UGANDA COMMUNICATIONS COMMISSION

UGANDA COMMUNICATIONS UNIVERSAL SERVICE & ACCESS FUND

Introduction to Digital Devices and Software Operations

EIGHT TECH CONSULTS
People . Innovation . Technology . Services

NUDIPU

Outline

1. Importance of ICT for persons with disabilities
2. Evolution of Computers and mobile phones
3. Basic Operations of a computing device
4. Digital Devices
5. Keyboard Orientation for Visual Impairments

Importance of ICT

- **Promotes Independence.** ICT tools (e.g., screen readers, voice assistants, smart devices) help persons with disabilities manage daily tasks without relying on others.
- **Improves Access to Education.** ICT provides inclusive learning through accessible e-learning platforms, captioned videos, audio books, and specialized apps.
- **Enhances Communication.** For people with speech, hearing, or cognitive impairments, ICT offers Augmentative and Alternative Communication (AAC) tools (e.g., symbol boards, speech-generating devices, video calls with sign language).

Importance of ICT

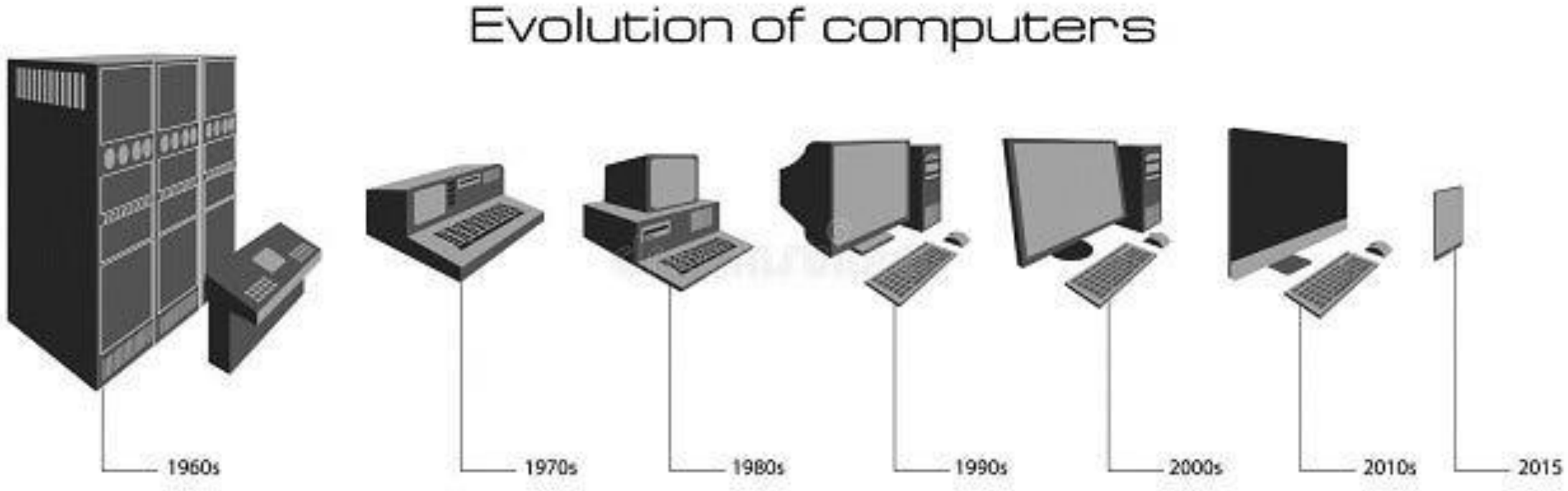
- **Creates Employment Opportunities.** ICT allows persons with disabilities to work remotely, access online job platforms, and use assistive tools in the workplace.
- **Supports Access to Health Services.** ICT enables telehealth, access to health information, appointment reminders, and apps for medication management
- **Enables Access to Information.** The internet gives access to vital services news, government services, banking, education, and entertainment in accessible formats.

Importance of ICT

- **Fosters Social Inclusion**. Social media, messaging apps, and video calling help reduce isolation and strengthen social connections.
- **Protects Rights and Promotes Participation.** ICT enables persons with disabilities to access and understand their rights, report abuse, participate in governance, and engage with disability movements.

