EX NO:1 DATE:	ANALYSIS OF SYSTEM ADMINISTRATION AND NETWORK ADMINISTRATION

AIM:

A private organization appoints a system administrator and network administrator for troubleshooting and maintenance. System administrator focuses on servers and computer systems, while network administrators work more specifically with network-related tasks and equipment. Becoming a system administrator/network administrator will entail learning some specialized skills. Elucidate the roles and responsibilities & skill sets of a System administrator / Network administrator.

THEORY:

System administrator:

System administrator, or sysadmin, is a person who is responsible for the upkeep, configuration, and reliable operation of computer systems; especially multi-user computers, such as servers. The system administrator seeks to ensure that the uptime, performance, resources, and security of the computers he or she manages meet the needs of the users, without exceeding the budget.

Skills:

- Entails a knowledge of operating systems and applications ○ Problem solving Technique.
- To understand the behavior of software in order to deploy it and for troubleshooting problem.

Responsibilities of the System Administrator:

- User account management,
- Hardware management
- Perform file system backups, restores
- Install and configure new software and services
- Keep systems and services operating

- Monitor system and network, Troubleshoot problems
- Maintain documentation - Audit security, Help users, - Performance tuning.

Network administration:

A network administrator, sometimes called a systems administrator, is responsible for keeping an organization's computer network up to date and running smoothly. Any company or organization that uses multiple computers or software platforms needs a network admin to coordinate the different systems. Network admins will especially be in high demand as companies and organizations invest in newer, faster technology and mobile networks. Growth is also expected in the healthcare industry as the use of information technology increases.

Responsibilities of the Network Administrator

As a network administrator, the tasks generally fall into the following areas:

- Designing and planning the network
- Setting up the network
- Maintaining the network
- Expanding the network

Procedure:

Run the network administrator commands and the system administrator commands in the command prompt.

SYSTEM COMMANDS

TASKLIST:

This command is used to Show List of Processes along with Their Name, Process ID and Memory Usage.

```
C:\Users\gokul>tasklist

Image Name                     PID Session Name        Session#    Mem Usage
========================= ======== ================ =========== ============
System Idle Process              0 Services                   0          8 K
System                           4 Services                   0        144 K
Secure System                  428 Services                   0  1,03,264 K
Registry                       472 Services                   0     52,596 K
smss.exe                      1052 Services                   0        656 K
csrss.exe                     1592 Services                   0      3,452 K
wininit.exe                   1700 Services                   0      2,008 K
services.exe                  1772 Services                   0     12,468 K
LsaIso.exe                    1792 Services                   0      1,372 K
lsass.exe                     1800 Services                   0     24,476 K
svchost.exe                   1932 Services                   0     43,076 K
WUDFHost.exe                  1964 Services                   0     15,184 K
fontdrvhost.exe               1972 Services                   0        900 K
svchost.exe                   1168 Services                   0     20,444 K
svchost.exe                      8 Services                   0      6,692 K
WUDFHost.exe                  1828 Services                   0     10,188 K
WUDFHost.exe                  2076 Services                   0      2,368 K
WUDFHost.exe                  2128 Services                   0      2,088 K
svchost.exe                   2380 Services                   0      1,448 K
svchost.exe                   2428 Services                   0     11,568 K
svchost.exe                   2436 Services                   0     10,632 K
svchost.exe                   2448 Services                   0     13,600 K
svchost.exe                   2644 Services                   0      6,700 K
svchost.exe                   2652 Services                   0      7,248 K
svchost.exe                   2660 Services                   0      5,904 K
IntelCpHDCPSvc.exe            2768 Services                   0      2,044 K
svchost.exe                   2776 Services                   0      6,392 K
svchost.exe                   2812 Services                   0      2,552 K
svchost.exe                   2916 Services                   0     11,156 K
svchost.exe                   3032 Services                   0     20,516 K
svchost.exe                   1696 Services                   0      2,736 K
svchost.exe                   3092 Services                   0     13,516 K
svchost.exe                   3244 Services                   0      9,456 K
svchost.exe                   3360 Services                   0      7,808 K
NVDisplay.Container.exe       3512 Services                   0     28,596 K
svchost.exe                   3564 Services                   0      8,648 K
svchost.exe                   3572 Services                   0      7,708 K
svchost.exe                   3664 Services                   0     20,780 K
svchost.exe                   3672 Services                   0     12,040 K
svchost.exe                   3760 Services                   0     24,840 K
svchost.exe                   3808 Services                   0      9,012 K
svchost.exe                   3816 Services                   0      1,680 K
```

