PowerShell Demos
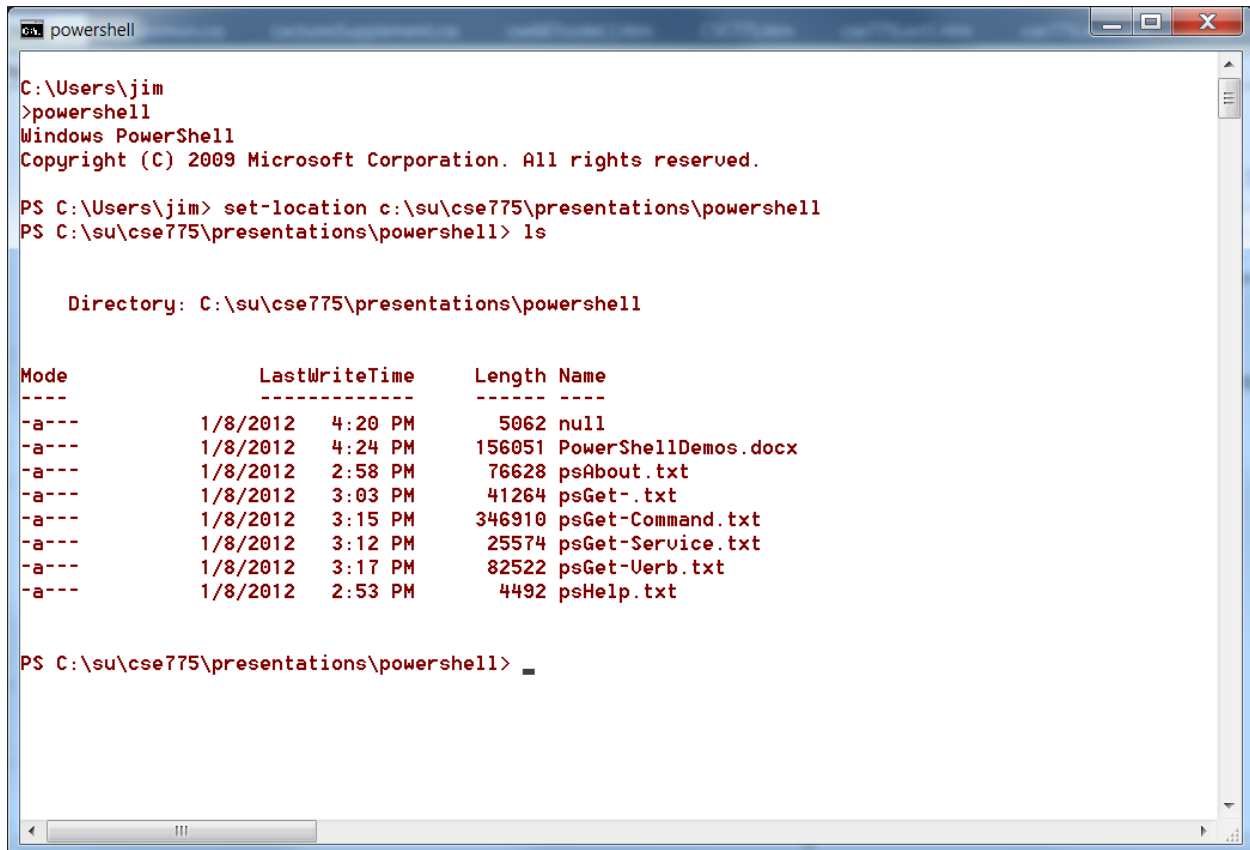
Jim Fawcett
CSE775 - Distributed Objects
Spring 2012

Starting PowerShell

```
powershell                                                    _ □ X

C:\Users\jim
>powershell
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

PS C:\Users\jim> set-location c:\su\cse775\presentations\powershell
PS C:\su\cse775\presentations\powershell> ls


    Directory: C:\su\cse775\presentations\powershell


Mode                LastWriteTime      Length Name
----                -------------      ------ ----
-a---         1/8/2012    4:20 PM         5062 null
-a---         1/8/2012    4:24 PM       156051 PowerShellDemos.docx
-a---         1/8/2012    2:58 PM        76628 psAbout.txt
-a---         1/8/2012    3:03 PM        41264 psGet-.txt
-a---         1/8/2012    3:15 PM       346910 psGet-Command.txt
-a---         1/8/2012    3:12 PM        25574 psGet-Service.txt
-a---         1/8/2012    3:17 PM        82522 psGet-Verb.txt
-a---         1/8/2012    2:53 PM         4492 psHelp.txt


PS C:\su\cse775\presentations\powershell> _
```
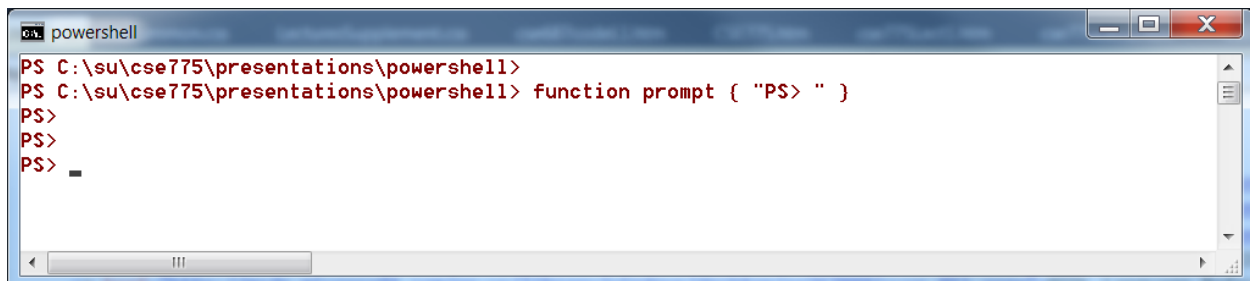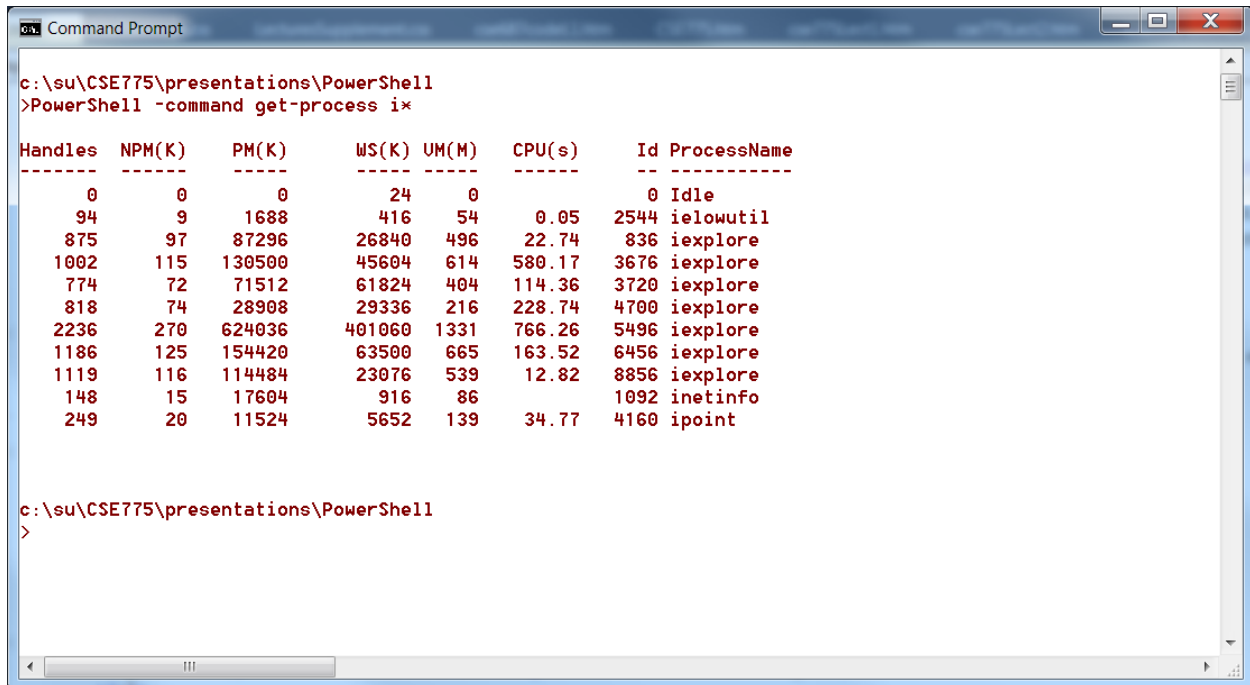
Changing prompt

```
powershell                                                    _ □ X
PS C:\su\cse775\presentations\powershell>
PS C:\su\cse775\presentations\powershell> function prompt { "PS> " }
PS>
PS>
PS> _
```

Running PowerShell outside interpreter
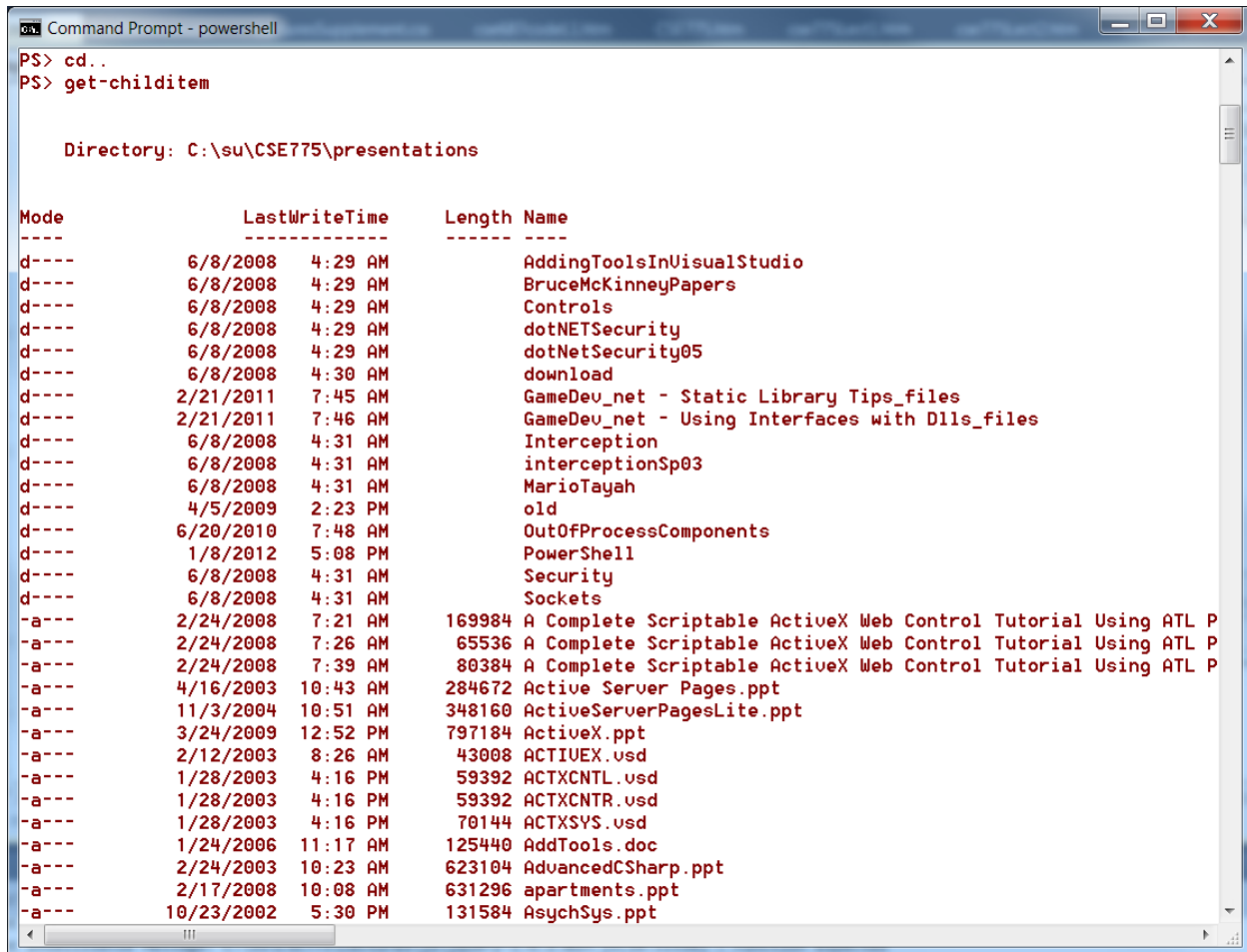
```
Command Prompt

c:\su\CSE775\presentations\PowerShell
>PowerShell -command get-process i*

Handles  NPM(K)    PM(K)      WS(K) UM(M)     CPU(s)      Id ProcessName
-------  ------    -----      ----- -----     ------      -- -----------