Evolution of Mobile Technologies

History Of Computers



- **Storage:** 4 KB to 16 KB
- **Processor:** 1 to 2 kHz
- **Size:** 500 to 1000 kgs

- **Storage:** 16 KB to 64 KB
- **Processor:** 4 MHz to 8 MHz
- **Size:** 9 to 14 kgs

- **Storage:** 500GB to 1TB
- **Processor:** 3 GHz & more
- **Size:** Pocket size

Basic Operations of a computing device:

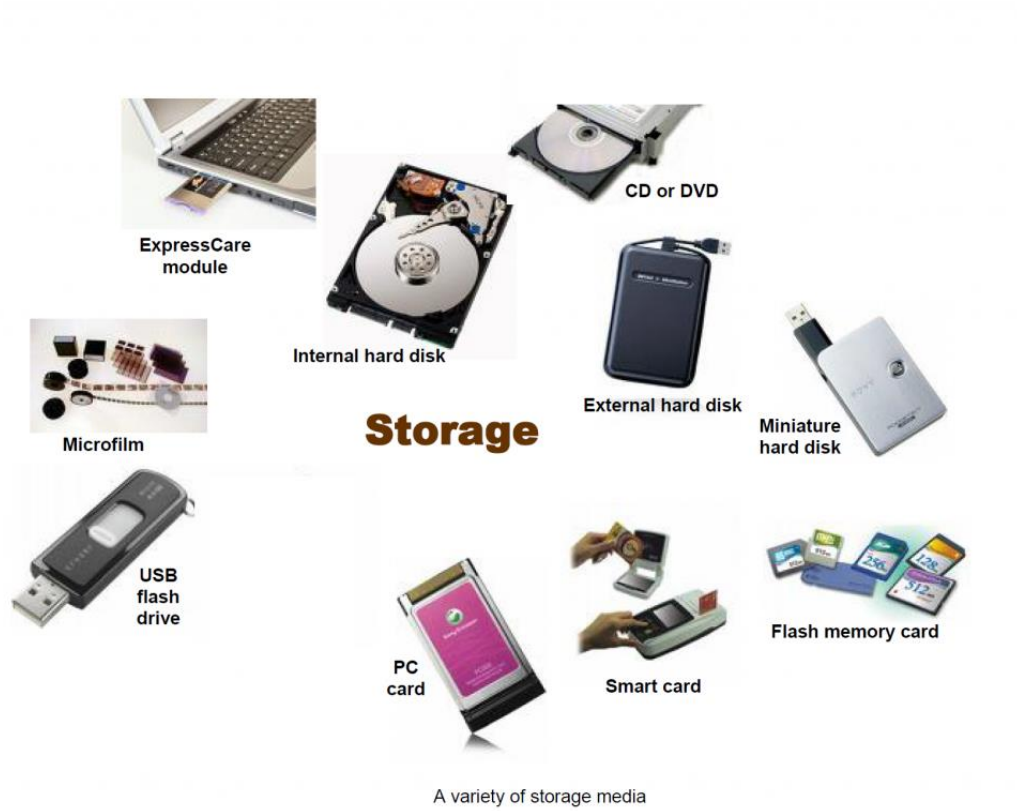
- **Central Processing Unit** (CPU)Often called the "brain" of the computer.
- It processes instructions and manages tasks.

Basic Operations of a computing device:

- **Memory (RAM - Random Access**
  Memory)Temporary memory that stores data the CPU is actively using.
- The more RAM, the faster the device can handle multiple tasks.

Basic Operations of a computing device:

