**Kano state polytechnic**

**School Of technology**

**Departement Of Computer Science**

**Group Assignment**

**Group E**

**Course tittle: File Organization**

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**BASIC STORAGE DEVICE AND MEDIA**

**Storage Devices:**

**Introduction**

Data storage is the backbone of our digital lives. From simple text files to massive databases and multimedia archives, storage devices and media make it possible to keep our information safe, accessible, and organized. Over the decades, storage technology has evolved dramatically—from punch cards and magnetic tapes to ultra-fast cloud services. This report explores the different types of storage devices and media, their working principles, advantages, disadvantages, and the emerging trends shaping the future of data storage.

## Brief History of Data Storage

The history of storage devices reflects humanity's drive to preserve knowledge. Early computers used punch cards and magnetic tapes to store instructions and data. The 1970s introduced floppy disks, followed by hard disk drives (HDDs) that used spinning platters and magnetic heads. In the 1990s, optical media such as CDs and DVDs revolutionized how we shared music, movies, and files. The 21st century brought flash-based Solid-State Drives (SSDs) and cloud services, which now dominate modern storage solutions.

1. Hard Disk Drives (HDDs): These use spinning disks and magnetic heads to read/write data. They're like the old-school vinyl records of storage
2. Solid-State Drives (SSDs): These use flash memory to store data, making them super fast and efficient. Think of them like super-speedy USB drives
3. Flash Drives (USB Drives): Small, portable, and convenient, these use flash memory to store data. Perfect for transferring files between devices!

**Storage Media**

1. CDs (Compact Discs): These use laser technology to read/write data. Great for storing music, movies, and files
2. DVDs (Digital Versatile Discs): Similar to CDs, but with higher storage capacity. Ideal for storing larger files like movies!
3. Blu-ray Discs: These have even higher storage capacity than DVDs, making them perfect for high-definition content!

**Other Storage Options:**

* SD Cards: Used in devices like cameras, smartphones, and gaming consoles to expand storage capacity.
* Tape Drives: Used for archiving and backing up large amounts of data. Think of them like old-school cassette tapes!
* External Hard Drives: Portable storage devices that connect to computers via USB or other interfaces.

These are just some of the basic storage devices and media out there. Each has its own pros and cons, but they all help us store and manage our digital lives!

What's your favorite storage device or media?

**Here are the types of storage devices and media:**

1. Primary Storage (Volatile memory)

RAM (Random Access Memory) – Temporary memory used while the computer is running.

Cache memory – Very fast memory close to the CPU

Registers– Small, very fast storage inside the CPU.

1. Secondary Storage (Non-volatile memory)

These are permanent storage devices.

Hard Disk Drive (HDD) – Magnetic storage.

Solid State Drive (SSD) – Faster, flash-based storage.

Hybrid drives (SSHD) – Combines HDD + SSD.

Optical Discs – CD, DVD, Blu-ray.

Magnetic Tapes – Used for backups and archiving.

1. Portable / Removable Storage

USB Flash Drive

Memory Cards (SD card, micro SD)

External Hard Drives / SSDs

1. Cloud / Network Storage

Cloud storage (Google Drive, One Drive, I cloud, Drop box, etc.)

NAS (Network Attached Storage)

SAN (Storage Area Network)

1. Other Specialized Media

Floppy disks (old storage media)

Zip disks (legacy removable media)

Magneto-optical discs

📌 Summary:

Primary storage: RAM, Cache.

Secondary storage: HDD, SSD, Optical disks, Tapes.

Portable storage: USB, Memory cards, External drives.

Cloud/Network storage: Online and LAN-based storage.

Legacy media: Floppy, Zip, etc.

Would you like me to draw a clear diagram (classification tree) of storage devices for easier understanding?

**Here Are The Function, Advantages And Disadvantages of Storage**

**Device And Media**

Function Of Storage Devices And Media

* Data Storage: Holding and preserving digital data such as file, document, image and Videos.
* Data Retrieval: Allowing Users to access and retrieve stored data.
* Data Protection: Providing a secure and stable environment for data storage.
* Data management: Storage devices enable users to organize, modify, and delete data.

**Advantages Of storage devices And Media**

* Data Preservation : Storage devices and media help preserve data for extended periods.
* Portability: Many storage devices and media media are portable, making it easy to transfer data.
* Capacity: Storage devices and media offer varying capacities to suit different needs.
* Convenience: Storage devices and media provide easy access to stored data
* Data sharing: Storage devices and media facilitate data sharing between individuals and devices.
* Space efficiency: Storage devices and media can store large amount of data in a compact format.m
* Cost-effective: Many storage devices and media are cost-effective, providing affordable solution for data storage

**Disadvantages Of Storage Devices And Media**

1. Data Loss: Storage devices and media can fail, resulting in data loss.
2. Physical Damage: Physical damage to storage devices and media can render them unusable
3. Security Risks: Storage devices and media can be vulnerable to data breaches and cyber threats.
4. Capacity Limitations: Storage devices and media have limited capacity, which can be a constraint
5. Compatibility issue: Different storage devices and media may have compatibility issues with various devices