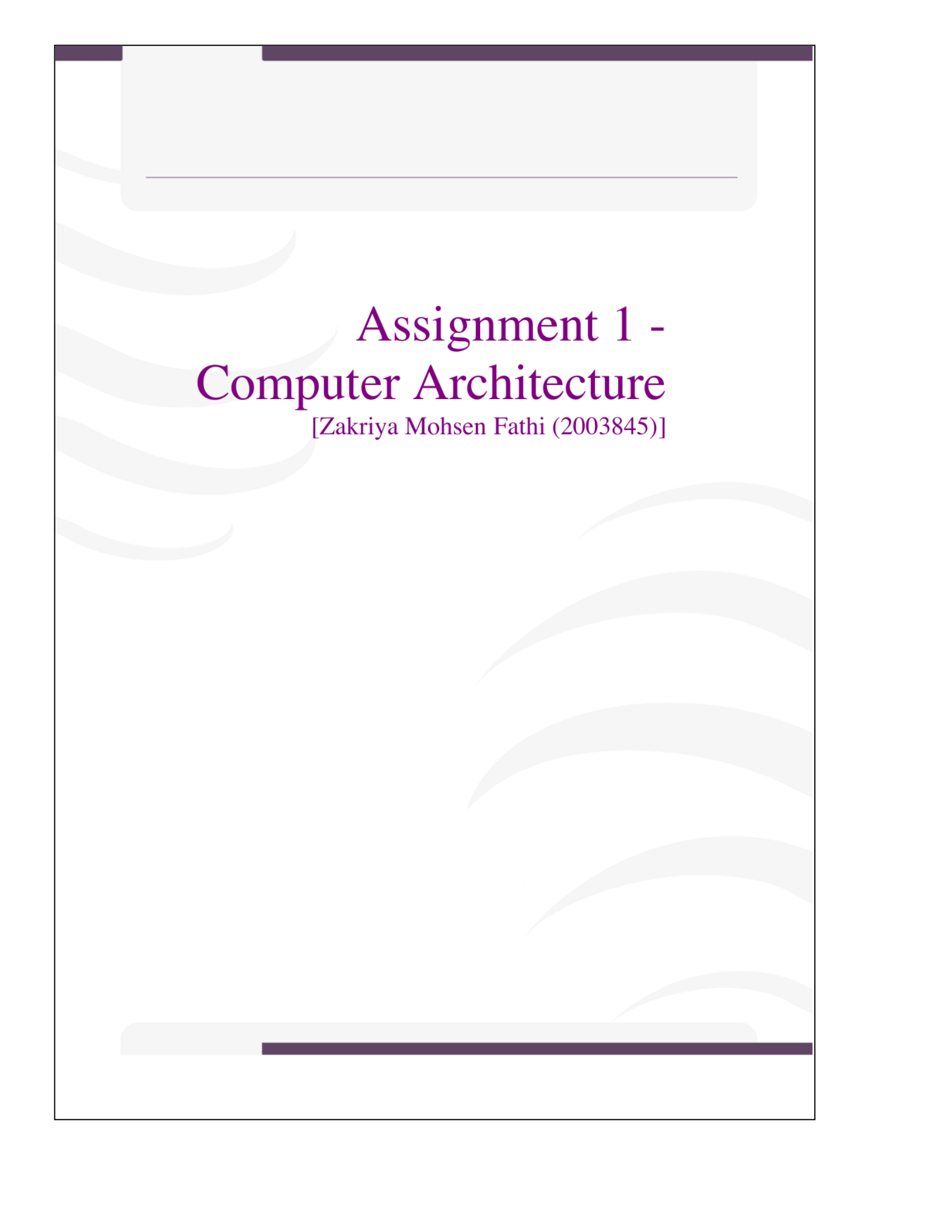


Assignment 1 - Gareth

by Zakriya Mohsen Fathi

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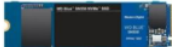
Assignment 1 - Computer Architecture

[Zakriya Mohsen Fathi (2003845)]

Introduction

I have been asked to produce a shopping list with a suitable table for building my own PC and talking about how good it is.