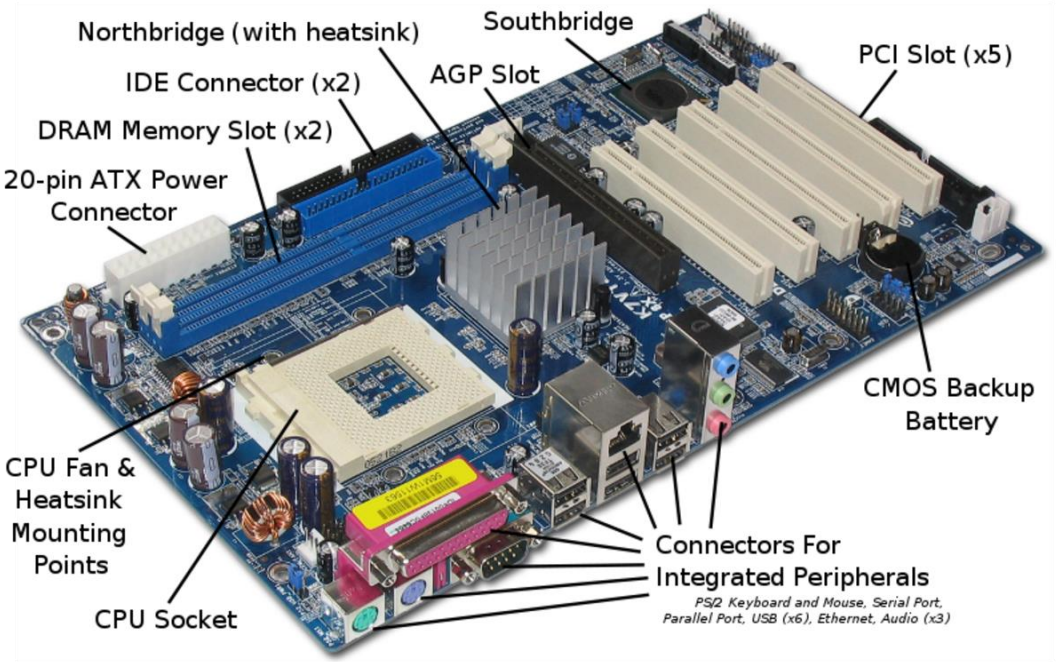
- **Storage Device**
- Stores data, programs, and the operating system. Types:
- HDD (Hard Disk Drive)
- SSD (Solid State Drive)
- eMMC/Flash Storage (common in mobile devices)



A variety of storage media

Basic Operations of a computing device:

- **Motherboard (Mainboard)**
- The main circuit board that connects all internal components.
- Allows communication between CPU, memory, storage, etc.



Basic Operations of a computing device:

- **Power Supply Unit**
- (PSU)Converts electricity from a wall outlet into usable power for internal parts.
- In phones and tablets, this is managed by a battery and charging circuit.

Basic Operations of a computing device:

- **Input Devices**
- Used to send data into the device.
- **Examples:**
- Keyboard, Mouse or touchpad, Touchscreen, Microphone, Camera

Basic Operations of a computing device:

- **Output Devices**
- Used to show or present data to the user.
- **Examples:**
- Monitor/Display, Speakers, Printer, Headphones

Troubleshooting Tips

- **Restart the Device.** First step for most problems (slow performance, app crashes, frozen screens).
- **Check Connections.** Make sure cables, chargers, or peripherals (mouse, keyboard, printer) are plugged in properly.
- **Close Unused Applications.** Too many apps running can slow down the device or cause freezing.
- **Check for Updates.** Update the operating system and apps to fix bugs and improve performance.

Troubleshooting Tips

- **Run Antivirus or Malware Scan.** Use antivirus software to check for infections that may cause crashes or slowness.
- **Free Up Storage Space.** Delete unused files or apps; a full storage drive can slow down performance.
- **Check for Overheating.** Overheating can cause automatic shutdowns or lag. Ensure the fan is working and vents are not blocked.
- **Reset Settings.** If apps or Wi-Fi are not working, try resetting app settings or network settings.

Troubleshooting Tips

Boot in Safe Mode (for PCs). Helps diagnose whether a problem is caused by software or a third-party app.

Use Built-in Troubleshooters. Windows, mac OS, and Android have built-in troubleshooting tools for sound, display, internet, etc.

Maintenance Tips.

- **Regular Software Updates.** Keep the operating system, drivers, and apps up to date for better security and performance.
- **Install Antivirus and Security Software.** Protect your device from viruses, malware, and online threats.
- **Backup Your Data Regularly.** Use cloud storage or an external drive to back up important files in case of system failure.
- **Clean the Device Physically.** Use a soft cloth to wipe screens and keyboards; keep dust away from vents and ports.

Maintenance Tips.

- **Avoid Overcharging.** For phones and laptops, unplug once fully charged to preserve battery life.
- **Delete Unnecessary Files and Apps.** Helps improve speed and reduce clutter.
- **Use a Surge Protector.** Prevents damage from power surges or lightning strikes.
- **Limit Background Apps.** Too many apps running in the background can drain resources and battery.

Maintenance Tips.

