Cognitive computing hw2

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color feature:

1. resize image into 320*320
2. change BGR channel into YUV
3. only use middle part of image
4. reject black or white pixel (0, 255)
5. calculate mean of each channel as feature (3 dimension feature)

texture feature:

1. resize image into 320*320
2. collect 18 Gabor kernels (kernel parameter can be adjust)
3. use each kernel to do convolution and evaluate mean and std as feature (36 dimension feature)

local feature:

1. use SIFT to get key points
2. when comparing two image similarity, calculate ratio of best match's distance and secondary match's distance.
3. if the ratio is low enough, we say it is a good match, count "good" match ratio as similarity score

fusion feature:

1. combine color feature and local feature (because the texture feature's result is not good enough)

result table:

	MAP	best two categories	worst two categories
color	0.143	blue_pillow(0.598), orange(0.555)	suitcase(0.037), nba jersey(0.039)
texture	0.121	garment(0.345), bracelet(0.241)	glasses(0.037), nba jersey(0.039)
local	0.230	aloe_vera_gel(0.942), gge_snack(0.862)	mouse(0.039), trousers(0.04)
fusion	0.192	gge_snack(0.928), aloe_vera_gel(0.747)	orange(0.017), bicycle(0.023)