








AACS1473

INTRODUCTION TO INFORMATION TECHNOLOGY

Assignment Submission Form

Faculty	Faculty of Computer Science
Programme	Diploma in Computer Science
Tutorial Group	3
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Plagiarism Statement Form

We confirm that the submitted work are all our own work and are in our own words.

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Section A

Laptop 1



Brand	Apple
Model	13-inch Macbook Air [M2 chip]
Price	RM 5199
Date released	6th June 2022

Description

The 13-inch Macbook Air with M2 chip boasts a powerful 16-core Neural Engine, an advanced component that enhances its capabilities for various tasks, especially those involving artificial intelligence and machine learning. Its 13.6-inch Liquid Retina display incorporates True Tone³ technology. Equipped with a 1080p FaceTime HD camera, the device offers high-quality video communication. The inclusion of the MagSafe 3 charging port simplifies the charging process. Users also benefit from the convenience of two Thunderbolt / USB 4 ports for versatile connectivity. The Force Touch trackpad enhances navigation and interaction. The laptop runs on Mac OS.

Laptop 2



Brand	HP
Model	OMEN 16-Xf0029AX
Price	RM7499
Date released	21st May 2021

Description

The laptop boasts a 16.1-inch display, full HD resolution of 1920 x 1080 pixels and features an anti-glare IPS panel. This laptop uses AMD Ryzen 9 5900HX processor , equipped with a dedicated NVIDIA GeForce RTX 3060 graphics card with 6GB of VRAM and 16GB of DDR4 RAM. The laptop includes three USB-A 3.2 Gen 1 ports, a Thunderbolt 4 port and HDMI 2.1 port. The laptop runs on Windows 11 Home OS.

Laptop 3



Brand	HP
Model	ProBook 450 G10 Notebook
Price	RM4099
Date released	4th July 2023

Description

The ProBook 450 G10 features a 15.6-inch diagonal Full HD (1920 x 1080) IPS panel with an anti-glare coating display. This laptop uses Intel Core i5-1335U processor which is a dual-core processor with a normal clock speed of 1.8Ghz. The ProBook 450 G10 comes equipped with 8 GB of DDR4-3200 MHz RAM, two SODIMM slots allowing for memory expansion and 512 GB PCIe NVMe SSD (Solid-State Drive). The laptop runs on Windows 11 Pro OS.

Laptop 4



Brand	Lenovo
Model	Lenovo Legion Slim 5 16" Gen 8 (AMD)
Price	RM4689
Date released	2nd June 2023

Description

This laptop comes with a 16"-inch Full HD (1920 x 1200), 144Hz refresh rate, anti-glare coated display. It uses AMD Ryzen 5 7640HS processor. This processor offers a base clock speed of 4.30 GHz. The Lenovo Legion Slim 5 is equipped with an NVIDIA GeForce RTX 3050 graphics card with 6GB of GDDR6 VRAM. The laptop comes with 8 GB of SO-DIMM DDR5 RAM running at an impressive 5600MHz whilst the storage is handled by a 512 GB SSD (Solid-State Drive) in the M.2 2280 PCIe Gen4. The laptop runs on Windows 11 Home OS.

Laptop 5



Brand	MSI
Model	MSI Bravo 15 C7V
Price	RM4599
Date released	8th September 2023

Description

MSI Bravo 15 C7V is well-equipped with a 15.6" FHD (1920*1080), 144Hz refresh rate display. The laptop also features an NVIDIA GeForce RTX 4050 Laptop GPU with 6GB of GDDR6 VRAM. At the same time, the laptop is equipped with 8GB of DDR5 RAM running at 4800MHz and 2 extra SODIMM slots. MSI Bravo 15 C7V storage is handled by a 512GB NVMe PCIe SSD. The laptop consists of the newest type-C port, type-A port and a HDMI port. The Operating system of the PC is Windows 11 Home.