- **Defragment the Disk (for HDDs).** On older computers with HDDs, defragmenting can improve access speed (not needed for SSDs).
- **Use Strong Passwords and Lock Screens.** Protect your device from unauthorized access.

Software installation.

- Software installation is the process of setting up a computer program (software) so it can run on a device (like a computer or phone).

Software installation process.

Steps in Software Installation:

1. Download or insert installation media (CD, USB, or download from the internet).
2. Run the installer (usually a file ending in .exe, .msi, .dmg, or .apk).
3. Follow on-screen instructions select destination folder, agree to terms, customize settings if needed.
4. Wait for the process to complete.
5. Launch the software from the desktop, start menu, or apps list.

Software ad-ons.

- Add-ons (also called extensions, plugins, or modules) are small pieces of software that add new features or functions to an existing program.

Software ad-ons.

Installing Add-ons:

1. Open the main application (like Chrome or Word).
2. Go to the add-ons/extension/plugin section.
3. Browse or search for the add-on.
4. Click Install or Add.
5. Follow any additional setup instructions.

Safety cautions when using digital devices.

- Avoid overcharging batteries: It reduces battery life and can cause overheating.
- Use screen protectors and cases: Prevent damage from drops or scratches.
- Keep devices dry: Liquids can damage internal parts.
- Avoid using in extreme temperatures: High heat or cold can affect performance.
- Unplug devices safely: Remove power cables properly to avoid breaking ports.

Safety cautions when using digital devices.

- Take breaks regularly: Follow the 20-20-20 rule every 20 minutes, look at something 20 feet away for 20 seconds.
- Maintain good posture: Sit upright with your screen at eye level.
- Use blue light filters: Helps reduce eye strain and improves sleep.
- Keep a safe distance: Don’t hold devices too close to your eyes.

Components Of Digital Devices

- **Hardware:**
- A physical unit of a digital device.
- It can be touched.

Components Of Digital Devices

- **Software:**
- Programs or applications that run on digital devices

Software Operating System

- Oversees communication between hardware parts and software programs on a digital device.
- **Examples:**

