PCP

Windows Features & System tools

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Content

☐ Managing Hardware & Software
☐ Installation of Hardware & Software
☐ Using Scanner, Web Camera, Printers
☐ System Tools
☐ Backup
☐ Disk Defragmenter
☐ Drive Space
☐ Scandisk (Error Checking)
☐ System Information
☐ System Monitor (Performance Monitor)
☐ Disk Cleanup
☐ Windows Update
☐ Browsing the Web with Internet Explorer
☐ Multiple User Features of Windows

Windows Features

Managing Hardware & Software

Installation of Hardware & Software

- ➤ Hardware installation means connecting physical devices like printers, scanners, webcams, and USB drives.
- > Windows automatically detects new hardware using Plug and Play (PnP).
- > Device drivers are essential for hardware communication with the operating system.
- For software, installation usually involves running a setup file (e.g., .exe or .msi).
- ➤ Windows keeps a record of installed programs in Control Panel → Programs and Features.
- > Updates may be required for both hardware drivers and installed software.
- > Compatibility check ensures hardware/software works with the OS version.
- > Some hardware requires manual configuration after installation (e.g., printer settings).

Using Scanner, Web Camera, Printers

- > A scanner digitizes paper documents/photos into electronic files.
- > Web cameras (webcams) capture live video, used in video calls and recording.
- > Printers output digital documents onto paper (inkjet, laser, 3D printers).
- Installation requires device drivers (often included in Windows or downloadable).
- > Windows provides a Devices and Printers window to manage them.
- > Settings allow default printer selection, paper size, and print quality.
- ➤ Webcams integrate with apps like Zoom, MS Teams, or Camera app.
- > Scanner functions may be accessed via apps like Windows Fax and Scan.

System Tools

Backup

- > Backup means creating copies of important data to prevent loss.
- > Windows offers File History and Backup and Restore tools.
- > Backups can be stored on external drives, cloud storage, or network drives.
- > Automated scheduling ensures regular backups.
- > Restoring allows users to retrieve lost or damaged files.

Disk Defragmenter

- > Over time, files get scattered across the hard disk (fragmentation).
- > Disk Defragmenter rearranges file pieces into contiguous blocks.
- This improves file access speed and system performance.
- > Not required for SSDs (they use TRIM instead).
- > Windows offers an Optimize Drives tool for automatic defragmentation.

Drive Space

- > Drive space refers to the storage capacity of a disk.
- > Windows Explorer shows used vs. free space on each drive.
- ➤ Low drive space slows down performance and may prevent updates.
- Large files, temp files, and unused programs consume space.
- > Tools like Disk Cleanup help free up space.

Scandisk (Error Checking)

- > Scandisk checks for logical and physical errors on a disk.
- > It detects bad sectors and attempts to repair them.
- ➤ In modern Windows, this tool is called Error Checking (CHKDSK).

- ➤ Useful for preventing data corruption and crashes.
- > Can be scheduled to run at startup if required.

System Information

- > Provides detailed hardware and software specifications.
- > Accessed via msinfo32 command.
- ➤ Includes CPU, RAM, BIOS, drivers, and OS details.
- ➤ Helps diagnose hardware/software compatibility issues.
- ➤ Useful for technical support and troubleshooting.

System Monitor (Performance Monitor)

- Tracks real-time performance of CPU, memory, disk, and network.
- > Helps identify resource-hungry applications.
- ➤ Displays performance counters and system health reports.
- ➤ Useful in detecting bottlenecks and crashes.
- ➤ Found under Administrative Tools → Performance Monitor.

Disk Cleanup

- > Removes unnecessary temporary files, caches, and system logs.
- > Helps free up disk space and improve speed.
- ➤ Can remove previous Windows installations (after upgrades).
- ➤ Users can select categories (Recycle Bin, Temporary files, etc.).
- > Available in System Tools or by searching "Disk Cleanup".

Windows Update

- > Windows Update provides security patches and feature updates.
- ➤ Keeps the system safe from malware and vulnerabilities.
- > Can install driver updates automatically.
- ➤ Users may choose automatic, scheduled, or manual updates.

4 Prof. Chauhan Bhavik

> Important for stability, compatibility, and performance.

Browsing the Web with Internet Explorer

- ➤ Internet Explorer (IE) is Microsoft's legacy web browser.
- ➤ Allows users to browse websites using the internet.
- > Supports bookmarks, history, and multiple tabs.
- ➤ Includes basic security features like SmartScreen filter.
- Though outdated, it has been replaced by Microsoft Edge in modern Windows.

Multiple User Features of Windows

- > Windows allows multiple users to have separate accounts on the same computer.
- > Accounts can be Administrator, Standard User, or Guest.
- > Each account has its own desktop, files, and settings.
- > Fast User Switching allows switching accounts without logging off.
- > Security is maintained by account passwords and permissions.
- Family Safety options let parents control children's access.
- > User accounts help in auditing and tracking individual activity.
- > Supports both local and Microsoft online accounts.

5 Prof. Chauhan Bhavik