

## IMAGE STORING IN COMPUTER MEMORY

Івченко К.В.

Науковий керівник – викладач Магас Л.М.

Each time we touch the computer we see some images. But what is the image in the computer memory? All digital data is stored as binary code which consists of digits: “1” (ones) and “0” (zeros), so are digital images. But how does computer convert these strings of numbers to real image, common for human's eyes?

There are two main types of graphics: bitmap and vector. How to differ these images? The majority of images in our everyday life are bitmapped. These images you can edit with the most ordinary software, these images you can get taking a picture with your camera or download via the Internet etc. But if you expand this image, zoom in some area you'll see colored dots – pixels. The number of pixels for one digit of image square is called resolution. That means the higher resolution one image has the higher its quality and the bigger zoom in you need to see the pixels. The resolution is measured in dpi – dots per inch in the most cases. Unlike bitmap graphics vector images are unlimited in their size. You can expand this image to the size of nine-house wall and its quality will remain the same.

The first part of converting to the binary code will refer bitmap images. It depends on color model of one image. There are three the most known color models: HSB, RGB and CMYK. HSB (Hue Saturation Brightness) model is the best for creating images via the computer, adjusting these components we can get any color. RGB (Red Green Blue) model is an additive model. Each dot is coded in three bites (1 bite for each color), so it has 256 tone levels of red, green and blue colors (from 0 to 255). The higher numbers are, the higher brightness: (0,0,0) refers to black and (255, 255, 255) to white. CMYK (Cyan Magenta Yellow Black) model is the best for typography, it's the subtractive model. The numbers in the brackets mean the percentage of each color of these four: (0,0,100,0) refers to yellow, (0,0,0,0) equals white. 8, 16 and 256-color palettes are used to connect binary codes of colors with their values in the video memory. Each color in palette-table matches to 8-bit code. These codes are stored in the memory in some sequences which can be transformed and displayed as real image.

Vector graphics is the use of geometrical primitives such as points, lines, curves, and shapes or polygon(s), which are all based on mathematical expressions, to represent images in computer graphics. To store this type of image we need to save the information about lines: coordinates of dots, stroke line style and color, fill style and color etc. So this info will be enough for scalability of vector image.