns: TRAN_NUM, TRAN_TIME, CUST_ID, TRAN_LINE_NUM, MIC, TRAN_TYPE, ORIG_PRICE, SALE_PRICE, TRAN_AMT, TENDER_TYPE, SKU, and Discount. The Copilot sidebar is on the right, showing a chat interface with a red box highlighting a suggestion to create a bar chart.

Excel Interface:

- File: Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Developer, Help, JMP, Acrobat, Power Pivot, Table Design, Query
- Font: Calibri, 11, Bold, Italic, Underline, Color, Background Color
- Alignment: General, Conditional Formatting, Format as Table, Cell Styles
- Number: \$, %, .00, .000
- Styles: Add-ins, Analyze Data, Copilot
- Cells: Insert, Delete, Format
- Editing: Add-ins, Add-ins
- Share: Comments, Share
- Tools: Create PDF, Create PDF and Share link, Show ToolPak, MSFT \$47 Launch

Data Table:

TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN_AMT	TENDER_TYPE	SKU	Discount
5	1125	196703466	2 030	R		40	40	-40	DLRD	3773937	0
10	1133	181084877	1 000	P		0	4.16	4.16	BANK	9999999950	-4.16
7	1248	187415937	1 000	P		0	1.68	1.68	DAMX	9999999950	-1.68
8	1352	175624959	1 877	P		26	26	26	BANK	3624053	0
6	1314	203285569	1 000	R		0	4.27	-4.27	BANK	9999999950	-4.27
36	1814	134056824	2 366	P		38	22.8	22.8	DLRD	2933289	15.2
6	1057	195631374	1 342	P		89.99	89.99	89.99	BANK	4698792	0
32	1817	174701489	1 526	P		40	40	40	BANK	2672775	0
7	1415	208240099	4 000	P		0	28.5	28.5	BANK	9999999950	-28.5
18	1330	148535079	1 520	P		89.5	89.5	89.5	DAMX	0641092	0
16	1316	119632954	2 200	P		98	34.3	34.3	DL#	4155767	63.7
12	1609	217893936	1 679	P		27	13.5	13.5	BANK	0422046	13.5
10	1422	208902585	1 492	P		54	18.9	18.9	BANK	3614380	35.1
18	1429	199956719	1 178	P		28	28	28	BANK	3164559	0
15	1600	127916995	5 200	P		98	58.8	58.8	DLRD	4386911	39.2
5	0739	151350651	1 000	P		0	100	100	BANK	9999999968	-100
42	2019	218673852	1 181	P		58	58	58	BANK	6470621	0
18	1429	199956719	2 064	P		10	8.33	8.33	BANK	2832236	1.67
7	1446	214664452	1 000	R		0	23.37	-23.37	DAMX	9999999967	-23.37
4	1231	131353918	2 497	R		28	28	-28	BANK	6450564	0
56	1854	206880581	3 904	P		7	5	5	BANK	9771549	2
14	1209	127654705	1 366	P		38	22.8	22.8	DAMX	2933290	15.2
7	1242	123128540	2 499	P		59	20.65	20.65	DLRD	3237339	38.35
3	1059	188633359	1 731	P		34	34	34	DAMX	4090673	0
3957	2225	172169294	1 000	P		0	20.26	20.26	BANK	9999999950	-20.26
7	1242	123128540	3 699	P		49	17.15	17.15	DLRD	4323811	31.85
39	1800	218127684	1 334	P		22	9.99	9.99	BANK	3403861	12.01
5	1159	218688482	1 501	P		99.99	99.99	99.99	BANK	2303165	0
65	1841	218620964	1 000	P		0	1.58	1.58	DLRD	9999999950	-1.58
39	1800	218127684	2 334	P		16	5.6	5.6	BANK	3416101	10.4
16	1717	217667313	1 854	P		39	39	39	BANK	4523612	0
30	1326	201990295	2 520	P		45	29.99	29.99	BANK	2665259	15.01
60	1715	205802904	1 000	P		0	1.36	1.36	BANK	9999999950	-1.36
17	1533	149032259	1 000	P		0	13.18	13.18	BANK	9999999950	-13.18
61	1850	120703529	1 028	P		20	20	20	DAMX	9362995	0

Copilot (Preview) Sidebar:

- AI-generated content may be incorrect
- create a bar chart in a new sheet that summarizes TRANA_AMT by TENDER_TYPE
- I analyzed data in A1:P109742, and here's what I found:
Sum of TRAN_AMT (Thousands)
- Bar chart showing TENDER_TYPE vs Sum of TRAN_AMT (Thousands)
- + Add to a new sheet
- Total 'REGISTER' by 'SKU' as a column chart
- How many different 'MIC' are there?
- Percentage of total 'Discount' for each 'MIC'
- Ask a question, or tell me what you'd like to do with A1:P109742

Copilot in Excel - Analysis

The screenshot shows the Microsoft Excel interface with the Copilot feature. The main window displays a PivotTable and a horizontal bar chart. The Copilot sidebar on the right provides a summary of the analysis and offers to create a new sheet with the chart.

