

## **Todd Klindt**



19 Year SharePoint MVP Blogger, Speaker, Consultant at Sympraxis Consulting, Not a Developer

todd.klindt@sympraxisconsulting.com @toddklindt www.toddklindt.com/techorama





# Agenda

- ♦ What is Al?
- What is the focus for our discussion?
- How should I use it?
- Here are the tools I use







### What is AI?

Al is many things

NLP - Natural Language Processing

ML - Machine Learning

CV - Computer Vision

It learns like humans do, for better or worse
ChatGPT read the whole internet and remembers it



### Some Terms

- Neural Network Like our brains
- Nodes Like a neuron
- Parameter Weights on connections
- Hallucinations Stuff the Al imagined
- Temperature Higher, more random, lower, more real
- Alignment Are AI and humans' outcomes aligned?
- Large Language Model (LLM) The Al's brain



# What the heck is a GPT, anyway?

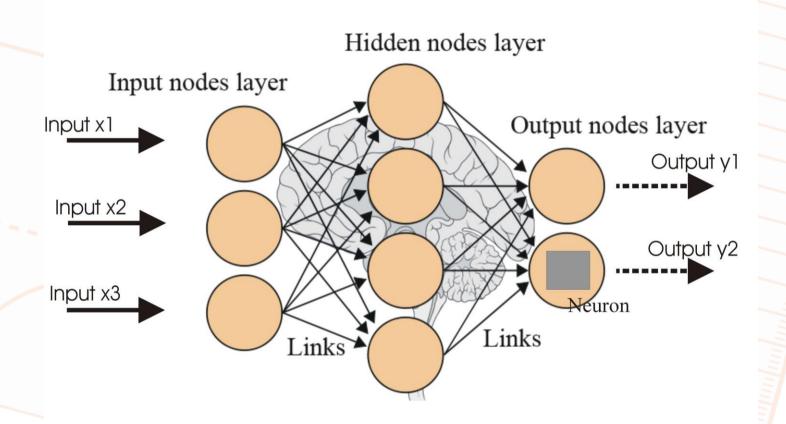
Generative – Al that makes new stuff

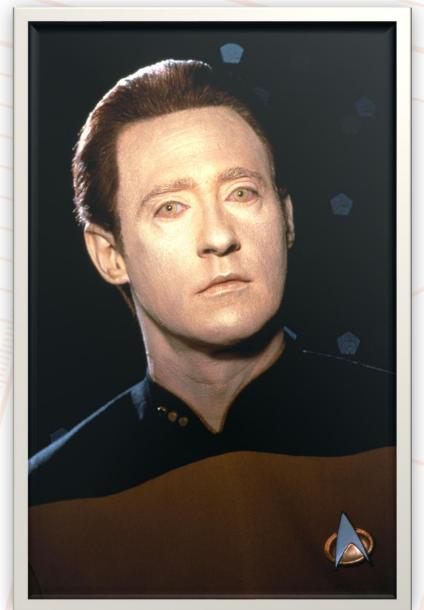
Pre-Trained – The model was trained ahead of time

Transformer – A new way to input and output data



## Neural Network







## What is the focus for our discussion?

- Now that we're Al experts...
- How can we use this tool?
- Write better code (PowerShell!)
  - Faster
  - Fewer errors
  - More functionality
  - Better documentation
  - Write better anything



### How?

- Don't think of it as a computer or software
- What role would you like it to play?

Review? Creator? Collaborator?

- Initiate or react?
  - Tyranny of the blank page
  - "I want to..."
  - "What's the best way to..."
  - # Loop through \$ListItemList and..."
- Decide which AI tool to use



# Is this Vibe Coding?

- Maybe, probably
- "the hottest new programming language is English Dutch and French"



## Github CoPilot

- Like pair programming
- Looks over your shoulder
- Uses its corpus, open tabs, and your code
- Sounds great! How much is it?
- Parts will be merged into VSCode





# Pricing

### GitHub Copilot Free

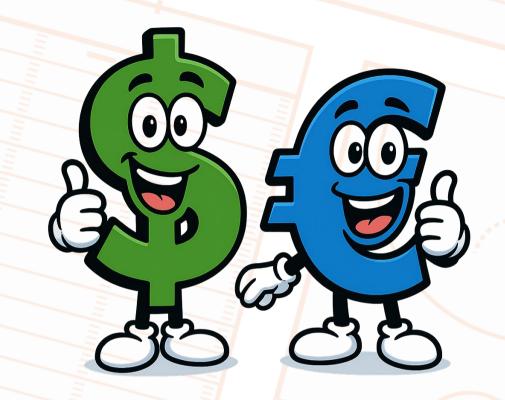
- → Free
- → 2,000 code completions
- 50 premium requests

### GitHub Copilot Pro

- ♦ \$10 USD per month
- Unlimited code completions
- Unlimited basic requests
- → 300 premium requests
- Students, teachers, and VIPs may get it for free

