영상처리 5주차

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1-(1)

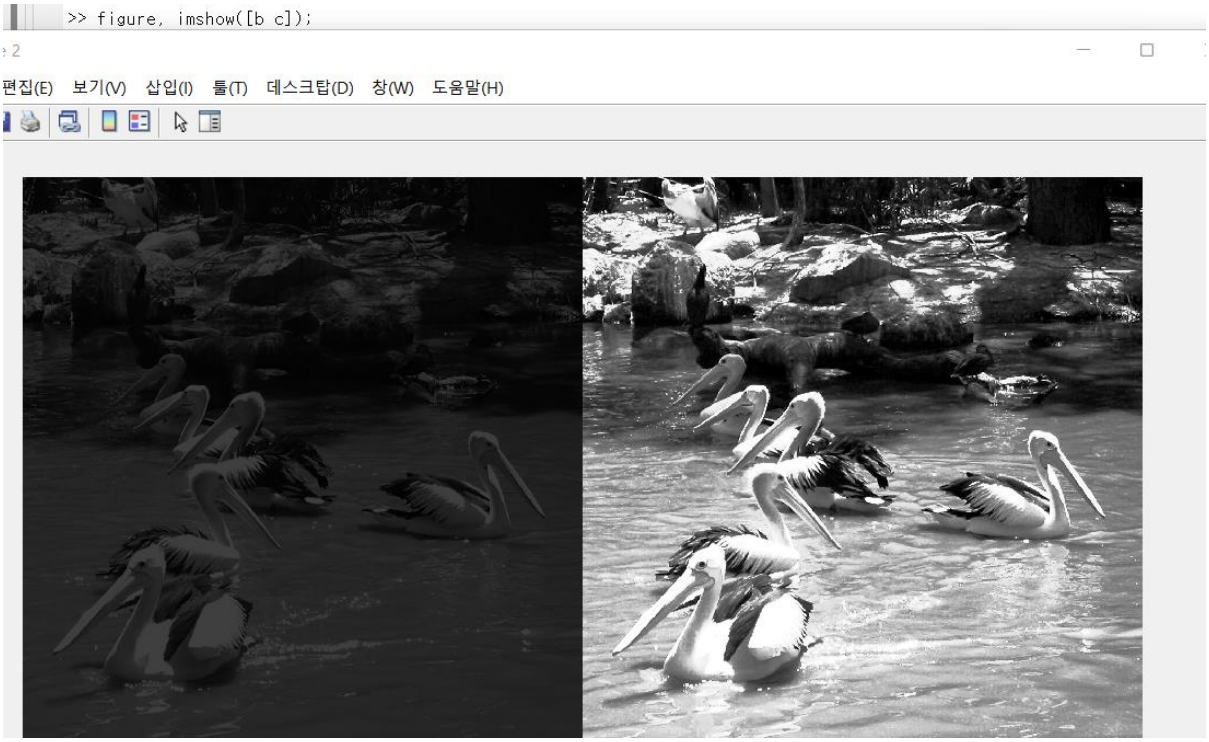
```
>> a = imread('pelicans.tif');
>> b = imdivide(a,4);
```

1-(2)

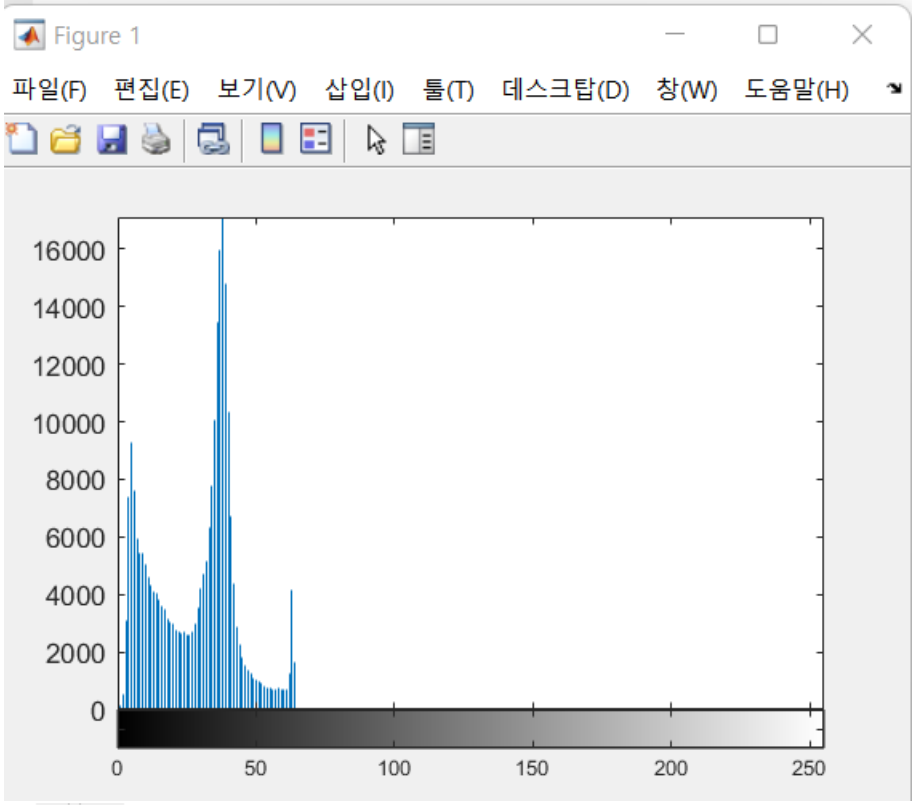
```
>> c = histeq(b);
>>
```

1-(3)

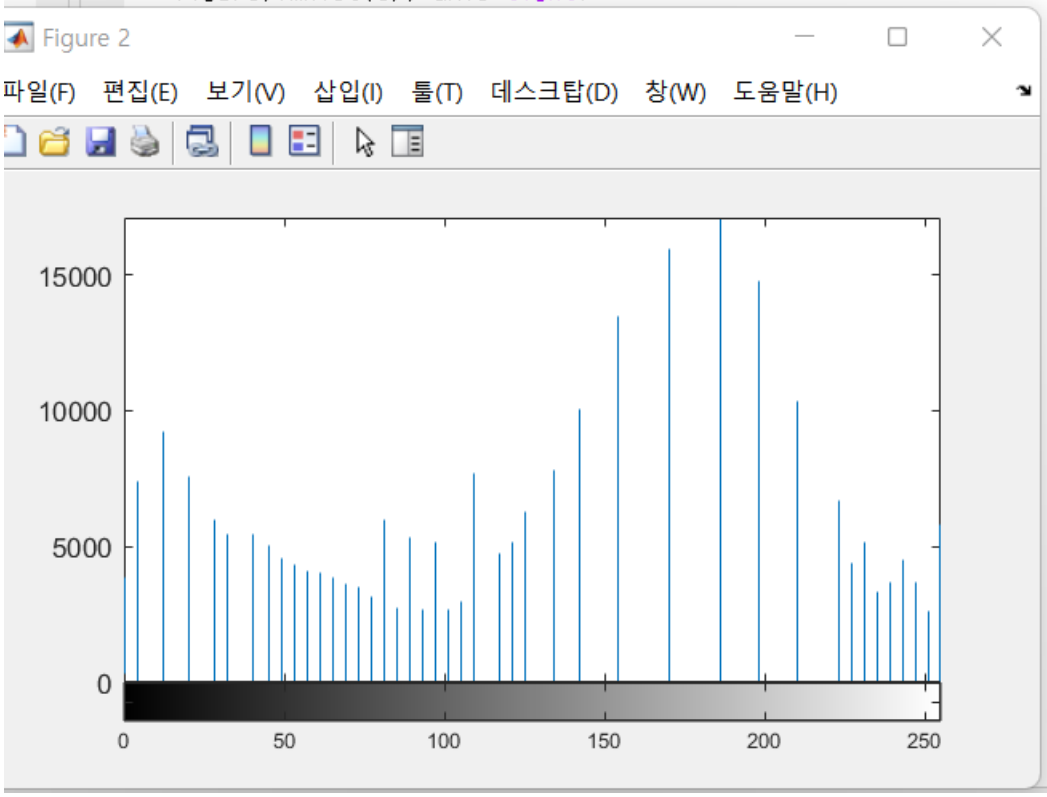
```
>> figure, imshow([b c]);
```



```
>> figure,imhist(b), axis tight;
```

