

Powershell Essentials

<http://www.powershelltutorial.net>

Powershell Essentials Part-1

PowerShell Environment

PowerShell is Microsoft new Command Line Interface for Windows systems, it provides access to:

- CMD- Command Prompt
- PowerShell Functions, Cmdlets (Powershell Commands)
- Access to the .Net Framework API
- Access to Windows Management Instrumentation
- Access to Windows Component Object Model (COM)

Powershell Essentials Part-2

Get-Help

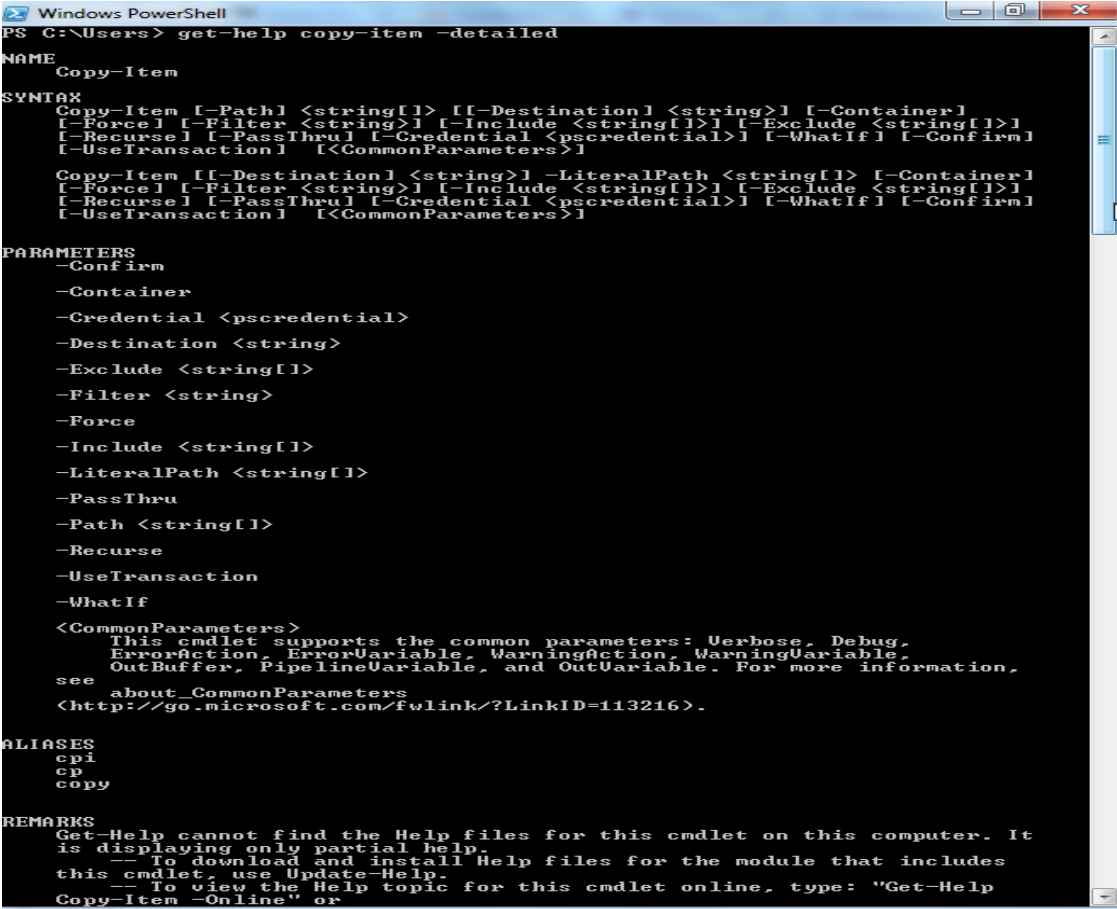
We use the Get-Help cmdlet displays information about Windows PowerShell concepts and commands, including cmdlets, functions, CIM commands, workflows, providers, aliases and scripts.