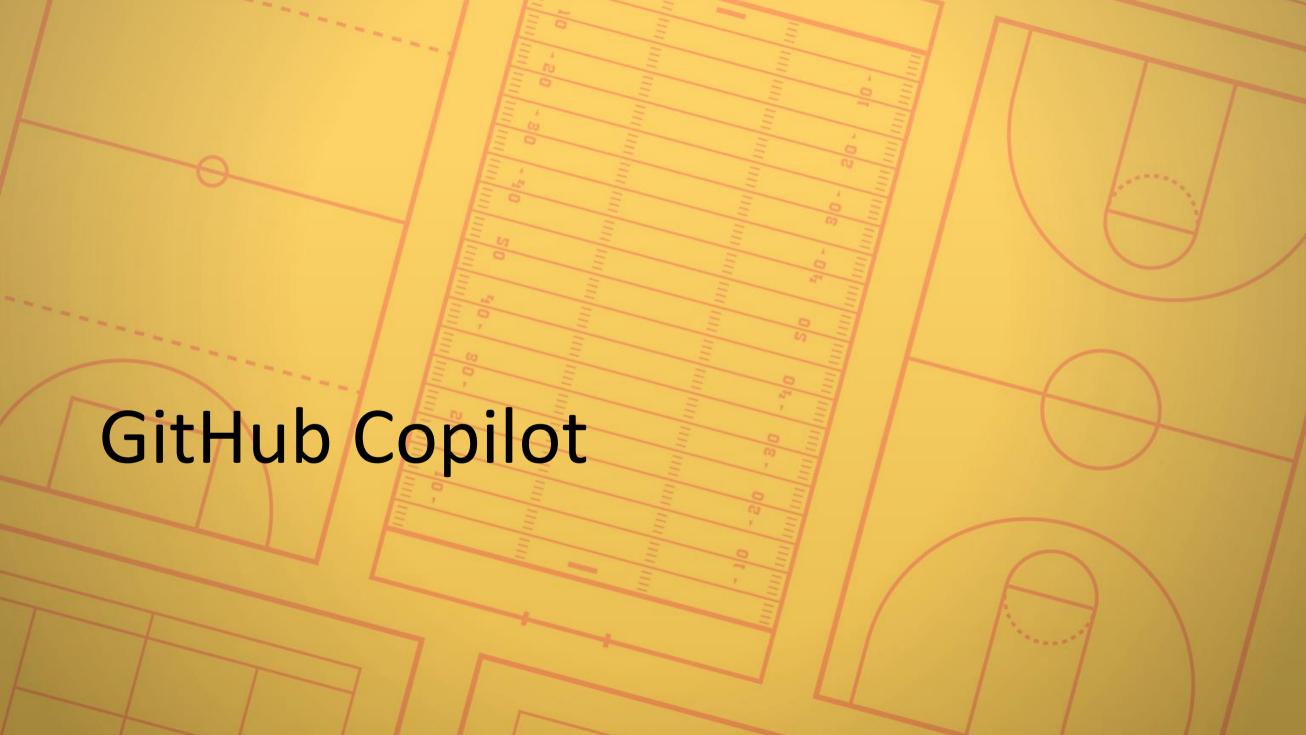
### GitHub Copilot Pro+

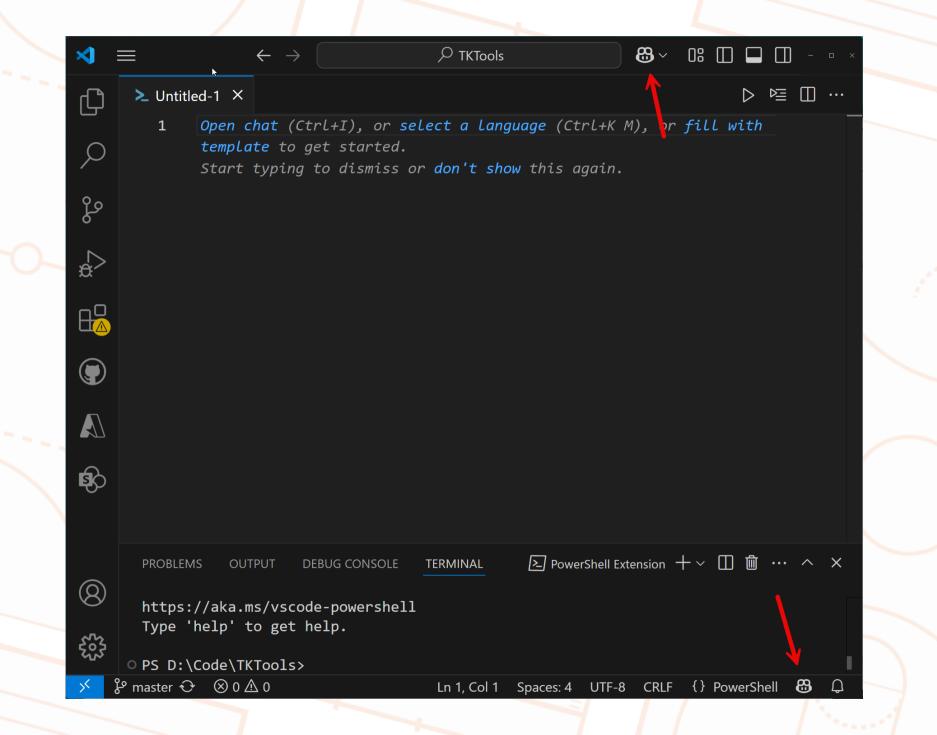
- \$39 USD per month
- Full access to all models and features
- https://docs.github.com/en/copilot/about-github-copilot/plans-for-github-copilot