- Windows computer

- IOS Computer

- Android

- IOS Phone

Common Digital Devices

- Computers

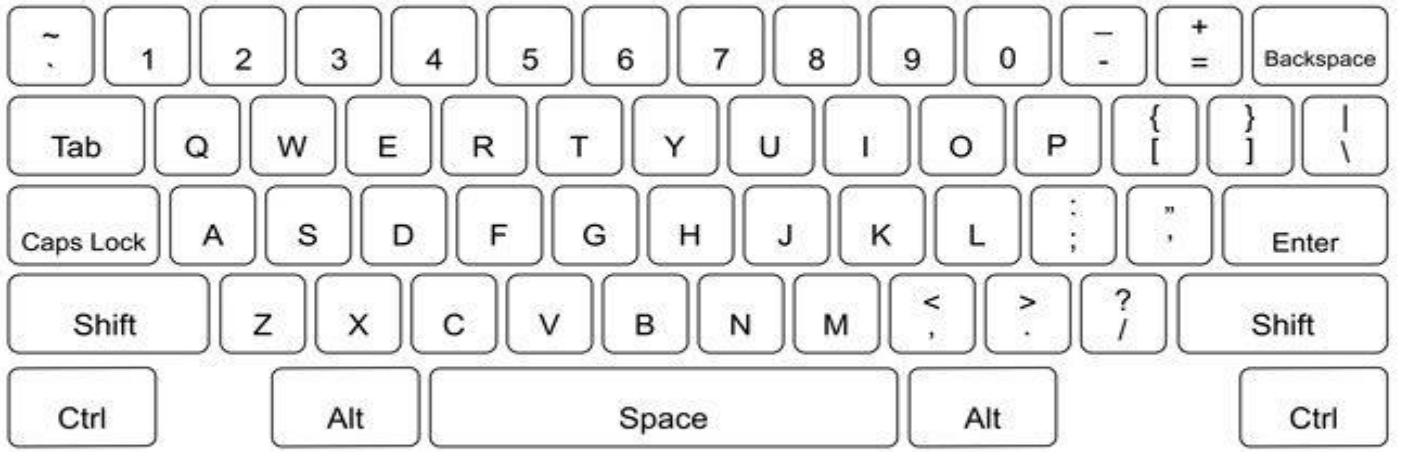
- Smartphones

- Tablets

- ATM machines

Understanding Computer keyboard

- Space.
- Backspace
- Caps Lock
- Enter
- Shift
- Ctrl
- Alt
- Tab

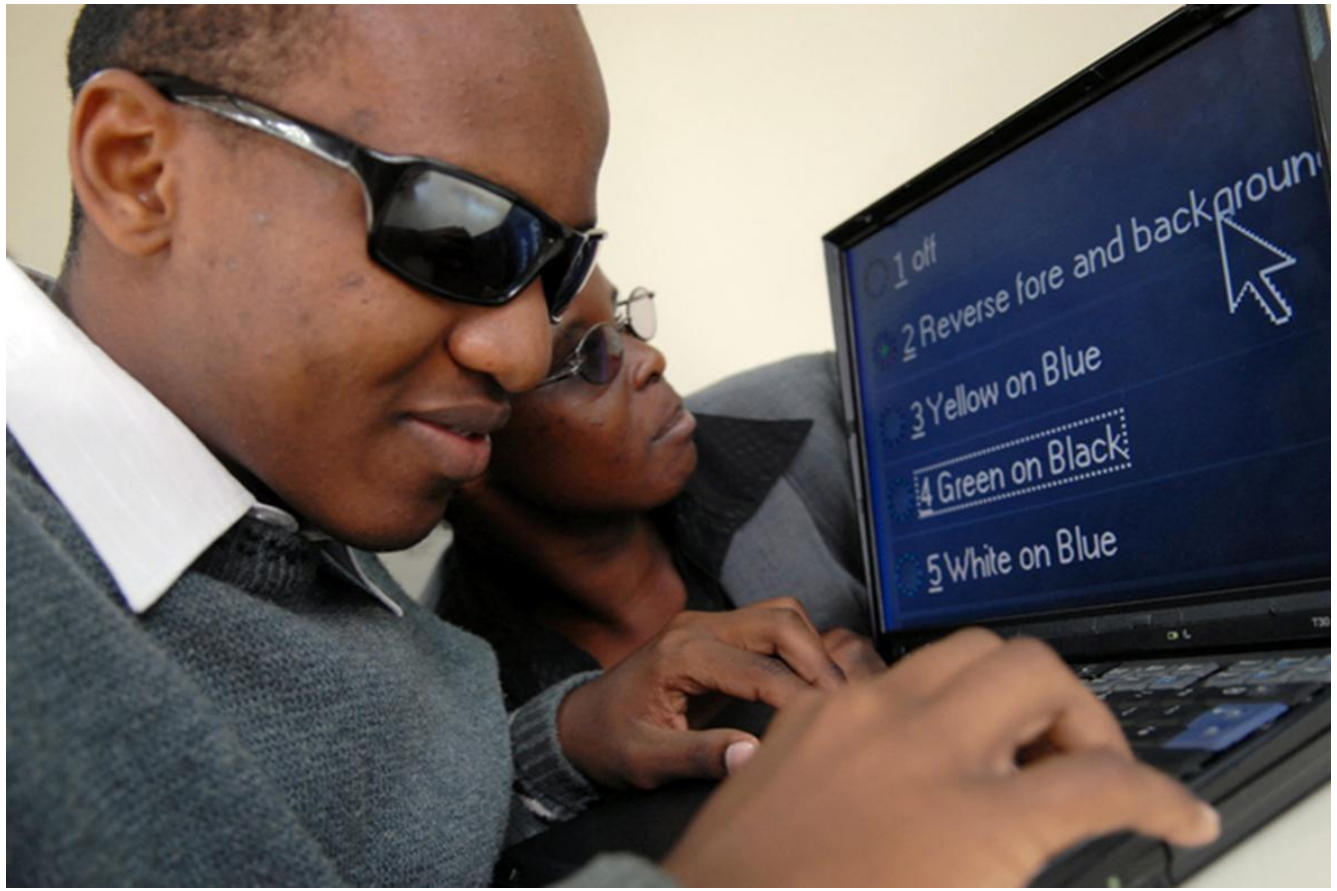


Understanding keyboard shortcuts

- Copy: Ctrl + C.
- Cut: Ctrl + X.
- Paste: Ctrl + V.

Visual Impairment keyboard Layout

- Visual Impairment Keyboards are ergonomic keyboards that have been specifically designed to help people with impaired vision use their keyboard and computer.