PivotTable Data:

TENDER_TYPE	Sum of TRAN_AMT
BANK	1786406.24
CASH	15579.49
DAMX	462899.3
DL#	54845.97
DLRD	500072
GIFT	-600.02
INTL	1328.84
Grand Total	2820531.82

Horizontal Bar Chart:

The chart, titled "Total", shows the sum of TRAN_AMT for each TENDER_TYPE. The x-axis is labeled "TRAN_AMT" and ranges from -500 to 2000. The y-axis is labeled "TENDER_TYPE". The bars are blue and represent the following values:

TENDER_TYPE	Sum of TRAN_AMT
BANK	1786406.24
CASH	15579.49
DAMX	462899.3
DL#	54845.97
DLRD	500072
GIFT	-600.02
INTL	1328.84

Copilot (Preview) Sidebar:

I analyzed data in A1:P109742, and here's what I found:

Sum of TRAN_AMT (Thousands)

AI-generated content may be incorrect

+ Add to a new sheet

I created a bar chart that summarizes TRAN_AMT by TENDER_TYPE in a new sheet. See the PivotChart that's above this message for more details.

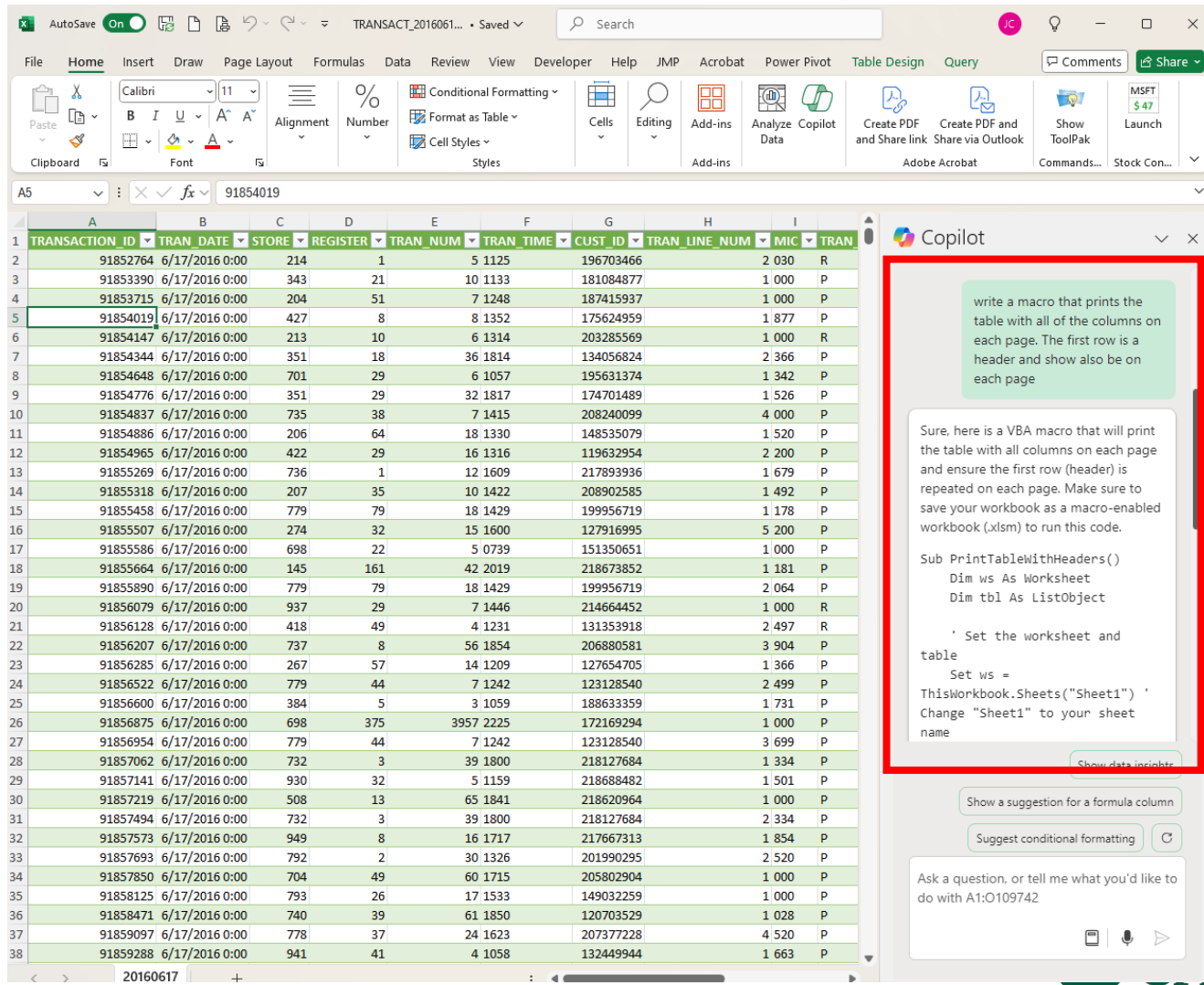
AI-generated content may be incorrect

Add to a new sheet

+ Change topic

Ask a question, or tell me how I can help

Copilot in Excel – Macro Creation



AutoSave On | TRANSACT_2016061... | Saved | Search

File Home Insert Draw Page Layout Formulas Data Review View Developer Help JMP Acrobat Power Pivot Table Design Query Comments Share

Clipboard Font Alignment Number Styles Cells Editing Add-ins Analyze Data Copilot Create PDF and Share link Create PDF and Share via Outlook Show ToolPak MSFT \$ 47 Launch

A5 | fx | 91854019

TRANSACTION_ID	TRAN_DATE	STORE	REGISTER	TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN
91852764	6/17/2016 0:00	214	1	5 1125	196703466	2 030	R		
91853390	6/17/2016 0:00	343	21	10 1133	181084877	1 000	P		
91853715	6/17/2016 0:00	204	51	7 1248	187415937	1 000	P		
91854019	6/17/2016 0:00	427	8	8 1352	175624959	1 877	P		
91854147	6/17/2016 0:00	213	10	6 1314	203285569	1 000	R		