- **-Detailed** parameter is given it will show Parameter information and Examples.
- **-Full** parameter is given it will show a more detailed list of info for Parameters.
- **-Examples** parameter is given only examples are shown.
- PS C:\Users> get-help copy-item
- PS C:\Users> get-help copy-item
- PS C:\Users> get-help copy-item

Powershell Essentials Part-2

Get-Help -detailed

- PS C:\Users> get-help copy-item -detailed

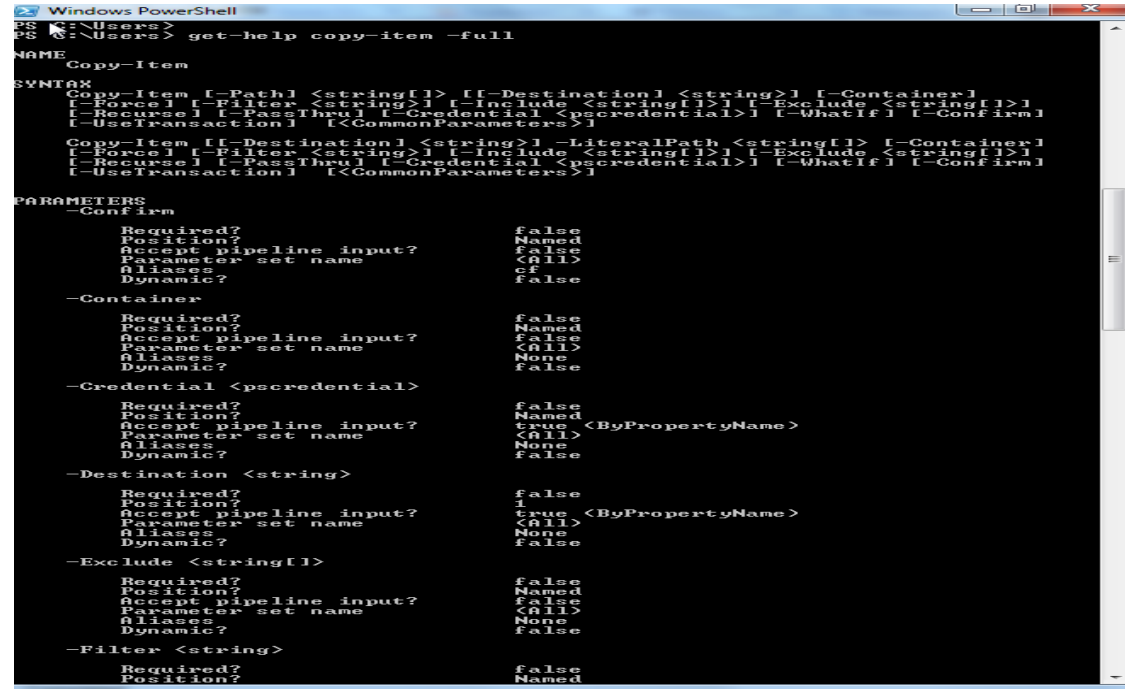


```
Windows PowerShell
PS C:\Users> get-help copy-item -detailed
NAME
    Copy-Item
SYNTAX
    Copy-Item [-Path] <string[]> [[-Destination] <string>] [-Container]
    [-Force] [-Filter <string>] [-Include <string[]>] [-Exclude <string[]>]
    [-Recurse] [-PassThru] [-Credential <pscredential>] [-WhatIf] [-Confirm]
    [-UseTransaction] [<CommonParameters>]
    Copy-Item [[-Destination] <string>] -LiteralPath <string[]> [-Container]
    [-Force] [-Filter <string>] [-Include <string[]>] [-Exclude <string[]>]
    [-Recurse] [-PassThru] [-Credential <pscredential>] [-WhatIf] [-Confirm]
    [-UseTransaction] [<CommonParameters>]
PARAMETERS
    -Confirm
    -Container
    -Credential <pscredential>
    -Destination <string>
    -Exclude <string[]>
    -Filter <string>
    -Force
    -Include <string[]>
    -LiteralPath <string[]>
    -PassThru
    -Path <string[]>
    -Recurse
    -UseTransaction
    -WhatIf
    <CommonParameters>
        This cmdlet supports the common parameters: Verbose, Debug,
        ErrorAction, ErrorVariable, WarningAction, WarningVariable,
        OutBuffer, PipelineVariable, and OutVariable. For more information,
        see
        about_CommonParameters
        (<a href="http://go.microsoft.com/fwlink/?LinkID=113216">http://go.microsoft.com/fwlink/?LinkID=113216</a>).
ALIASES
    cpi
    cp
    copy
REMARKS
    Get-Help cannot find the Help files for this cmdlet on this computer. It
    is displaying only partial help.
    -- To download and install Help files for the module that includes
    this cmdlet, use Update-Help.
    -- To view the Help topic for this cmdlet online, type: "Get-Help
    Copy-Item -Online" or
```