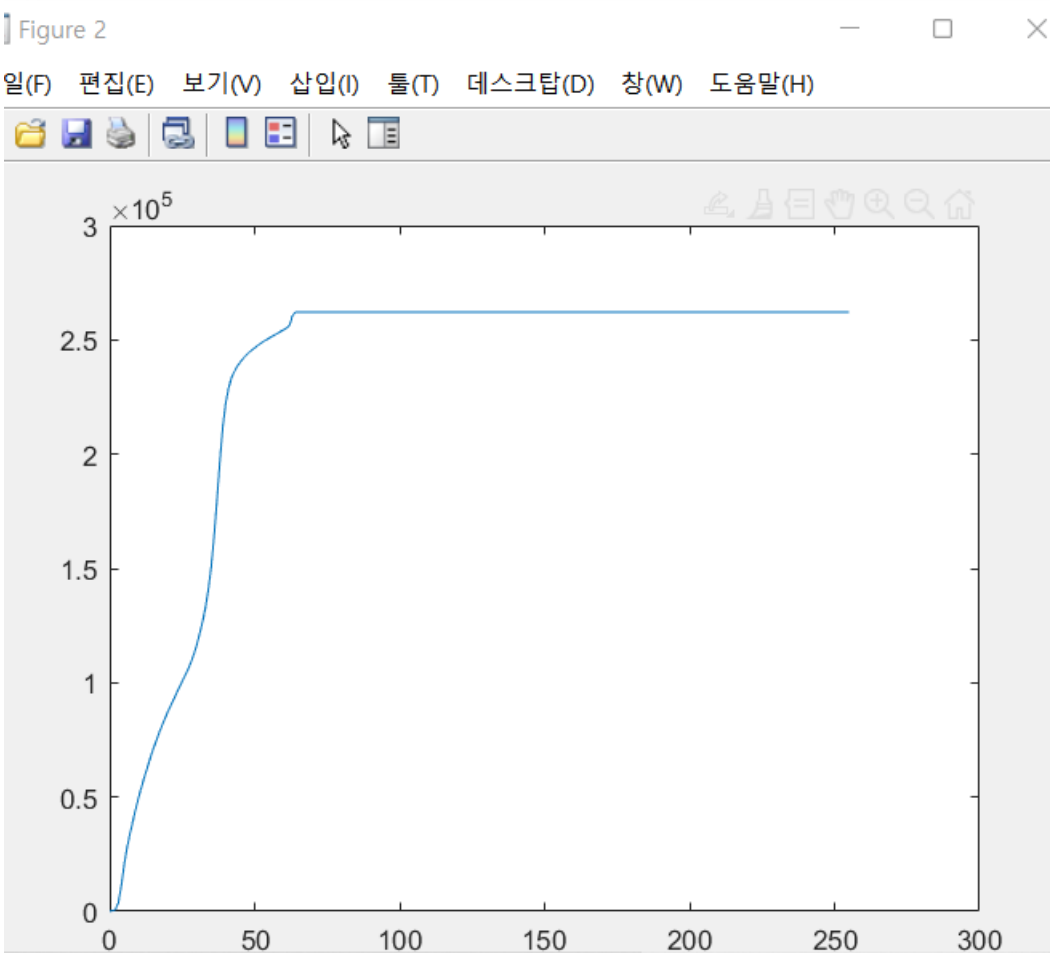



```
>> figure,imhist(c), axis tight;
```