91854344	6/17/2016 0:00	351	18	36 1814	134056824	2 366	P		
91854648	6/17/2016 0:00	701	29	6 1057	195631374	1 342	P		
91854776	6/17/2016 0:00	351	29	32 1817	174701489	1 526	P		
91854837	6/17/2016 0:00	735	38	7 1415	208240099	4 000	P		
91854886	6/17/2016 0:00	206	64	18 1330	148535079	1 520	P		
91854965	6/17/2016 0:00	422	29	16 1316	119632954	2 200	P		
91855269	6/17/2016 0:00	736	1	12 1609	217893936	1 679	P		
91855318	6/17/2016 0:00	207	35	10 1422	208902585	1 492	P		
91855458	6/17/2016 0:00	779	79	18 1429	199956719	1 178	P		
91855507	6/17/2016 0:00	274	32	15 1600	127916995	5 200	P		
91855586	6/17/2016 0:00	698	22	5 0739	151350651	1 000	P		
91855664	6/17/2016 0:00	145	161	42 2019	218673852	1 181	P		
91855890	6/17/2016 0:00	779	79	18 1429	199956719	2 064	P		
91856079	6/17/2016 0:00	937	29	7 1446	214664452	1 000	R		
91856128	6/17/2016 0:00	418	49	4 1231	131353918	2 497	P		
91856207	6/17/2016 0:00	737	8	56 1854	206880581	3 904	P		
91856285	6/17/2016 0:00	267	57	14 1209	127654705	1 366	P		
91856522	6/17/2016 0:00	779	44	7 1242	123128540	2 499	P		
91856600	6/17/2016 0:00	384	5	3 1059	188633359	1 731	P		
91856875	6/17/2016 0:00	698	375	3957 2225	172169294	1 000	P		
91856954	6/17/2016 0:00	779	44	7 1242	123128540	3 699	P		
91857062	6/17/2016 0:00	732	3	39 1800	218127684	1 334	P		
91857141	6/17/2016 0:00	930	32	5 1159	218688482	1 501	P		
91857219	6/17/2016 0:00	508	13	65 1841	218620964	1 000	P		
91857494	6/17/2016 0:00	732	3	39 1800	218127684	2 334	P		
91857573	6/17/2016 0:00	949	8	16 1717	217667313	1 854	P		
91857693	6/17/2016 0:00	792	2	30 1326	201990295	2 520	P		
91857850	6/17/2016 0:00	704	49	60 1715	205802904	1 000	P		
91858125	6/17/2016 0:00	793	26	17 1533	149032259	1 000	P		
91858471	6/17/2016 0:00	740	39	61 1850	120703529	1 028	P		
91859097	6/17/2016 0:00	778	37	24 1623	207377228	4 520	P		
91859288	6/17/2016 0:00	941	41	4 1058	132449944	1 663	P		

Copilot

write a macro that prints the table with all of the columns on each page. The first row is a header and show also be on each page

Sure, here is a VBA macro that will print the table with all columns on each page and ensure the first row (header) is repeated on each page. Make sure to save your workbook as a macro-enabled workbook (.xlsm) to run this code.

```
Sub PrintTableWithHeaders()  
    Dim ws As Worksheet  
    Dim tbl As ListObject  
  
    ' Set the worksheet and table  
    Set ws = ThisWorkbook.Sheets("Sheet1")  
    Change "Sheet1" to your sheet name
```

Show data insights

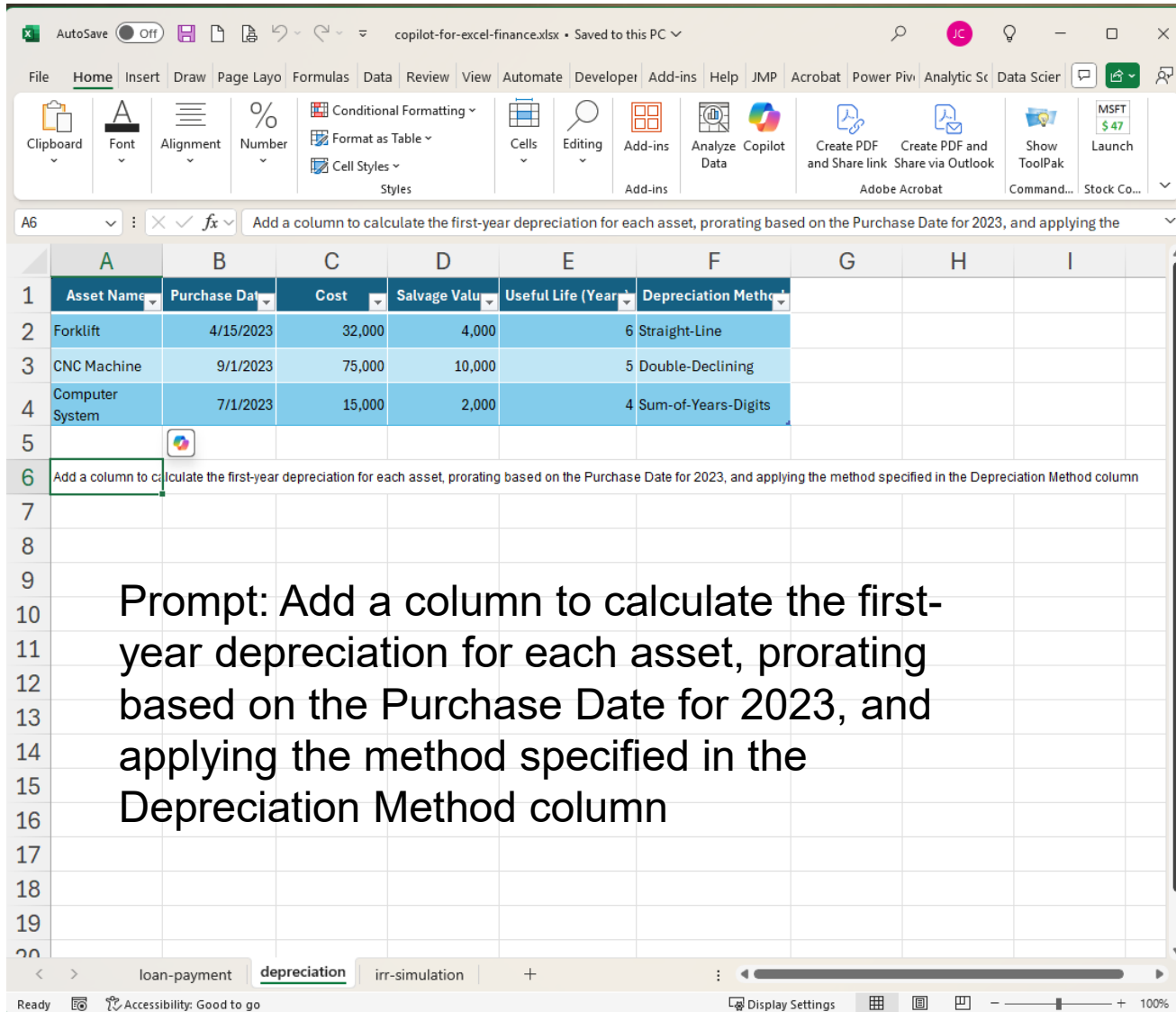
Show a suggestion for a formula column

Suggest conditional formatting

Ask a question, or tell me what you'd like to do with A1:O109742

CITY OF NORTH CAROLINA
ARLOTTE

Copilot in Excel - Depreciation



The screenshot shows the Microsoft Excel interface with the Copilot feature. The formula bar contains a prompt: "Add a column to calculate the first-year depreciation for each asset, prorating based on the Purchase Date for 2023, and applying the method specified in the Depreciation Method column". Below the formula bar, a table is displayed with the following data:

Asset Name	Purchase Date	Cost	Salvage Value	Useful Life (Year)	Depreciation Method
Forklift	4/15/2023	32,000	4,000	6	Straight-Line
CNC Machine	9/1/2023	75,000	10,000	5	Double-Declining
Computer System	7/1/2023	15,000	2,000	4	Sum-of-Years-Digits

The Copilot icon is visible in the bottom right corner of the Excel window. The status bar at the bottom indicates "Ready" and "Accessibility: Good to go".

Prompt: Add a column to calculate the first-year depreciation for each asset, prorating based on the Purchase Date for 2023, and applying the method specified in the Depreciation Method column

Copilot in Excel - Depreciation

AutoSave On copilot-for-excel-finance (1)... Saved

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Paste Aptos Narrow 11 Conditional Formatting Format as Table Cells Editing Add-ins Analyze Copilot Data Create PDF Create PDF and Share link Share via Outlook Show ToolPak MSFT \$47 Launch

Clipboard Font Styles Add-ins Add-ins Adobe Acrobat Command Stock Co...