Powershell Essentials Part-2

Get-Help -full

- PS C:\Users> get-help copy-item -full



```
Windows PowerShell
PS C:\Users>
PS C:\Users> get-help copy-item -full
NAME
Copy-Item

SYNTAX
Copy-Item [-Path] <string[]> [-Destination] <string> [-Container]
[-Force] [-Filter <string>] [-Include <string[]>] [-Exclude <string[]>]
[-Recurse] [-PassThru] [-Credential <pscredential>] [-WhatIf] [-Confirm]
[-UseTransaction] [-CommonParameters]
Copy-Item [-Destination] <string> [-LiteralPath <string[]>] [-Container]
[-Force] [-Filter <string>] [-Include <string[]>] [-Exclude <string[]>]
[-Recurse] [-PassThru] [-Credential <pscredential>] [-WhatIf] [-Confirm]
[-UseTransaction] [-CommonParameters]

PARAMETERS
-Confirm
    Required?                false
    Position?                Named
    Accept pipeline input?   false
    Parameter set name       <All>
    Aliases                  cf
    Dynamic?                 false

-Container
    Required?                false
    Position?                Named
    Accept pipeline input?   false
    Parameter set name       <All>
    Aliases                  None
    Dynamic?                 false

-Credential <pscredential>
    Required?                false
    Position?                Named
    Accept pipeline input?   true <ByPropertyName>
    Parameter set name       <All>
    Aliases                  None
    Dynamic?                 false

-Destination <string>
    Required?                false
    Position?                1
    Accept pipeline input?   true <ByPropertyName>
    Parameter set name       <All>
    Aliases                  None
    Dynamic?                 false

-Exclude <string[]>
    Required?                false
    Position?                Named
    Accept pipeline input?   false
    Parameter set name       <All>
    Aliases                  None
    Dynamic?                 false

-Filter <string>
    Required?                false
    Position?                Named
```

Powershell Essentials Part-2

Get-Help -example

- PS C:\Users> get-help copy-item -example

```
PS C:\Users> get-help copy-item -example
NAME
    Copy-Item

ALIASES
    cpi
    cp
    copy

REMARKS
    Get-Help cannot find the Help files for this cmdlet on this computer. It
    is displaying only partial help.
    -- To download and install Help files for the module that includes
    this cmdlet, use Update-Help.
    -- To view the Help topic for this cmdlet online, type: "Get-Help
    Copy-Item -Online" or
    go to http://go.microsoft.com/fwlink/?LinkID=113292.

PS C:\Users> _
```

Powershell Essentials

Part-3

Objects and the Pipeline

PowerShell is an Object based Shell, this means that everything is an object. Those who have programmed in C#, VB, VB script or any other Objects based language know very well the power of objects.

