SPECIAL PROGRAM IN TECHNICAL VOCATIONAL EDUCATION (SPTVE)
COMPUTER SYSTEMS SERVICING 8 Q3-W4

I. Topic: **Hard Disk Drive versus Solid State Drive**

II. Objectives: 1. Compare the different attributes between hard disk drive and solid state drive
2. Evaluate the appropriate storage device to be used according to the specifications of the required output.
3. Value the importance of proper selection of secondary storage device in accordance with the task required

III. Brief Introduction of the Lesson

There are two types of storage device used as secondary storage in computers: HDD and SSD. HDDs are more traditional of the two. It contains one or more platters, housed inside of an air-sealed casing. Data is written to the platters using a magnetic head, which moves rapidly over them as they spin. On the other hand, SSDs use flash memory instead. These are the different attributes or characteristics of each storage device shown below.

Attribute	  https://tinyurl.com/y4rqzbug https://tinyurl.com/y6z3mmvu on 1/12/21 **Hard Disk Drive (HDD)**	  https://tinyurl.com/y6g5m25c https://tinyurl.com/yxmx8umz on1/12/21 **Solid Sate Drive (SDD)**
Cost	Cheaper than SSD (per gigabyte)	Expensive (8 x cost per gigabyte)
Access Time	Slower than SSD. It takes 5.000-10,000 microseconds to access data and programs.	Much less. It takes 35-100 microseconds to access the program.
Reliability	It consists of different movable parts, hence are more prone to errors.	It has no moving parts, hence less prone to mechanical faults.
Power	It requires more power.	It consumes less power.
Heat	It generates a lot of heat.	Heat generated is very less.
Capacity	500GB and 2TB max for notebook size drives; 10Tb for desktops	Not larger than 1 TB for notebook size drives; 4 TB max for desktops
Noise	Clicks and spinning can be heard	No sound
Vibration	The moving parts make them prone to crashes and damage.	It can withstand vibration up to 2000Hz,
Operating system boot time	Around 30-40 seconds average booting time	Around 10-13 seconds average boot time
Power/battery life	Average 6-7 watts , uses more battery	Average 2-3 watts, 30+ minute battery boost
Heat	More heat because of moving parts	Lower power draw

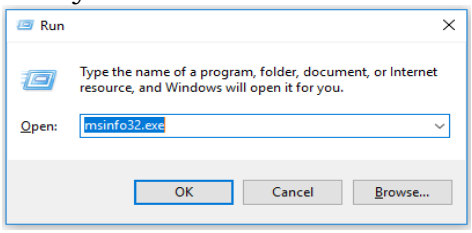
produced	and higher power draw	
Speed	Slower than SSD	30 % faster than HDD
Size	Available in 2.5 inches and 3.5 inch for desktop and laptops	Available in various sizes 2.5", 1.8" and 1.0"
Magnetism	information could be erased from an HDD using strong magnets	It is not affected by magnetism

How to find the hard drive type and specifications in Windows 10?

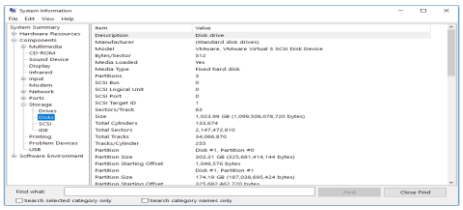
There are two ways you can view information about your hardware (including disks)

Using System Information utility in Windows 10:

1. use the Run box to open the System Information Utility.
2. Press the **Windows key + R** keyboard shortcut
3. In the Run box, type **misinfo32**
4. Press **Enter** or click **Ok**

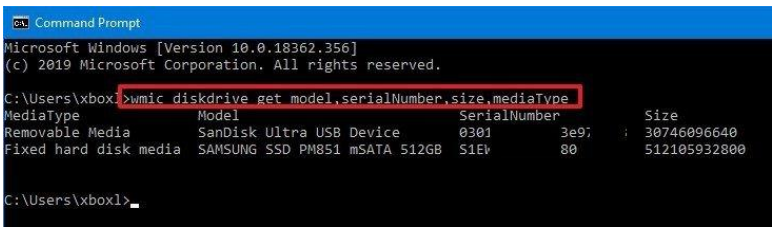


5. In the System Information window that opens, in the left window pane, you'll see a list of hardware categories. Click/expand Components, ->Storage. Then, choose-> Drives, ->Disks, or any category you'd like to view.



Using command prompt

1. Open Start.
2. Search for Command Prompt and click the top result to open the app.
3. Type the following command to check the name, brand, model, and serial number information and press Enter:
   wmic diskdrive get model,serialNumber,size,media Type



IV. Activities:

Activity 1.

