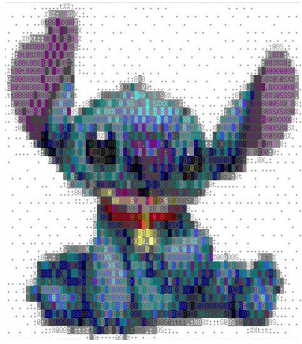
CS Games 2016

Relay Programming

Participants	**1**
Workstations	**1**
Value	**5%**
Duration	**3 x 1 hour**

Libcaca



Several machines of the Dome have been damaged, however we would like to find a way to keep using them.

Most of the damaged machines still boot, but the main component damaged each time seems to be the graphics card. These machines may still be used as long as no heavy work is done on the graphics part.

To use them at their full potential, we therefore need some program to print images in text-format...

Problem Description

Ever heard of libcaca? It is a library for rendering coloured images directly in your plain old terminal. It uses ASCII and ANSI escape sequences to print text and background in different colours to render text as close as possible to a source image. Unfortunately, libcaca sources have been lost during the old era...

You will therefore need to re-implement it for great justice !

Functionalities/Correction

Libcaca itself is an image manipulation library with an ASCII renderer, in this competition we do not ask of you to reimplement the library itself, but its frontend with the external world: img2txt. Img2txt works by taking the path to an image as argument and renders the image as text in your terminal (stdout).

Several arguments are supported by the program, here's a list:

- ❏ Open and read the content of an image:
  - ❏ PPM P3 support- (5 points)
  - ❏ JPG support - (5 points)
  - ❏ PNG support - (5 points)
- ❏ -W: Changes horizontal size of the output image to the next integer argument - (10 points)
- ❏ -H: Changes vertical size of the output image to the next integer argument - (10 points)
- ❏ -x: Changes horizontal size of a character (in points) - (5 points)
- ❏ -y: Changes vertical size of a character (in points) - (5 points)
- ❏ -f: Changes the format of the output, here's a list of supported formats:
  - ❏ ANSI: Writes ASCII text with ANSI escape sequences - (20 points)
  - ❏ UTF-8: Writes UTF-8 text with ANSI escape sequences- (10 points)
  - ❏ HTML: Writes HTML as the output format - (20 points)

Appendix 1 - PPM P3 Specification

A PPM P3 file is a simple non-compressed image format.

A comment line in PPM P3 starts with a # character and every remaining character untile LF (\n) should be ignored.

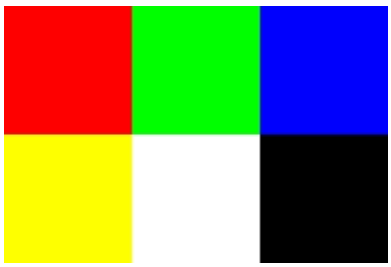
A PPM P3 file is composed of several entities:

- The first line is always the string "P3"
- Next line contains the dimensions of the image, width first, then height.
- After which is the maximum value of each pixel's value
- Then are the colours of each pixel, expressed in 3-values tuples using ASCII coding

PPM file example:

```
P3
# P3 means colours are ASCII,
# width 3, height 2,
 3 2
# Maximum value is 255 for each value
255
255   0   0     0  255   0       0   0  255
255 255   0   255 255 255       0   0   0
```

This file then produces the following image when read.



NOTE: If you are having troubles with a particular file format or image library, `man convert`.