User Side and Server Side Factors that influence website performance

**User Side Factors**

Download Speed

The download speed determines the performance of a website, so for example if a websites’ download speed is fast, this means that the website will respond well and load up quite fast, whereas if the download speed is low, then it will take quite some time for a website to load or carry out tasks (such as viewing an animated GIF file on the webpage). Also for example, if a website has slow download speed and visitors would like to access the website and it is taking long to load images, text or videos, the slow speed would put them off, making them want to close the website and visit another with better download speed.

PC Performance Factors

Depending on whether you have many applications and programs open, this could affect the performance of a computer as it means that all the open tasks are filling up space in the RAM. In order to get better performance, closing unnecessary applications will clear up some space in the RAM, leaving memory for the current web browser open with good performance to run with. Also, choosing a fast and reliable web browser means that web pages ran on it will be fast and has a speedy download rate, whereas choosing a slow browser would mean that loading up pages will take long, and the fact that slow web browsers can crash due to multiple tabs open, or because it can’t handle pop-ups that try to open.

**Server Side factors**

Web Server capacity

Web servers have a capacity for the amount of data that is able to be downloaded at a time. Bandwidth is the amount of traffic that is able to be managed by the web server. With bandwidth, if the webpage is big and contains a lot of files, only a few users are able to download at any time. For example, if a user is to download files from the webpage such as a large image or a sound file, the website’s highest amount of bandwidth is used, therefore by having a high amount of bandwidth allows more users to receive data from the website, and be able to download files from the website.

File types

Webpages can contain both images and texts, and with images that are high quality, or contain large file sizes, it is best to have them compressed in order to allow the website to have faster download time whilst loading up the compressed images on the page. Consequently, to having large file types added onto webpages, it should be decided that the file types are to be considered well, due to the fact that as they may be high quality, and large file sizes, they are to be suitable for the download speed so that when a visitor visits the page, it will load up on time without any delays.

Image files

Image files used on webpages are bitmap and vector files. The best image files recommended for webpages are GIF and PNG. GIF being that they are small files with a maximum palette of 256 colours, best used for animated images, and PNG being able to produce well images, whether transparent has been created as an improved image file type to the GIF file. Common bitmap images used are (as mentioned) GIF, PNG, JPEG, and BMP, and common vector files are PDF and SWF files. With bitmap files, when zoomed in they become pixelated, they usually have large file sizes and use a lot of pixels, whereas vector files are made mathematically, when resized the image does not pixelate, and do not take up as much memory as bitmap images do.

Sound files

Sound files use their own ways of sampling and compression, an MP3 file has lower file sizes due to the fact that it has a low sample rate, although it could lose some quality due to its compression rate, whereas with a WAV file, it has a high sample rate which means that the file would be large yet good also good quality. Having sound files on a webpage means that certain types of plug-ins would be needed, for example a good plug-in for music should be considered for a web page that is able to play various types of sound files, for example a plug-in should be able to both WAV Or MP3 files as they are the most common.

Video and animation files

On a website that contains videos and animations, by having these files they take up quite some space on the web server, making the website slow. This is because these files usually are large file sizes, and as they’re large files it would take some time to play when clicked on for playback. Therefore, by streaming videos onto the website rather than having downloaded videos, means that the streamed videos won’t be taking up web server space, would play well and would overall be more efficient. For example it would be more efficient to have streamed videos from YouTube or Vimeo, than having a downloaded video on a website that would use a lot of bandwidth and slow up the server.

Conversion between formats

This would be having one file being converted into another file format, for example a vector file format is able to be converted into a bitmap format by using various software like Adobe Photoshop or even Microsoft Paint, and this process is called rasterisation.

Security

Owning a website means that one has to be aware of risks that would need to be handled by having good security over the website.  
Hacking is when an intruder tries to access a computer system or data which doesn’t belong to them, in an attempt to either tamper, steal or destroy data causing major problems. They could try to access a computer system by unsecured open ports on web servers gaining all access to files and data on the computer system they’ve hacked into. So for example, hacking would be a major risk that most ecommerce websites would deal with as it means that the hacker would have access to all of their customers’ details, using them to steal money with their bank details and also using their details committing ID theft.

Another risk would be viruses. Viruses are programs that are malicious and are created to corrupt and steal data and in this case if a virus were on a webpage, not only would it affect the host of the webpage, but any user visiting the webpage. They would be at risk from the virus meaning that their computer system would have caught the virus (unless they have a good antivirus program) and it could start to damage their files and delete data.

As mentioned above, hacking can lead to the risk of identity theft. This is the stealing of another’s details such as their name, address, phone numbers, and even bank details. This can be a major problem for customers and for the website host, due to the fact that if there are many cases of ID theft because of the website, no one will trust the website and won’t be using it, and for the customer it would be a problem as someone could be stealing their money and pretending to be them. By having a secured SSL (secure sockets layer) which allows private information to be transmitted online and high security on the website, ID theft may be prevented.

Therefore it is important to have security on a website as it would benefit both the host and all the visitors visiting the site.