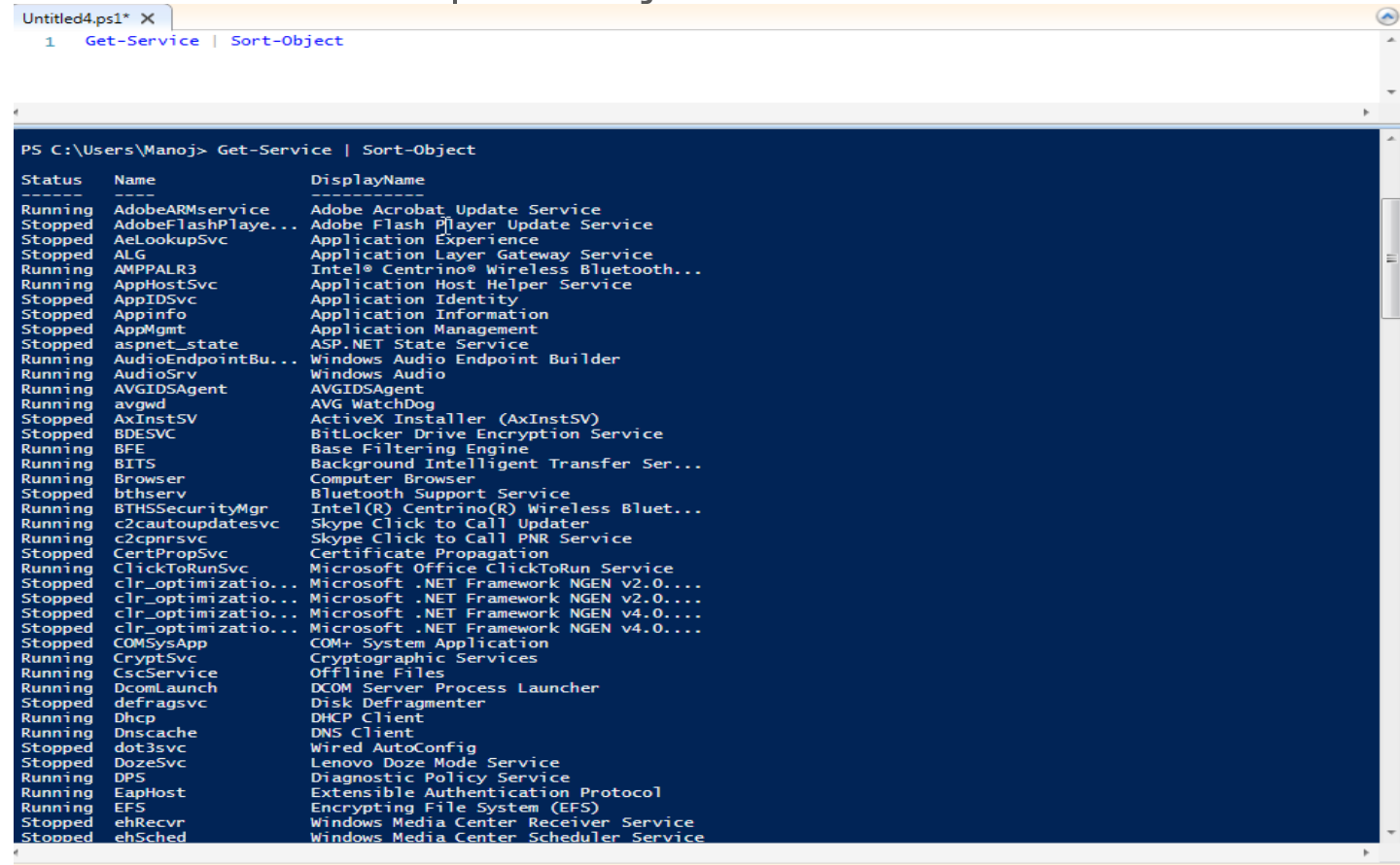
Object is Data and it has 2 types of components.

