LAB 3

AIM: Perform the following tasks:

1. **Calculate the brightness and contrast of images.**

lab31.m

```
A = imread('cat.jpg');
A = rgb2gray(A);
A = double(A);
s=size(A);

B=0.0

for i=1:1:s(1,1)
    for j=1:1:s(1,2)
        B=B+A(i,j);
    end
end

B=B/(s(1,1)*s(1,2));
B
c=0.0;
for i=1:1:s(1,1)
    for j=1:1:s(1,2)
        c=c+(A(i,j)-B)^2;
    end
end
c=c/(s(1,1)*s(1,2));
c=nthroot(c,2);
c
```

Command Window

New to MATLAB? See resources for Getting Started.

```
>> lab31

B =

     0


B =

  153.8029


c =

   56.4045
```

2. Perform AND, OR and NOT logical operations on the images

MATLAB Drive >

lab31.m | lab32.m

```
1  a=imread('cat.jpg');
2  a=rgb2gray(a);
3  bw=roipoly(a);
4  a=double(a);
5  bw=double (bw)*255;
6  final=bitor(a,bw);
7  a=mat2gray(a);
8  bw=mat2gray(bw);
9  final=mat2gray(final);
10
11 figure, imsow(final);
```

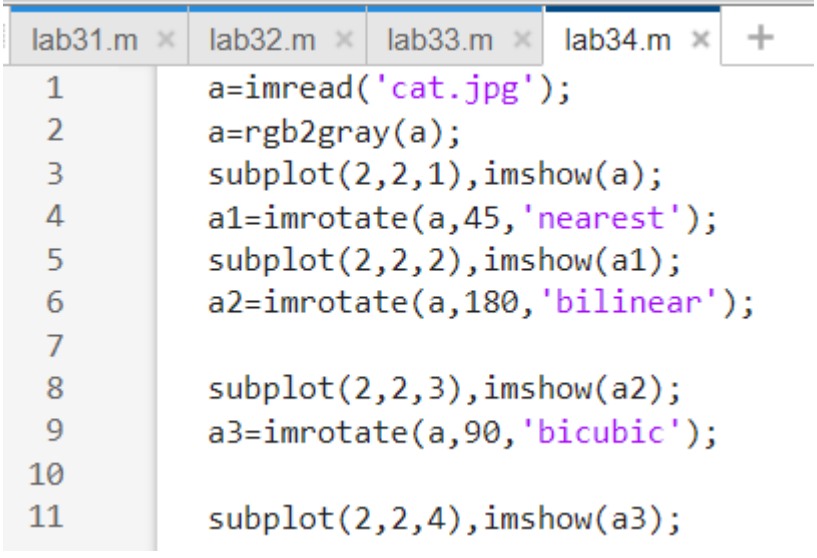
Figure 1

3. Perform Image Shrinking Operation on the image

lab31.m | lab32.m | lab33.m

```
1  A = imread('cat.jpg');
2  A = rgb2gray(A);
3  A = double(A);
4  s=size(A);
5
6  p=1;
7  q=1;
8
9
10 for i=1:2:s(1,1)
11     q=1;
12     for j=1:2:s(1,2)
13         B(p,q)=A(i,j);
14         q=q+1;
15     end
16     p=p+1;
17 end
18
19 imshow(mat2gray(A));
20 B=A(1:2:s(1,1),1:2:s(1,2));
21 figure,imshow(mat2gray(B));
```

4. Perform Image Transformation (Rotation)




```
1   a=imread('cat.jpg');
2   a=rgb2gray(a);
3   subplot(2,2,1),imshow(a);
4   a1=imrotate(a,45,'nearest');
5   subplot(2,2,2),imshow(a1);
6   a2=imrotate(a,180,'bilinear');
7
8   subplot(2,2,3),imshow(a2);
9   a3=imrotate(a,90,'bicubic');
10
11  subplot(2,2,4),imshow(a3);
```

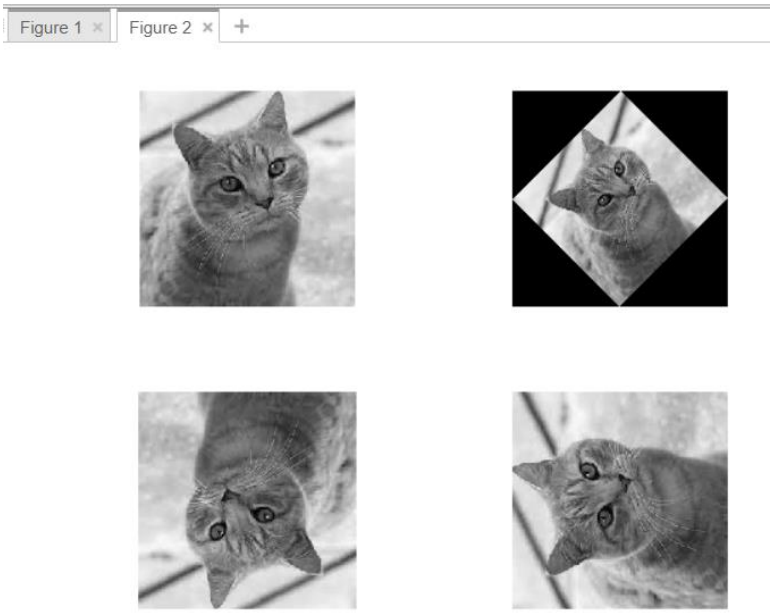


Figure 1
Figure 2