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import sheffield.*;
/**
 * Class to implement Assignment2 for COM1003
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 */
public class Picture{

    enum Tree{
        Background,
        Leaf,
        Trunk
    }

    final static int WIDTH = 1800;
    final static int HEIGHT = 150;
    final static int PICTURE_WIDTH = 300;
    final static int PICTURE_HEIGHT = 150;
    final static int NUM_TREES = 30;
    //trees can appear anywhere on the x axis
    final static double X_TRANS_SCALE = WIDTH;
    //less randomness scaling on y as it looks odd otherwise
    final static double Y_TRANS_SCALE = HEIGHT/5.0;

    public static void main(String[] args){
        //load the picture
        Tree[][] picture = new Tree[PICTURE_WIDTH][PICTURE_HEIGHT];
        EasyReader data = new EasyReader("picture.txt");
        for(int y=0;y<PICTURE_HEIGHT;y++){
            for(int x=0;x<PICTURE_WIDTH;x++){
                char val = data.readChar();
                //treeCel: like pixel, but for trees
                Tree treeCel;
                switch(val){
                    case '0':
                        treeCel = Tree.Background;
                        break;
                    case '1':
                        treeCel = Tree.Leaf;
                        break;
                    case '2':
                        treeCel = Tree.Trunk;
                        break;
                    default:
                        System.err.println("Found bad input character '"+val+"' in data val");
                        return;
                }
                picture[x][y] = treeCel;
            }
        }

        EasyGraphics gfx = new EasyGraphics(WIDTH,HEIGHT);
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//set background color
gfx.setColor(0,64,128);
//and fill with it
gfx.fillRect(0,0,WIDTH,HEIGHT);

for(int n=0;n<NUM_TREES;n++){
    //subtract picture width/2 to allow trunk (as opposed to the left edge of the tree image)
    //to be drawn all the way from the very left to the very right edge
    int xTrans = (int) (Math.random()*X_TRANS_SCALE) - PICTURE_WIDTH/2;
    int yTrans = (int) (Math.random()*Y_TRANS_SCALE);
    for(int y=0;y<PICTURE_HEIGHT;y++){
        for(int x=0;x<PICTURE_WIDTH;x++){
            int r = 0,g = 0,b = 0;
            //picture y is from top, canvas y from bottom so use HEIGHT-y to make it from top
            //and -1 to avoid off by 1 error
            switch(picture[x][PICTURE_HEIGHT-y-1]){
                case Background:
                    continue;
                case Leaf:
                    g = 128;
                    break;
                case Trunk:
                    break;
            }
            gfx.setColor(r,g,b);
            gfx.plot(x+xTrans,y+yTrans);
        }
    }
}
```