1-(4)

```
>> [y x] = imhist(b);
>> figure, plot(x, cumsum(y));
```



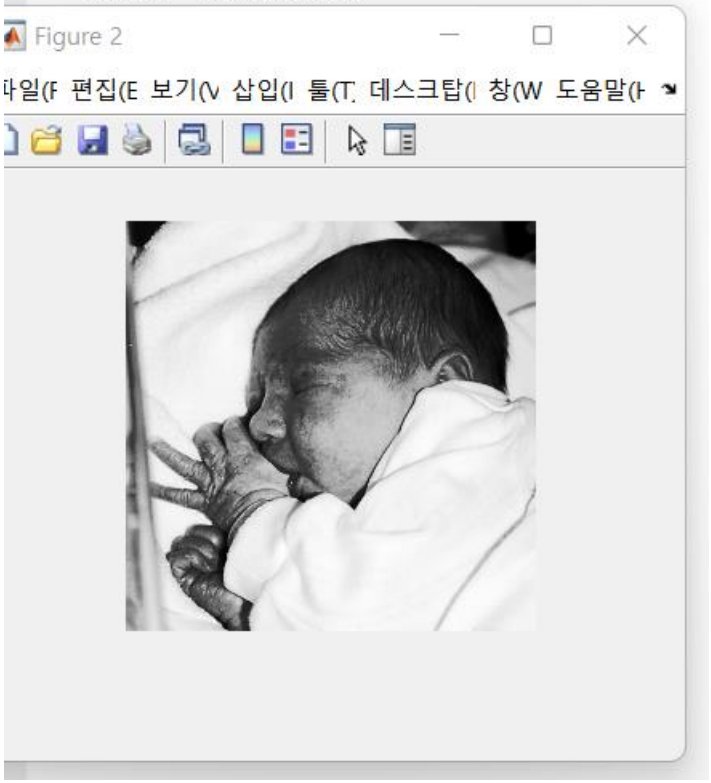
2-(1)

명령 창

```
>> t1 = 0.667*[0:96];
>> t2 = 2*[97:160] - 128;
>> t3 =0.6632 *[161:255] + 85.8947;
>> T = uint8(floor([t1 t2 t3]));
>>
```

2-(2)

```
>>  im = imread('newborn.tif');
>> im3 = T(im+1);
>> figure, imshow(im3);
```



2-(3)

```
>> t1 = 1.499925*[0:64];
>> t2 = 0.5 *[65:192] +64;
>> t3 = 1.50784*[193:255] - 129.5155;
>> T2 = uint8(floor([t1 t2 t3]));
>>
```

2-(4)

```
>> b = imread('newborn.tif');
>> b3 = T(b+1);
>> b4 = T2(b3 + 1);
>> figure, imshow(b4);
>>
```

2-(5)

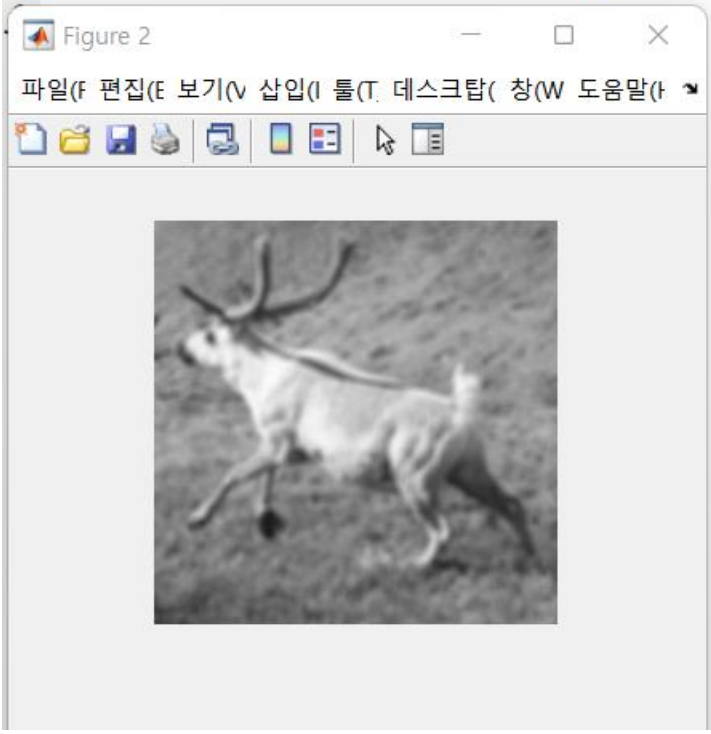
```
>> figure, imshow([b b4]);
>>
```

2-(6)

LUT를 사용하면 매번 연산을 하지 않고 테이블을 참조만해서 밝기 값을 변경할 수 있으므로, 연산 속도와 처리 속도 측면에서 큰 이득을 볼 수 있다. LOOK up테이블을 사용함으로써 메모리를 읽는 용량과 처리량은 작아진다. 이로 인해서 IO,CPU, 메모리의 사용량이 작아진다.