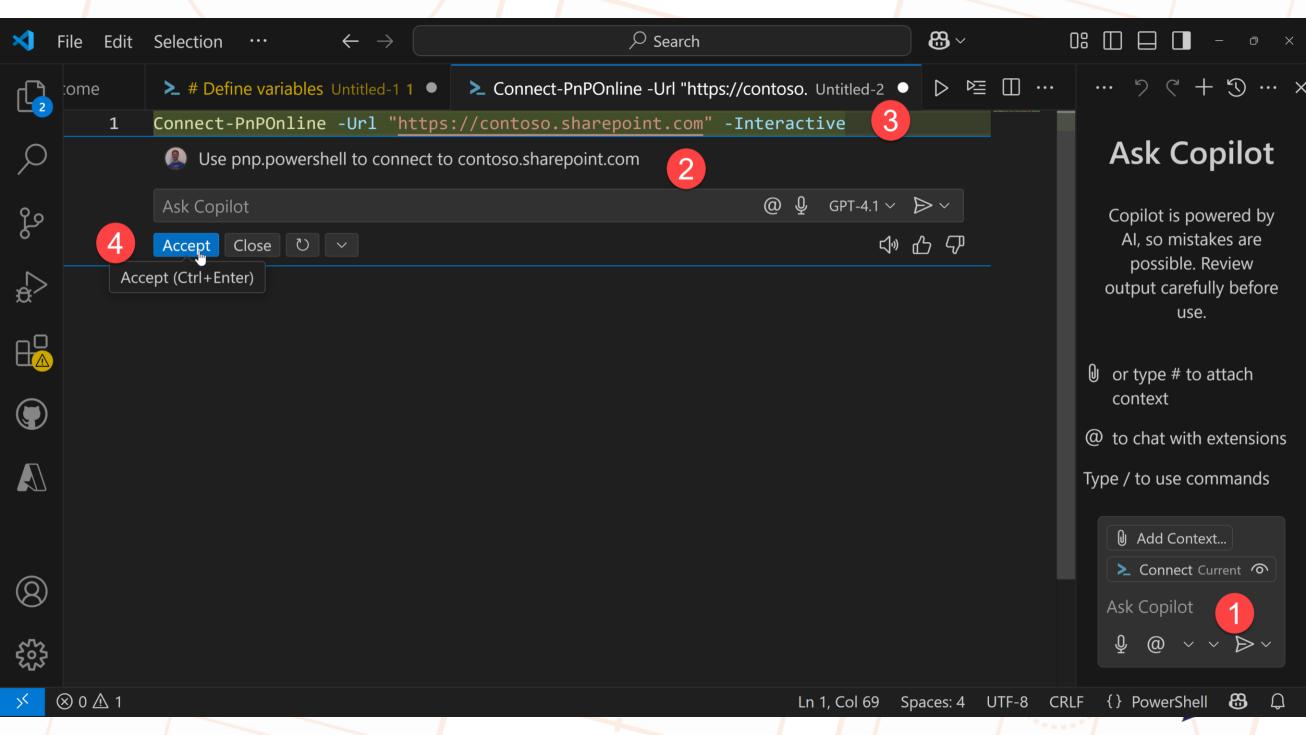


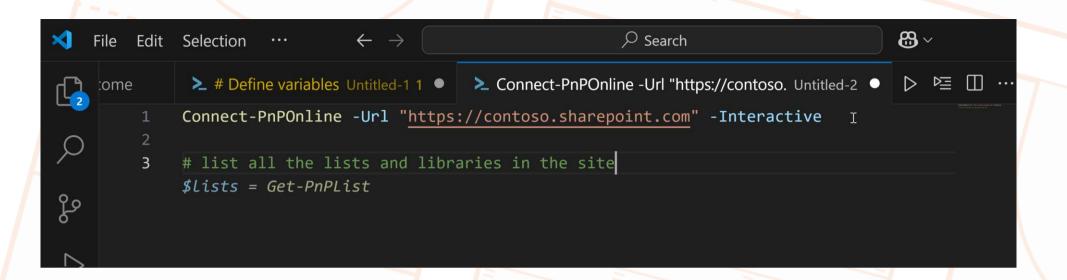








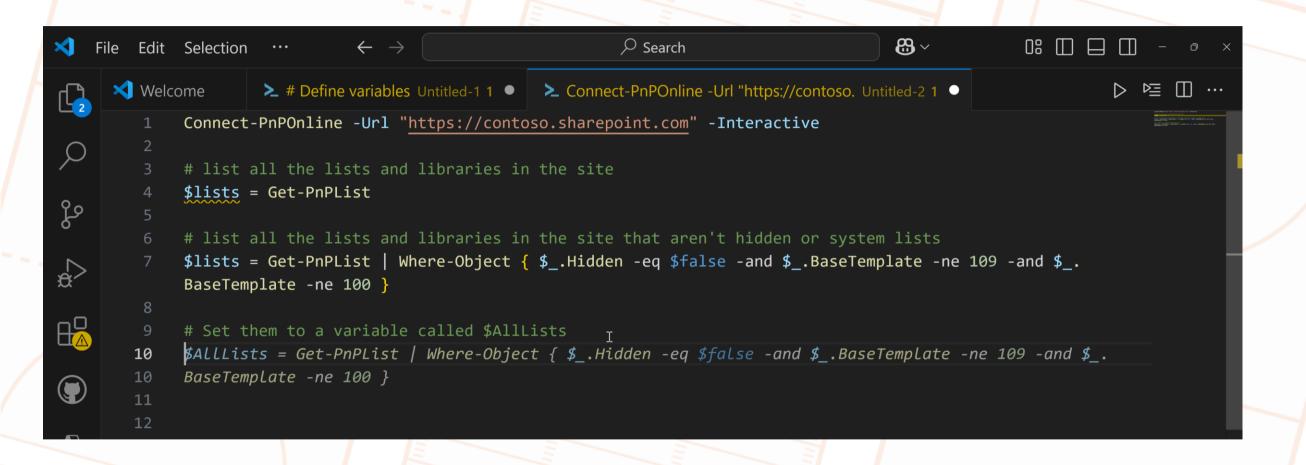




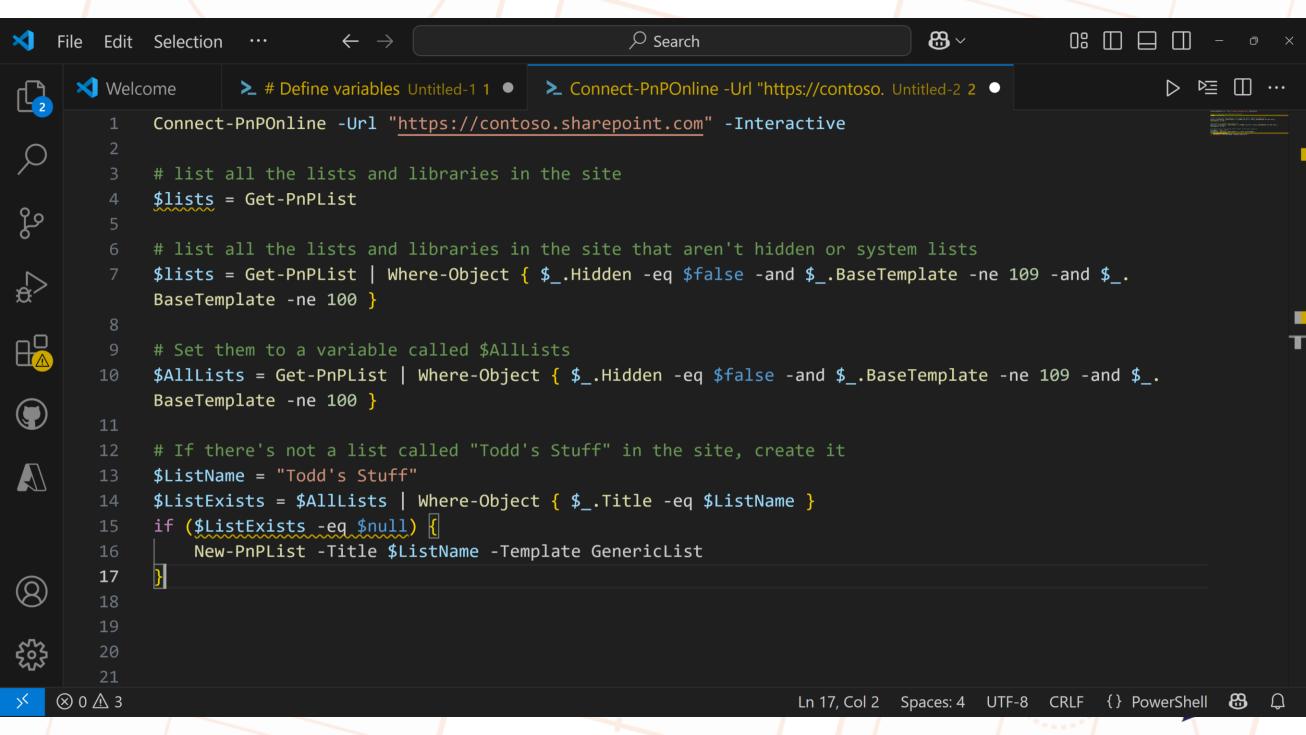
```
83 ~
                           \leftarrow \rightarrow

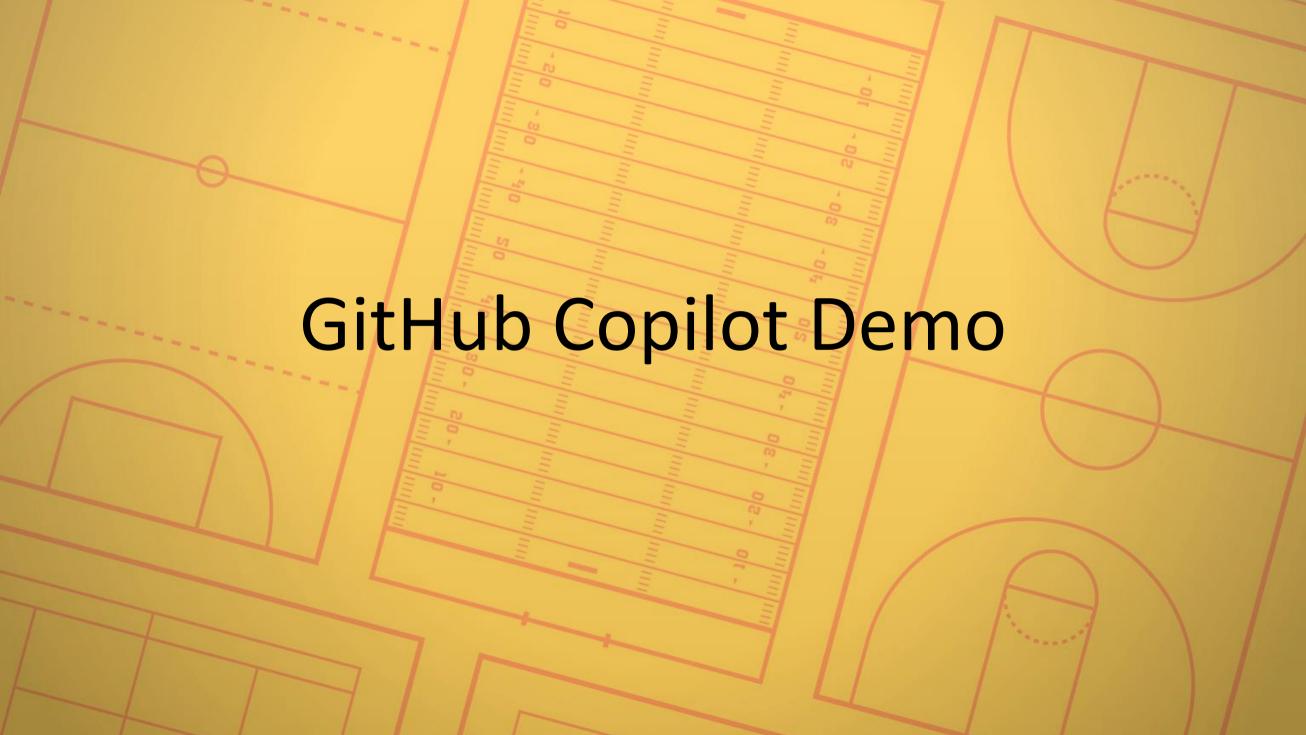
∠ Search

   File Edit Selection
                                                                             me
           Connect-PnPOnline -Url "https://contoso.sharepoint.com" -Interactive
           # list all the lists and libraries in the site
           $lists = Get-PnPList
مړ
           # list all the lists and libraries in the site that aren't hidden or system lists
           $lists = Get-PnPList | Where-Object { $_.Hidden -eq $false -and $_.BaseTemplate
æ\
           -ne 109 -and $ .BaseTemplate -ne 100 }
```