      0       0        0         24     0                  0 Idle
     94       9     1688        416    54       0.05    2544 ielowutil
    875      97    87296      26840   496      22.74     836 iexplore
   1002     115   130500      45604   614     580.17    3676 iexplore
    774      72    71512      61824   404     114.36    3720 iexplore
    818      74    28908      29336   216     228.74    4700 iexplore
   2236     270   624036     401060  1331     766.26    5496 iexplore
   1186     125   154420      63500   665     163.52    6456 iexplore
   1119     116   114484      23076   539      12.82    8856 iexplore
    148      15    17604        916    86                1092 inetinfo
    249      20    11524       5652   139      34.77    4160 ipoint


c:\su\CSE775\presentations\PowerShell
>
```
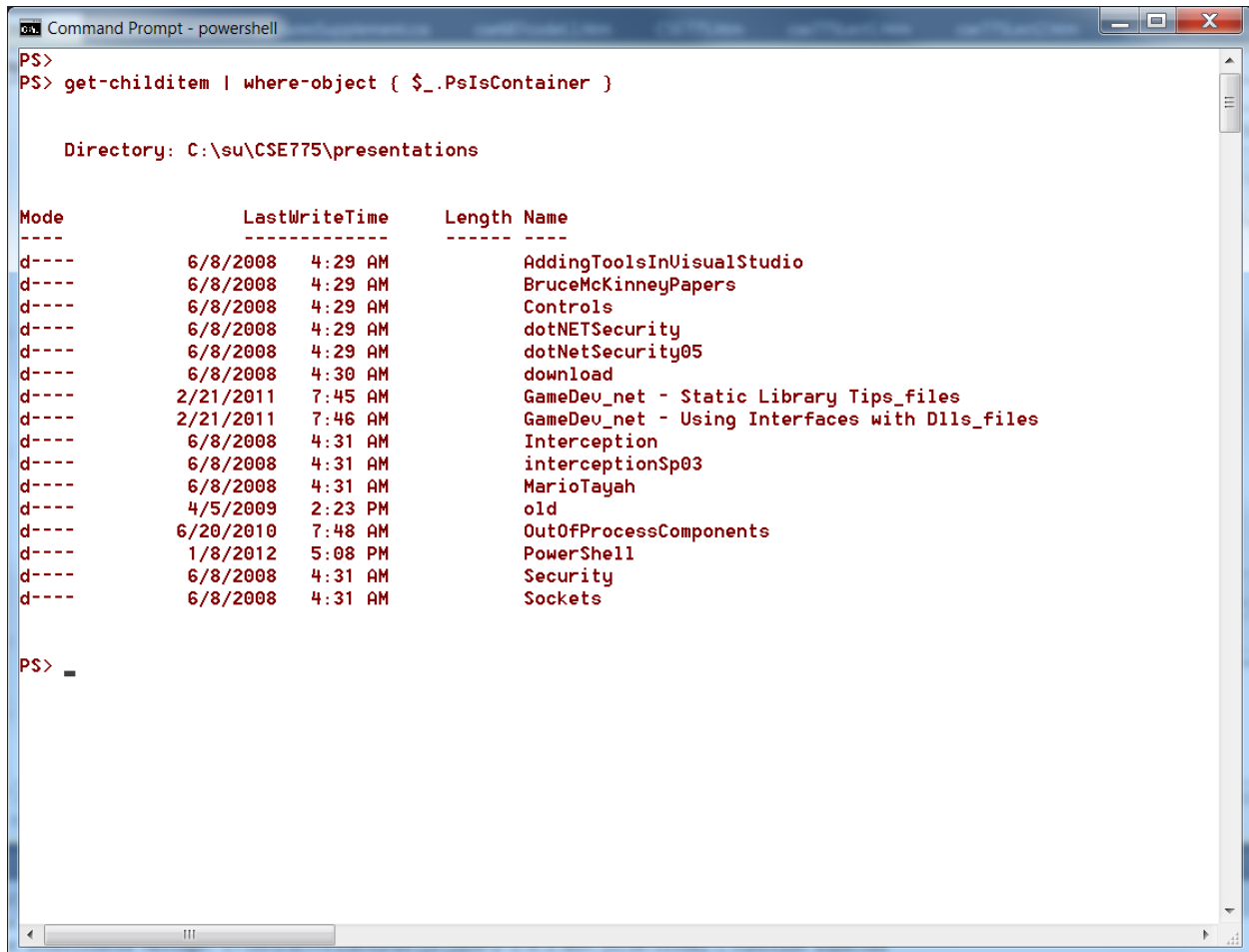
List directory info items

```
Command Prompt - powershell
PS> cd..
PS> get-childitem


    Directory: C:\su\CSE775\presentations


Mode                LastWriteTime     Length Name
----                -------------     ------ ----
d----         6/8/2008   4:29 AM             AddingToolsInVisualStudio
d----         6/8/2008   4:29 AM             BruceMcKinneyPapers
d----         6/8/2008   4:29 AM             Controls
d----         6/8/2008   4:29 AM             dotNETSecurity
d----         6/8/2008   4:29 AM             dotNetSecurity05
d----         6/8/2008   4:30 AM             download
d----        2/21/2011   7:45 AM             GameDev_net - Static Library Tips_files
d----        2/21/2011   7:46 AM             GameDev_net - Using Interfaces with Dlls_files
d----         6/8/2008   4:31 AM             Interception
d----         6/8/2008   4:31 AM             interceptionSp03