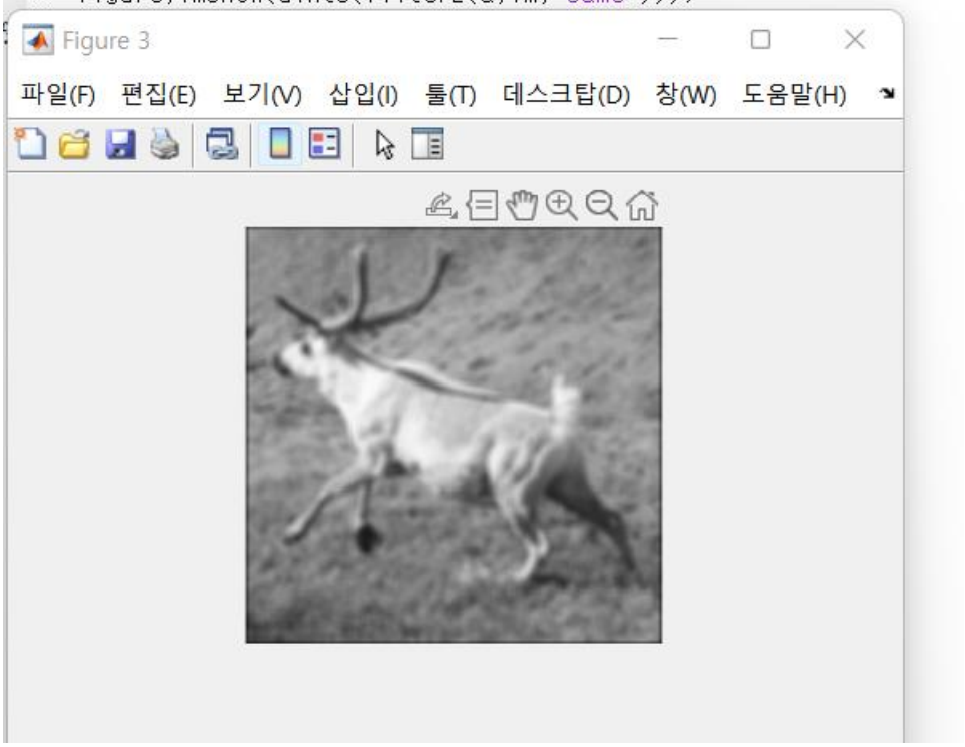
3-(1)

```
>> im = imread('caribou.tif');
a = ones(5,5)/ 25;
figure,imshow(uint8(filter2(a,im,'valid')));
```



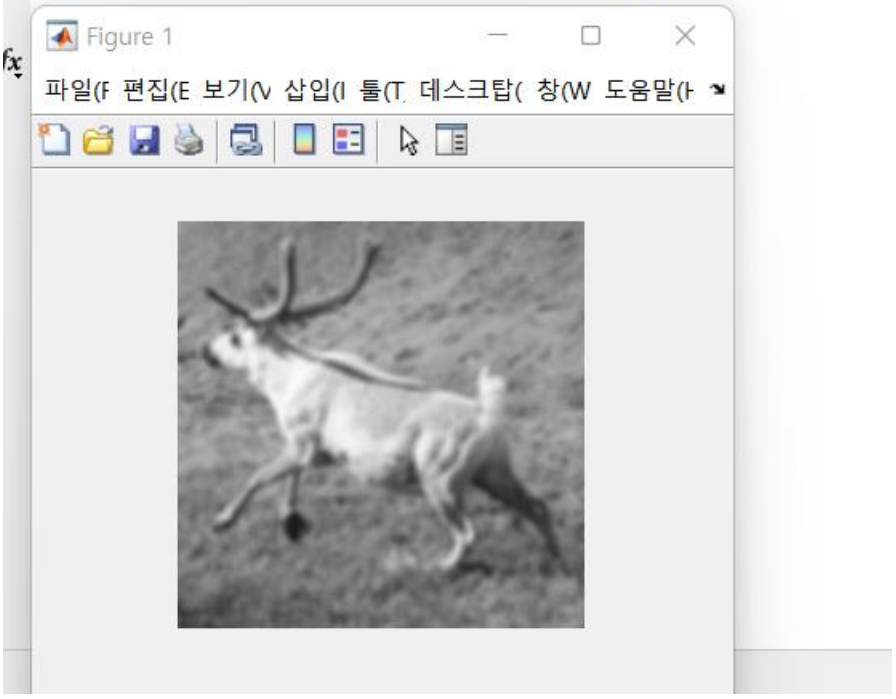
3-(2)

```
>> figure,imshow(uint8(filter2(a,im,'same')));
```



