**Using the pipeline**

**Exercise 1: Selecting, sorting, and displaying data**  
**Scenario**In this exercise, you will produce lists of management information from the computers in your  
environment. For each task, you will discover the necessary commands and use **Select-Object**,  
**Sort-Object,** and the formatting cmdlets to customize the final output of each command.  
The main tasks for this exercise are as follows:  
  
1. Display the current day of the year.  
2. Display information about installed hotfixes.  
3. Display a list of available scopes from the DHCP server.  
4. Display a sorted list of enabled Windows Firewall rules.  
5. Display a sorted list of network neighbors.  
6. Display information from the DNS name resolution cache

**Task 1: Display the current day of the year**1. On **LON-CL1**, start Windows PowerShell with administrative credentials.  
2. Using a keyword such as **date**, find a command that can display the current date.  
3. Display the members of the object produced by the command that you found in the previous step.  
4. Display only the day of the year.  
5. Display the results of the previous command on a single line.  
  
**Answers:**help \*date\*

Get-Date | Get-Member

Get-Date | Select-Object –Property DayOfYear

Get-Date | Select-Object -Property DayOfYear | fl

**Task 2: Display information about installed hotfixes**1. Using a keyword such as **hotfix**, find a command that can display a list of the installed hotfixes.  
2. Display the members of the object produced by the command that you found in the previous step.  
3. Display a list of the installed hotfixes. Display only the installation date, hotfix ID number, and name  
of the user who installed the hotfix.  
4. Display a list of the installed hotfixes. Display only the hotfix ID, the number of days since the hotfix  
was installed, and the name of the user who installed the hotfix.

**Answers:**

Get-Command \*hotfix\*

Get-Hotfix | Get-Member

Get-Hotfix | Select-Object –Property HotFixID,InstalledOn,InstalledBy

Get-Hotfix | Select-Object –Property HotFixID,@{n='HotFixAge';e={(New-TimeSpan -Start  
$PSItem.InstalledOn).Days}},InstalledBy

**Task 3: Display a list of available scopes from the DHCP server**1. Using a keyword such as **DHCP** or **scope**, find a command that can display a list of Internet Protocol  
version 4 (IPv4) Dynamic Host Configuration Protocol (DHCP) scopes.  
2. View the help for the command.  
3. Display a list of the available IPv4 DHCP scopes on **LON-DC1**.  
4. Display a list of the available IPv4 DHCP scopes on **LON-DC1**. This time, include only the scope ID,  
subnet mask, and scope name, and display the data in a single column.

**Answers:**

help \*scope\*

Help Get-DHCPServerv4Scope –ShowWindow

Get-DHCPServerv4Scope –ComputerName LON-DC1

Get-DHCPServerv4Scope –ComputerName LON-DC1 | Select-Object –Property  
ScopeId,SubnetMask,Name | fl

**Task 4: Display a sorted list of enabled Windows Firewall rules**1. Using a keyword such as **rule**, find a command that can display the firewall rules.  
2. Display a list of the firewall rules.  
3. View the help for the command that displays the firewall rules.  
4. Display a list of the firewall rules that are enabled.  
5. Display the same data in a table, making sure no information is truncated.  
6. Display a list of the enabled firewall rules. Display only the rules’ display names, the profiles they  
belong to, their directions, and whether they allow or deny access.  
7. Sort the list in alphabetical order first by profile and then by display name, with the results appearing  
in a separate table for each profile.

**Answers:**

help \*rule\*

Get-NetFirewallRule

Help Get-NetFirewallRule –ShowWindow

Get-NetFirewallRule –Enabled True

Get-NetFirewallRule –Enabled True | Format-Table -wrap

Get-NetFirewallRule –Enabled True | Select-Object –Property DisplayName,Profile,Direction,Action | Sort-Object –Property Profile, DisplayName | ft -GroupBy Profile

**Task 5: Display a sorted list of network neighbors**  
1. Using a keyword such as **neighbor**, find a command that can display the network neighbors.  
2. View the help for the command.  
3. Display a list of the network neighbors.  
4. Display a list of the network neighbors that is sorted by state.  
5. Display a list of the network neighbors that is grouped by state, displaying only the IP address in as  
compact a format as possible and letting Windows PowerShell decide how to optimize the layout.  
  
**Answers:**

help \*neighbor\*

help Get-NetNeighbor –ShowWindow

Get-NetNeighbor

Get-NetNeighbor | Sort-Object –Property State

Get-NetNeighbor | Sort-Object –Property State | Select-Object –Property IPAddress,State | Format-Wide -GroupBy State -AutoSize

**Task 6: Display information from the DNS name resolution cache**1. Test your network connection to both **LON-DC1** and **LON-CL1** so that you know the Domain Name  
System (DNS) client cache is populated with data.  
2. Using a keyword such as **cache**, find a command that can display items from the DNS client cache.  
3. Display the DNS client cache.  
4. Display the DNS client cache. Sort the list by record name, and display only the record name, record  
type, and Time to Live. Use only one column to display all the data

**Answers:**

Test-NetConnection LON-DC1

Test-NetConnection LON-CL1

help \*cache\*

Get-DnsClientCache

Get-DnsClientCache | Select Name,Type,TimeToLive | Sort Name | Format-List