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// Image.cs

using System;
using System.IO;
using System.Text;

namespace ToyBox {
    public partial class Image {
        RGB[][] mRaster=null; // 教科書(RRT)とは違い、mRaster[y][x] でアクセス
        int mWidth=-1;
        int mHeight=-1;

        public int Width {
            get { return mWidth; }
        }

        public int Height {
            get { return mHeight; }
        }

        public RGB this[int inX,int inY] {
            get { return mRaster[inY][inX]; }
        }

        public Image() {
            // empty
        }

        public Image(int inWidth,int inHeight) {
            init(inWidth, inHeight);
        }

        public Image(int inWidth,int inHeight, RGB inBackgroundColor) {
            init(inWidth, inHeight);
            for(int y=0; y<mHeight; y++) {
                for(int x=0; x<mWidth; x++) {
                    mRaster[y][x]=inBackgroundColor;
                }
            }
        }

        public bool Set(int inX,int inY,RGB inColor) {
            if(inX<0 || mWidth<=inX || inY<0 || mHeight<=inY) {
                return false;
            }
            mRaster[inY][inX]=inColor;
            return true;
        }

        public void WritePPM(string inFilePath) {
            using(FileStream fs=new FileStream(inFilePath, FileMode.Create, FileAccess.Write)) {
                writeString(fs, "P6\n"); // ¥r¥nとしてはダメ
                writeString(fs, mWidth+" "+mHeight+"\n");
                writeString(fs, "255\n");

                for(int y=0; y<mHeight; y++) {
                    for(int x=0; x<mWidth; x++) {
                        RGB color=mRaster[y][x];
                        color=color.Clamp();
                        byte r=RGB.FloatToByte(color.R);
                        byte g=RGB.FloatToByte(color.G);
                        byte b=RGB.FloatToByte(color.B);
                        fs.WriteByte(r);
                        fs.WriteByte(g);
                        fs.WriteByte(b);
                    }
                }
                fs.Close();
            }
        }

        void writeString(FileStream inFS, string inString) {
            foreach(byte c in Encoding.ASCII.GetBytes(inString)) {
                inFS.WriteByte(c);
            }
        }
    }
}
```

```
    }  
    void init(int inWidth, int inHeight) {  
        mWidth=inWidth;  
        mHeight=inHeight;  
  
        mRaster=new RGB[inHeight][];  
        for(int y=0; y<inHeight; y++) {  
            mRaster[y]=new RGB[inWidth];  
        }  
    }  
}
```