**D1 - Software for creating animation**

Originally, all animation was drawn by hand. Methods to make the animation process easier, faster and more efficient were developed, and eventually, computers became powerful enough to create animations. Today, there are many different tools and software packages available to animators.

**Adobe Flash**  
One of the best-known animation suites, Adobe Flash was originally developed in 1996 and is still widely used today.  
Early uses of Flash included making interactive content for the web – Flash is scriptable, and can capture a wide variety of inputs from the computer, which made it suitable for adding interactive elements to webpages.  
In the early 2000’s, games made with flash became very popular. Sites such as *NewGrounds* and *MiniClip* aggregate these games.  
Due to concerns over privacy and security, flash-based web interactivity declined sharply between 2006 and 2017, although flash games have remained popular.  
Flash has also remained popular for creating animations. In the early 2000’s it was used for making low-budget 2D animated TV series. Now, due to the reduced price and the rise of software piracy, many non-professional animators can use it to create games and animations. Many popular web series, such as *ASDFmovie* are made with flash.  
Generally, flash is not used for large-budget projects, movies or games.  
Flash has many tools to help with animating, such as shapes, colour fill, gradients, motion & shape tweens, morphing, media importing, onion skinning, cameras, objects & symbols, and many more.  
Flash can use both raster and vector graphics, in addition to video playback.  
Flash is best suited to 2D animation drawn with a graphics tablet.

**Autodesk Animator**Autodesk Animator has two versions – pro and studio. Released in 1989 for MS-DOS, it delivered ground-breaking new developments in computer animation. It allowed frame-by-frame animation, tweening, and had its own scripting language. It also overcame the 640k memory restriction of MS-DOS by using extended memory. It remained popular until the 1990’s when it became outdated, and Autodesk eventually dropped support for it. It has since been released as freeware and be used on MS-DOS emulators. A port for modern hardware is in progress.

**Scratch**  
Scratch is a visual programming language, used largely for teaching programming concepts and making games. Due to its heavy emphasis on graphical output (as opposed to manipulating data like many other languages), it is also well suited to animation. The Scratch language is very easy to use, and quite powerful. It makes displaying raster graphics very easy, with options for movement, scale, rotation and mirroring. As it is sprite based, it requires little artistic ability. Each sprite (object on the screen) can have multiple ‘costumes’ (i.e. another image to switch to), allowing them to change appearance.  
While sprite is easy to use for animation, the resulting animations will not be particularly high quality, as it does not support frame-by-frame animation, and it’s drawing tools are very limited. Considerable effort is needed to make a professional-looking animation.

**Conclusion**  
Each tool has different strengths and is catered towards different types of animation. While Autodesk Animator brought new features to the concept of computer animation, it’s age and lack of support make it an unsuitable choice today. Scratch is ideal to make simple games and animations for those new to programming or with no artistic ability, but requires extensive effort to make a high-quality product. In addition, it cannot export to a video format, so sharing creations is difficult.  
Adobe Flash has the latest features of computer animation, is well-supported and used all over the world, by hobbyists and large organisations. It has the widest range of tools, and is easy to learn with a little research. It remains the best choice for anybody wishing to make an animation.