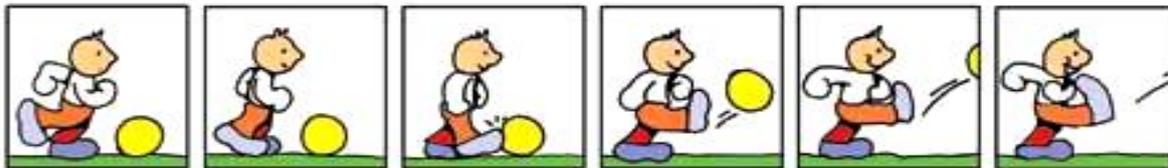**EVANGELOS C. ZIOULAS**

IT Teacher

VCZ

CHAPTER 3.2

MULTIMEDIA

VIDEO – ANIMATION

- The motion is caused by a **succession of images** (video) or individual designs (animation).
- The switch between two successive images takes place in a few milliseconds, so the user cannot capture each of them. This gives the viewer the illusion of a real video clip.

- In order to process a video file, we need to make a separate image (**frame**) for each individually.
- The refresh rate of a video is measured in **FPS** (frames per second).
- The European system **PAL/SECAM** works with **25 fps** while the American **NTSC** works with **30 fps**.
- The audio part of a video file is processed separately from the image part.
- The video input in a computer takes place either with a video camera connected to computer, or with the usage of an expansion card which digitalizes video coming from external analog devices.
- Video processing software includes: *Power Director, Pinnacle Studio, Corel Video Studio, Adobe Premiere Elements, Nero* etc.

SOUND

- In a computer we often insert analog sound (mainly from a microphone or musical instruments).
- The **sound card** is responsible for converting (digitalize) the sound input from analog to digital form (bits).
- This converting process requires the measurement of signal volume in regular time intervals.
- This procedure of converting analog to digital sound is best known as **sampling** (since an individual interval of analog signal is called a **sample**).
- The more time intervals converted in a second into digital form, the better the result of sound digitalization.
- Each sample is converted into a sequence of bits.
- For **sound reproduction** the reverse process is used, where the sound card converts bits sequence into analog form and forwards it to an audio output device such as speakers or headphones.
- The reproduction of a digitalized signal creates an analog signal that approximates the quality of initial signal but it is not equivalent.
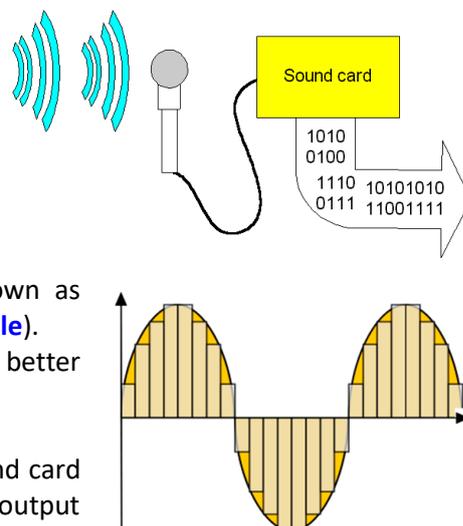
SOUND STORAGE

- After digitalizing a sound, the file created is much larger in terms of storage.
- The size of digital file becomes bigger when we increase the number of samples converted during the sampling process.
- Through **sound compression**, a digital audio file (e.g **.mp3**) becomes smaller almost 10 times than the initial uncompressed sound file (e.g. **.wav**).
- The quality of compressed sound is poorer than the initial one, but this is not perceivable by users.

SOUND EDITING

- By using specific types of software users can process (edit) sound so that it can be mixed with other audio sources, add special effects, cat & paste or copy & paste whole parts of a sound file etc.
- Here are names of well-known sound editing software: *Sound Forge (Sony), Audacity, Wave Studio, Soundtrack Pro (Apple), Sound Studio* etc.