3-(3)

```
>> m_x = [im(1,:); im; im(end,:)];
>> m_x = [m_x(:,1), m_x, m_x(:,end)];
>> figure,imshow(uint8(filter2(a,m_x,'valid')));
```



4-(1)

```
>> a = [1;2;1] /4;
>> b = [1 2 1]/4;
>> f = a *b

f =

    0.0625    0.1250    0.0625
    0.1250    0.2500    0.1250
    0.0625    0.1250    0.0625
```

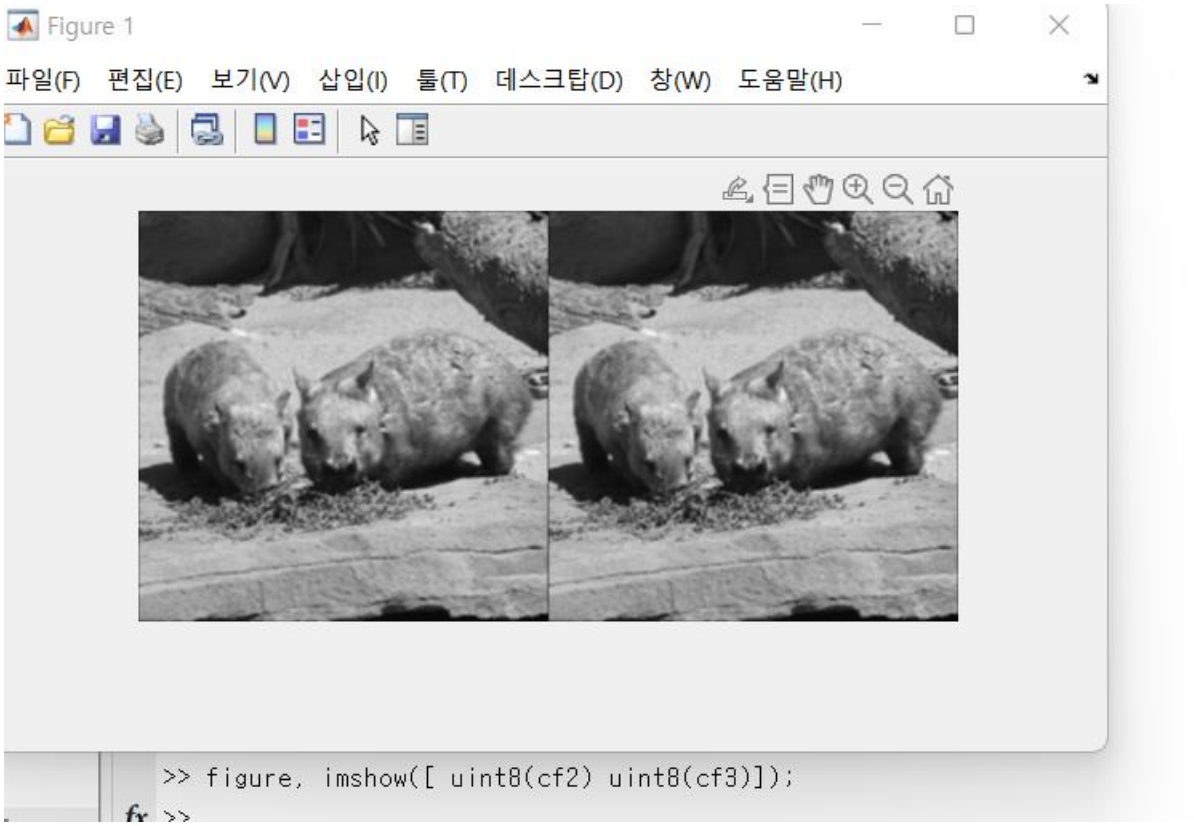
4-(2)

```
>> c = imread('wombats.tif');
cf1 = filter2(a,c);
cf2 = filter2(b,cf1);
>>
```

4-(3)

```
>> cf3 = filter2(f,c);
>>
```

4-(4)



4-(5)

```
>> sum(abs(double(a(:))-double(b(:))))

ans =

     0
```