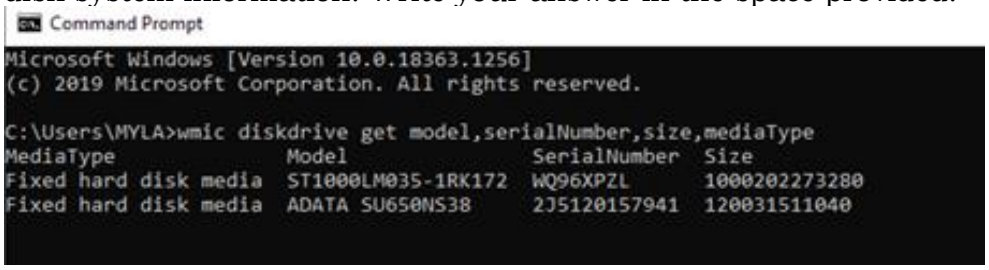
Directions. Write ***T,*** if the statement is TRUE; otherwise ***F*** if FALSE. Write your answer in the space provided.

___ 1. Because they have no moving parts, solid state drives have an indefinite lifespan.
___ 2. SSDs are popular especially in desktop computers since they have no moving parts.
___ 3. If a laptop with a magnetic hard drive is dropped, data may become corrupted due the moving arm crashing into the spinning platter.

__ _4. There are sounds of clicks and spinning can be heard in Solid State Drive.
___ 5. The speed of hard disk drive is faster than SSD.
___ 6. With all of the parts required to spin the platter, the HDD uses more power than SSD.
___ 7. Because of there are no moving parts, the HDD generates less heat.
___ 8. The maximum capacity of HDD for desktops is 10TB.
___ 9. SSD is not affected by magnetism.
___ 10. In terms of power consumption, the hard disk involves the mechanical moving parts, the power consumption of HDDs is more than SSDs.

Activity 2. Arrange the following in order based from hard disk information procedures. Use numbers starting from 1 up to 4. Write your answer in the space provided.
____ Expand Components, then Storage, choose Drives, Disks,
____ Press the Windows key + R keyboard shortcut
____ Press Enter or click Ok
____ In the Run box, type misinfo32

Activity 3. Directions. Refer to the picture below, supply the appropriate answer from the disk system information. Write your answer in the space provided.



1. Model of WQ96XPZL	
2. Media type of ADATA	
3. Size of ST1000LM035	
4. Serial number of ADATA	
5. Size of WQ96XPZL	

V. Assessment:

Directions: Encircle only the letter of the correct answer.
1. Which is not a characteristic of a secondary storage device?
   A. Large Storage Capacity C. Temporary storage
   B. Either internal or external storage D. Stores system programs and files
2. This storage device uses magnetism to store data in a spinning platter.
   A. DVD drive B. Hard Disk Drive C. Solid State Drive D. flash drive
3. Which can be installed in computers as a substitute for hard disk drive?
   A. DVD Drive B. Flash Drive C. Memory Card D. Solid State Drive
4. HDD's are still used instead of SSD's because they_____.
   A.use less power B. have movable parts C. are cheaper D. access data faster
5. What is the most important characteristics of a hard drive?
   A. power consumption B. storage capacity C. data transfer rate D. access time

VI. Reflection:

The choice of Hard Disk Drive (HDD) versus Solid State Drive (SSD) comes down to whether you prioritize performance or capacity.

Hard disk drives or HDDs are more traditional of the two. It contains one or more platters, housed inside of an air-sealed casing. Data is written to the platters using a magnetic head, which moves rapidly over them as they spin.

On the other hand, Solid state drives or SSDs use flash memory instead, thus have no moving parts. They have faster read/write speeds than HDDs, lower access times, and a higher cost per gigabyte of storage.

As CSS student, why do you think that acquiring knowledge on storage device technology is essential?

References:

Attributes of HDD and SSD - https://www.computerhope.com/issues/ch001396.htm n 1/12/2021
Image of HDD and SSD - https://tinyurl.com/y4rqzbug ; https://tinyurl.com/y6g5m25c on 1/12/2021
"What Is a Solid State Drive? | Crucial.Com." n.d. Crucial. Accessed January 11, 2021https://www.crucial.com/articles/about-ssd/what-is-an-SSD.
"What Is Solid-State Storage? - Definition from WhatIs.Com." n.d. SearchStorage. Accessed January 11, 2021. https://searchstorage.techtarget.com/definition/solid-state-storage#:~:text=Solid%2Dstate%20storage%20(SSS)
"What Hard Drive Do I Have Windows 10? Find Out in 5 Ways [MiniTool News] "https://www.minitool.com/news/what-hard-drive-do-i-have.html on 1/12/2021

Writer: Mary Ann R. Franco

Validator: Gregorio S. Quineri