Visual Impairment keyboard Layout

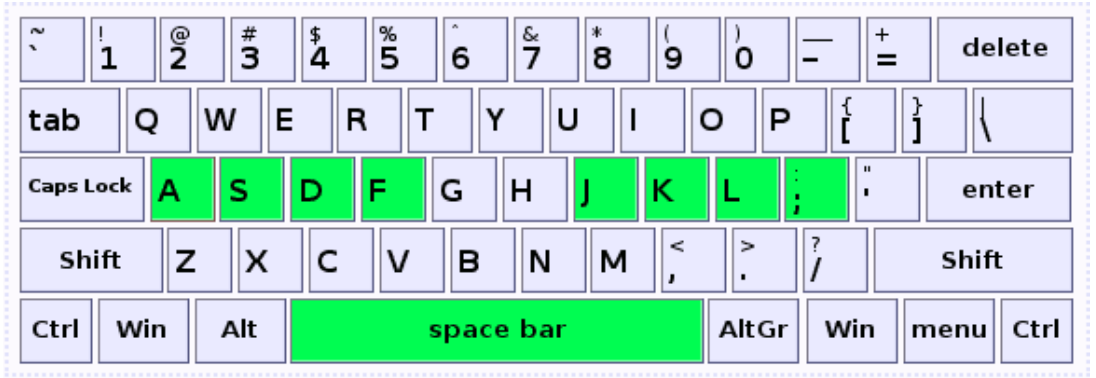
- These keyboards are designed around high-impact features such as high-contrast colors and large print keys.

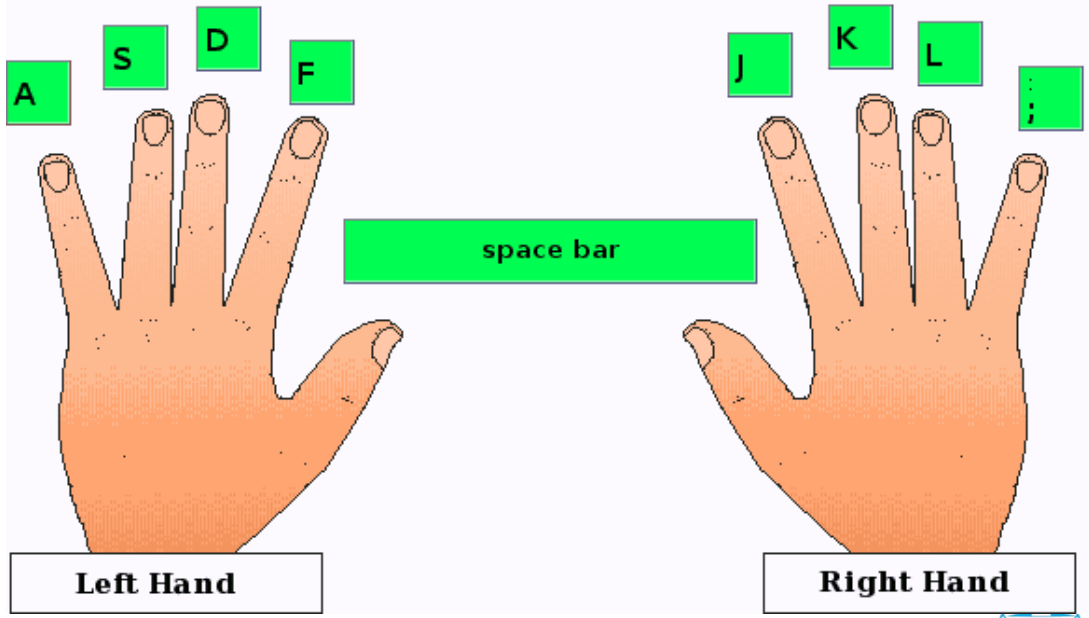
Visual Impairment Keyboard Features

- Ergonomic designs ensure protection, comfort and productivity.
- Reduces the risk of repetitive strain injuries and carpal tunnel syndrome.
- Easy to see high-contrast keys.
- Large print keys help with legibility.
- PC, Mac and mobile device compatible.

Finger placement and typing techniques

- When you type, you should always keep your fingers positioned on the home row keys. The home row keys are A, S, D, F, J, K, L, and ;. Remember, each finger should curve a little so that your thumbs gently rest on the space bar.





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