d----         6/8/2008   4:31 AM             MarioTayah
d----         4/5/2009   2:23 PM             old
d----        6/20/2010   7:48 AM             OutOfProcessComponents
d----         1/8/2012   5:08 PM             PowerShell
d----         6/8/2008   4:31 AM             Security
d----         6/8/2008   4:31 AM             Sockets
-a---        2/24/2008   7:21 AM     169984 A Complete Scriptable ActiveX Web Control Tutorial Using ATL P
-a---        2/24/2008   7:26 AM      65536 A Complete Scriptable ActiveX Web Control Tutorial Using ATL P
-a---        2/24/2008   7:39 AM      80384 A Complete Scriptable ActiveX Web Control Tutorial Using ATL P
-a---        4/16/2003  10:43 AM     284672 Active Server Pages.ppt
-a---        11/3/2004  10:51 AM     348160 ActiveServerPagesLite.ppt
-a---        3/24/2009  12:52 PM     797184 ActiveX.ppt
-a---        2/12/2003   8:26 AM      43008 ACTIVEX.vsd
-a---        1/28/2003   4:16 PM      59392 ACTXCNTL.vsd
-a---        1/28/2003   4:16 PM      59392 ACTXCNTR.vsd
-a---        1/28/2003   4:16 PM      70144 ACTXSYS.vsd
-a---        1/24/2006  11:17 AM     125440 AddTools.doc
-a---        2/24/2003  10:23 AM     623104 AdvancedCSharp.ppt
-a---        2/17/2008  10:08 AM     631296 apartments.ppt
-a---       10/23/2002   5:30 PM     131584 AsychSys.ppt
```

List just subdirectories
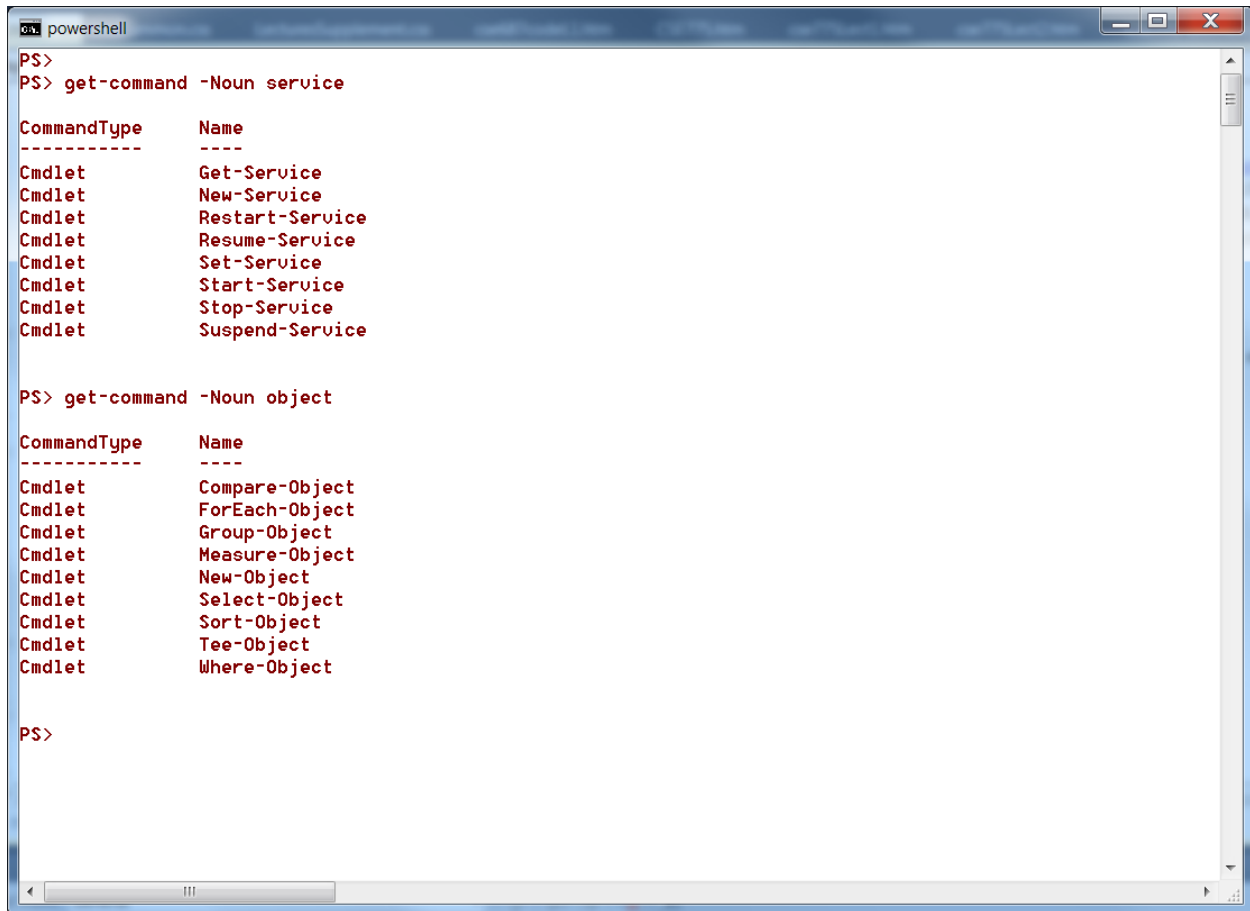
```
Command Prompt - powershell

PS>
PS> get-childitem | where-object { $_.PsIsContainer }


    Directory: C:\su\CSE775\presentations


Mode                LastWriteTime          Length Name
----                -------------          ------ ----
d----         6/8/2008    4:29 AM                 AddingToolsInVisualStudio
