CS Basics - Exercises
APIs & Tools

Fall Term 2022-23

1 Presentation

The goal of this exercise is to write a program for reading BMP files, and displaying them as "ASCII Art". You will first need to read the header and the information from a file given as argument to your program.

Then you will have to print each of the pixels with one character.

We have a list of characters and you will have to map the values of the pixels with the different characters.

You have also in the directory `sample-bmp` some files that you can use for the exercises.

2 Steps

First you need to read the header and the information parts of the file.

Then you need to read each pixel (group of three colors) after the other. You store those pixels in a matrix (that you need to generate according to the width and height in the information of the file).

Be carreful, sometimes, the width is not consistent with the total size. In this case, replace the width by the total size divided by the height. But sometimes, the total size is 0, this calculation does not work in this case.

Once the pixels are in the matrix, display the matrix (starting with the last lines first).

To display a pixel, we propose to use the characters in the array :

```
char * ASCII_CHARS = "@#$%?*+;:,..";
```

3 Testing

You have a directory *sample-bmp* containing sample bmp files that can be used for your tests.

On Linux, you can see the files using *eog xxxx.bmp &*.