**Computer Science Summer Assignment**

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1)

One storage device the school IT Technician could use is a USB storage device. This is a small storage device, which are very useful for transporting files across different computers/devices. Also they can have fairly high amounts of storage. It would be mainly used for Word documents and small files, but can also carry some programs, but it hasn’t a very fast data transportation speed.

Another storage device is the cloud, or an online storage space. This is a piece of storage that you pay for to have ownership over. There is nothing physical about the cloud, as it is totally based online. This makes it very handy as you will never forget, or loose you storage device. It can to large amounts of storage for data, files etc. But isn’t the best for software as you must download it, which is slower than connecting your computer to a physical storage device. Also, if you have no Internet connection or a weak connection, this would prove not very useful, as you would not be able to access your files.

Finally, the technician could use a portable hard disk drive. This is a hard disk that you can plug into devices via a cable and transfer your data across, similarly with the USB stick. It can have large amounts of storage, and would be used to store near to anything you’d want.

2)

First of all the supermarket will take a number of items that they have received, and therefore the number of items in stock. Next, they could take an average of now many of these items are bought in a week, for a month. After a month they can, add up all the items sold then divide by four. This sum will give them the average sold. Now, with this average they can input it into their system, along with their number of items they’ve received. Then they can have a program that will have a value for the number they’ve sold. Every week the number they’ve sold will increase by the week’s average. So when the stock is running below 25%, they can either give an alert to buy more of this product, or to automatically buy more by its self.

3)

One method to protect the details of the gym customers is via encryption. This method will change all the letters and numbers a certain way, so that all the files and details would then be impossible to read. The only way to decrypt this would to have a key, which would turn all of it back into English and make it readable. But only certain people would have access to this key, so that no one randomly online can decrypt the files. Also to guess the key is now near impossible as there are near unlimited possibilities to what it could be.

Another method would to have many logins to access the files. This means that all the files, data and customer details would be locked away, unless someone has a correct username and password that would grant them access to the details. This would mean that even if someone got to the computers that they’d be basically unable to get on it as they would need the correct login.

A final method would to have anti-virus software and to have a firewall. This means that if someone were to get onto the network, any virus released would be prevented from doing any harm. Also a firewall would stop any one from being able to hack into the system and network to view the customer’s details.

Therefore all the data would be secure from any unauthorised access trying to see these files and data.

5)

One-way is that the layout of it all is very easy to use and navigate. As he is working with year sevens, and it is important that the correct resistor is used it is essential for it to be nicely laid out. Furthermore as the choices for the left and right are positioned on the left and right, it makes it that more easy to navigate and easy for young students to use. Now students can simply input the parts of the resistors with ease, making it much more efficient and safer in the classroom.

Another way is that the options are very simple. As the left and right inputs are drop down boxes, it means only certain choices can be made. Doing this makes errors near impossible. As now there will be no spelling errors/reading errors causing the code to trip up and crash. As well as that to calculate it is a button, once again removing the possibilities of a syntax error occurring. This means that the program will run fluidly and shouldn’t crash.

Finally, the “Resistance” and “Tolerance” outputs are very large and are very clear. This means that it is much easier to use for year seven students as it is very big and obvious, and they don’t have to try find the answer. As well as that it is much better than the terminal font and size, as with this UI its so large it can’t be misread causing a miss choice in which resistor that the students use.

6)

I would recommend using the magnetic hard drive, as for gaming I believe it’s a lot more useful.

First of all, a magnetic drive has a lot more storage than a solid-state drive, generally. In total a magnetic drive can go up to 4TB worth of data storage, however the most a solid-state drive can hold is around 512GB. Therefore, as games are getting more and more advanced, their file sizes are becoming bigger and bigger, so more storage is needed. So in terms of how many games an avid gamer would be able to store the magnetic disk drive is much better.

Secondly, solid-state drives can be around 10x more expensive than a magnetic drive. Therefore this gamer would be able to have more money to spend on much needed parts for a gaming computer, such as RAM and a good graphics card.

Thirdly, the solid-state drive is more reliable as a knock wouldn’t affect it but would affect a magnetic drive, yet this should not be a big factor. As this is going to be a desktop computer it shouldn’t be hit or moved around too much. However apart from any knocks the magnetic drive basically as reliable as a solid state drive.

However, the solid-state drive is much faster than a magnetic drive. Meaning file transfers and accessing anything from the hard drive would be much faster if you were to have a solid-state drive.

In conclusion, the magnetic drive can house a lot more data, which is vital; the magnetic drive is cheaper, allowing more money to be spent on important parts; the solid-state drive is slower, yet the speed of the drive isn’t the highest priority. So both drives have they’re advantages and disadvantages, but the magnetic drive has the most vital parts of a disk drive.

7)

go in centre

go free corner

if 2 noughts and a space between

go block three in a row

if 2xs and a space

go for three in a row

go bottom edge