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Week 3 Portfilio

__Here is a table I have Created__

__Type__	*__Typical form factor__*	*__Real-world feel__*	*__Strengths__*	*__Weak spots__*	*__Best fit__*
NVMe SSD (PCIe)	*M.2 2280*	*Instant app launches, snappy boots; 3–7 GB/s sequential, superb random I/O*	*Fastest, silent, shock-resistant, great battery life*	*Cost per TB higher than HDD; large capacities can get pricey*	*Primary drive for laptops/desktops; active projects; gaming; coding*
SATA SSD	*2.5" or M.2 SATA*	*Much faster than HDD; ~550 MB/s sequential*	*Inexpensive vs NVMe, big upgrade for older systems*	*Slower than NVMe; still pricier per TB than HDD*	*Reviving older machines; secondary SSD where no NVMe slot*
HDD	*2.5"/3.5" (USB or internal)*	*Fine for big sequential files; 120–200 MB/s; slower random I/O*	***Cheapest per TB**, huge capacities, good for archives/backups*	*Fragile when dropped (esp. portable), noisy, heavier, slower, more power*	*Backups, media hoards, cold storage*
SSHD (Hybrid)	*2.5" (mostly)*	*Feels like "a faster HDD," small SSD cache speeds repeats*	*Slight speed bump over HDD without SSD prices*	*Gains depend on access patterns; rare in 2025; still an HDD underneath*	*Older laptops with only one 2.5" bay and strict budgets*

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1) General student laptop (notes, web, Office/Google Docs, light photo edits)

- *Primary: 1 TB NVMe SSD (internal).*

- *Why: Instant wake/app launches, silent, better battery life, enough headroom for school years.*

- *Nice-to-have: Cloud sync (Drive/iCloud/OneDrive) + a 1–2 TB external HDD for periodic backups.*

2) Content-creator / media student (photo, audio, or 1080p–4K video projects)

- *Primary (working drive): 2 TB NVMe SSD (TLC preferred) for OS, apps, and active projects.*

- *Secondary (bulk/backup): 8–12 TB external 3.5″ HDD (desktop-class USB enclosure) or a small NAS for archives and backups.*

- *On the go: 1–2 TB portable USB-C SSD for scratch/caches and project shuttling.*

- *Why: SSD for speed while editing; HDD for economical, scalable storage and versioned backups.*

3) Gamer / CS & engineering student (IDEs, VMs/containers, CAD, large games)

- *Primary: 2 TB NVMe SSD (PCIe 4.0 or 5.0 if supported; TLC NAND).*

- *Secondary (optional): 4–8 TB external HDD for cold game libraries, datasets, and backups.*

- *Why: Fast level loads/builds/VMs on SSD; HDD holds rarely used or archival content cheaply.*

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My Choice- SSD, Here is why.

Workload type
*Mostly **large sequential files** (video footage, raw photo archives, datasets): HDD is fine for **storage**, but use **SSD** while actively editing.*

Capacity vs budget
*If you can fit everything you touch daily within **1–2 TB**, SSD all the way.*

Device & slots
*Older laptops/desktops: may support **SATA SSD** easily.*

Portability & durability
*Constantly on the move? Prefer **SSD** (internal NVMe or a **portable USB-C SSD**) over spinning disks.*

Battery life, noise, heat

***SSD** wins on all three. HDDs spin, draw more power, and add noise/vibration.*

Security

SSDs often support hardware encryption; OS-level BitLocker/FileVault works well on either. Always encrypt laptops.

Lifespan & endurance
*Consumer SSDs are typically rated in **TBW** (terabytes written). For typical student workloads, a quality TLC SSD is more than enough for years.*

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HERE IS THE BOTTOM LINE!

*If you can afford it: run **NVMe SSD only** for everything under ~2 TB, with cloud + external HDD backups.*

*If you need many terabytes cheap: combine a **smaller NVMe SSD** for daily work with a **big external HDD** for archives.*

***Skip SSHD** unless an older 2.5"-only laptop forces your hand and you can't get enough SSD capacity within budget.*