### ChatGPT

- That genie in a bottle
- "Write me some PowerShell code that..."
- Compliments GitHub Copilot
- Spring for the \$20 €22 a month



# Plugins • Enabled plugins: 6

Let's write a PowerShell function called Add-ClientCredential. It has 4 parameters, tenantname, username, password, and testcredential. It should use Add-PnpStoredCredential to store credentials for https://tenant.sharepoint.com, https://tenant.sharepoint.com/, and https://tenant-admin.sharepoint.com.

Certainly! Below is a PowerShell function called `Add-ClientCredential`. This function takes four parameters:

- `TenantName`: The name of the tenant (e.g., "contoso").
- \* `UserName`: The username for the credential (e.g., "user@contoso.com").
- `Password`: The password for the credential.
- `TestCredential`: A switch parameter that, when specified, will test the credentials after they are stored.

The function uses the `Add-PnPStoxedCxedential` cmdlet to store credentials for the following SharePoint URLs:

- \* `https://<TenantName>.sharepoint.com`
- \* `https://<TenantName>.sharepoint.com/`
- \* `https://<TenantName>-admin.sharepoint.com`

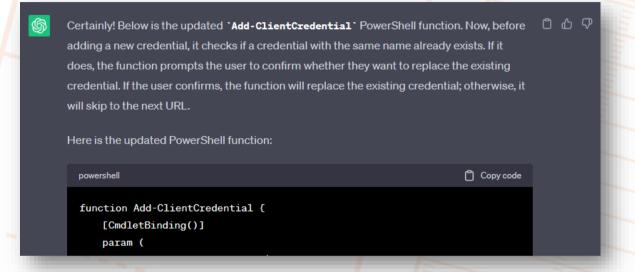
Here is the PowerShell function:

Here is the PowerShell function:

```
Copy code
powershell
function Add-ClientCredential {
    [CmdletBinding()]
   param (
       [Parameter(Mandatory = $true)]
       [string] $TenantName,
       [Parameter(Mandatory = $true)]
       [string] $UserName,
       [Parameter(Mandatory = $true)]
       [string] $Password,
       [Parameter(Mandatory = $false)]
       [switch] $TestCredential
   $securePassword = ConvertTo-SecureString -String $Password -AsPlainText
   surls = @(
       "https://$TenantName.sharepoint.com",
       "https://$TenantName.sharepoint.com/",
       "https://$TenantName-admin.sharepoint.com"
                                                                       □ Regenerate
```

PHO A MESSAGE





```
foreach ($url in $urls) {
    $existingCredential = Get-PnPStoredCredential -Name $url -ErrorActio
    if ($null -ne $existingCredential) {
        $replace = $false
        $replace = Read-Host "Credential for $url already exists. Do you
        if ($replace -eq 'Y' -or $replace -eq 'y') {
           $replace = $true
       } else {
           $replace = $false
       if (-not $replace) {
            Write-Output "Skipping credential for $url."
            continue
    Add-PnPStoredCredential -Name $url -Username $UserName -Password $se
```



Looks good. Let's have it prompt the user if they don't enter tenantname, username, or password. And let's have the password take a securestrong instead of a string.

Certainly! Below is the updated `Add-ClientCredential` PowerShell function. Now, if the `TenantName`, `UserName`, or `Password` parameters are not provided when the function is called, it will prompt the user to enter them. Additionally, the `Password` parameter now accepts a `SecureString` object instead of a plain text string.