<u>Comparison (Laptops)</u>					
Brand	Apple	HP	HP	Lenovo	MSI
Model	13-inch Macbook Air [M2 chip]	OMEN 16-Xf0029AX	ProBook 450 G10 Notebook	Lenovo Legion Slim 5 16" Gen 8 (AMD)	MSI Bravo 15 C7V
Date released	6th June 2022	21st May 2021	4th July 2023	2nd June 2023	8th September 2023
CPU	Apple Silicon M2	AMD Ryzen™ 7 7840HS	Intel Core i5-1335U	AMD Ryzen™ 5 7640HS Processor	AMD Ryzen 5 7535HS
GPU	M2 8-core GPU	NVIDIA® GeForce RTX™ 4060 Laptop GPU(8 GB)	Intel® Iris® Xe graphics	NVIDIA GeForce® RTX™ 3050 (6GB) GDDR6	NVIDIA® GeForce RTX™ 4050 Laptop GPU (6GB) GDDR6
RAM	8GB	16 GB DDR5 (5600 MHz)	8 GB DDR4 (3200 MHz)	8 GB DDR5 (5600MHz)	8GB DDR5 (4800MHz)
SSD	256GB SSD	1TB PCIe® NVMe™ TLC M.2 SSD	512 GB PCIe® NVMe™ SSD	512 GB SSD M.2 2280 PCIe	512GB NVMe PCIe SSD
Display	13.6"LCD (2560 x 1663) 60Hz	16.1", QHD (2560 x 1440) 240Hz	15.6", FHD (1920 x 1080) 60Hz	16" WUXGA (1920 x 1200), 144Hz	15.6" FHD (1920 x 1080), 144Hz
OS	macOS	Window 11 Home	Window 11 Pro	Windows 11 Home	Windows 11 Home
Price	RM 5199	RM7499	RM4099	RM4689	RM4599

Recommendation

Assuming Lee is a gaming content creator with a few thousand followers, the best option for Lee to consider is the MSI Bravo 15 C7V from the list.

The MSI Bravo 15 C7V from the list offers dedicated GPU capabilities, often featuring an NVIDIA® GeForce RTX™ 4050 Laptop GPU (6GB) GDDR6, which is essential for gaming performance. NVIDIA® GeForce RTX™ 4050 Laptop GPU (6GB) GDDR6 have excellent rendering capabilities when compared to the NVIDIA GeForce® RTX™ 3050 (6GB) GDDR6 graphics processing unit from Lenovo Legion Slim 5 16" Gen 8 (AMD) and Intel® Iris® Xe graphics graphic processing unit from ProBook 450 G10 Notebook. NVIDIA® GeForce RTX™ 4050 Laptop GPU (6GB) GDDR6 has excellent rendering capability that helps Lee to render images, edit video and play games at smooth speed and high resolution.

MSI Bravo 15 C7V equipped with AMD Ryzen 5 7535HS processor which is a hexa-core processor. Having a high number of multi-core allows Lee to have good multi-core performance. AMD Ryzen 5 7535HS processors have a higher number of cores when compared to Intel Core i5-1335U which is a quad-core processor. Even though Macbook Air offers an octa-core processor, the MacOS have a limited amount of games that run on them.

Lee requires a high monitor refresh rate to preserve high resolution of images when playing games. The MSI Bravo 15 C7V comes with a 15.6"-inch FHD (Full High Definition) display with a 144Hz refresh rate which can cater to Lee's needs. When compared to Macbook Air who provides a 13.6" LCD display with 60Hz refresh rate, we might get slightly less consistent backlighting or contrast on the LCD screens and the Macbook Air display also offers lower refresh rate which might disrupt Lee's gaming experience. The OMEN 16-Xf0029AX provides a higher refresh rate QHD display which contains much more pixels and higher fps (frame per seconds) than MSI Bravo 15 C7V's display but the OMEN 16-Xf0029AX is on the pricier-end of gaming laptops.

While it may not have all the high-end features of pricier gaming laptops, the MSI Bravo should still provide an enjoyable gaming experience. The MSI Bravo cost approximately RM4599 whilst the Lenovo Legion Slim 5, OMEN 16-Xf0029AX and Macbook Air all cost more than MSI Bravo. Additionally, it offers decent upgrade potential, allowing Lee to improve performance in the future with additional RAM or storage. All in all, the MSI Bravo 15 C7V is a solid choice for Lee to consider.

