



# **The University of Azad Jammu and Kashmir, Muzaffarabad**

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<b>Course Name</b>	Operating System
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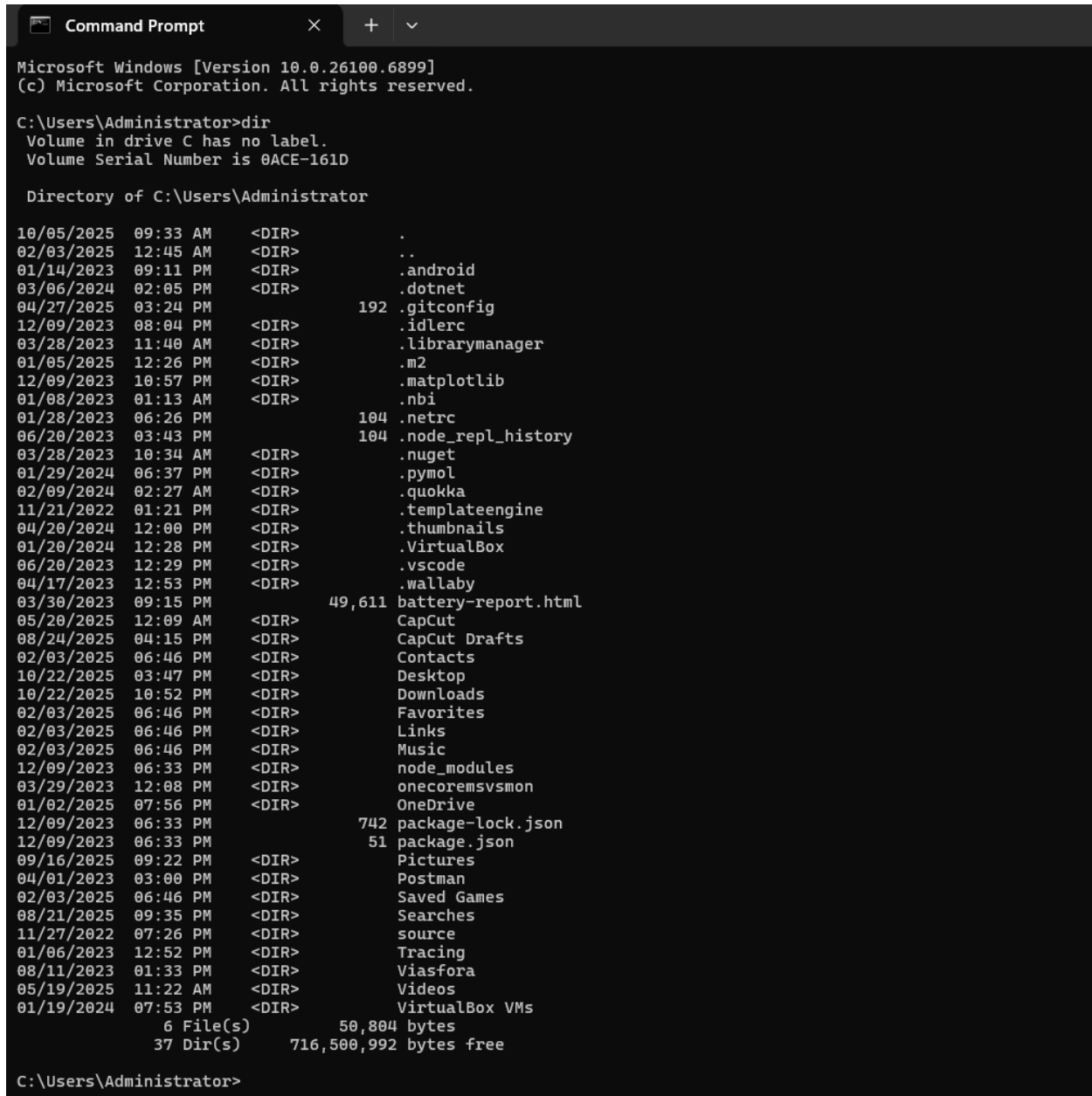
## Title: Familiarization of Windows Command Prompt

### Objective:

To familiarize students with the Windows Command Prompt environment by executing common CMD commands, analyzing their outputs, and documenting results with screenshots.