TASKKILL:

Eg. taskkill/IM “chrome.exe”/F

This command is used to kill the process by its name or PID name.

```
C:\Users\gokul>taskkill /IM "Notepad.exe" /F
SUCCESS: The process "Notepad.exe" with PID 33284 has been terminated.
```

ATTRIB:

This command is used to remove and set file attributes (hidden, read-only, system and archive). It displays, sets or removes the read-only, hidden and archive file attributes assigned for a file or directory. It allows a user to change the file attribute directly using this command.

```
C:\Users\gokul>attrib
A                 C:\Users\gokul\-1.14-windows.xml
A                 C:\Users\gokul\.bash_history
A                 C:\Users\gokul\.gitconfig
A                 C:\Users\gokul\.packettracer
A  H   I          C:\Users\gokul\NTUSER.DAT
A  SH             C:\Users\gokul\ntuser.dat.LOG1
A  SH             C:\Users\gokul\ntuser.dat.LOG2
A  SH             C:\Users\gokul\NTUSER.DAT{e7a631d7-c229-11ef-af40-ece677185d68}.TM.blf
A  SH             C:\Users\gokul\NTUSER.DAT{e7a631d7-c229-11ef-af40-ece677185d68}.TMContainer00000000000000000001.regtrans-ms
A  SH             C:\Users\gokul\NTUSER.DAT{e7a631d7-c229-11ef-af40-ece677185d68}.TMContainer00000000000000000002.regtrans-ms
A  SH             C:\Users\gokul\ntuser.ini
```

DRIVERQUERY:

Used to Display the List of Drivers installed on the System with Given Name, Date andTime.

```
C:\Users\gokul>driverquery
Module Name  Display Name            Driver Type   Link Date
============ ====================== ============ ======================
1394ohci     1394 OHCI Compliant Ho Kernel
3ware        3ware                  Kernel       19-05-2015 03:58:03
ACPI         Microsoft ACPI Driver  Kernel
AcpiDev      ACPI Devices driver    Kernel
acpiex       Microsoft ACPIEx Drive Kernel
acpipagr     ACPI Processor Aggrega Kernel
AcpiPmi      ACPI Power Meter Drive Kernel
acpitime     ACPI Wake Alarm Driver Kernel
ACPIVPC      Lenovo Virtual Power C Kernel       30-05-2024 12:06:31
Acx01000     Acx01000               Kernel       10-04-2015 02:19:48
ADP80XX      ADP80XX                Kernel
AFD          Ancillary Function Dri Kernel
afunix       afunix                 Kernel
ahcache      Application Compatibil Kernel
amdgpio2     AMD GPIO Client Driver Kernel       07-02-2019 15:02:20
amdi2c       AMD I2C Controller Ser Kernel       20-03-2019 10:27:33
AmdK8        AMD K8 Processor Drive Kernel
AmdPPM       AMD Processor Driver   Kernel
amdsata      amdsata                Kernel       14-05-2015 17:44:52
amdsbs       amdsbs                 Kernel       12-12-2012 02:51:44
amdwps       AMD Workload Profiling Kernel
amdxata      amdxata                Kernel       01-05-2015 06:25:35
AppID        AppID Driver           Kernel
AppleLowerFi Apple Lower Filter Dri Kernel       15-06-2023 07:46:03
AppleSSD     Apple Solid State Driv Kernel       12-11-2019 02:54:17
applockerflt Smartlocker Filter Dri Kernel
arcsas       Adaptec SAS/SATA-II RA Kernel       10-04-2015 00:42:07
AsyncMac     RAS Asynchronous Media Kernel
atapi        IDE Channel            Kernel
b06bdrv      QLogic Network Adapter Kernel       25-05-2016 12:33:08
bam          Background Activity Mo Kernel
BasicDisplay BasicDisplay           Kernel
BasicRender  BasicRender            Kernel
bcmfn2       bcmfn2 Service         Kernel       01-11-2016 07:39:15
Beep         Beep                   Kernel
bfs          Brokering File System  File System
bindflt      Windows Bind Filter Dr File System
BlueStacksDr BlueStacks Hypervisor_ Kernel       12-07-2024 08:31:42
bowser       Browser                File System
BthA2dp      Microsoft Bluetooth A2 Kernel
```