Utility Software

Utility software I	
Software	CCleaner
Company	Avast
Price	Free
Features	<ul style="list-style-type: none">● Junk File Cleanup - Clean up unnecessary files and junk data● Registry Cleaner - Fix issues in the Windows Registry● Startup Management - Manage startup programs, helping to optimize boot times
Reason	<ul style="list-style-type: none">● By cleaning up unnecessary files and junk data from Lee's laptop, it can free up storage space and potentially improve Lee's gaming performance.● Windows Registry manages and operates the computer, by fixing issues within the Windows Registry, it can help to keep the operating system stable, further increasing Lee's gaming stability.● Management of startup programs helps to optimize boot times and overall system performance, which can be beneficial for Lee's gaming performance.

Utility software II	
Software	TotalAV
Company	Protected.net company
Price	Free
Features	<ul style="list-style-type: none"> ● Real-time Protection - Prevent the user's computer from being attacked by virus through real time scanning of the files and software inside the computer ● Block Tracking Cookies - Protect user's personal information. Lee wil have a better grasp of the cookie accepted when visiting various websites. ● Data Breach Monitoring - Manages consumption of system resources. Increase overall efficiency and smooth workflow.
Reason	<ul style="list-style-type: none"> ● As a gaming content creator, it is inevitable for Lee not to access the Internet. As protection from harms which could damage Lee's computer, he can use TotalAV as it uses real time scanning to scan all the files and software inside his computer so that his computer would not be attacked by virus. ● Softwares which helps in blocking tracking cookies is one of the most important tools for content creators like Lee. Someone as popular as Lee who is most likely to be targeted by a larger audience can protect his personal information well by using TotalAV antivirus. ● TotalAV is designed to run efficiently in the background, ensuring that it doesn't consume excessive system resources, allowing Lee's laptop to perform at its best during gaming.

Application Software

Application software I	
Software	Adobe Premiere Pro
Company	Adobe Inc.
Price	RM56.52/month (Student Price)
Features	<ul style="list-style-type: none">● Video Editing - Offers advanced editing tools, effects, and support for various video formats● Integration with Other Adobe Software - Allows efficient workflow● GPU Acceleration - Uses GPU to accelerate video rendering and editing tasks
Reason	<ul style="list-style-type: none">● Adobe Premiere Pro is a powerful video editing software used by professionals. By having advanced editing tools, effects, and support for various video formats, gaming videos created by Lee will have a higher base quality than your average content creators, and Lee will also have the opportunity to create outstanding videos given his access to the advanced editing tools.● If Lee uses other Adobe Creative Cloud applications like Photoshop or After Effects, Adobe Premiere Pro integrates with them, allowing for a more efficient workflow, therefore providing higher efficiency for Lee's video creation.● Adobe Premiere Pro takes advantage of the laptop's dedicated GPU, like the one in the MSI Bravo 15 C7V, to accelerate video rendering and editing tasks, significantly improving efficiency and rendering times, therefore could help Lee to manage his time better.

Application software II	
Software	Steam
Company	Valve Corporation
Price	Free
Features	<ul style="list-style-type: none"> ● Extensive Game Library - Steam offers a vast library of games, including popular titles and indie gems ● Community Features - Steam provides features for multiplayer gaming, connecting with friends, and joining gaming communities ● Cloud Saves - Steam allows users to access their game progress and saves from any compatible device
Reason	<ul style="list-style-type: none"> ● As a gaming content creator, Lee has to try out new games often to keep his channel fresh, and Steam helps by giving him access to a wide range of gaming options. Thus, helps Lee to grow his channel spontaneously. ● Lee could further boost his audience count by engaging with audiences, and Steam's community features are able to aid Lee on that aspect. Enabling Lee to be able to hold collaborations with other famous celebrities really helps to put Lee's name out there. ● In case Lee encounters issues with their local game saves, such as corruption or accidental overwrites, they can rely on Steam's cloud save to restore their progress to a previous state. This backup and restoration feature helps maintain the continuity of their gaming content.

