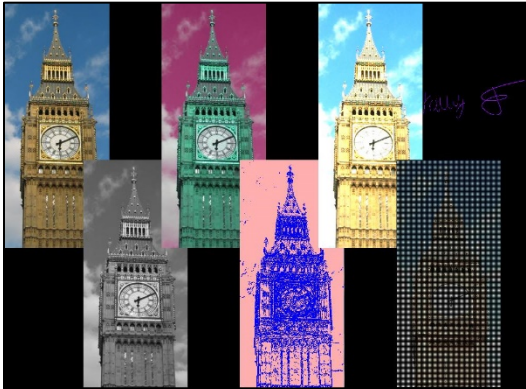


Kaitlyn Jones

Completed



Original



#Kaitlyn Jones 3/9/2020#

```
def collage():
    height = 736
    width = 1000
    canvas = makeEmptyPicture(width, height, black)
    setMediaPath()
    main = "/bigben.jpg"
    signature = "signature.jpg"
    copy(original(main), canvas, 0, 0)
    copy(grayscale(main), canvas, 150, 300)
    copy(swapcolor(main), canvas, 300, 0)
    copy(blueinvert(10, main), canvas, 450, 300)
    copy(lighten(main), canvas, 600, 0)
    copy(oldTv(main), canvas, 750, 300)
    copy(signPicture(signature), canvas, 800, 135)
    show(canvas)

def copy(picture, canvas, targetX, targetY):
    width = getWidth(picture)
    height = getHeight(picture)
    maxX = getWidth(canvas) - 1
    maxY = getHeight(canvas) - 1

#loop through pixels of picture and apply to canvas at targets#
    for x in range(0, width):
        for y in range(0, height):
#prevent function from applying pixels out of bounds#
            if (x+targetX < maxX) and (y+targetY < maxY):
                px = getPixel(picture, x, y)
                targetPX = getPixel(canvas, x+targetX, y+targetY)
                color = setColor(targetPX, getColor(px))

def original(path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    return picture
```

```

def grayscale(path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for px in getPixels(picture):
        level = int(0.21*getRed(px) + 0.71*getGreen(px) +0.07*getBlue(px))
        color = makeColor(level, level, level)
        setColor(px, color)
    return picture

```

```

def swapcolor(path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for px in getPixels(picture):
        r = getRed(px)
        b = getBlue(px)
        g = getGreen(px)
        setRed(px, b)
        setBlue(px, g)
        setGreen(px, r)
    return picture

```

```

def luminance(pixel):
    r = getRed(pixel)
    g = getGreen(pixel)
    b = getBlue(pixel)
    return(r+g+b)/3

```

```

def blueinvert(threshold, path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for px in getPixels(picture):
        x=getX(px)
        y=getY(px)
        if y<getHeight(picture)-1 and x<getWidth(picture)-1:
            botrt = getPixel(picture,x+1,y+1)
            thislum = luminance(px)
            brlum = luminance(botrt)
            if abs(brlum-thislum)> threshold:
                setColor(px,blue)
            if abs(brlum-thislum)<= threshold:
                setColor(px,pink)
    return picture

```

```

def lighten(path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for x in range(0, getWidth(picture)):
        for y in range(0, getHeight(picture)):
            px = getPixel(picture, x, y)
            color = getColor(px)
            color = makeLighter(color)
            color = makeLighter(color)
            setColor(px, color)
    return picture

```

```

def oldTv(path):
#every other pixel to black to imitate old tv's#
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for x in range(0, getWidth(picture)):
        for y in range(0, getHeight(picture)):
            px = getPixel(picture, x, y)
            color = getColor(px)
            if x%2 != 0 and y%2 != 0:
# % obtains remainder to check if it is every other pixel#
                color = makeLighter(color)
                color = makeLighter(color)
            else:
                color = black
            setColor(px, color)
    return picture

def signPicture(path):
    picfile = getMediaPath(path)
    picture = makePicture(picfile)
    for p in getPixels(picture):
        if luminance(p) >= 130:
            color = makeColor(0,0,0)
            setColor(getPixel(picture, getX(p),getY(p)), color)
        else:
            color = makeColor(152, 3, 252)
            setColor(getPixel(picture,getX(p), getY(p)), color)
    return picture

```