### Command 1: dir

**Description:** Lists all files and folders in the current directory.



```

Microsoft Windows [Version 10.0.26100.6899]
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C:\Users\Administrator>dir
Volume in drive C has no label.
Volume Serial Number is 0ACE-161D

Directory of C:\Users\Administrator

10/05/2025  09:33 AM  <DIR>          .
02/03/2025  12:45 AM  <DIR>          ..
01/14/2023  09:11 PM  <DIR>          .android
03/06/2024  02:05 PM  <DIR>          .dotnet
04/27/2025  03:24 PM          192 .gitconfig
12/09/2023  08:04 PM  <DIR>          .idlerc
03/28/2023  11:40 AM  <DIR>          .librarymanager
01/05/2025  12:26 PM  <DIR>          .m2
12/09/2023  10:57 PM  <DIR>          .matplotlib
01/08/2023  01:13 AM  <DIR>          .nbi
01/28/2023  06:26 PM          104 .netrc
06/20/2023  03:43 PM          104 .node_repl_history
03/28/2023  10:34 AM  <DIR>          .nuget
01/29/2024  06:37 PM  <DIR>          .pymol
02/09/2024  02:27 AM  <DIR>          .quokka
11/21/2022  01:21 PM  <DIR>          .templateengine
04/20/2024  12:00 PM  <DIR>          .thumbnails
01/20/2024  12:28 PM  <DIR>          .VirtualBox
06/20/2023  12:29 PM  <DIR>          .vscode
04/17/2023  12:53 PM  <DIR>          .wallaby
03/30/2023  09:15 PM          49,611 battery-report.html
05/20/2025  12:09 AM  <DIR>          CapCut
08/24/2025  04:15 PM  <DIR>          CapCut Drafts
02/03/2025  06:46 PM  <DIR>          Contacts
10/22/2025  03:47 PM  <DIR>          Desktop
10/22/2025  10:52 PM  <DIR>          Downloads
02/03/2025  06:46 PM  <DIR>          Favorites
02/03/2025  06:46 PM  <DIR>          Links
02/03/2025  06:46 PM  <DIR>          Music
12/09/2023  06:33 PM  <DIR>          node_modules
03/29/2023  12:08 PM  <DIR>          onecoremsvsmon
01/02/2025  07:56 PM  <DIR>          OneDrive
12/09/2023  06:33 PM          742 package-lock.json
12/09/2023  06:33 PM          51 package.json
09/16/2025  09:22 PM  <DIR>          Pictures
04/01/2023  03:00 PM  <DIR>          Postman
02/03/2025  06:46 PM  <DIR>          Saved Games
08/21/2025  09:35 PM  <DIR>          Searches
11/27/2022  07:26 PM  <DIR>          source
01/06/2023  12:52 PM  <DIR>          Tracing
08/11/2023  01:33 PM  <DIR>          Viasfora
05/19/2025  11:22 AM  <DIR>          Videos
01/19/2024  07:53 PM  <DIR>          VirtualBox VMs
        6 File(s)          50,804 bytes
       37 Dir(s)       716,500,992 bytes free

C:\Users\Administrator>

```

**Explanation of Output:** Displays a table showing the names, sizes, and modification dates of files/folders.

**Command 2: cd****Description:** Changes the current directory.

```

03/30/2023 09:15 PM 49,611 battery-report.html
05/20/2025 12:09 AM <DIR> CapCut
08/24/2025 04:15 PM <DIR> CapCut Drafts
02/03/2025 06:46 PM <DIR> Contacts
10/22/2025 03:47 PM <DIR> Desktop
10/22/2025 10:52 PM <DIR> Downloads
02/03/2025 06:46 PM <DIR> Favorites
02/03/2025 06:46 PM <DIR> Links
02/03/2025 06:46 PM <DIR> Music
12/09/2023 06:33 PM <DIR> node_modules
03/29/2023 12:08 PM <DIR> onecoremsvsmon
01/02/2025 07:56 PM <DIR> OneDrive
12/09/2023 06:33 PM 742 package-lock.json
12/09/2023 06:33 PM 51 package.json
09/16/2025 09:22 PM <DIR> Pictures
04/01/2023 03:00 PM <DIR> Postman
02/03/2025 06:46 PM <DIR> Saved Games
08/21/2025 09:35 PM <DIR> Searches
11/27/2022 07:26 PM <DIR> source
01/06/2023 12:52 PM <DIR> Tracing
08/11/2023 01:33 PM <DIR> Viasfora
05/19/2025 11:22 AM <DIR> Videos
01/19/2024 07:53 PM <DIR> VirtualBox VMs
        6 File(s)      50,804 bytes
       37 Dir(s)      781,201,408 bytes free

C:\Users\Administrator>cd
C:\Users\Administrator
C:\Users\Administrator>