WHOAMI:

“whoami” command will help you to check the user details of logged in user and the group it belongs to.

```
C:\Users\gokul>whoami
gokul\gokul
```

ASSOC:

assoc is a command that displays the program and/or functionality associated with a specific file type.

```
C:\Users\gokul>assoc
.001=WinRAR
.386=vxdfile
.3g2=WMP11.AssocFile.3G2
.3gp=WMP11.AssocFile.3GP
.3gp2=WMP11.AssocFile.3G2
.3gpp=WMP11.AssocFile.3GP
.7z=WinRAR
.AAC=WMP11.AssocFile.ADTS
.accda=Access.ACCDAExtension.16
.accdb=Access.Application.16
.accdc=Access.ACCDCFile.16
.accde=Access.ACCDEFile.16
.accdr=Access.ACCDRFile.16
.accdt=Access.ACCDTFile.16
.accdu=Access.WizardUserDataFile.16
.accdw=Access.WebApplicationReference.16
.accft=Access.ACCFTFile.16
.accountpicture-ms=accountpicturefile
.acl=ACLFile
.ade=Access.ADEFile.16
.adn=Access.BlankProjectTemplate.16
.adp=Access.Project.16
.ADT=WMP11.AssocFile.ADTS
.ADTS=WMP11.AssocFile.ADTS
.aif=WMP11.AssocFile.AIFF
.aifc=WMP11.AssocFile.AIFF
.aiff=WMP11.AssocFile.AIFF
.ani=anifile
.apk=BlueStacks.Apk
.appcontent-ms=ApplicationContent
.application=Application.Manifest
.appref-ms=Application.Reference
.arj=WinRAR
.asa=aspfile
.asd=Word.AutoRecovery.8
.asf=WMP11.AssocFile.ASF
```

POWERCFG –ENERGY:

This command is used to check battery health and generate Energy Report in Windows.

```
C:\Users\gokul>powercfg/energy
This command requires administrator privileges and must be executed from an elevated command prompt.
```