The shopping list requirement spec:

Component	Price	Image
AMD Ryzen 5 3600 Processor	£190.00	
ASUS ROG STRIX B450-F GAMING AM4 Motherboard	£95.98	
Corsair Vengeance RGB PRO 16GB RAM	£97.90	
WD Blue SN550 1TB High-Performance M.2 PCIe NVMe SSD	£85.00	
RS PRO VGA to SVGA cable, Male to Male, 10m for industry	£27.42	
AMD Radeon RX 5700 graphics card	£559.99	
Mag Vampiric V100R Argb Mid Tower Gaming Computer Case	£47.99	
CORSAIR CV550 ATX PSU - 550 W	£44.99	

SAMSUNG S24F354FHU Full HD 1080P 24" LED Monitor - HDMI - VGA	£129.99	
Microsoft 600 Wired Keyboard USB Media Centre Black	£17.86	
Kensington Black/ Grey Mouse-In-A-Box wired	£5.71	

Total = £1,302.83

AMD Ryzen 5 3600 Processor

The reason that I went for AMD Ryzen 5 3600 Processor rather than the Intel i5-9600K CPU is because while they have 6 cores, and one major difference is that the AMD 3600 has SMT, so it has got threads while the Intel's 9600K has no hyper threading, so just 6 threads. Based on the difference users expecting the 3600 to come out ahead in multicore performance due to the higher thread count. Otherwise, the Intel CPU has the higher base and boost clock speeds, however these are not directly comparable due to architecture differences anyway. Both CPUs are unlocked and support overclocking, while the 3600 has a fair amount more cache and also comes with a cooler in the box. I am comparing these two CPUs because they have both got 6 cores and while the price points are roughly the same, the Intel chip costs more. To be fair the 3600 seems to be closer in price to the 9600K at the moment, but this that I have got. Testing both CPUs at stock, and with the 9600K overclocked to 5.1GHz and 3600 overclocked to 402GHz, so users can see how overclocking helps improving the performance with both.

ASUS ROG STRIX B450-F GAMING AM4 Motherboard

The motherboard in a computer system is very important because users will need adequate processor in mind. the best motherboards can often support certain different RAM which is enough for users to game on. The expansion cards on a motherboard needs to have at least 1xPCI and one PCI-E slots which needs to be supported at least. For example, when the user has a different motherboard that doesn't match up the specification the motherboard will be destroyed. The specification parts that I have chosen for my motherboard is Corsair Vengeance RGB PRO 16GB RAM, WD Blue SN550 1TB High-Performance M.2 PCIe NVME SSD, RS PRO VGA to SVGA cable, Male to Male, 10m for industry, AMD Radeon RX 5700 graphics card, and a suitable CORSAIR CV550 ATX PSU - 550 W. now I will be talking about each component why is it better comparing the original specification.

Corsair Vengeance RGB PRO 16GB RAM

I have chosen Corsair Vengeance RGB PRO 16GB RAM rather than Vengeance LPX because this design and provides the best high quality signal and displays the best performance on the latest motherboards. The Corsair Vengeance RAM is better because the main reason is that it is incredibly reliable and efficient, and it is not only faster but it is also budget friendly. While, the Vengeance LPX is cheap and has got the lowest amount of aluminium heatsink it is good for smaller factor builds for example when users have tighter case.

WD Blue SN550 1TB High-Performance M.2 Pcie NVME SSD

The WD Blue SN550 1TB High-Performance M.2 Pcie NVME SSD better because this is known as the heart of the computer system, this specification is a fast ultra response performance. The WD Blue SN550 1TB High Performance M.2 Pcie NVME SSD can deliver and manage four times the speed of the best SATA SSDs. If the user is either working, casual gaming or processing large amounts of data this will take a benefit from having a strong and powerful internal drive at high speed to produce more. However, WD Blue SN550 1TB High Performance M.2 Pcie NVME SSD PCI has got 3.0 and four times the NVMe SSD which is the second generation and has got 96 layers of 3D TLC NAND manufacturing process. The 80mm solid state drive has three different storage volume sizes for example, 250GB, 500GB, and 1TB. The Western digital rates is 1TB variance of the hard drive. The throughput has 2400MBps sequential reads and the writes has only got 1950MBps. I believe from having the WD Blue SN550 1TB High Performance the more capacity that the user uses it have more maximum throughput such as things like the read and write throughput.

RS PRO VGA to SVGA cable, Male to Male, 10m for industry

The male to male cable or the RS PRO VGA to SVGA cable, Male to Male, 10m has a good high density. This cable has got 15 pins connector either end to connect it up with the computer or PC and the other to the monitor too. The ten metre VGA to VGA monitor can connect two different devices things like TV and also projectors too. The benefits and features of having or purchasing the RS PRO VGA to SVGA cable, Male to Male, 10m is that it has got a voltage rating of 200 V and has internal wire size of 0.12mm.