d----         6/8/2008    4:29 AM                 BruceMcKinneyPapers
d----         6/8/2008    4:29 AM                 Controls
d----         6/8/2008    4:29 AM                 dotNETSecurity
d----         6/8/2008    4:29 AM                 dotNetSecurity05
d----         6/8/2008    4:30 AM                 download
d----         2/21/2011   7:45 AM                 GameDev_net - Static Library Tips_files
d----         2/21/2011   7:46 AM                 GameDev_net - Using Interfaces with Dlls_files
d----         6/8/2008    4:31 AM                 Interception
d----         6/8/2008    4:31 AM                 interceptionSp03
d----         6/8/2008    4:31 AM                 MarioTayah
d----         4/5/2009    2:23 PM                 old
d----         6/20/2010   7:48 AM                 OutOfProcessComponents
d----         1/8/2012    5:08 PM                 PowerShell
d----         6/8/2008    4:31 AM                 Security
d----         6/8/2008    4:31 AM                 Sockets


PS>
```

Get cmdlet nouns

```
powershell                                                                    _ □ X
PS>
PS> get-command -Noun service

CommandType      Name
-----------      ----
Cmdlet           Get-Service
Cmdlet           New-Service
Cmdlet           Restart-Service
Cmdlet           Resume-Service
Cmdlet           Set-Service
Cmdlet           Start-Service
Cmdlet           Stop-Service
Cmdlet           Suspend-Service


PS> get-command -Noun object

CommandType      Name
-----------      ----
Cmdlet           Compare-Object
Cmdlet           ForEach-Object
Cmdlet           Group-Object
Cmdlet           Measure-Object
Cmdlet           New-Object
Cmdlet           Select-Object
Cmdlet           Sort-Object