Here is the updated PowerShell function:

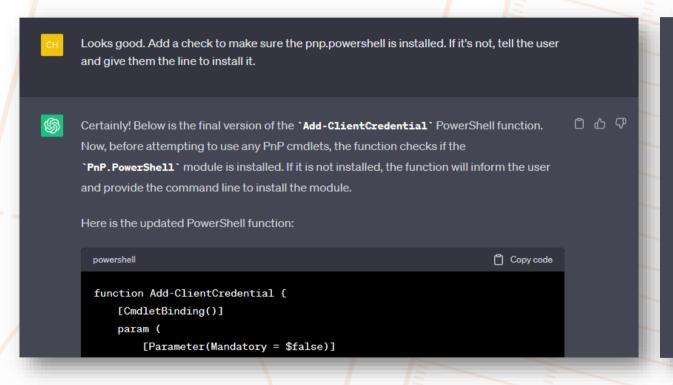
```
if (-not $TenantName) {
    $TenantName = Read-Host "Please enter the Tenant Name"
}

if (-not $UserName) {
    $UserName = Read-Host "Please enter the User Name"
}

if (-not $Password) {
    $Password = Read-Host "Please enter the Password" -AsSecureString
}

$urls = @(
```



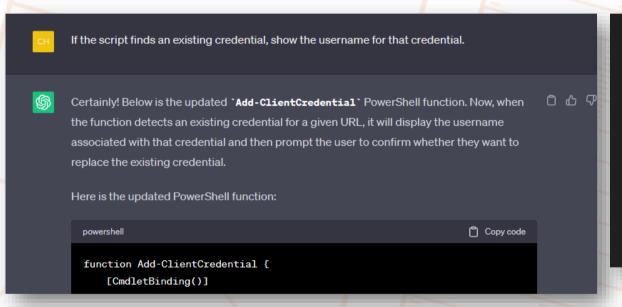


```
[switch] $TestCredential
)

# Check if PnP.PowerShell module is installed
$pnpModule = Get-Module -ListAvailable -Name PnP.PowerShell -ErrorAction
if ($null -eq $pnpModule) {
    Write-Warning "The PnP.PowerShell module is not installed."
    Write-Output "To install the PnP.PowerShell module, run the followin
    Write-Output "Install-Module -Name PnP.PowerShell -Scope CurrentUser
    return
}

if (-not $TenantName) {
    $TenantName = Read-Host "Please enter the Tenant Name"
}
```





```
foreach ($url in $urls) {
    $existingCredential = Get-PnPStoredCredential -Name $url -ErrorAction
    SilentlyContinue

if ($null -ne $existingCredential) {
    Write-Output "Existing credential found for $url with username: $
        ($existingCredential.UserName)"
        $replace = Read-Host "Do you want to replace it? (Y/N)"
        if ($replace -eq 'Y' -or $replace -eq 'y') {
            $replace = $true
        } else {
            $replace = $false
```



CH

Looks great! Please add a description and provide a few examples.



Certainly! Below is the final version of the `Add-ClientCredential` PowerShell function, complete with a description and examples.

#### **Description:**

This PowerShell function is designed to manage SharePoint Online credentials for a given tenant. It allows the user to securely store credentials for various SharePoint Online URLs using the `PnP.PowerShell` module. If credentials for a given URL already exist, the function will display the associated username and prompt the user to confirm whether they

<±

#### .SYNOPSIS

This function stores SharePoint Online credentials for a given tenant using

#### .DESCRIPTION

The Add-ClientCredential function securely stores credentials for various Sh If credentials for a given URL already exist, the function will display the prompt the user to confirm whether they want to replace the existing credent

#### .PARAMETER TenantName

The name of the SharePoint Online tenant.

#### .PARAMETER UserName

The username for the SharePoint Online credentials.



add support if the user enters contoso.sharepoint.com, contoso.onmicrosoft.com, https or http versions of them.

Certainly! The updated `Add-ClientCredential` PowerShell function now includes support for various formats of the tenant name. It can handle inputs like `contoso`,

`contoso.sharepoint.com`, `contoso.onmicrosoft.com`,

`https://contoso.sharepoint.com`, or `http://contoso.sharepoint.com`. The function

# Normalize the tenant name to extract the base tenant name
\$TenantName = \$TenantName -replace 'https://|http://|\.sharepoint\.
com|\.onmicrosoft\.com', ''



СН

This all works great. Is there anything else I should add, or any other errors I should trap for?



Great to hear that it works well! Here are a few additional considerations for making your script more robust and user-friendly:

#### 1. Validate Tenant Name Format:

 You might want to add a regular expression check to ensure that the tenant name entered by the user is in a valid format after normalization. This can help to catch typos or invalid characters early.

#### 2. Check for Null or Empty Password:

• Before proceeding, you might want to check that the user didn't enter an empty password. If the password is empty, you can prompt the user to enter it again.

#### 3. Error Handling for PnP Cmdlets:

Consider adding `try`/`catch` blocks around the PnP cmdlets to handle any
exceptions that they might throw. This way, if an error occurs (e.g., network issues, server
unresponsive), your script can catch that error and handle it gracefully, such as by
logging the error and continuing with the next iteration of the loop.

#### 4. Confirm Impact with User:

 Before making changes (especially when replacing existing credentials), consider using the `ShouldProcess` method to confirm the impact with the user. This is a best practice for PowerShell functions that make changes to a system.

#### 5. Support for `-WhatIf` and `-Confirm` Parameters:

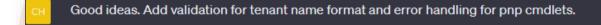
Here is an example of some of these improvements:

powershell

function Add-ClientCredential {
 [CmdletBinding(SupportsShouldProcess=\$true, ConfirmImpact='Medium')]
 param (
 [Parameter(Mandatory = \$false)]
 [ValidateNotNullOrEmpty()]
 [string] \$TenantName,

 [Parameter(Mandatory = \$false)]
 [ValidateNotNullOrEmpty()]
 [string] \$UserName,





Certainly! Below is the updated `Add-ClientCredential` PowerShell function with added validation for the tenant name format and error handling for PnP cmdlets.

