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Homework 01 : Img2Gray, Gray2Bin
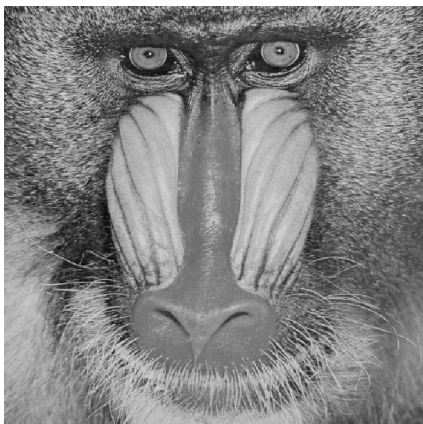
Load Image

In[ ]:=   `img =` `;`

Convert image to grayscale

In[ ]:=
```
ImgToGray[img_, weight_] := Module[{dim, grayData, imgData},
    dim = ImageDimensions[img];
    imgData = ImageData[img, "Real"];
    grayData = Table[
            Dot[weight, imgData[[i, j, {1, 2, 3}]]],
            {i, dim[[2]]}, {j, dim[[1]]}
    ];
    Return[grayData];
]
```

In[ ]:=
```
grayImg = ImgToGray[img, {0.3, 0.59, 0.11}];
Image[grayImg]
```
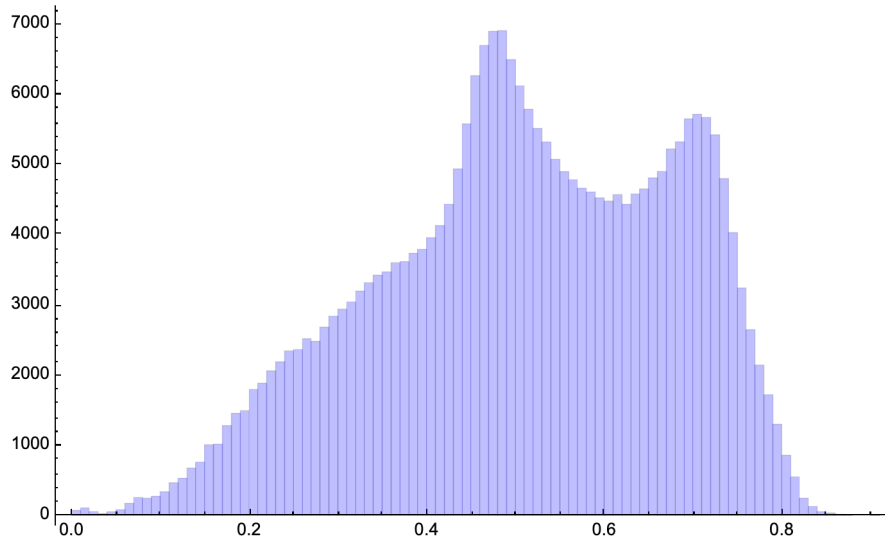
Out[ ]=

Plot histogram of gray intensity

In[ ]:=
```
Histogram[Flatten[grayImg, 1], {0.01}, ChartStyle → {Opacity[.25, Blue]}]
```

Out[ ]=

Convert grayscale image to binary image

In[ ]:=
```
GrayToBin[img_, thres_] := Module[{dim},
    dim = Dimensions[img];
    Return[
        Table[If[img[[i, j]] > thres, 1, 0], {i, dim[[1]]}, {j, dim[[2]]}]
    ];
]
```

In[ ]:=
```
Image[GrayToBin[grayImg, 0.6]]
```

Out[ ]=