AMD Radeon RX 5700 graphics card

The reason I have chosen the AMD Radeon RX 5700 graphics card instead of the Nvidia GeForce RTX 2060 Super is that the AMD Radeon RX 5700 has 31% faster than the Nvidia GeForce RTX 2060 Super. The recent Nvidia driver, has a boost performance approximately between 20-25%. however, bench marking is important when it comes to testing out the graphics card. For example, testing out Borderlands 3 the AMD Radeon RX 5700 graphics card offers and delivers the highest frame rates at both tested resolutions. When having AMD Radeon RX 5700 graphics card installed it is faster when the 1080p is 6% whereas, 1440p is 10% faster too. However, the Nvidia GeForce RTX 2060 Super sometimes enjoys the performance and takes the advantage. When testing out Apex Legends graphics the resolution is the same when users comparing the 5700 and the 2060 Super. The Nvidia GeForce RTX 2060 Super graphics card was approximately 9% faster at 1080p and 7% faster at 1440p.

Msi Mag Vampiric V100R Argb Mid Tower Gaming Computer Case

Users will need a suitable computer case where they can close up all components. Computer case will need to protect all the user's components and they are so important influencing the air flow in the computer or PC system and also it will keep it cool. The sizes on the computer or PC case is beneficial and is provided with different sizes cases for example users will have a large or heavier case to stock up with their components. The suitable computer or PC case that I have chosen is called the Msi Msi Mag Vampiric V100R Argb Mid Tower Gaming Computer Case because this will secure the components in my computer system safely, if I have chosen a smaller case this will be bad because all the components in my machine will fall and it will corrupt my machine too. However, the feature that the Msi Mag Vampiric V100R Argb Mid Tower Gaming Computer Case has got is input and output ports has and contains one USB 3.2 Gen 1 Type A two USB 2.0 / HD Audio /Mic, VGA card supports the Maximum 300mm / 11.81-inch, CPU cooler support has got a maximum 160mm /6.3 inch and many more features. The front of the Msi Mag Vampiric V100R Argb Mid Tower Gaming Computer Case is justifiable because allows user some kind of the airflow because if the user buys a case without any kind of fans it is not gonna work because users will need some fans.

CORSAIR CV550 ATX PSU - 550 W

I have chosen the CORSAIR CV550 ATX PSU - 550 W as my power supply because I think it is good and reliable this offers excellence build quality and has got a good efficiency too. The CORSAIR CV550 ATX PSU - 550 W is one of many pricey attractive power supply units, because this offers 80 bronze efficiency and all black cables too. When testing out the CORSAIR CV550 ATX PSU with a high manual it will overclock i9-9900k of the CPU to 5.2GHz this is because the maximum speed is 5.6GHz. All different cores and memory are up to 4400Mhz. However, users can run different benchmark test and

to check that the power supply unit can keep the system stable and reliable during the different tests so that it will make the system become very stable and it can run smoothly. Besides the black cables and wires the CORSAIR CV550 ATX power supply unit it looks identical to the older version such as the Corsair VS550 power supply. But the active power factor correction or it is known as the PFC the circuit section when it is upgraded it will achieve the 80 plus bronze efficiency mark.

SAMSUNG S24F354FHU Full HD 1080P 24" LED Monitor - HDMI - VGA

Having a monitor in a computer system is important because this will display images or videos on screen. The colours that make up each individual pixel in the user monitor are created with various compositions of the RGB colour scheme. A certain amount of red, green, and blue with different amounts of each can create any colour with any shade of any saturation darkness or lightness. Whenever the user sees the term RGB this is what it is referring to colours based of combinations of red, green and blue. The way how pixel works on a screen are actually quite different ways one is called the LCD or liquid crystal display monitors. At the back of every monitors is a white fluorescent light covered by a few thin layers of a unique substance known as liquid crystalline, on each side of this layer of liquid crystalline is a layer of polarizing filament one negative charged and the other positive charged. Now because the white light is the presence of all different colours the layers in front white light filter out the colours needed for each pixel. Each pixel on the filter screens has its frequency charged by electrical signals coming from top and sides causing it to let through a different colour at a different time. The second common type of monitor these days is the LED monitor or light emitting diode, this works similarly to the LCD display but instead of a single white fluorescent light at the back it has a layer of LED pixels, inside each pixel are three small LED lights one dedicated to each colour of the RGB spectrum. The final colour of the pixel is determined through a combination of the three, while it may seem to be a problem that the lights inside each pixel might not be equally spaced depending on which colours are adjacent to others. When user zoom out and looking at thousands of pixels on the screen the user the eyes naturally blur.