Cmdlet           Tee-Object
Cmdlet           Where-Object


PS>
```
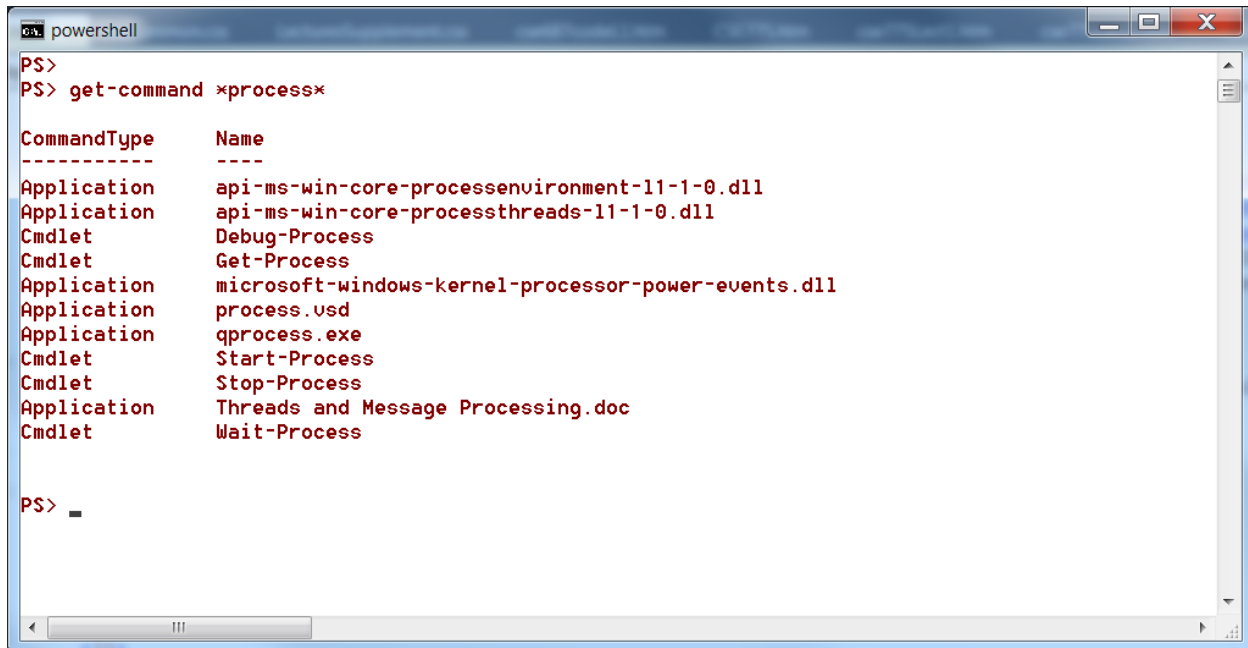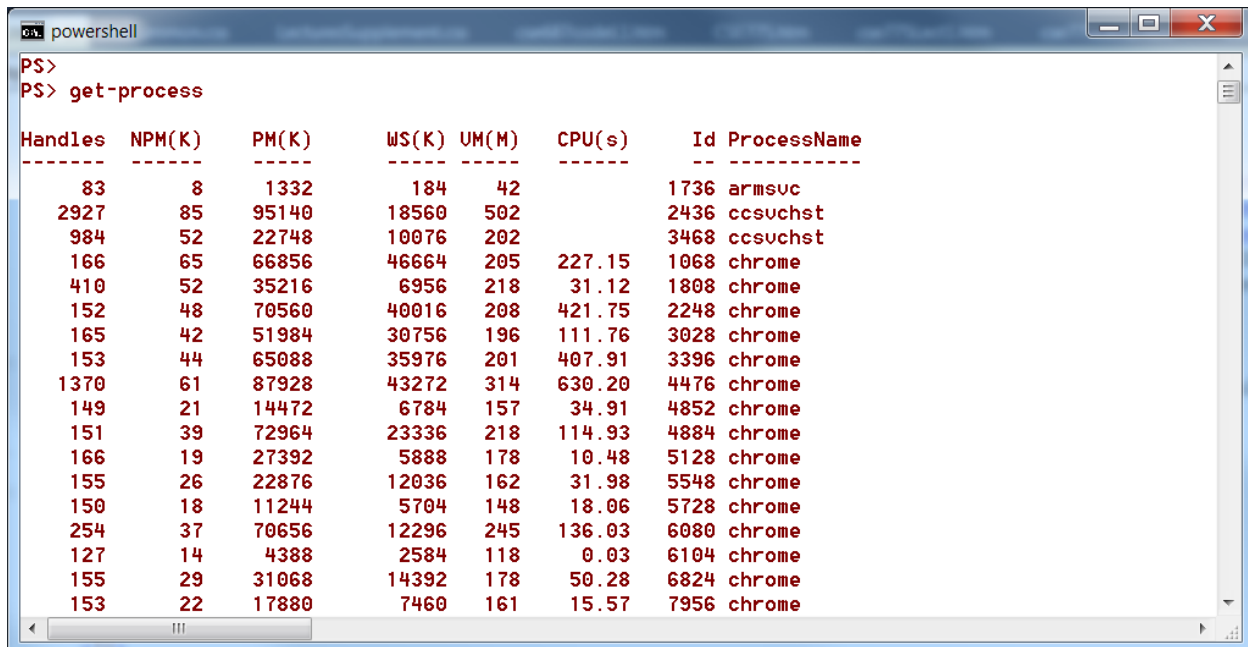
Find command relating to processes

```
powershell                                                                          _ □ X
PS>
PS> get-command *process*

CommandType      Name
-----------      ----
Application      api-ms-win-core-processenvironment-l1-1-0.dll
Application      api-ms-win-core-processthreads-l1-1-0.dll
Cmdlet           Debug-Process
Cmdlet           Get-Process
Application      microsoft-windows-kernel-processor-power-events.dll
Application      process.vsd
Application      qprocess.exe
Cmdlet           Start-Process
Cmdlet           Stop-Process
Application      Threads and Message Processing.doc
Cmdlet           Wait-Process


PS> _
```
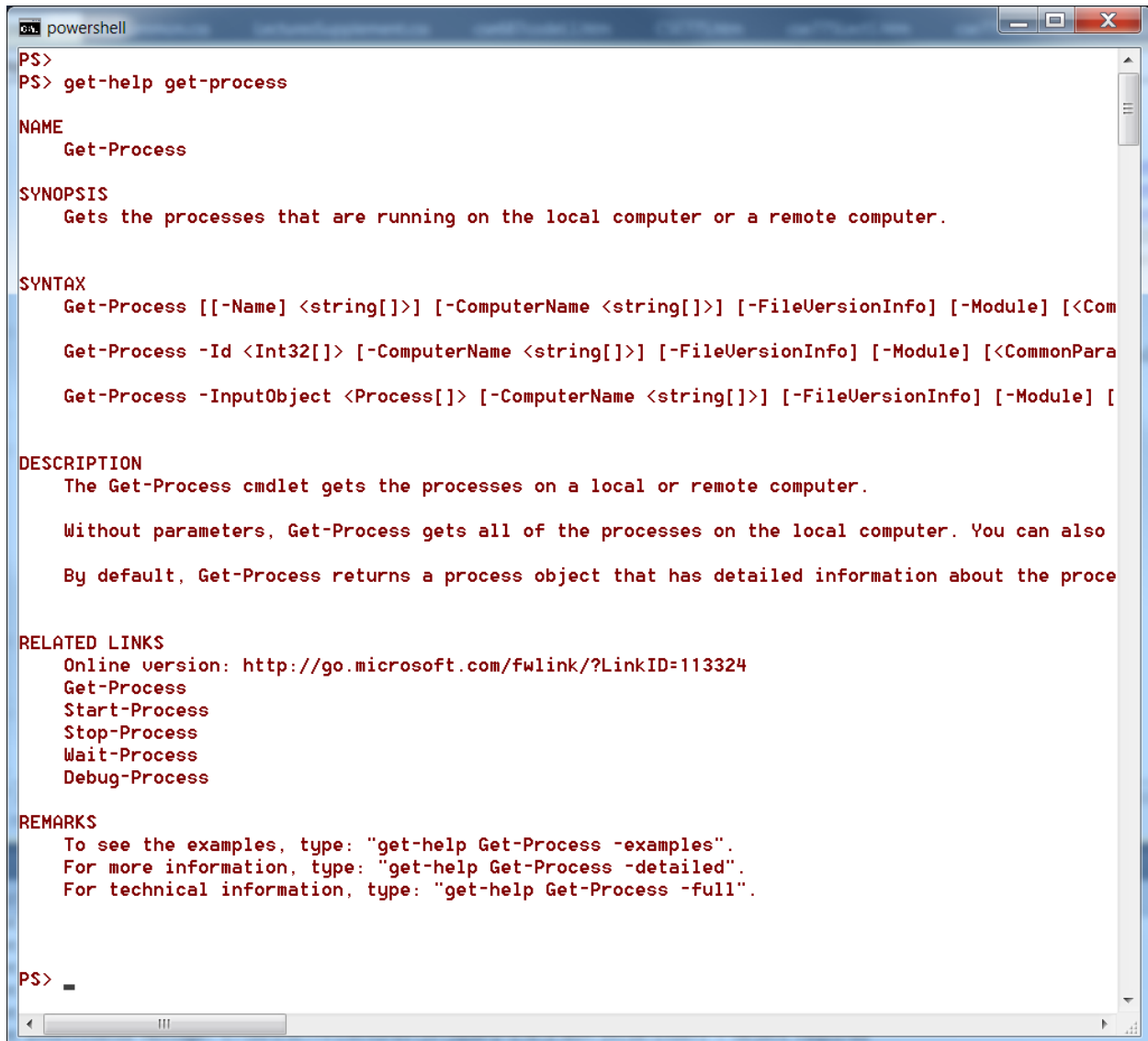
Show all running processes

```
powershell                                                                          _ □ X
PS>
PS> get-process

Handles  NPM(K)    PM(K)      WS(K) VM(M)   CPU(s)     Id ProcessName
-------  ------    -----      ----- -----   ------     -- -----------
     83       8     1332        184    42           1736 armsvc
   2927      85    95140      18560   502           2436 ccsvchst
    984      52    22748      10076   202           3468 ccsvchst
    166      65    66856      46664   205   227.15  1068 chrome
    410      52    35216       6956   218    31.12  1808 chrome
    152      48    70560      40016   208   421.75  2248 chrome
    165      42    51984      30756   196   111.76  3028 chrome
    153      44    65088      35976   201   407.91  3396 chrome
   1370      61    87928      43272   314   630.20  4476 chrome