The tenant name validation ensures that after normalization, the tenant name contains only valid characters (letters, numbers, and hyphens). The error handling includes 'try'/'catch' blocks around the PnP cmdlets to gracefully handle any exceptions that they might throw, log the error, and continue with the next iteration of the loop.

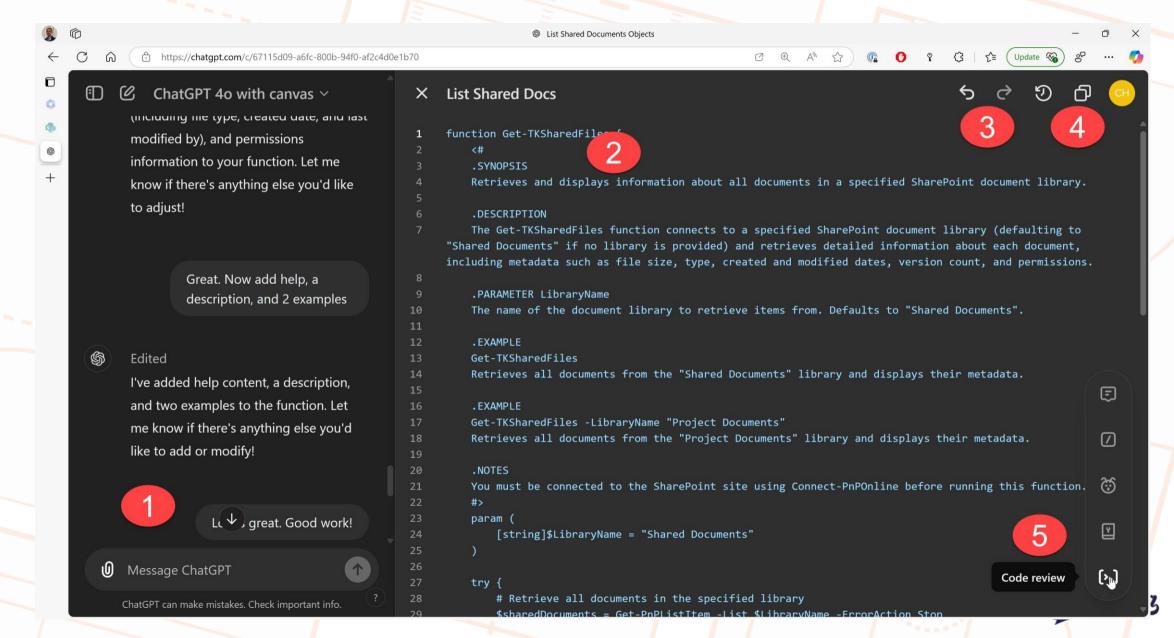
Here is the updated PowerShell function:

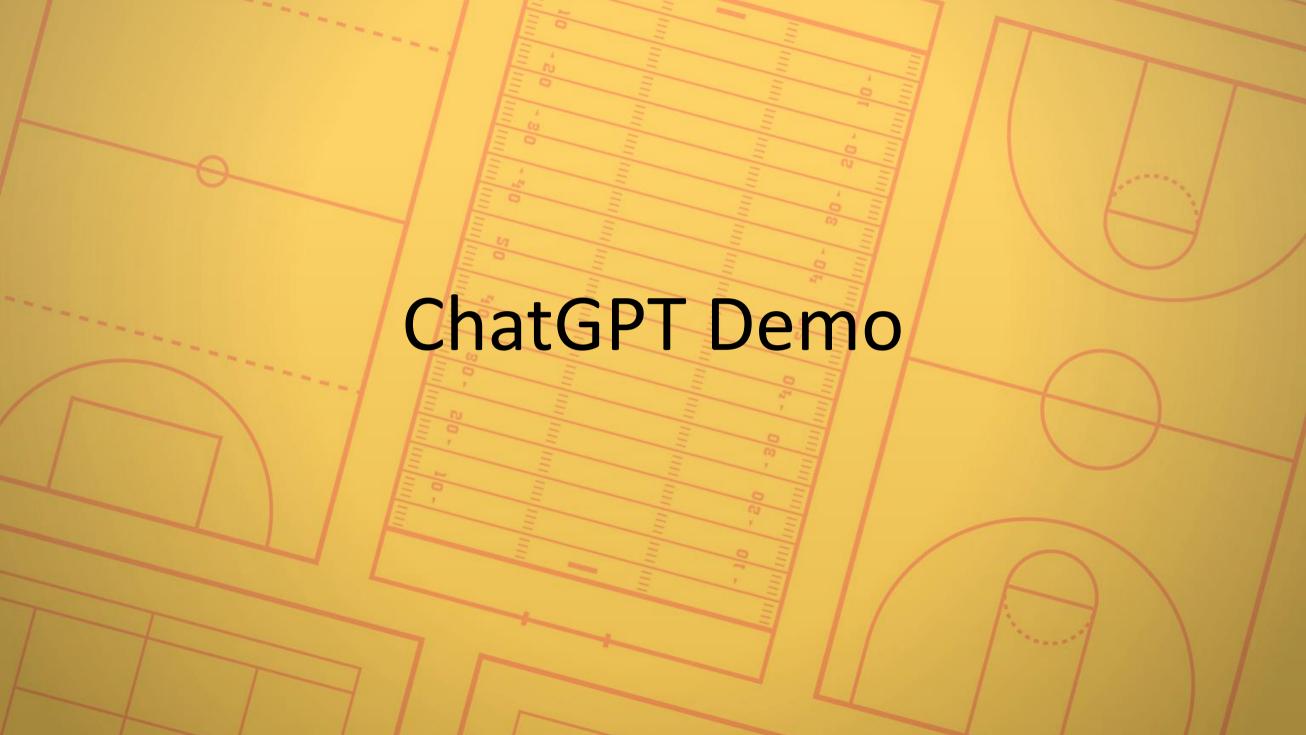
```
# Normalize the tenant name to extract the base tenant name
$TenantName = $TenantName -replace 'https://|http://|\.sharepoint\.
com|\.onmicrosoft\.com', ''

# Validate tenant name format
if (-not ($TenantName -match '^[a-zA-Z0-9\-]+$')) {
    Write-Warning "Invalid tenant name format. Please enter a valid tenant name."
    return
}
```

