Lab 1
Prepare hardware and software specification for basic computer system

Assignment Scenario

Baneed works in the Media Department. His work involves in producing videos and images e.g. posters, web graphics and animations film making company. He wants you to produce a system design specification for his new multimedia computer system which he will use to run Macromedia Suite, Adobe Photoshop and Microsoft Office. He would like high tech graphics and sound. The computer system must also be able to store large amounts of images and run quickly as he requires more than one program at a time and often needs to switch between them. In a report explain the choice of components briefly relating them back to the user requirements. It is important that final specification includes all the necessary hardware and software components for the system to work.

Consider:

Internal system unit components: Processors, Fan and heat sink, Motherboard, Hard drive, Power supply unit (PSU)

Internal memory : RAM
Specialized cards: Graphic cards, Sound Card, Network Card
Peripherals: Output devices, Monitor, Printer
Input devices : Mouse, Keyboard, Digital Camera, Scanner
Backing storage: optical media, portable drives

Software Components:

Network Components: Ethernet Connectivity, Wireless Connectivity, Network Storage, Network Security, Backup Solution

Sample

System Specification:

Hardware Specification:

S.N	Product	Company	Size	Type	Cost(RS)
1.	Processor	Intel	---	Intel Core i5-6	17000
2.	Motherboard	Asus	---	Z270|Gaming|M6|AC	22000
4.	Hard Drive	Seagate	1 TB	Barracuda	15000

5.	Power Supply Unit	EVGA-BQ	---	850 Watt	8000
6.	RAM	Intel	8GB	DDR4 SDRAM	8000
7.	Graphics Card	NVIDIA	2 GB	PCI-Express	7000
8.	Sound Card	Asus	---	---	1500
9.	Network Card	Intel	---	---	1500
10.	Heat Sink And Fan	ZALMAN CNPS9500A	---	---	6000
10.	Monitor	HP	21 inch	LED	18000
11.	Printer	Canon pixima	---	Wireless	22000
12.	Mouse	Microtech	---	Optical	1200
13.	Keyboard	Logitech	---	-----	1500
14.	Digital Camera	Nikon	---	Digital	30000
15.	Scanner	Brothers	---	----	6000
16.	Optical Media	Millennial Disc	25 GB	----	7000
17.	Portable Drives	HP	1 TB	----	9000

Software Specification:

S.N	Product	Brand Name	Version
1.	Adobe Photoshop	Adobe	CC
2.	Antivirus	Panda security	18.0
3	VLC Media Player	Video LAN	2.2.5.1
4.	Microsoft Office	Microsoft	2010
5.	Windows 7	Microsoft (64-bit)	2012

Hardware Justification:

Processor: Intel i5:
: The advantage of i5 is pretty clear- better efficiency, high speed and better overclocking. It comes with Intel turbo boost 2.0 technology which gives extra burst of performance for those who require a bit more frequency. It also consists Hyper-Threading-Technology through which multiple tasks can be done at the same time. Although Sisan is related to web and media department it suits his demand to the best because the Intel i5 processor has some stunning features such as Ultra HD and 4K display so he can work and enjoy amazing and vibrant multimedia experiences. Fulfillment of his needs is not only necessary; security is also needed so Intel SGX helps to protect system and data.

Heat Sink and fan
Zalman's CNPS9500A is a popular because it is quite, reliable and quite. Due to its 92 mm large fan, three heat pipes and super quite silent mode, fan is almost in silent and doesn't make noise. It is quite cheap, effective and easily affordable on the market as well. As per Sisan his work is to work on computers continuously for hours so over heating may be a major problem. So Zalman's CNPS9500A sink fan is the best choice for Sisan.

Motherboard
 Here, I opted Z270 Gaming M6 AC, which is compatible with Intel and boasts four DDR4 memory slots with a maximum capacity of 64GB. It has all the features there is available in a high-end gaming motherboard. These motherboards come with more PCI expansion slots, perfectly placed so you can install multiple graphics cards simultaneously with ease. Along with it, it makes sure to include enough fan headers with full control to allow cooling the system to the max. Since the motherboard is a high-end gaming one, it meets the user requirement of high-tech graphics.

Hard Drive
 Sisan needs to work with thousands of images and videos so he needs to store all of them safely. So I proposed him a Seagate's Barracuda because it meets all his needs at present and on future too. A 3.5 inched barracuda hard drive is best for desktop as well as portable computers. It provides amazing storage for important and critical work files, as well as those who personally treasure the most. This drive is an excellent solution for Sisan because it also has 2 years warranty with amazing versatility, incredible speed, trusted dependability and multi-tier caching.

Power Supply Unit
I acquired EVGA super nova for Sisan it has gold efficiency, is fully modular, 70.8 A rail rating on +12v, fan size of 140 mm and are 100% Japanese capacitors which is a better option for Sisan to work efficiently . Nevertheless it comes with 10 years of warranty as well so that Sisan can be relieved for the damage. It also has a facility of Free Power On and also is a self-tester power supply.

RAM
I opted to insert DDR4 SDRAM because it is a SDRAM with bandwidth interface. With data rates reaching 2400 Mb/s, DDR4 increases performance up to 50% over DDR3. It includes higher module density and lower voltage requirement and has higher data rate transfer speed. Sisan also needs such speed for his work because he frequently needs to transfer the files, and transferring faster will be less time consuming so that he can finish his more workloads.