G1 First-Year Depreciation

	A	B	C	D	E	F	G
	Asset Name	Purchase Date	Cost	Salvage Value	Useful Life (Years)	Depreciation Method	First-Year Depreciation
2	Forklift	4/15/2023	32,000	4,000	6	Straight-Line	3,324.20
3	CNC Machine	9/1/2023	75,000	10,000	5	Double-Declining	8,619.18
4	Computer System	7/1/2023	15,000	2,000	4	Sum-of-Years-Digits	1,955.34
5							
6	Add a column to calculate the first-year depreciation for each asset, prorating based on the Purchase Date for 2023, and applying the method specified						
7	$=SWITCH([@Depreciation Method],$						
8	$\text{"Straight-Line"}, ROUND(([@Cost]-[@Salvage Value])/[@Useful Life (Years)] *$						
9	$((DATE(YEAR([@Purchase Date]), 12, 31)-[@Purchase Date])/365), 2),$						
10	$\text{"Double-Declining"}, ROUND(2/[@Useful Life (Years)] * ([@Cost]-[@Salvage$						
11	$\text{Value}] *$						
12	$((DATE(YEAR([@Purchase Date]), 12, 31)-[@Purchase Date])/365), 2),$						
13	$\text{"Sum-of-Years-Digits"}, ROUND(([@Cost]-[@Salvage Value]) * ([@Useful Life$						
14	$(\text{Years}))- (YEAR([@Purchase Date]) -$						
15	$2023+1)) / (SUM(ROW(INDIRECT("1:" & [Useful Life (Years)]))) *$						
16	$((DATE(YEAR([@Purchase Date]), 12, 31)-[@Purchase Date])/365), 2), 0)$						
17							
18							
19							

loan-payment depreciation irr-simulation

Select destination and press ENTER or cho... Average: 4632.906667 Count: 4 Numerical Count: 3 Min: 1955.34 Max: 8619.18 Sum: 13898.72 Display Settings 100%

Copilot

Show explanation

	G
1	First-Year Depreciation
2	3,324.20
3	8,619.18
4	1,955.34

Insert column

AI-generated content may be incorrect

Imported 'First-Year Depreciation' to

Show data insights

Show a suggestion for a formula column

Suggest conditional formatting

question, or tell me what you'd like to do with A1:F4

TH CAROLINA OTTE

Copilot in Excel – Python Code

The screenshot displays the Microsoft Excel interface with a data table and the Copilot sidebar. The data table has the following columns: C, D, E, F, G, H, I, J, K, L, M, N, O. The rows contain transaction data with columns: ORE, REGISTER, TRAN_NUM, TRAN_TIME, CUST_ID, TRAN_LINE_NUM, MIC, TRAN_TYPE, ORIG_PRICE, SALE_PRICE, TRAN_AMT, TENDER_TYPE, and SKU.