```

**Explanation of Output:** After entering a folder name, CMD navigates to that folder's path.**Command 3: cls****Description:** Clears all previous text from the CMD window.

```

Microsoft Windows [Version 10.0.26100.6899]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cls|

```

After pressing enter key the above data will be removed as:

```

C:\Users\Administrator>

```

**Explanation of Output:** The CMD screen becomes blank, showing only the current directory cpath.

**Command 4: ipconfig****Description:** Displays network configuration details.

```

Command Prompt
C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::f094:f1bf:3184:fa1b%4
    IPv4 Address. . . . . : 192.168.1.19
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::e0b8:3806:9f3f:c722%35
    IPv4 Address. . . . . : 172.18.112.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :

C:\Users\Administrator>

```

**Explanation of Output:** Shows IP address, subnet mask, and default gateway for each network adapter.**Command 5: ping****Description:** Tests connectivity to another network device or website.

```

C:\Users\Administrator>ping 192.168.1.19

Pinging 192.168.1.19 with 32 bytes of data:
Reply from 192.168.1.19: bytes=32 time<1ms TTL=128
Reply from 192.168.1.19: bytes=32 time<1ms TTL=128
Reply from 192.168.1.19: bytes=32 time<1ms TTL=128
Reply from 192.168.1.19: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.19:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>

```

**Explanation of Output:** Displays response times (in ms) showing whether the target host is reachable.

## Command 6: systeminfo

**Description:** Displays detailed system configuration information.

```

Command Prompt
C:\Users\Administrator>systeminfo

Host Name:                KAMALALIAXMAL
OS Name:                   Microsoft Windows 11 Pro
OS Version:               10.0.26100 N/A Build 26100
OS Manufacturer:         Microsoft Corporation
OS Configuration:        Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:         Windows User
Registered Organization:
Product ID:                00330-52034-36691-AAOEM
Original Install Date:    2/3/2025, 6:45:47 PM
System Boot Time:         10/23/2025, 2:55:52 PM
System Manufacturer:      HP
System Model:              HP EliteBook 840 G5
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                          [01]: Intel64 Family 6 Model 142 Stepping 10 GenuineIntel ~1696 Mhz
BIOS Version:              HP Q78 Ver. 01.31.00, 3/10/2025
Windows Directory:        C:\WINDOWS
System Directory:          C:\WINDOWS\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:              en-us;English (United States)
Input Locale:              en-us;English (United States)
Time Zone:                 (UTC+05:00) Islamabad, Karachi
Total Physical Memory:     23,939 MB
Available Physical Memory: 15,642 MB
Virtual Memory: Max Size: 25,475 MB
Virtual Memory: Available: 16,309 MB
Virtual Memory: In Use:    9,166 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
Logon Server:              \\KAMALALIAXMAL
Hotfix(s):                  4 Hotfix(s) Installed.
                          [01]: KB50666131
                          [02]: KB50666835
                          [03]: KB5064531
                          [04]: KB5067360
Network Card(s):           2 NIC(s) Installed.
                          [01]: Intel(R) Dual Band Wireless-AC 8265
                              Connection Name: Wi-Fi
                              DHCP Enabled:    Yes
                              DHCP Server:     192.168.1.1
                              IP address(es)
                              [01]: 192.168.1.19
                              [02]: fe80::f094:f1bf:3184:fa1b
                          [02]: Intel(R) Ethernet Connection (4) I219-LM
                              Connection Name: Ethernet
                              Status:          Media disconnected
Virtualization-based security: Status: Running
Required Security Properties:
Available Security Properties:
Base Virtualization Support
Secure Boot
DMA Protection
UEFI Code Readonly
SMW Security Mitigations 1.0
Mode Based Execution Control
Services Configured:
Hypervisor enforced Code Integrity
Services Running:
Hypervisor enforced Code Integrity
App Control for Business policy: Enforced
App Control for Business user mode policy: Off
Security Features Enabled:
Hyper-V Requirements:      A hypervisor has been detected. Features required for Hyper-V will not be displayed.

C:\Users\Administrator>