    149      21    14472       6784   157    34.91  4852 chrome
    151      39    72964      23336   218   114.93  4884 chrome
    166      19    27392       5888   178    10.48  5128 chrome
    155      26    22876      12036   162    31.98  5548 chrome
    150      18    11244       5704   148    18.06  5728 chrome
    254      37    70656      12296   245   136.03  6080 chrome
    127      14     4388       2584   118     0.03  6104 chrome
    155      29    31068      14392   178    50.28  6824 chrome
    153      22    17880       7460   161    15.57  7956 chrome
```

Get help with cmdlet get-process

```
powershell

PS>
PS> get-help get-process

NAME
    Get-Process

SYNOPSIS
    Gets the processes that are running on the local computer or a remote computer.


SYNTAX
    Get-Process [[-Name] <string[]>] [-ComputerName <string[]>] [-FileVersionInfo] [-Module] [<Com

    Get-Process -Id <Int32[]> [-ComputerName <string[]>] [-FileVersionInfo] [-Module] [<CommonPara

    Get-Process -InputObject <Process[]> [-ComputerName <string[]>] [-FileVersionInfo] [-Module] [


DESCRIPTION
    The Get-Process cmdlet gets the processes on a local or remote computer.

    Without parameters, Get-Process gets all of the processes on the local computer. You can also

    By default, Get-Process returns a process object that has detailed information about the proce


RELATED LINKS
    Online version: http://go.microsoft.com/fwlink/?LinkID=113324
    Get-Process
    Start-Process
    Stop-Process
    Wait-Process
    Debug-Process

REMARKS
    To see the examples, type: "get-help Get-Process -examples".
    For more information, type: "get-help Get-Process -detailed".
    For technical information, type: "get-help Get-Process -full".