ORE	REGISTER	TRAN_NUM	TRAN_TIME	CUST_ID	TRAN_LINE_NUM	MIC	TRAN_TYPE	ORIG_PRICE	SALE_PRICE	TRAN_AMT	TENDER_TYPE	SKU
214	1	5 1125	196703466	2 030	R			40	40	-40	DLRD	3773937
343	21	10 1133	181084877	1 000	P			0	4.16	4.16	BANK	999999995
204	51	7 1248	187415937	1 000	P			0	1.68	1.68	DAMX	999999995
427	8	8 1352	175624959	1 877	P			26	26	26	BANK	3624053
213	10	6 1314	203285569	1 000	R			0	4.27	-4.27	BANK	999999995
351	18	36 1814	134056824	2 366	P			38	22.8	22.8	DLRD	2933289
701	29	6 1057	195631374	1 342	P			89.99	89.99	89.99	BANK	4698792
351	29	32 1817	174701489	1 526	P			40	40	40	BANK	2672775
735	38	7 1415	208240099	4 000	P			0	28.5	28.5	BANK	999999995
206	64	18 1330	148535079	1 520	P			89.5	89.5	89.5	DAMX	0641092
422	29	16 1316	119632954	2 200	P			98	34.3	34.3	DL#	4155767
736	1	12 1609	217893936	1 679	P			27	13.5	13.5	BANK	0422046
207	35	10 1422	208902585	1 492	P			54	18.9	18.9	BANK	3614380
779	79	18 1429	199956719	1 178	P			28	28	28	BANK	3164559
274	32	15 1600	127916995	5 200	P			98	58.8	58.8	DLRD	4386911
698	22	5 0739	151350651	1 000	P			0	100	100	BANK	999999995
145	161	42 2019	218673852	1 181	P			58	58	58	BANK	6470621
779	79	18 1429	199956719	2 064	P			10	8.33	8.33	BANK	2832236
937	29	7 1446	214664452	1 000	R			0	23.37	-23.37	DAMX	999999995
418	49	4 1231	131353918	2 497	R			28	28	-28	BANK	6450564
737	8	56 1854	206880581	3 904	P			7	5	5	BANK	9771549
267	57	14 1209	127654705	1 366	P			38	22.8	22.8	DAMX	2933290
779	44	7 1242	123128540	2 499	P			59	20.65	20.65	DLRD	3237339
384	5	3 1059	188633359	1 731	P			34	34	34	DAMX	4090673
698	375	3957 2225	172169294	1 000	P			0	20.26	20.26	BANK	999999995
779	44	7 1242	123128540	3 699	P			49	17.15	17.15	DLRD	4323811

The Copilot sidebar on the right contains the following text:

Copilot AI-generated content may be incorrect

I can use advanced analysis for that. Here's what I'll do once you start the analysis:

- Create a new sheet for the results
- Automatically write and insert Python formulas
- Answer your prompt in multiple messages

Ready to get started?

Search for content, ask a question, or tell me what you'd like to do with A1:O107896

The prompt in the Copilot sidebar is: "write a python program to graph tran_amt by tender_type".

Copilot in Excel – Python Code

AutoSave On | TRANSACT_20160617 (3).... • Saved | Search

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Clipboard | Font | Alignment | Number | Styles | Cells | Editing | Add-ins | Analyze Copilot Data | Create PDF and Share link via Outlook | Show ToolPak | Launch

A6 | PY Table1_df=xl("Table1[headers],[Data]", headers=True)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	107890	9E+07	#####	924	141	39	...	0	2.43	2.43	DAMX	9999999950									
17	107891	9E+07	#####	167	202	5	...	40	40	40	DAMX	3581631									
18	107892	9E+07	#####	715	34	15	...	48	24.99	24.99	DAMX	2984580									
19	107893	9E+07	#####	405	131	21	...	0	4.95	4.95	BANK	9999999950									
20	107894	9E+07	#####	731	5	36	...	40	29.99	29.99	DL#	4162046									

Bar plot of TRAN_AMT by TENDER_TYPE

Image

Tender Type	Total Transaction Amount
GFT	0.00
BTL	0.00
DL#	0.00
DL#	0.00
DL#	0.00
DL#	0.00
BANK	1.75

Copilot

AI-generated content may be incorrect

The bar plot displays the total transaction amount (TRAN_AMT) for each tender type (TENDER_TYPE). You can use this visualization to identify which tender types contribute the most or least to the total transaction amount.

Stop advanced analysis

Analyze the distribution of TRAN_AMT for each TENDER_TYPE.

Investigate the relationship between TRAN_TYPE and TRAN_AMT.

Type a message for advanced analysis

Think deeper

Ready | Accessibility: Investigate

Windows Taskbar: 5/7/2025 5:11 PM

Copilot in Excel – Python Code

TRANSACT_20160617 (3).... • Saved

File Home Insert Draw Page Layout Formulas Data Review View Automate Developer Add-ins Help JMP Acrobat Power Pivot Analytic Solver Data Science

Comments Share

Clipboard Font Alignment Number Styles Cells Editing Add-ins Analyze Copilot Data Create PDF and Share link via Outlook Show ToolPak Launch

A6 PY Table1_df=xl("Table1[headers],[#Data]", headers=True)

	A	B	C	D	E	F	G	H	I	J	K	L
15	...	...	...	...	...	...	...	...	...	...	...	...
16	107890	9E+07	#####	924	141	39	...	0	2.43	2.43	DAMX	9999999950
17	107891	9E+07	#####	167	202	5	...	40	40	40	DAMX	3581631
18	107892	9E+07	#####	715	34	15	...	48	24.99	24.99	DAMX	2984580
19	107893	9E+07	#####	405	131	21	...	0	4.95	4.95	BANK	9999999950
20	107894	9E+07	#####	731	5	36	...	40	29.99	29.99	DL#	4162046

Bar plot of TRAN_AMT by TENDER_TYPE

Python

```
1 #Bar plot of TRAN_AMT by TENDER_TYPE
2 # Group data by 'TENDER_TYPE' and calculate the sum of 'TRAN_AMT'
3 tender_type_summary = Table1_df.groupby('TENDER_TYPE')['TRAN_AMT'].sum().
  sort_values()
4
5 # Plot the data
```

Analyze the distribution of TRAN_AMT for each TENDER_TYPE.

Investigate the relationship between TRAN_TYPE and TRAN_AMT.

Type a message for advanced analysis

Think deeper

Ready Accessibility: Investigate

90%

5:35 PM 5/7/2025

Copilot in Excel - Observations

- I am only moderately impressed with what Copilot can do at this time in Excel
- So far, many of the tasks that Copilot in Excel can do are limited and would be much more efficient if I just did them myself
- Some exceptions
 - Explaining complex functions in words
 - Using less familiar functions and features
 - Writing macros
 - Analyzing data stored in Excel using Python
- I expect this will be an area of continued development

Copilot in Other Office Applications

- Copilot in Outlook (I have not used this)
 - Create email drafts
 - Edit email drafts for length, tone, etc.
 - Summarize an email thread with links to specific emails
- Copilot in Teams
 - Summarize the transcript of the meeting
 - If you join a meeting late, you can get a summary of what has occurred so far

Copilot – Summary

- If you think of Copilot as a first version of enhancing Office with LLM capabilities, this looks interesting
- It seems much more valuable for text-based applications like Word, PowerPoint, and Outlook, but I suspect the value in Excel will continue to grow

Some Reasonable Concerns

- LLMs will improve enough that we will begin to trust them before they are good enough to be trusted
- LLMs get good enough to replace a meaningful number of jobs (or a meaningful portion of enough jobs) to create a rate of job loss that exceeds job growth for the displaced. For a specific example, currently about 2.5-3.0 million people in the U.S. work in call centers.

Generative AI/LLMs – My Advice

- Avoid the hype, avoid the naysayers
- Jump into the pool and experiment when/where appropriate
- Keep doing this for the next few years as the models develop further
- Another way to say this is shift from trying to figure out what an LLM can't do (because there are lots of things they can't do) to trying to figure out what they can do
- Then filter out the ones you can do more efficiently with some other tool
- If you have something left, then use an LLM to do that
- Then repeat this process every few months



Final Thoughts: Accounting Professionals and LLMs

- Do I think LLMs will eliminate jobs held by professional accountants? I do not.
- Do I think professional accountants who learn to use LLMs will outperform professional accountants who do not use LLMs? I do.



If you have questions, please reach out:

jmcathey@charlotte.edu

Thank you!

P.S. – There are some bonus slides after this

Bonus Slides



Desktop/Laptops - Hardware

- Not too much is happening here
- Laptop suggestions

Laptop Recommendations

- Dell XPS 13 – 13.4”, Intel or Snapdragon processor (Copilot +), 16GB, 512GB, 2.6 lbs. - \$1,149 and up
- Lenovo ThinkPad X1 Carbon – 14”, Intel Core Ultra 7, 32GB, 1TB, 2.5 lbs. - \$1,700 and up
- HP EliteBook 840 – 14”, Ultra 7, 32GB, 1TB, 3.2 lbs. - \$1,400 and up



Desktop/Laptop – Copilot+ PCs

- Microsoft has created a category of PC called Copilot+ PCs
- These machines have hardware requirements to support on-machine AI, including an NPU (Neural Processing Unit)
- Copilot + PCs can do things like Recall, Live Captions, Photo Enhancer, and others
- It is still very, very early to see if/how this will be a game-changer

Desktop/Laptop – Software

Windows 11

- The Windows 11 adoption rate is still creeping forward
- The latest estimates have Windows 10 at 60-65% and Windows 11 finally exceeding 30%
- Windows 10 will be supported until October 2025
- Business customers can purchase extended support beyond this date.
 - 1 Year - \$61
 - 2 Years - \$122
 - 3 Years - \$427
- Remember that Windows 11 has hardware requirements that may mean your current PC will not be able to be upgraded



Mobile

- iPhones
 - iPhone 16
 - iOS 18
- Android phones
 - Samsung S24
 - Google Pixel 9

iPhone

- The latest iPhones are iPhone 16
- All four models have the newest A18 chip, Camera Control and Action buttons, and support for Apple Intelligence
- iPhone 16
 - iPhone 16 - 6.1" display
 - iPhone 16 Plus - 6.7" display
- iPhone 16 Pro
 - iPhone 16 Pro – 6.3" display
 - iPhone 16 Pro Max – 6.9" display
- Both models also use USB C connectors (this changed in last year's model)





iPhone 16 and iPhone 16 Pro

- iPhone 16 have
 - A18 chip
 - Aluminum (6 oz and 7 oz)
 - Two cameras
 - Black, White, Pink, Teal, Ultramarine
- iPhone 16 Pro have
 - A18 Pro chip
 - Titanium (7 oz and 8 oz)
 - Three cameras (added camera is telephoto)
 - Black Titanium, White Titanium, Natural Titanium, Desert Titanium

Camera Control Button

- On right side
- One touch to open camera, one to take a picture
- Has slider to adjust zoom and other parameters



Action Button

- One the left side above the Volume Up/Dow buttons
- Replaces the Ring/Silent button
- Customizable actions
 - Ring/Silent (default)
 - Voice memo
 - Shazam
 - Translate
- Previously available on iPhone 15 Pro



iOS 18 - Apple Intelligence



- Adds ChatGPT features to your phone
- On-phone for many tasks
- Off-phone tasks can be constrained to a private cloud
- Example tasks
 - Writing tools – summarize text, change tone, advanced proofreading, prioritize notifications
 - Image tools – Genmoji, turn text descriptions into images
 - Siri improvements – better understanding of natural language, better awareness of personal context
- Available for iPhone 16 & iPhone 15 Pro, iPad and other Macs with M1 or later processors
- Available starting in October 2024

iOS 18



- Other new features/functions
 - More control over home screen
 - Messages has
 - Better support for communicating with Android users
 - Text formatting (bold, italics, etc.)
 - Send later
 - Satellite support
 - Improved Photos app, including Clean up tool
 - Notes can transcribe audio and summarize documents
 - Password app
- Compatible with models back to iPhone X (10)
some features not available on older models

Other iPhone Models Still Available

- iPhone 15
 - iPhone 15
 - iPhone 15 Plus
- iPhone 14
 - iPhone 14
 - iPhone 14 Plus
- iPhone SE



Android Phones

- The most popular Android phones are the ones from Samsung and from Google. Here are the most recent releases:
 - Samsung (great cameras, Gemini AI)
 - Galaxy S25 – 6.2” display - \$799
 - Galaxy S25+ - 6.7” display - \$999
 - Galaxy S25 Ultra – 6.9” display - \$1,299
 - Google (solid cameras, Gemini AI)
 - Pixel 9 - 6.3” display - \$799
 - Pixel 9 Pro - 6.3” display - \$999
 - Pixel 9 Pro XL - 6.8” display - \$1,099
 - Pixel 9a - 6.3” display - \$499



My Favorite Technology Purchase (This Year)

- I go to a lot of meetings and need to take notes
- I have used legal pads for a long time, but now most of the meetings send everything out in .pdf files and printing them seemed too wasteful
- I purchased a reMarkable 2 for \$399
 - It has a stylus for writing (with no batteries)
 - The battery lasts for well more than a week (usually two weeks)
 - I can upload the .pdf items in the cloud