```

**Explanation of Output:** Lists OS name, version, system manufacturer, processor, and RAM details.

**Command 7: tasklist****Description:** Lists all running processes on the computer.

```

Command Prompt
C:\Users\Administrator>tasklist

Image Name                      PID Session Name        Session#    Mem Usage
=====
System Idle Process             0 Services             0           8 K
System                          4 Services             0          7,080 K
Secure System                   140 Services           0         90,568 K
Registry                        184 Services           0         50,012 K
smss.exe                        672 Services           0           592 K
csrss.exe                       932 Services           0          3,940 K
wininit.exe                     1012 Services           0          3,044 K
csrss.exe                       396 Console            1          4,552 K
winlogon.exe                    936 Console            1          9,164 K
services.exe                   1052 Services           0         11,800 K
lsass.exe                      1092 Services           0          1,836 K
lsass.exe                       1100 Services           0         22,796 K
svchost.exe                     1228 Services           0         30,260 K
fontdrvhost.exe                1260 Console            1          4,168 K
fontdrvhost.exe                1268 Services           0          2,060 K
WUDFHost.exe                   1276 Services           0         14,448 K
svchost.exe                    1384 Services           0         16,980 K
svchost.exe                    1460 Services           0          6,520 K
WUDFHost.exe                   1488 Services           0          8,680 K
dwm.exe                        1588 Console            1        156,468 K
WUDFHost.exe                   1708 Services           0          5,804 K
svchost.exe                    1788 Services           0          2,692 K
svchost.exe                    1800 Services           0          7,248 K
svchost.exe                    1972 Services           0          8,912 K
svchost.exe                    1980 Services           0          8,432 K
svchost.exe                    1996 Services           0          3,856 K
svchost.exe                    1160 Services           0         12,332 K
svchost.exe                    1400 Services           0          8,324 K
IntelCpHDCPSvc.exe            1576 Services           0          4,004 K
svchost.exe                    1700 Services           0          7,332 K
svchost.exe                    2116 Services           0          6,656 K
svchost.exe                    2216 Services           0         10,176 K
svchost.exe                    2224 Services           0          9,004 K
IntelCpHeciSvc.exe            2368 Services           0          4,236 K
svchost.exe                    2400 Services           0          8,300 K
svchost.exe                    2412 Services           0         18,080 K
svchost.exe                    2548 Services           0          4,976 K
igfxCUIService.exe           2608 Services           0          5,452 K
svchost.exe                    2836 Services           0         20,516 K
svchost.exe                    2932 Services           0          6,976 K
vmms.exe                       2952 Services           0         29,424 K
svchost.exe                    3036 Services           0         51,240 K
svchost.exe                    2816 Services           0          6,104 K
SynTPEnhService.exe           3080 Services           0          5,660 K
svchost.exe                    3100 Services           0          7,232 K
svchost.exe                    3208 Services           0         22,084 K

