**1.5. Image File Format**

There are two general groups of ‘images’: vector graphics (or line art) and bitmaps(pixel-based or images’).Some of the most common file formats are:

BMP- also known as bitmap image file or simply a bitmap, is a raster graphics image file format used to store bitmap digital images, independently of the display device (such as a graphics adapter), especially on Microsoft Windows and OS/2 operating systems.

GIF — (Graphics Interchange Format) an 8bit (256colour), non-destructively compressed bitmap format. Mostly used for web. Has several sub-standards one of which is the animated GIF.

JPEG—(Joint photo Graphic Experts Group): a very efficient (i.e. much information per byte)destructively compressed 24 bit (16million colors) bitmap format. Widely used, especially for web and internet(bandwidth-limited).

TIFF —(Tagged Image File Format) the standard 24 bit publication bitmap format. Compresses non-destructively with, for instance.

**1.5. Important concept**

* **Image size**

Image size of a bitmapped image can be described by the horizontal (H) and vertical (V) pixel count. The total number of pixels in an image is found by multiplying the horizontal and vertical pixel counts:

Total pixel count=HxV

* **Color Depth**

Each pixel of the image contains unique color information. The amount of color information is the color depth therefore, it is described in the unit of bits. Where

b= number of bits

2b=number of possible display colors.

In a 1 bit image (b=1) each pixel has either a 0 or 1 to code color so only two colors (21=2) black or white.

An 8-bit image uses 8 places of binary code to code for the colors. That allows a palette of 28=256 colors or 256 shades of gray.

A 24-bit color image works with palette of over 16.7 million colors (i.e.,224=16700000).

* **Raw file size**

The image size combined with color depth gives the raw file size, the raw file size can be thought of as a volume. We multiply the horizontal (H) pixel count by the vertical (V) count by the color depth (D) to get the raw file size:

Raw file size= HxVxD

Because all three of these variables are multiplied, an increase in any of three adds to the file size.

**Problem (HW)**

What is the size of an 8-bit image which is 220 horizontal pixel , by 180 vertical pixel? (answer in kbyte)

Answer:

Raw file size= HxVxD

220 pixels x 180 pixels x 8bit/ pixel =316,800 bits

316,800 bits/8bits/byte=39,600 bytes

39600/1024=40kbytes