- Properties
- Method

Powershell Essentials Part-4

Filtering and Iterating over Objects

- Selecting Objects
- PS c:\ > Get-Service | Sort-Object



```
Untitled4.ps1* X
1 Get-Service | Sort-Object

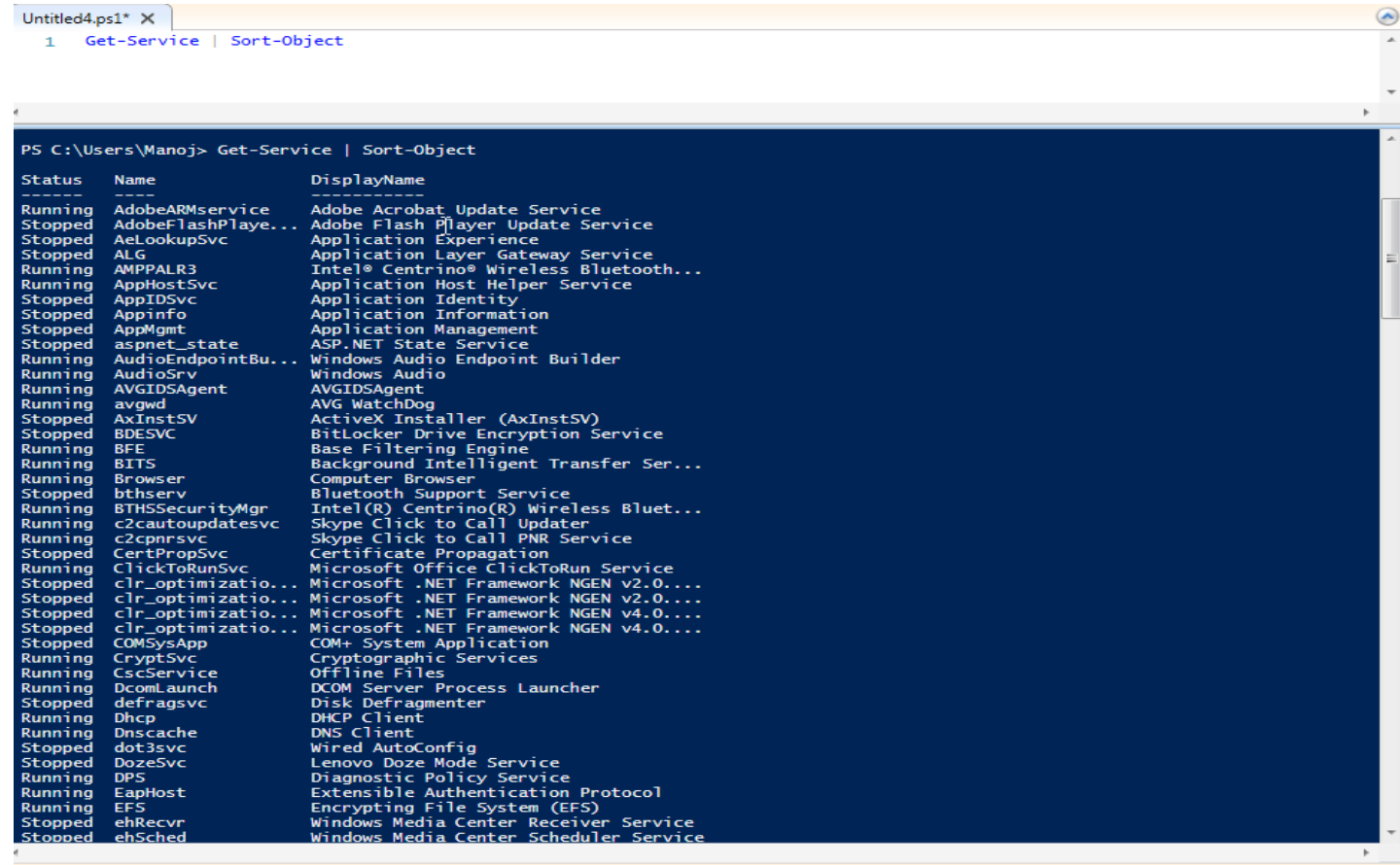
PS C:\Users\Manoj> Get-Service | Sort-Object

Status      Name                Display Name
-----
Running     AdobeARMService    Adobe Acrobat Update Service
Stopped     AdobeFlashPlaye... Adobe Flash Player Update Service
Stopped     AeLookupSvc        Application Experience
Stopped     ALG                 Application Layer Gateway Service
Running     AMPPALR3           Intel® Centrino® Wireless Bluetooth...
Running     AppHostSvc         Application Host Helper Service
Stopped     AppIDSvc           Application Identity
Stopped     AppInfo            Application Information
Stopped     AppMgmt            Application Management
Stopped     aspnet_state       ASP.NET State Service
Running     AudioEndpointBu... Windows Audio Endpoint Builder
Running     AudioSrv           Windows Audio
Running     AVGIDSAgent        AVGIDSAgent
Running     avgwd              AVG WatchDog
Stopped     AxInstSV           ActiveX Installer (AxInstSV)
Stopped     BDESVC             BitLocker Drive Encryption Service
Running     BFE                 Base Filtering Engine
Running     BITS                Background Intelligent Transfer Ser...
Running     Browser            Computer Browser
Stopped     bthserv            Bluetooth Support Service
Running     BTHSSecurityMgr    Intel(R) Centrino(R) Wireless Bluet...
Running     c2caoutupdatesvc   Skype Click to Call Updater
Running     c2cpnrsvc          Skype Click to Call PNR Service
Stopped     CertPropSvc        Certificate Propagation
Running     ClickToRunSvc      Microsoft Office ClickToRun Service
Stopped     clr_optimizatio... Microsoft .NET Framework NGEN v2.0...
Stopped     clr_optimizatio... Microsoft .NET Framework NGEN v2.0...
Stopped     clr_optimizatio... Microsoft .NET Framework NGEN v4.0...
Stopped     clr_optimizatio... Microsoft .NET Framework NGEN v4.0...
Stopped     COMSysApp          COM+ System Application
Running     CryptSvc           Cryptographic Services
Running     CscService         Offline Files
Running     DcomLaunch         DCOM Server Process Launcher
Stopped     defragsvc          Disk Defragmenter
Running     Dhcp                DHCP Client
Running     Dnscache           DNS Client
Stopped     dot3svc            Wired AutoConfig
Stopped     DozeSvc            Lenovo Doze Mode Service
Running     DPS                Diagnostic Policy Service
Running     EapHost            Extensible Authentication Protocol
Running     EFS                Encrypting File System (EFS)
Stopped     ehRecvr            Windows Media Center Receiver Service
Stopped     ehSched            Windows Media Center Scheduler Service
```