SYSTEMINFO

```
C:\Users\gokul>systeminfo

Host Name:                     GOKUL
OS Name:                       Microsoft Windows 11 Home
OS Version:                    10.0.26100 N/A Build 26100
OS Manufacturer:               Microsoft Corporation
OS Configuration:              Standalone Workstation
OS Build Type:                 Multiprocessor Free
Registered Owner:              gokulvyshant@gmail.com
Registered Organization:       N/A
Product ID:                    00342-21219-91646-AAOEM
Original Install Date:         25-12-2024, 15:37:13
System Boot Time:              16-06-2025, 17:13:34
System Manufacturer:           LENOVO
System Model:                  83DF
System Type:                   x64-based PC
Processor(s):                  1 Processor(s) Installed.
                               [01]: Intel64 Family 6 Model 183 Stepping 1 GenuineIntel ~2200 Mhz
BIOS Version:                  LENOVO N0CN29WW, 02-12-2024
Windows Directory:             C:\WINDOWS
System Directory:              C:\WINDOWS\system32
Boot Device:                   \Device\HarddiskVolume1
System Locale:                 en-us;English (United States)
Input Locale:                  00004009
Time Zone:                     (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:         32,492 MB
Available Physical Memory:     19,831 MB
Virtual Memory: Max Size:      34,540 MB
Virtual Memory: Available:     19,105 MB
Virtual Memory: In Use:        15,435 MB
Page File Location(s):         C:\pagefile.sys
Domain:                        WORKGROUP
Logon Server:                  \\GOKUL
Hotfix(s):                     3 Hotfix(s) Installed.
                               [01]: KB5056579
                               [02]: KB5063060
                               [03]: KB5059502
Network Card(s):               3 NIC(s) Installed.
                               [01]: Intel(R) Wi-Fi 6E AX211 160MHz
                                     Connection Name: Wi-Fi
                                     DHCP Enabled:    Yes
                                     DHCP Server:     192.168.215.32
                                     IP address(es)
                                     [01]: 192.168.215.8
                                     [02]: fe80::c576:5122:b617:3456
                                     [03]: 2401:4900:9162:8501:2072:1079:e97f:fef6
                                     [04]: 2401:4900:9162:8501:f6df:a98f:1988:eab4
                               [02]: Realtek PCIe GbE Family Controller
                                     Connection Name: Ethernet
                                     Status:          Media disconnected
                               [03]: Bluetooth Device (Personal Area Network)
                                     Connection Name: Bluetooth Network Connection
                                     Status:          Media disconnected
```

SYSTEMINFO | FINDSTR MEMORY:

This command easily displays the total amount of memory which is on your system.

```
C:\Users\gokul>systeminfo | findstr /I Memory
Total Physical Memory:          32,492 MB
Available Physical Memory:      19,858 MB
Virtual Memory: Max Size:       34,540 MB
Virtual Memory: Available:      19,132 MB
Virtual Memory: In Use:         15,408 MB
```

SYSTEMINFO \FINDSTR BOOT:

Systeminfo "System Boot Time" gives the time of the last reboot, not the last cold startup.

```
C:\Users\gokul>systeminfo | findstr /I Boot
System Boot Time:              16-06-2025, 17:13:34
Boot Device:                   \Device\HarddiskVolume1
                                     Secure Boot
```

NET USER:

The net user command is used to add, remove, and make changes to the **user** accounts on a computer.

```
C:\Users\gokul>net user

User accounts for \\GOKUL

-------------------------------------------------------------------------------
Administrator            DefaultAccount           gokul
Guest                    WDAGUtilityAccount
The command completed successfully.
```

WMIC CPU:

Eg. wmic cpu/?

The Windows Management Instrumentation Command line (WMIC) is a software utility that allows users to perform Windows Management Instrumentation (WMI) operations with a command prompt.

```
C:\Users\gokul>wmic cpu/?

CPU - CPU management.

HINT: BNF for Alias usage.
(<alias> [WMIObject] | <alias> [<path where>] | [<alias>] <path where>) [<verb clause>]
.

USAGE:

CPU ASSOC [<format specifier>]
CPU CREATE <assign list>
CPU DELETE
CPU GET [<property list>] [<get switches>]
CPU LIST [<list format>] [<list switches>]
```

