## CBIR – Lab 8 PCA Features for facial recognition

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Dataset used (Yale Dataset) - http://vision.ucsd.edu/datasets/yale\_face\_dataset\_original/yalefaces.zip

Q1)

MATLAB/OpenCV Code for extracting PCA Features based CBIR

## Solution -

```
I = double(imread('subject1.gif'));
X = reshape(I, size(I, 1) * size(I, 2), 3);
coeff = pca(X);
fea=coeff(:);
imagefiles = dir('yalefaces/*.gif');
nfiles = length(imagefiles);
sim = zeros(1,nfiles);
for ii=1:nfiles
    currentfilename = strcat(int2str(ii),'.gif');
    cimage = double(imread(currentfilename));
    cX = reshape(cimage, size(cimage, 1) *size(cimage, 2), 3);
    ccoeff = pca(cX);
    cfea=ccoeff(:);
    sim(ii) = sqrt(sum((fea - cfea) .^ 2));
end
[ASorted, AIdx] = sort(sim);
smallestNElements = ASorted(1:6);
smallestNIdx = AIdx(1:6);
for ii=1:6
    imagename = strcat(int2str( smallestNIdx(ii)),'.gif');
    im = imread(imagename);
    subplot(3,2,ii), imshow(im);
end
```

## Screenshot-







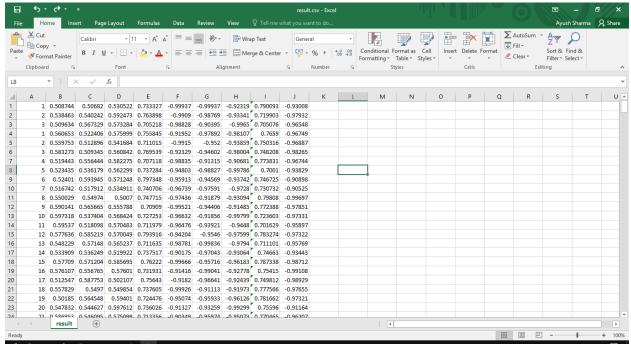






## Q2) Extract PCA feature and show in table

```
imagefiles = dir('*.jpg');
nfiles = length(imagefiles);
for ii=1:nfiles
    currentfilename = imagefiles(ii).name;
    cimage = double(imread(currentfilename));
    cX = reshape(I,size(I,1)*size(I,2),3);
    ccoeff = pca(X);
    cfea=coeff(:);
    res = [ii,cfea'];
    dlmwrite('result.csv',res,'-append')
end
```



(Complete result in result.csv)