Powershell Essentials Part-4

Filtering and Iterating over Objects

- Selecting Objects Filter- Select first 5 service
- PS c:\ > Get-Service | Sort-Object | Select-Object -first 5



```
Untitled4.ps1* X
1 Get-Service | Sort-Object

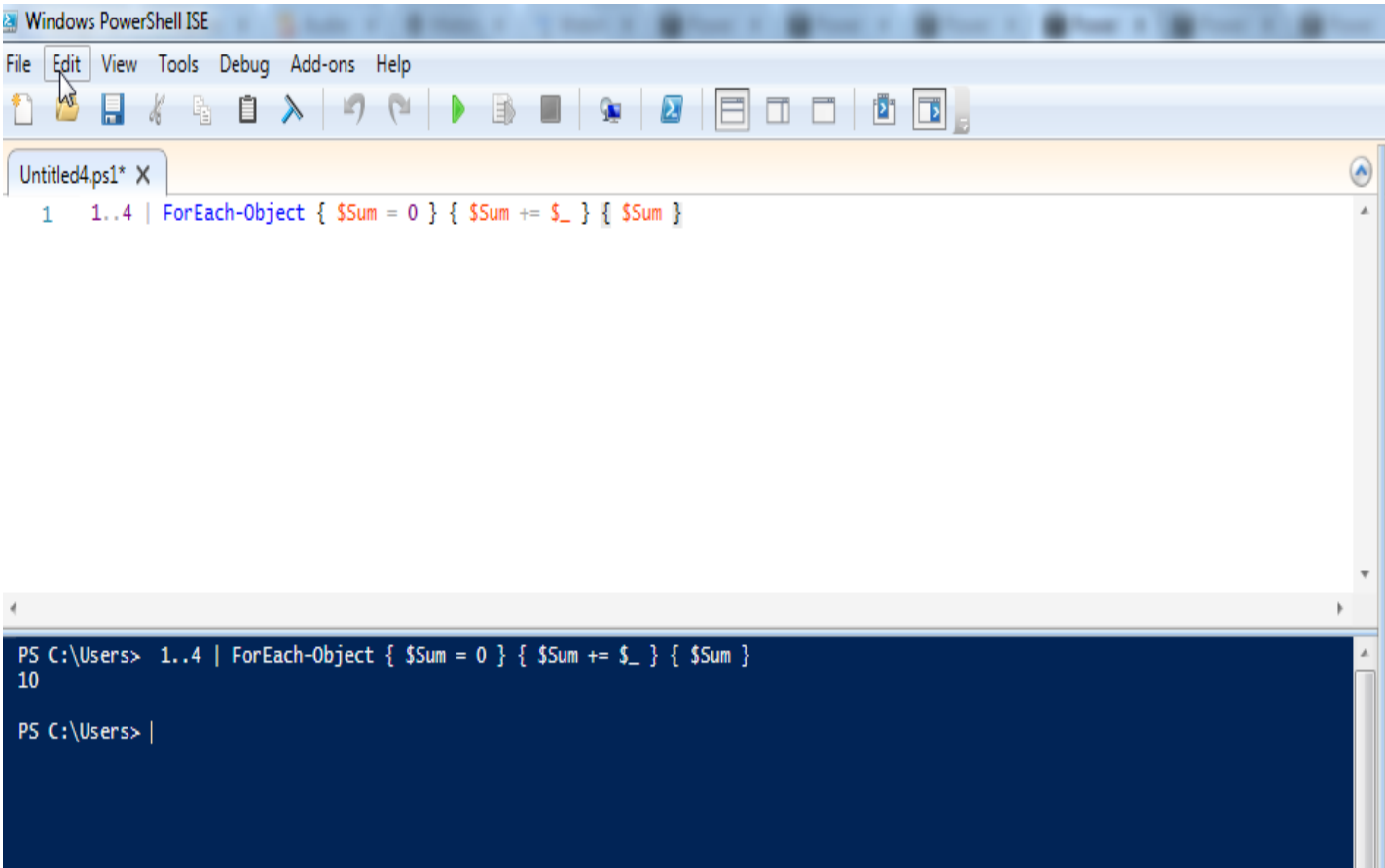
PS C:\Users\Manoj> Get-Service | Sort-Object

Status Name Display Name
-----
Running AdobeARMService Adobe Acrobat Update Service
Stopped AdobeFlashPlaye... Adobe Flash Player Update Service
Stopped AeLookupSvc Application Experience
Stopped ALG Application Layer Gateway Service
Running AMPPALR3 Intel® Centrino® Wireless Bluetooth...
Running AppHostSvc Application Host Helper Service
Stopped AppIDSvc Application Identity
Stopped Appinfo Application Information
Stopped AppMgmt Application Management
Stopped aspnet_state ASP.NET State Service
Running AudioEndpointBu... Windows Audio Endpoint Builder
Running AudioSrv Windows Audio
Running AVGIDSAgent AVGIDSAgent
Running avgwd AVG WatchDog
Stopped AxInstSV ActiveX Installer (AxInstSV)
Stopped BDESVC BitLocker Drive Encryption Service
Running BFE Base Filtering Engine
Running BITS Background Intelligent Transfer Ser...
Running Browser Computer Browser
Stopped bthserv Bluetooth Support Service
Running BTHSSecurityMgr Intel(R) Centrino(R) Wireless Bluet...
Running c2caoutupdatesvc Skype Click to Call Updater
Running c2cpnrsvc Skype Click to Call PNR Service
Stopped CertPropSvc Certificate Propagation