NETWORK COMMANDS NETSH

i) NETSH TRACE START CAPTURE=YES

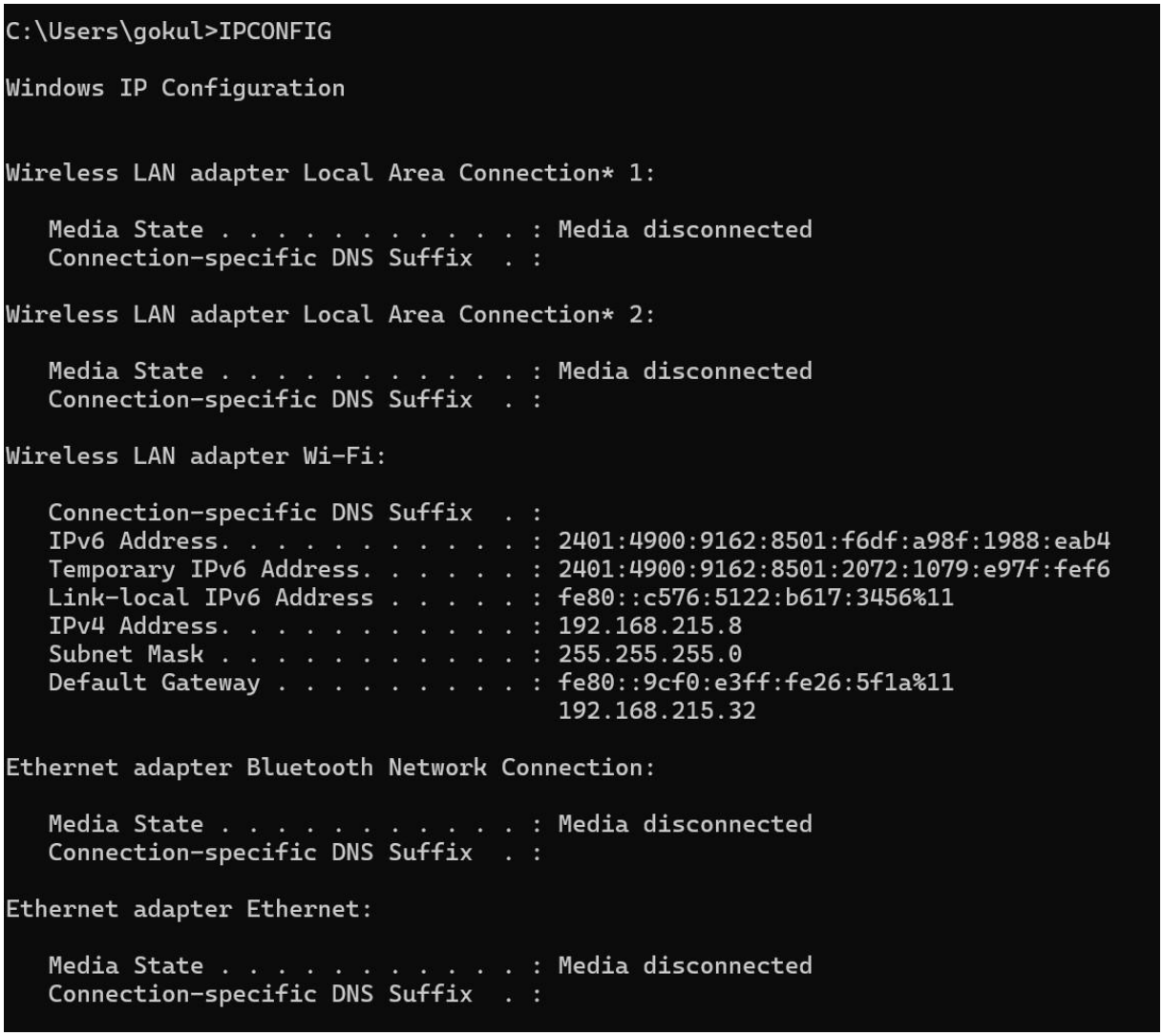
capture =yes (ensures network trace is captured) persistent =yes (specifies whether the tracing session continues across reboots, and is on until netsh trace stop is issued)

```
C:\Users\gokul>NETSH TRACE START CAPTURE=YES
The requested operation requires elevation (Run as administrator).
```

NETSH TRACE STOP

This command line tool has a trace feature. To run it, open an elevated command prompt and type netsh. Then the netsh prompt appears. To start the capture type “trace start <parameters>”, please find more details about the parameters and some examples below. To stop the capture, type “trace stop”.