PS>
```
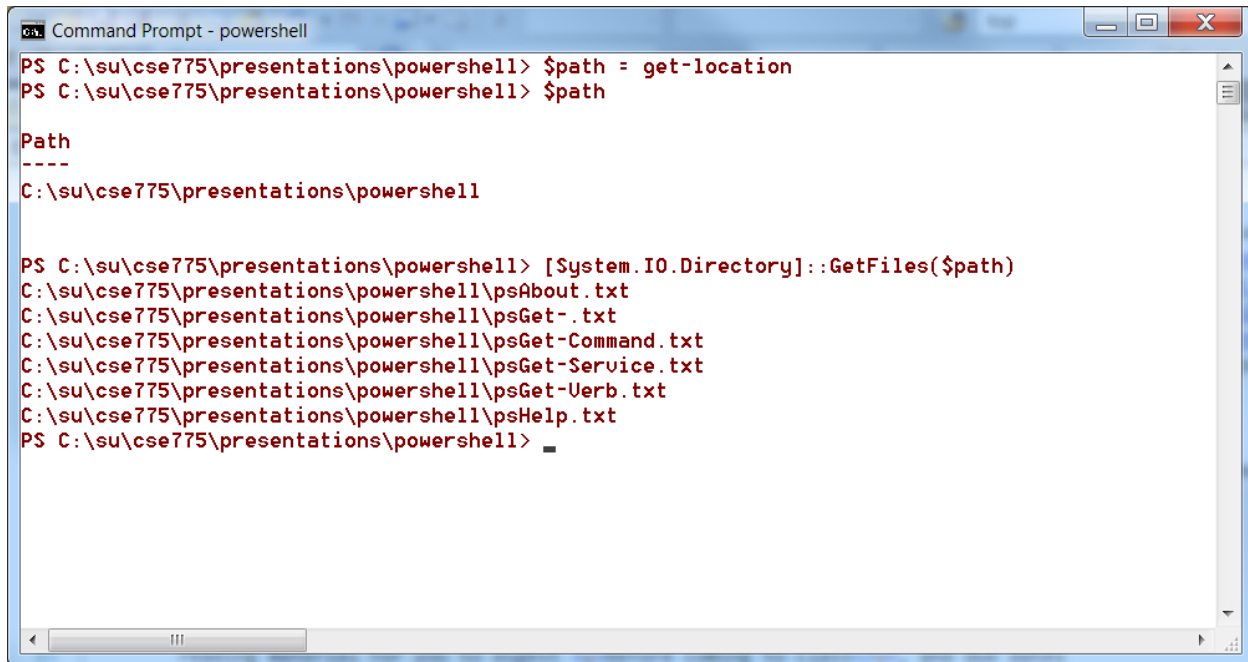
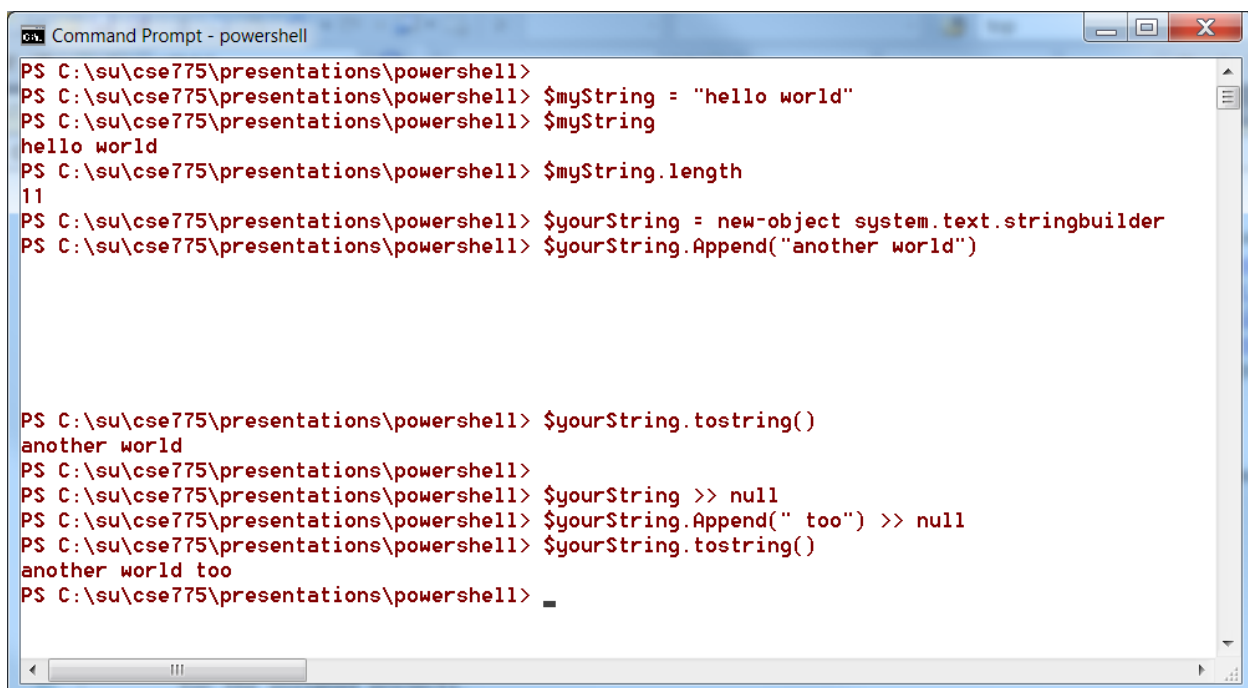Calling method on static class System.IO.Directory

```
Command Prompt - powershell
PS C:\su\cse775\presentations\powershell> $path = get-location
PS C:\su\cse775\presentations\powershell> $path

Path
----
C:\su\cse775\presentations\powershell


PS C:\su\cse775\presentations\powershell> [System.IO.Directory]::GetFiles($path)
C:\su\cse775\presentations\powershell\psAbout.txt
C:\su\cse775\presentations\powershell\psGet-.txt
C:\su\cse775\presentations\powershell\psGet-Command.txt
C:\su\cse775\presentations\powershell\psGet-Service.txt
C:\su\cse775\presentations\powershell\psGet-Verb.txt
C:\su\cse775\presentations\powershell\psHelp.txt
PS C:\su\cse775\presentations\powershell>
```
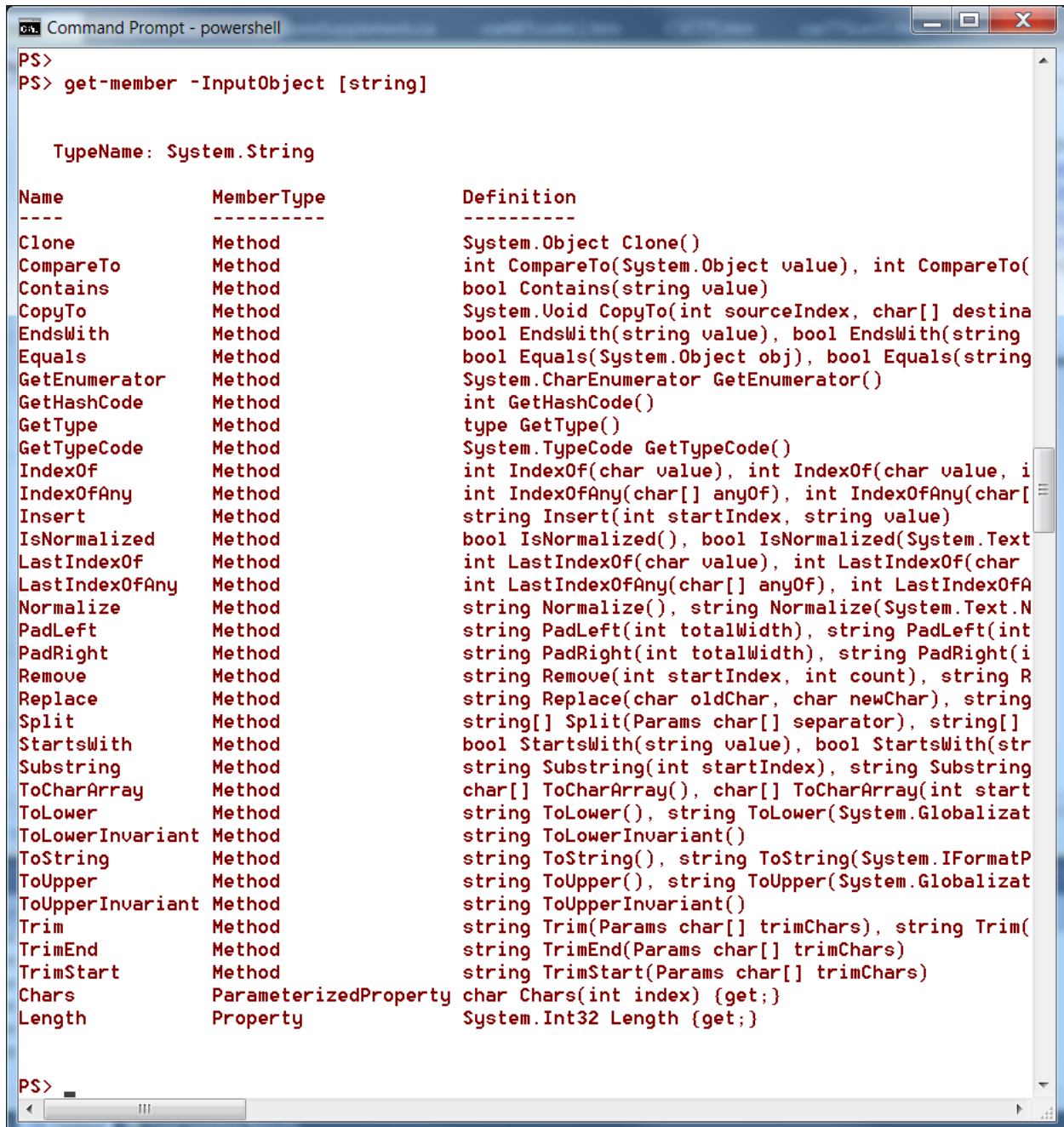
Creating instance of .net class, accessing property, and calling method

```
Command Prompt - powershell
PS C:\su\cse775\presentations\powershell>
PS C:\su\cse775\presentations\powershell> $myString = "hello world"
PS C:\su\cse775\presentations\powershell> $myString
hello world
PS C:\su\cse775\presentations\powershell> $myString.length
11
PS C:\su\cse775\presentations\powershell> $yourString = new-object system.text.stringbuilder
PS C:\su\cse775\presentations\powershell> $yourString.Append("another world")




PS C:\su\cse775\presentations\powershell> $yourString.tostring()
another world
PS C:\su\cse775\presentations\powershell>
PS C:\su\cse775\presentations\powershell> $yourString >> null
PS C:\su\cse775\presentations\powershell> $yourString.Append(" too") >> null
PS C:\su\cse775\presentations\powershell> $yourString.tostring()
another world too
PS C:\su\cse775\presentations\powershell>
```

Find all members for .Net type

```
Command Prompt - powershell

PS>
PS> get-member -InputObject [string]


   TypeName: System.String

Name               MemberType            Definition
----               ----------            ----------
Clone              Method                System.Object Clone()
CompareTo          Method                int CompareTo(System.Object value), int CompareTo(
Contains           Method                bool Contains(string value)
CopyTo             Method                System.Void CopyTo(int sourceIndex, char[] destina
EndsWith           Method                bool EndsWith(string value), bool EndsWith(string
Equals             Method                bool Equals(System.Object obj), bool Equals(string
GetEnumerator      Method                System.CharEnumerator GetEnumerator()