Running ClickToRunSvc Microsoft Office ClickToRun Service
Stopped clr_optimizatio... Microsoft .NET Framework NGEN v2.0...
Stopped clr_optimizatio... Microsoft .NET Framework NGEN v2.0...
Stopped clr_optimizatio... Microsoft .NET Framework NGEN v4.0...
Stopped clr_optimizatio... Microsoft .NET Framework NGEN v4.0...
Stopped COMSysApp COM+ System Application
Running CryptSvc Cryptographic Services
Running CscService Offline Files
Running DcomLaunch DCOM Server Process Launcher
Stopped defragsvc Disk Defragmenter
Running Dhcp DHCP Client
Running Dnscache DNS Client
Stopped dot3svc Wired AutoConfig
Stopped DozeSvc Lenovo Doze Mode Service
Running DPS Diagnostic Policy Service
Running EapHost Extensible Authentication Protocol
Running EFS Encrypting File System (EFS)
Stopped ehRecvr Windows Media Center Receiver Service
Stopped ehSched Windows Media Center Scheduler Service
```

PowerShell Essentials Part-4

Filtering and Iterating over Objects

- **Selecting Objects Foreach**
- PS c:\ > 1..4 | ForEach-Object { \$Sum = 0 } { \$Sum += \$_ } { \$Sum }



The screenshot shows the Windows PowerShell ISE interface. The top pane displays a script in a file named 'Untitled4.ps1' with the following code:

```
1 1..4 | ForEach-Object { $Sum = 0 } { $Sum += $_ } { $Sum }
```

The bottom pane shows the execution of this script, resulting in the output '10'.

```
PS C:\Users> 1..4 | ForEach-Object { $Sum = 0 } { $Sum += $_ } { $Sum }  
10  
  
PS C:\Users> |
```