IPCONFIG:



This command allows you to get the IP address information of a Windows computer. It

also allows some control over your network adapters, IP addresses (DHCPassigned specifically), even your DNS cache. Ipconfig replaced the older winipcfg utility.

IPCONFIG /ALL:

By Using the ‘ipconfig /all’ command, we can see an increased amount of information namely each NIC’s DHCP configuration and the DNS servers.

```
C:\Users\gokul>IPCONFIG /ALL

Windows IP Configuration

   Host Name . . . . . . . . . . . . : GOKUL
   Primary Dns Suffix  . . . . . . . :
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
   Physical Address. . . . . . . . . : 60-45-2E-DA-68-F4
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
   Physical Address. . . . . . . . . : 62-45-2E-DA-68-F3
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) Wi-Fi 6E AX211 160MHz
   Physical Address. . . . . . . . . : 60-45-2E-DA-68-F3
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv6 Address. . . . . . . . . . . : 2409:40f4:211d:e586:239e:b206:268:5e86(Preferred
)
   Temporary IPv6 Address. . . . . . : 2409:40f4:211d:e586:8131:725c:5f93:5d6c(Preferre
d)
   Link-local IPv6 Address . . . . . : fe80::c576:5122:b617:3456%11(Preferred)
```

PING:

ping is the primary TCP/IP command used to troubleshoot connectivity, reachability, and name resolution. Used without parameters, this command displays Help content. You can also use this command to test both the computer name and the IP address of the computer .

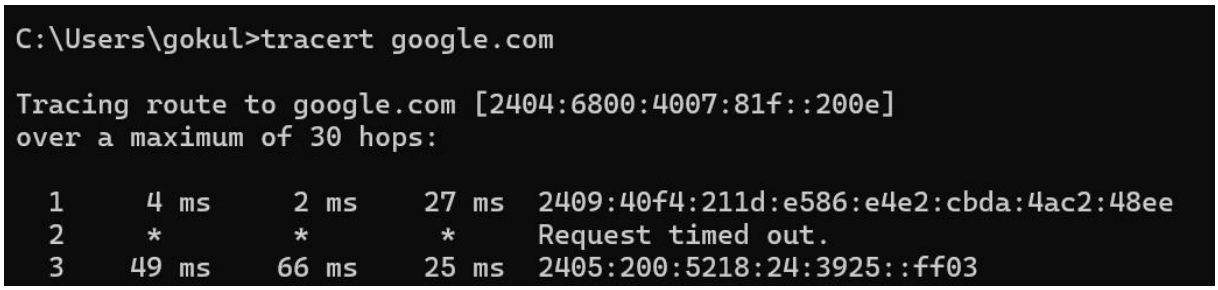
Eg. Ping google.com

TRACERT:

The tracert command (spelled traceroute in Unix/Linux implementations) is one of the key diagnostic tools for TCP/IP. It displays a list of all the routers that a packet must go through to get from the computer where tracert is run to any other computer on the Internet.

tracert "WEBSITE-NAME"

Eg. tracert google.com



PATHPING (PING AND TRACERT)

```
C:\Users\gokul>pathping 192.168.215.8

Tracing route to GOKUL [192.168.215.8]
over a maximum of 30 hops:
  0  GOKUL [192.168.215.8]
  1  GOKUL [192.168.215.8]

Computing statistics for 25 seconds...
            Source to Here   This Node/Link
Hop  RTT    Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                           GOKUL [192.168.215.8]
                                 0/ 100 =  0%   |
  1    0ms     0/ 100 =  0%     0/ 100 =  0%  GOKUL [192.168.215.8]

Trace complete.
```

HOSTNAME:

This command is used to display the IP address of the remote machine.

```
C:\Users\gokul>HOSTNAME
GOKUL
```

NETSTAT:

This command displays active TCP connections, ports on which the computer is listening, Ethernet statistics, the IP routing table, IPv4 statistics (for the IP, ICMP, TCP, and UDP protocols), and IPv6 statistics (for the IPv6, ICMPv6, TCP over IPv6, and UDP over IPv6 protocols). Used without parameters, this command displays active TCP connections.

```
C:\Users\gokul>NETSTAT

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:49680        GOKUL:49681            ESTABLISHED
  TCP    127.0.0.1:49681        GOKUL:49680            ESTABLISHED
  TCP    127.0.0.1:49682        GOKUL:49683            ESTABLISHED
  TCP    127.0.0.1:49683        GOKUL:49682            ESTABLISHED
  TCP    127.0.0.1:49755        GOKUL:49756            ESTABLISHED
  TCP    127.0.0.1:49756        GOKUL:49755            ESTABLISHED
  TCP    127.0.0.1:49757        GOKUL:49758            ESTABLISHED
  TCP    127.0.0.1:49758        GOKUL:49757            ESTABLISHED
  TCP    127.0.0.1:49760        GOKUL:49761            ESTABLISHED
  TCP    127.0.0.1:49761        GOKUL:49760            ESTABLISHED
  TCP    127.0.0.1:49762        GOKUL:49763            ESTABLISHED
  TCP    127.0.0.1:49763        GOKUL:49762            ESTABLISHED
  TCP    127.0.0.1:65053        GOKUL:65066            ESTABLISHED
  TCP    127.0.0.1:65055        GOKUL:65065            ESTABLISHED
  TCP    127.0.0.1:65065        GOKUL:65055            ESTABLISHED
  TCP    127.0.0.1:65066        GOKUL:65053            ESTABLISHED
```

NET CONFIG:

Using net config command we can configure server and workstation services on Windows computer. For server service, we can configure few settings using this command.

Using net config you can change auto disconnect time and hidden attributes.

```
C:\Users\gokul>NET CONFIG
The following running services can be controlled:

   Server
   Workstation

The command completed successfully.
```

NETSTAT –S | FINDSTR ERRORS:

netstat is a command-line network tool that is a handy troubleshooting command. Its cross-platform utility means you can use it on Linux, macOS, or Windows.

netstat can be very handy in the following.

- Display incoming and outgoing network connections
- Display routing tables
- Display number of network interfaces
- Display network protocol statistic

```
C:\Users\gokul>NETSTAT -S | FINDSTR ERRORS

Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-f] [-i] [-n] [-o] [-p proto] [-r] [-s] [-t] [-x] [-y] [int
l]

  -a            Displays all connections and listening ports.
  -b            Displays the executable involved in creating each connection or
                listening port. In some cases well-known executables host
                multiple independent components, and in these cases the
                sequence of components involved in creating the connection
                or listening port is displayed. In this case the executable
                name is in [] at the bottom, on top is the component it called,
                and so forth until TCP/IP was reached. Note that this option
                can be time-consuming and will fail unless you have sufficient
                permissions.
  -c            Displays a list of processes sorted by the number of TCP or UDP
                ports currently consumed.
  -d            Displays DSCP value assocated with each connection.
  -e            Displays Ethernet statistics. This may be combined with the -s
                option.
  -f            Displays Fully Qualified Domain Names (FQDN) for foreign
                addresses.
  -i            Displays the time spent by a TCP connection in its current state.
  -n            Displays addresses and port numbers in numerical form.
  -o            Displays the owning process ID associated with each connection.
  -p proto      Shows connections for the protocol specified by proto; proto
                may be any of: TCP, UDP, TCPv6, or UDPv6.  If used with the -s
                option to display per-protocol statistics, proto may be any of:
                IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, or UDPv6.
  -q            Displays all connections, listening ports, and bound
                nonlistening TCP ports. Bound nonlistening ports may or may not
                be associated with an active connection.
```

NSLOOKUP:

- nslookup
- nslookup **"WEBSITE-NAME" Eg. nslookup google.com**

Nslookup (from name server lookup) is a network administration command-line tool for querying the Domain Name System (DNS) to obtain the mapping between domain name and IP address, or other DNS records.

```
C:\Users\gokul>nslookup google.com
Server:  UnKnown
Address:  fe80::30d7:a1ff:fe23:e364

Non-authoritative answer:
Name:    google.com
Addresses:  2404:6800:4007:81f::200e
          142.251.222.174
```