```

**Explanation of Output:** Shows process name, PID (Process ID), and memory usage.**Command 8: netstat****Description:** Displays active network connections and listening ports.

```

C:\Users\Administrator>netstat

Active Connections

Proto Local Address           Foreign Address         State
TCP   192.168.1.19:49165       13.89.178.27:https      ESTABLISHED
TCP   192.168.1.19:52540       172.188.155.25:https    ESTABLISHED
TCP   192.168.1.19:52549       172.64.151.87:https     ESTABLISHED
TCP   192.168.1.19:53802       172.64.151.87:https     ESTABLISHED
TCP   192.168.1.19:54126       52.111.252.6:https      ESTABLISHED
TCP   192.168.1.19:54128       40.99.68.34:https       TIME_WAIT
TCP   192.168.1.19:54562       172.64.155.209:https    ESTABLISHED
TCP   192.168.1.19:56297       104.18.39.21:https      ESTABLISHED
TCP   192.168.1.19:56366       4.213.25.242:https      ESTABLISHED
TCP   192.168.1.19:56788       wh-in-f188:https        ESTABLISHED
TCP   192.168.1.19:57192       4.190.205.28:https      ESTABLISHED
TCP   192.168.1.19:59330       whatsapp-chatd-edge-shv-01-mct1:5222 TIME_WAIT
TCP   192.168.1.19:61123       a2-16-158-83:https      CLOSE_WAIT
TCP   192.168.1.19:61124       whatsapp-chatd-edge-shv-01-mct1:5222 ESTABLISHED
TCP   192.168.1.19:61125       52.111.194.24:https     ESTABLISHED
TCP   192.168.1.19:61126       52.111.194.24:https     ESTABLISHED
TCP   192.168.1.19:61469       13.89.178.27:https      ESTABLISHED
TCP   192.168.1.19:61470       40.99.70.178:https      TIME_WAIT
TCP   192.168.1.19:61471       20.189.173.2:https      ESTABLISHED

C:\Users\Administrator>

```

**Explanation of Output:** Shows protocol type (TCP/UDP), local and foreign addresses, and connection states.

#### Command 9: whoami

**Description:** Displays the current logged-in username.

```

C:\Users\Administrator>whoami
kamalaliakmal\administrator

C:\Users\Administrator>

```

**Explanation of Output:** Shows your Windows account name and domain.

#### Command 10: ver

**Description:** Displays the Windows version currently running.

```

C:\Users\Administrator>ver

Microsoft Windows [Version 10.0.26100.6899]

C:\Users\Administrator>

```

**Explanation of Output:** Shows the OS build and version number (e.g., Microsoft Windows [Version 10.0.26100.6899]).

**Answer the Following Questions****1) What is the purpose of Command Prompt in Windows?**

The Command Prompt allows users to interact with the operating system using text-based commands. It helps with performing administrative tasks, troubleshooting, file management, and running scripts efficiently.

**2) Describe the steps to open Command Prompt as an Administrator.**

1. Click **Start Menu** → Search “cmd”.
2. Right-click **Command Prompt**.
3. Select **Run as administrator**.
4. Click **Yes** on the User Account Control (UAC) prompt.

**3) Explain the function of ten commands you executed.**

**DIR** – Displays a list of files and folders in the current directory. It helps users see what content is available in a specific location.

**CD** – Changes the current working directory. It is used to navigate through different folders in the file system.

**CLS** – Clears all previous commands and output from the Command Prompt screen, making it clean for new commands.

**IPCONFIG** – Shows detailed network configuration information such as IP address, subnet mask, and default gateway of the system.

**PING** – Tests connectivity between your computer and another network device or website by sending data packets and measuring response time.

**SYSTEMINFO** – Displays detailed system configuration, including operating system version, hardware details, and memory information.

**TASKLIST** – Lists all currently running programs and background processes along with their Process IDs (PIDs).

**NETSTAT** – Displays all active network connections, open ports, and network statistics. It's useful for monitoring network activity.

**WHOAMI** – Shows the username of the currently logged-in user. It confirms which account is being used in the Command Prompt.

**VER** – Displays the version number of the Windows operating system currently running on the computer.

**4) Which command is used to list active network connections and their ports?**

**Command:** netstat

**Explanation:** It displays all active network connections, listening ports, and connection states.

**5) What information does the whoami /all command display?**



**Answer:**

It shows detailed information about the current user, including:

- Username and domain
- Security Identifier (SID)
- Group membership
- Privileges assigned to the user account

**6) How can you check your Windows version using CMD?**

**Command:** ver

**Explanation:**

This command outputs the current Windows version and build number installed on the system.

**7) What precautions should be taken when running commands with administrative privileges?**

- Always **understand the command** before executing it.
- Avoid deleting or modifying system files.
- Run as administrator **only when necessary**.
- Never execute commands from **unknown sources**.
- Double-check commands that modify **registry or boot settings**.