GetHashCode        Method                int GetHashCode()
GetType            Method                type GetType()
GetTypeCode        Method                System.TypeCode GetTypeCode()
IndexOf            Method                int IndexOf(char value), int IndexOf(char value, i
IndexOfAny         Method                int IndexOfAny(char[] anyOf), int IndexOfAny(char[
Insert             Method                string Insert(int startIndex, string value)
IsNormalized       Method                bool IsNormalized(), bool IsNormalized(System.Text
LastIndexOf        Method                int LastIndexOf(char value), int LastIndexOf(char
LastIndexOfAny     Method                int LastIndexOfAny(char[] anyOf), int LastIndexOfA
Normalize          Method                string Normalize(), string Normalize(System.Text.N
PadLeft            Method                string PadLeft(int totalWidth), string PadLeft(int
PadRight           Method                string PadRight(int totalWidth), string PadRight(i
Remove             Method                string Remove(int startIndex, int count), string R
Replace            Method                string Replace(char oldChar, char newChar), string
Split              Method                string[] Split(Params char[] separator), string[]
StartsWith         Method                bool StartsWith(string value), bool StartsWith(str
Substring          Method                string Substring(int startIndex), string Substring
ToCharArray        Method                char[] ToCharArray(), char[] ToCharArray(int start
ToLower            Method                string ToLower(), string ToLower(System.Globalizat
ToLowerInvariant   Method                string ToLowerInvariant()
ToString           Method                string ToString(), string ToString(System.IFormatP
ToUpper            Method                string ToUpper(), string ToUpper(System.Globalizat
ToUpperInvariant   Method                string ToUpperInvariant()
Trim               Method                string Trim(Params char[] trimChars), string Trim(
TrimEnd            Method                string TrimEnd(Params char[] trimChars)
TrimStart          Method                string TrimStart(Params char[] trimChars)
Chars              ParameterizedProperty char Chars(int index) {get;}
Length             Property              System.Int32 Length {get;}


PS>
```

Use a COM object

```
Command Prompt - powershell
PS>
PS>
PS> # use a COM object
PS> #
PS> $sapi = new-object -com sapi.spvoice
PS> $sapi.speak("Hello CSE775 world!")
1
PS>
```