Section B

Question 1

Type of Network	Wired Network	Wireless Network
Reliability	Wires, like Ethernet cables, are faster and more dependable for sending data. This is good for gaming because it means less delay.	Wireless connections can be slower and less reliable, especially if you have a lot of devices connected or if there are walls or objects between your device and the router.
Security	Wires are harder to tap into, so they are generally safer from unauthorized access.	Wireless networks can be secured, but they can also be easier for someone to hack into if not set up securely.
Ease / Mobility	Setting up wired connections involves running cables, which can be a bit of work. But once set up, they stay put.	Wireless networks are easier to set up, and you can move your devices around more freely since they aren't tied to cables.
Cost	Setting up wired connections might cost more initially because you need to buy cables and maybe do some drilling to hide them.	Setting up a wireless network is usually cheaper upfront because you don't need to buy cables or do much drilling.
Interference	Wired connections are less affected by interference from other devices and walls, making them work better in tricky places.	Wireless networks can be influenced by other Wi-Fi networks, appliances like microwaves, and physical barriers. So, the quality of your wireless signal might vary depending on where you are in your home.

Suggestion for Lee:

Considering Lee's situation, it's essential for Lee to have a reliable network. Therefore, the most suitable network for him would be a wired network. This choice is justified by:

Firstly, speed and reliability are essential for online gaming. A wired connection, like Ethernet, offers faster and more consistent data transfer speeds, ensuring a smoother gaming experience. This low latency connection will help you respond quicker in games, giving you a competitive edge and enhancing the overall quality of your content.

In terms of security, wired connections are generally more secure, safeguarding sensitive gaming and content creation data from unauthorized access. This added layer of protection ensures your valuable work and personal information remain safe and secure.

While setting up a wired network may involve some effort and costs, it's a worthwhile investment for your primary gaming setup. You can still maintain a wireless network for other devices in your home for added convenience and mobility. This setup will enable you to move freely around your house while streaming, staying connected with your audience.

Wired connections are also less likely to be disrupted from interference and environmental factors, ensuring a stable and consistent connection, regardless of obstacles or neighboring devices. This reliability guarantees a smoother gaming experience and uninterrupted content creation sessions.

In conclusion, we recommend making a wired network your primary choice for your gaming setup to guarantee the best gaming experience and content creation capabilities. This low-latency, secure, and reliable connection will help you excel in your gaming and ensures your work remains protected. You can complement this with a wireless network for other devices to maintain flexibility and mobility throughout your home, allowing you to stay connected with your audience. This setup will strike a balance between performance and convenience, meeting your specific needs as a content creator and gamer.

Question 2

Two essential devices that are required for Lee's wired network setup are Modem and Router.

Modem



Company	NETGEAR
Model	NETGEAR CM500
Price	RM 240
Feature	<ul style="list-style-type: none">- High-Speed Performance: NETGEAR CM500 is a cable modem designed so it can handle high speed internet. It can support high download speeds, make it suitable for streaming, online gaming and others.- Easy Installation: NETGEAR CM500 comes with clear and user instruction. The modem also has a plug-and-play function. Having plug-and-play function Lee will tremendously increase productivity and boost efficiency.- Reliable Performance: The modem can provide a consistent and uninterrupted internet connection, reducing the frustration of lag. Lee will be able to reduces the chances of disruption of internet connection when gaming or streaming.

Router



Company	Cisco
Model	Cisco RV340
Price	RM 950
Feature	<ul style="list-style-type: none">- Powerful Dual-Wan Gigabit Router: Cisco RV340 can handle two separate internet connections as it is a dual-wan router. Having 2 separate internet connections enables Lee to switch back and forth in-case there is a network error with any of the internet connections.- High Security: Cisco RV340 has some security features such as built-in firewall, VPN support. It can protect the network from external threats, reassuring Lee's safety.- Client Identifications: Cisco RV340 can identify different types of connected devices. Being able to trace the connected device allows Lee to have more controls and safety measures towards the internet connection.

These two devices, the Cisco RV340 router and NETGEAR CM500 modem, will form the backbone of Lee's wired network setup. The router can manage two distinct internet connections and also provide top-tier security, while the modem can provide Lee high speed internet performance so it is suitable for Lee for gaming and it also provides a consistent and reliable internet connection.

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Appendices



The logo of "CCleaner" (Utility Software I)



The logo of "Adobe Premiere Pro" (Application Software I)



The logo of "Steam" (Application Software II)



The logo of TotalAV antivirus (Utility Software II)