ARP:

arp command manipulates the System's ARP cache. It also allows a complete dump of the ARP cache. ARP stands for Address Resolution Protocol. The primary function of this protocol is to resolve the IP address of a system to its mac address, and hence it works between level 2(Data link layer) and level 3(Network layer).

```
C:\Users\gokul>ARP

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

  -a            Displays current ARP entries by interrogating the current
                protocol data.  If inet_addr is specified, the IP and Physical
                addresses for only the specified computer are displayed.  If
                more than one network interface uses ARP, entries for each ARP
                table are displayed.
  -g            Same as -a.
  -v            Displays current ARP entries in verbose mode.  All invalid
                entries and entries on the loop-back interface will be shown.
  inet_addr     Specifies an internet address.
```

GETMAC:

Getmac is a Windows command used to display the Media Access Control (MAC) addresses for each network adapter in the computer. These activities will show you how to use the getmac command to display MAC addresses.

```
C:\Users\gokul>GETMAC

Physical Address    Transport Name
=================== ============================================================
60-45-2E-DA-68-F3   \Device\Tcpip_{8808103D-A53C-4555-A93A-8E0E50E061EB}
FC-5C-EE-C1-95-AD   Media disconnected
60-45-2E-DA-68-F7   Media disconnected
```

ROUTE PRINT:

The ‘route print’ Command from an Administrative Command Prompt in Windows 7 provides a variety of useful information. Observing the output of the Command indicates there are 5 Major Sections. The Sections include:

Interface List IPv4 Route Table

IPv4 Persistent Routes IPv6 Route Table IPv6 Persistent Routes

```
C:\Users\gokul>ROUTE PRINT
===========================================================================
Interface List
  4...60 45 2e da 68 f4 ......Microsoft Wi-Fi Direct Virtual Adapter
 14...62 45 2e da 68 f3 ......Microsoft Wi-Fi Direct Virtual Adapter #2
 11...60 45 2e da 68 f3 ......Intel(R) Wi-Fi 6E AX211 160MHz
 17...60 45 2e da 68 f7 ......Bluetooth Device (Personal Area Network)
 15...fc 5c ee c1 95 ad ......Realtek PCIe GbE Family Controller
  1...........................Software Loopback Interface 1
 45...00 15 5d 2c 40 55 ......Hyper-V Virtual Ethernet Adapter
===========================================================================

IPv4 Route Table
===========================================================================
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      172.20.10.1      172.20.10.2     30
        127.0.0.0        255.0.0.0         On-link         127.0.0.1    331
        127.0.0.1  255.255.255.255         On-link         127.0.0.1    331
  127.255.255.255  255.255.255.255         On-link         127.0.0.1    331
      172.20.10.0  255.255.255.240         On-link      172.20.10.2    286
      172.20.10.2  255.255.255.255         On-link      172.20.10.2    286
     172.20.10.15  255.255.255.255         On-link      172.20.10.2    286
      172.22.32.0    255.255.240.0         On-link      172.22.32.1   5256
      172.22.32.1  255.255.255.255         On-link      172.22.32.1   5256
    172.22.47.255  255.255.255.255         On-link      172.22.32.1   5256
        224.0.0.0        240.0.0.0         On-link         127.0.0.1    331
        224.0.0.0        240.0.0.0         On-link      172.22.32.1   5256
        224.0.0.0        240.0.0.0         On-link      172.20.10.2    286
  255.255.255.255  255.255.255.255         On-link         127.0.0.1    331
  255.255.255.255  255.255.255.255         On-link      172.22.32.1   5256
  255.255.255.255  255.255.255.255         On-link      172.20.10.2    286
===========================================================================
```

RESULT:

Thus the roles and responsibilities & skill sets of a System administrator / prompt and studied.