**Rachit Vijan: Assignment (Day 1)**

**What is cache memory?**

Cache memory is a fast memory type that acts as a buffer between RAM and the CPU. It holds frequently requested or recent data and instructions so that it is immediately available to the CPU when needed.

Cache memory is used to reduce the average time to access data from the Main memory. Fast access to these instructions increases the overall speed of the software program. The main function of cache memory is to speed up the working mechanism of the computer.

The recent applications on the mobile phone is an example of cache memory.

**What is disk management?**

Disk Management can be used to create, delete, format partitions and much more. Disk Management can be used to view partitions and their formatted file systems on the hard drive.

**Cache vs RAM**

Both Ram and Caches are memory and their aim is to store data.

RAM (Random Access Memory) is a light-hearted memory which is used by the CPU as the Primary Memory of the system. CPU stores frequently used data of the programs running at the moment in RAM as RAM is faster than storage devices. This helps the CPU to work faster.

Cache memory is faster than the RAM but comes with minimal capacity. CPU stores more frequently used data in it so that the CPU can access these data faster.

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| **RAM​​​​​** | **Cache** |
| Read/Write rate of RAM is slower than Cache Memory. | Read/Write rate of cache memory is quicker than RAM. |
| RAM is used to store less redundant data. | Cache Memory is used to save more frequent data. |
| CPU reads RAM after expressing Cache Memory. | CPU reads Cache Memory before holding RAM. |
| RAM is commonly internal. | Internal and external both can be in Cache memory. |

**HDD vs SSD**

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| **Attribute** | **SSD (Solid State Drive)** | **HDD (Hard Disk Drive)** |
| **Power Draw / Battery Life** | Less power draw | More power draw |
| **Cost** | Expensive | Very cheap |
| **Operating System Boot Time** | Faster | Slower |
| **File Copy / Write Speed** | Generally above 200 MB/s and up to 550 MB/s for cutting edge drives | The range can be anywhere from 50 – 120MB / s |
| **Encryption** | Full Disk Encryption (FDE) Supported on some models | Full Disk Encryption (FDE) Supported on some models |
| **File Opening Speed** | Up to 30% faster than HDD | Slower than SSD |

An HDD might be the right choice if:

* You need lots of storage capacity, up to 10TB
* Don’t want to spend much money
* Don’t care too much about how fast a computer boots up or opens programs

An SSD might be the right choice if:

* You are willing to pay for faster performance
* Don’t mind limited storage capacity or can work around that (though consumer SSD now go up to 4TB and enterprise run as high as 60TB)