

Text

A B C
 65 66 67
 01000001 01000010 01000011

SB → Z A F A R
 90 65

1 A 2 ;
 →

Every single character over the keyboard has an associated number. This number is called ASCII (S-key)

American Standard Code for Information Interchange.

Every single ASCII code holds one byte of data.

Character Sets:

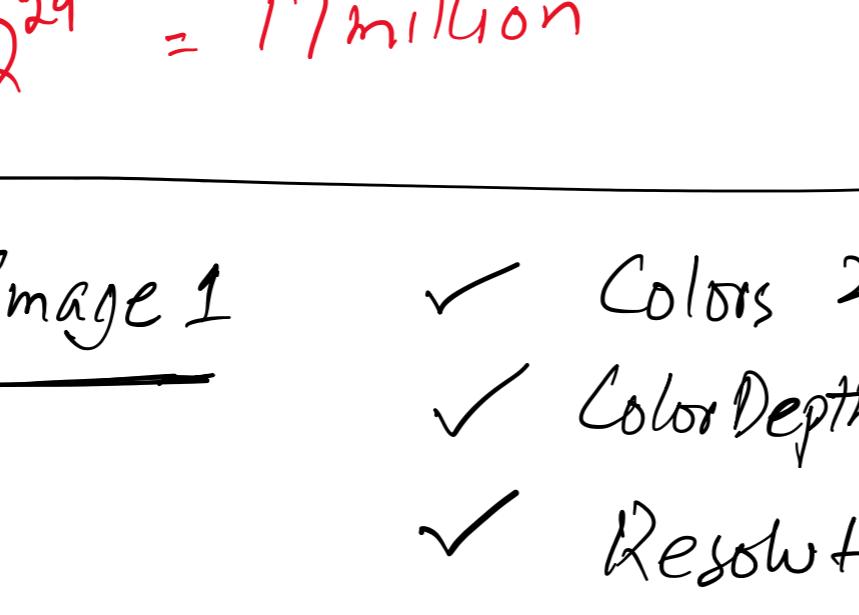
There are two character sets, ASCII & Unicode.

Character set are all those characters that computer can take as input, process, store and gives out for.

ASCII & Universal Code are world standards.

1B Unicode
2B

"Ali" ASCII 3B
 UNICODE 6B

Image:

File header, Resolution, Color Depth

Resolution = Width × Height

Total colors that an image can show = 16 colours.

$2^4 = 16$ Range 0 to 15

0 = 0000

1 = 0001

2 = 0010

3 = 0011

4 = 0100

5 = 0101

6 = 0110

7 = 0111

An image is saved using colors, or image is a list of colors.

$2^4 = 16$ Color

$2^{16} = 65K$

$2^{24} = 17$ million

Image 1

✓ Colors 256

✓ Color Depth 8 bits $2^8 = 256$

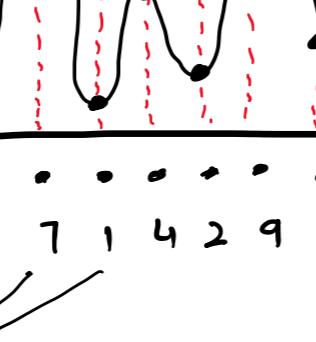
✓ Resolution $500 \times 100 = 50000$ pixels.

Image File Size = $50000 \times 8 = 400000$ bits

$400000 / 8 = 50000$ Bytes.

$$\boxed{\text{Image File Size} = \text{Resolution} \times \text{Color Depth} \times \frac{\text{Width}}{W \times H} \times \frac{\text{Height}}{\text{bits per pixel}}}$$

Video: Actually video is images (frames) shown per second for a length of time.



Resolution

Color Depth

Frames per seconds

Seconds (Time).

$$\text{Video Size} = 100 \times 50 \times 5 \times 15 \times 30$$

$$= 11250000 \text{ bits / 8}$$

$$= 1406250 \text{ Bytes}$$

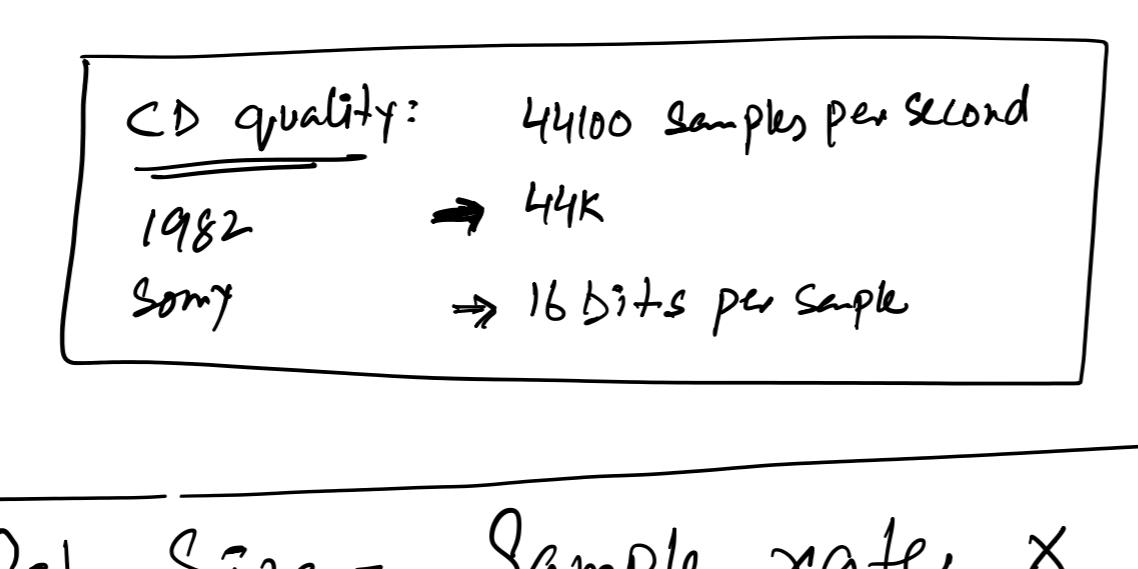
$$= 1373.3 \text{ KB.}$$

Analog to Digital Converter → Natural → Analogue → Continuous →

Binary → Digital → Discrete → 010010

Frames per second

Time in sec.

Sound:

Digital Sound is broken down into number of samples per second. Each sound sample is saved as binary data.

Sample rate: No. of captured samples per second.

Sample: Single recording of sound amplitude.

Bit depth: No. of bits saved per sample.

CD quality: 44100 samples per second

1922 → 44K

Song → 16 bits per sample

$$\boxed{\text{Sound file Size} = \text{Sample rate} \times \text{bit depth} \times \frac{\text{Samples recorded}}{\text{per second}} \times \frac{\text{Time}}{\text{In bits}} \times \frac{\text{Time}}{\text{In seconds}}}$$