Now I will be talking about the numbers, each red, green, and blue value has 255 different shades it can be on a scale of black. There are millions of different ways to combine each of these three numbers and as a result millions of possible colours that the user can represent, but while it is represented the computer is not using three values of 255, to do this instead it is using one single number that it reads in a very specific way. To figure out how a computer turns a number into a colour user will need to look briefly at what hexadecimal is.

Hexadecimal works by having ten values for each digit as in decimal or two as in binary. It has sixteen symbols for each digit, this means that each different digit to the left user will add an increasing power of sixteen rather than one or ten. Each pixel has these three colours, each represented by a number between 0 and 255 and as luck would have it two digits of hexadecimal can also any number between 0 and 255. so, each pixel on the user screen has six digits of hexadecimal dedicated to it with six digits of hexadecimal. Users can represent any number from 0 to 16,777,215 each individual value of this number is interpreted by the users monitor as a different colour, so each pixel reads that hexadecimal number and can become any number between those.

Now, going back to RGB every two digits of this six digit hexadecimal number are dedicated to one of the RGB colours. The first two digits are used to determine the amount of blue, and the second two digits are used to determine the amount of green and the final two digits are used to determine the amount of red. For example, when user has increased the various values, the hexadecimal values scale is very nicely produced within the rows of two, while the equivalent decimal value sort of jumps all over the place. Base 10 is like having ten fingers. So why does the colour scheme method of determining colours use something as strange as base 16, this is because the computers have a issue or a problem working with base 10. everything computers do essentially comes down to numbers that use base 2. Now 16 is a power of two, while 10 is not so computers don't have much trouble converting from base to base 16.

Microsoft 600 Wired Keyboard USB Media Centre Black

For my keyboard I have chosen Microsoft 600 Wired Keyboard USB Media Centre Black it is easy to use and manage. Having a keyboard is also important this because it allows users to type or write an email, documents, or coding. Computer keyboards is beneficial because it is most effect input tool, it has many types of functions for example I will be going through few commands that the keyboards have got. when the user has entered it will carry out a typed instruction or a selection option from a

menu and marks the end of a line, the backspace function it will delete or it will remove one character to the left of the cursor each time that the user has pressed it. The delete function deletes one character to the right of the cursor each time the user has pressed it, the space bar is pressed is when the user will insert or putting a space between the words, numbers or symbols too, the keyboard command function ESC or it is known as the escape function this will cancel out a current selection, the tab when pressed it will shift the cursor to the right by a set amount, the shift function displays uppercase letters for the alphabetic keys or punctuation symbols that share the number of different keys on a keyboard. The cap locks function when pressed it will lock the letter keys to produce only upper versions of each other, the control function or the 'CTRL' provides a secondary meaning or function for almost every other key on the user keyboard, or selecting the text and press 'CTRL+C' on the keyboard to copy the selection on the clipboard then press 'CTRL+V' on the keyboard to paste the selection from the clipboard, Alt provides an alternate meaning or function for almost every other key on the user keyboard for example if the user presses the Alt+Tab key on the keyboard to move between different programs or windows and pressing Alt+F+S key on the keyboard it can save a word or text document on Windows. And finally, the arrow keys simply move the cursor up, down, left or right in the screen.

Kensington Black/ Grey Mouse-In-A-Box wired

Having a mouse is simply it used for simply click and drag icons on the user screen or moving the icons onto a different location it is fast and reliable too. The mouse I chosen is Kensington Black/ Grey Mouse-In-A-Box wired.

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Assignment 1 - Gareth

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

22/100

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PAGE 6

GRADING FORM: GJ_2019

ZAKRIYA MOHSEN FATHI

110

ENGAGEMENT WITH LITERATURE



Engagement with literature far too limited and needs to cover ALL areas.

30

KNOWLEDGE AND UNDERSTANDING



See comment below!

20

COGNITIVE AND INTELLECTUAL



There were three distinct section to the assignment - these haven't been clarified or distinguished in this report! READ THE BRIEF!

20

PRACTICAL APPLICATION



See comment above! What spec are you referring to? No real detail on the video editing side. No mention of the NAS unit.

10

TRANSFERABLE SKILLS



Would have benefited from a more formalised layout, such as breaking down the assignment into more detailed numbered sections that follow the 1. 1.1 1.2 2. Style One section of the text is obviously copied from somewhere else with a few minor word changes here and there. This is not acceptable. You need to re-write this FAR more extensively in your own words. If this happens again, I will report this to the unfair practices committee as an allegation of plagiarism! you have been warned!!

30