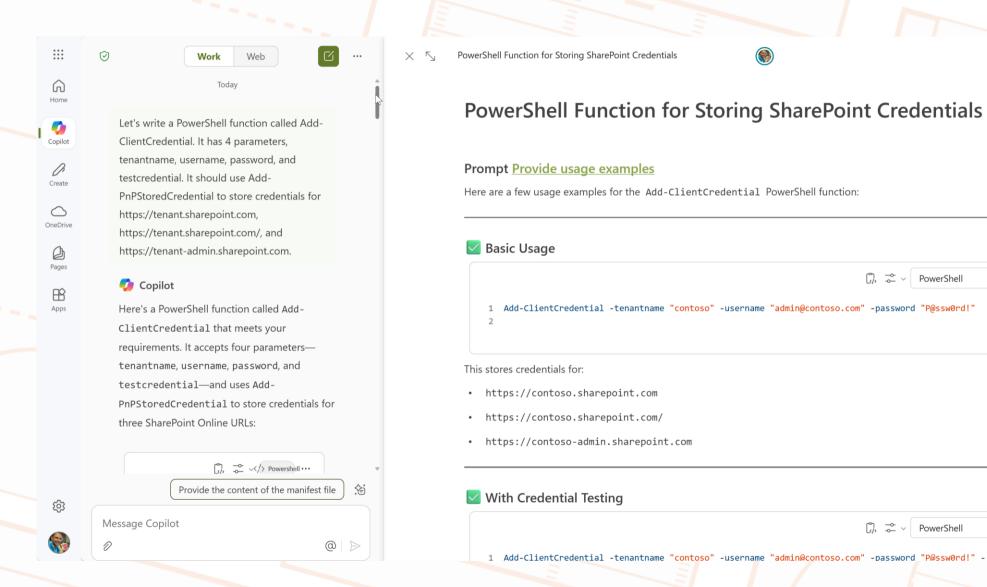


# ChatGPT w/ Canvas





# Microsoft Copilot





### **PSAI**

- Use your fa
- → Invoke-0 to my M3 the Shar
- https://gith

```
PowerShell
 PS D:\> Invoke-OAIChat "tell me how to connect to my M365 tenant and get a list of all the SharePoint Sites"
 To connect to your Microsoft 365 (M365) tenant and get a list of all the SharePoint sites, you can use PowerShell with
  the SharePoint Online Management Shell or Microsoft Graph API. Here's how you can do it using PowerShell, which is a co
  mmon approach:
  ### Prerequisites:
    **Install SharePoint Online Management Shell**: You can download and install it from the [Microsoft Download Center]
 (https://www.microsoft.com/en-us/download/details.aspx?id=35588).
    **Connect to SharePoint Online**: Use credentials that have permissions to access the SharePoint sites.
 ### Steps to list SharePoint sites using PowerShell:
    **Open SharePoint Online Management Shell**.
    **Run the following commands**:
    ```powershell
    # Import the SharePoint Online module (if not done automatically)
    Import-Module Microsoft.Online.SharePoint.PowerShell
    # Connect to your SharePoint Online tenant
    Connect-SPOService -Url https://your-tenant-admin.sharepoint.com
    # Get a list of all SharePoint sites
    $sites = Get-SPOSite -Limit All
    # Display the sites
    $sites | Select-Object Title, Url
    Replace 'your-tenant-admin' with your actual tenant admin domain.
 ### Using Microsoft Graph API:
If you prefer using the Graph API, you can do so as follows:
    **Register an Application in Azure AD**: Make sure you have the appropriate API permissions for Microsoft Graph (lik
   `Sites.Read.All`).
    **Use the Graph Explorer or Postman or a script**: You can fetch the sites using the Graph API endpoint.
    Example HTTP GET request:
    GET https://graph.microsoft.com/v1.0/sites?search=*
    Make sure to include the Authorization header with your access token.
 Choose either PowerShell or Microsoft Graph API based on your preference. PowerShell is straightforward for administrat
 ors familiar with it, while Graph API can be integrated into applications for more dynamic use.
```

hell connect st of all



### Resources

- ♦ Shawn Wang on AI
- ChatGPT
- GitHub Copilot
- ♦ The 12 minute version of this with demos
- Why AI Will Save the World Marc Andreessen





Review my Session

### Questions?



todd.klindt@sympraxisconsulting.com @toddklindt www.toddklindt.com/techorama