Graphic cards, Network cards and Sound cards:

Sisan is working in Web and multimedia field so sound card, network card and graphic card is the must. So I have seriously opted these things for him. I have chosen NVIDIA 2GB Graphic Cards for best graphics and enhanced control. This graphic card is specially designed graphic card for best quality photo, video, animation, games, 3D views displayed on computer screen. And the INTEL 10000MB Network Cards to access high performance network. I suggested Sisan ENSONIQ 5.1 GB Sound Cards for high quality sound/audio of the computer So it will help him to work with best sound experience.

Monitor:

Sisan needs a better performing monitor which meets his needs in future too. So, I have suggested him 21 inched HP LED monitor. It has a brilliant visual performance with 1600 x 900 resolutions. It also has 10,000,000:1 dynamic contrast ratio and a 5ms on/off response time processor. It also has an integrated speakers and VGA/DVIU-D inputs in order to save space. This monitor has remarkable brightness, contrast and awesome clarity by which Sisan can do his work sophistically under his affordability.

Scanner and Printer:

Sisan needs to print and scan frequently so, I opted Canon PIXMA MG7720 wireless printer. It delivers super quality print and has easy to use 3.5" touch screen. It has features such as air print, goggle cloud print, NFC, Mopriya and many more. Due to its six individual ink tanks it produces stunning photos and documents. The Brothers' scanner is the best choice for Sisan and his work because Brothers scanner is high-speed, reliable, high quality and easy to use. It has some features like scan through e-mail server, FTP network and web applications. Additionally it has key feature that it consumes less time to scan which is beneficial for Sisan so as to do his work faster.

Mouse

I have recommended Microtech's optical mouse It is specifically designed mouse which is fit for both left and right handed users. It contains shortcut buttons attached so that the user can perform faster. It has an advanced optical sensor that tracks up to 1000 dots per inch which results to smooth cursor control. Due to this stunning facility Sisan will feel better during his work loads and can easily operate Photoshop, Dreamweaver etc.

Keyboard:

Keyboard is the component where the users are stuck in. I have suggested Logitech's multi-functioned keyboard. The keyboard has many fantastic features such as backlit, multimedia buttons, and function buttons. The keyboard has special feature that the keys are so soft to press and addictive sound is produced so that the user enjoys typing.

Digital Camera:

Researching alot I have recommended Sisan Nikon Coolpix S4000 camera. It has 12 MP and 4x wide angle zoom nikkor glass lens. The camera records stunning HD (720P) quality movies at 30 fps for easy playback in camera, TV and computers. It also has special features such as scene auto select, auto focus up to 12 faces, red eye fix, smile warning, smile timer and best shot selector. These features containing in this camera it a better choice for Sisan.

Optical Media:

Sisan needs to be frequently connected to the storage media because he needs to save his multimedia file as a backup somewhere. Here I have suggested him millennial disc which has a extreme inorganic matter coated on it so as to prevent data loss. Optical media used before were all dye coated which would fade away after a certain time. But the millennial disc has a unique write property to prevent data loss.

Portable Drives:

The HP portable hard drive combines next generation speeds of USB 3.0 and 1 TB storage space all in a pocket sized package. It can drag and drop 1.22 GB in less than 18.46 seconds which is a very good thing for Sisan. The device also has an internal shock sensor and ramp loading technology which protects from accidents and external device injury and data loss. As Sisan needs to work with high quality images and huge spaced videos he needs a bit more space to store his data so HP's portable device is the best choice for him in order to store huge amount of file with low chance of data loss.

Software Justifications:

Adobe Photoshop:

Adobe Photoshop is the most popular imaging and designing creative application. Due to its easy to use tools it helps to create images, designs, banners, website and many more. It provides slide facility through which we can combine multiple images, remove component image, and retouch with a click of professional photography tools. Sisan needs to edit his images and create his own designs so I think adobe Photoshop CC is the better option for editing. It also contains templates for designing and editing which will be less time consuming. Due to these features Sisan can now spend more time on designing rather than searching.

 Panda Security

Panda security is a real time protection against spyware, phasing, rootkits and banker Trojans. This antivirus acts as behavioral protection against unknown viruses. As Sisan needs to be connected all time he may me victim of virus attack which may crash his whole system or may infect his files. So panda security's technologies provide an intelligent protection system based on the user community. This security software vaccinates USB flash drives against infections so that Sisan will be free from malwares on his portable devices too.

VLC Media player:

 VLC media player is renowned software in the field of multimedia. It is a light weight and very easy to use user friendly multimedia software. It is the perfect one for Sisan because it is portable, free and open source, cross-platform media player and streaming media server.

Microsoft Office:

Microsoft Office is the type of software that is intended for formatting and document designing type. It contains bundled of applications used in their own fields. Eg Word, Excel, Power point, Access, etc. Microsoft office is used to design a presentation slide, manage account and many more. Since it official formatting application it is very fruitful for Sisan to work with it.

Windows 10

Window 10 is the newest and most extended version of the windows. The creators have worked a lot on this update to introduce us the new features. The update isn't a drastic overhaul but it improves the system's media and gaming capabilities. Along with it, paint 3D; Gaming, night light, Crotona etc. are the new in Creators update. The graphics quality is awful and they are even making it better on the upcoming updates. Sisan will love using windows 10 because it has windows defender that detects virus and removes with user's permission and gives a great pleasure using it.

Network Specification: