

## Homework # 3: Subspace Methods in Image Recognition - Documentation

NOTE: To see all of the scripts in action, please check out the live script `imageRetrievalLiveNotebook.mlx`. In it, I demonstrate the individual use of each script and show each output, as well as run the main function that incorporates all of the scripts.

Question 1:

Relevant files:

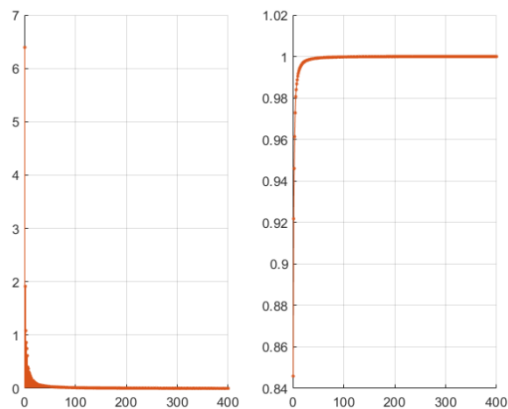
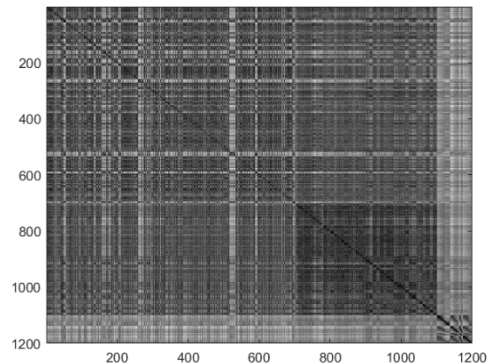
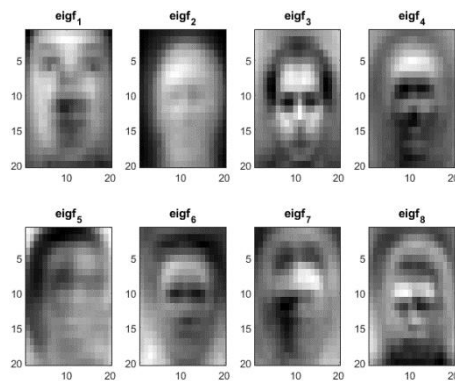
- `addImages.m` (script)
  - Adds extra images and id to the original faces/id dataset
- `faces_updated.m` (result)
- `original_image.png`
  - Sample of one of the added images

Question 2:

Relevant files:

- `getEigenfacemodel.m`

Output:



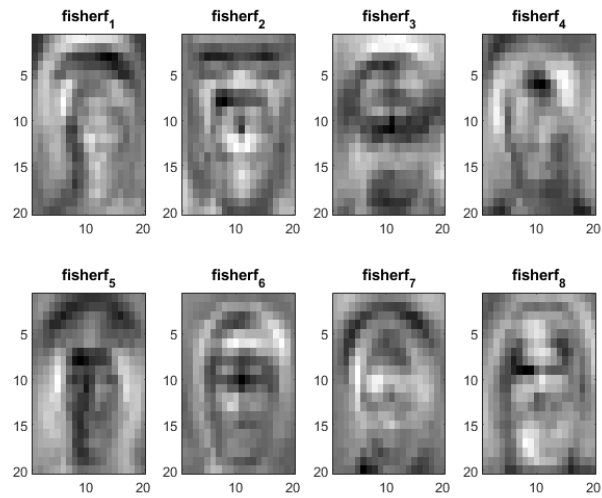
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Question 3:

Relevant files:

- getFisherfacemodel.m

Output:

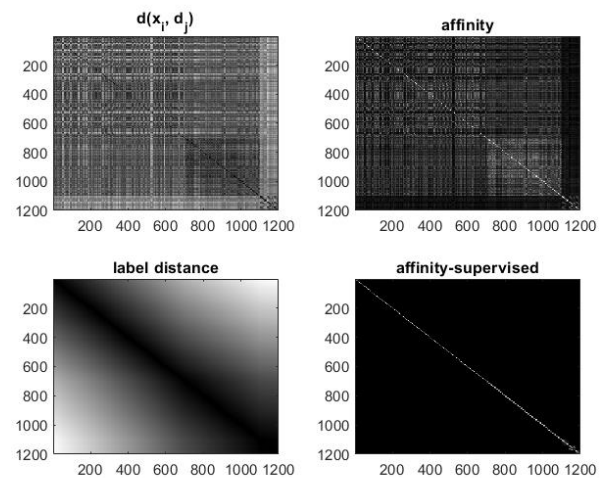
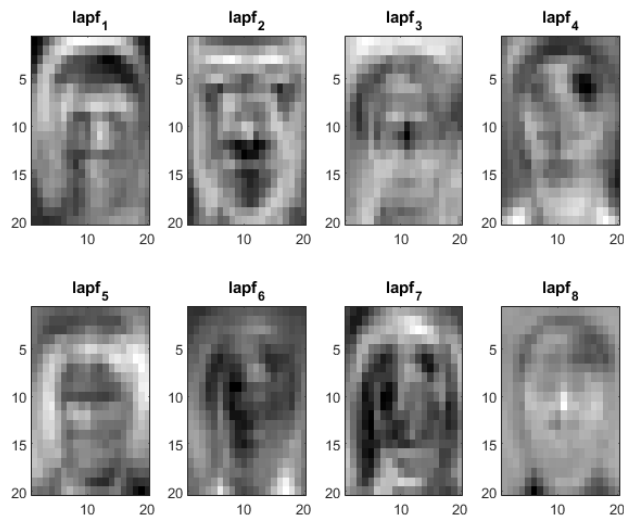


Question 5:

Relevant files:

- getLaplacianfacemodel.m

Output:



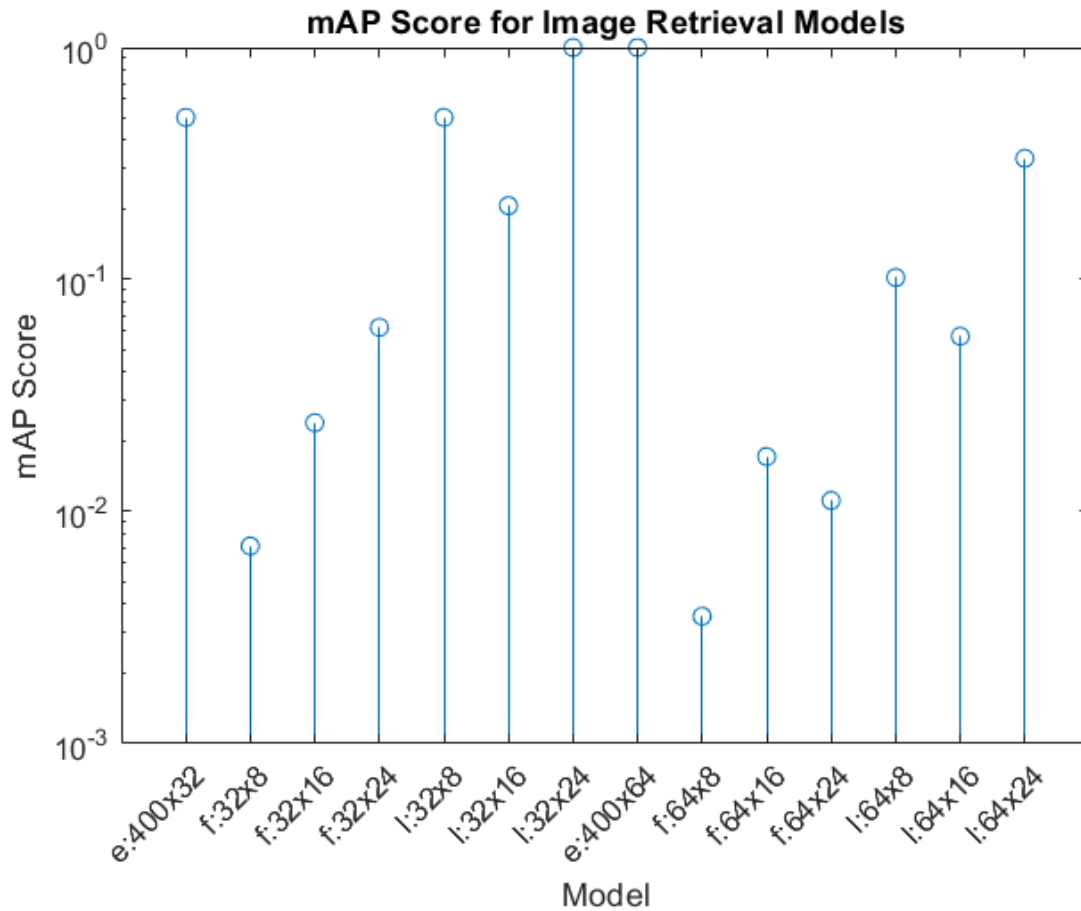
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Question 5:

Relevant files:

- main.m
- imageRetrieval.m
- getDistances.m
- getQueryMap.m

Output:



Guide: e - Eigenface. f - Fisherface. l - Laplacianface.

Model: e:400x32  
Score: 0.5000

Model: f:32x8  
Score: 0.0071

Model: f:32x16  
Score: 0.0242

Model: f:32x24  
Score: 0.0623

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Model: l:32x8  
Score: 0.5000

Model: l:32x16  
Score: 0.2083

Model: l:32x24  
Score: 1.0000

Model: e:400x64  
Score: 1.0000

Model: f:64x8  
Score: 0.0035

Model: f:64x16  
Score: 0.0173

Model: f:64x24  
Score: 0.0112

Model: l:64x8  
Score: 0.1021

Model: l:64x16  
Score: 0.0570

Model: l:64x24  
Score: 0.3333