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Ex7 Test Cases



Chirag Uttamsingh · Mentor · General Discussion · 3 years ago · Edited by moderator

Here are the ex7 test cases:



```
1 % ===== findClosestCentroids() =====
2 X = reshape(sin(1:50), 10, 5);
3 cent = X(7:10,:);
4 idx = findClosestCentroids(X, cent)
5
6 % result
7 idx =
8     1
9     2
10    3
11    4
12    4
13    1
14    1
15    2
16    3
17    4
18
19 % additional information
20 % these are the "distances" for each example, computed as the
    sum
21 % of the squares of the differences for each feature.
22 debug> dist
23 dist =
24
25     0.18685     1.26617     6.26061    10.23971
26     3.68554     0.21768     1.31858     5.63745
27     9.03781     3.83809     0.19602     1.12150
28    10.66224     8.13823     3.26444     0.18322
29     6.96941     9.06864     7.60682     3.58933
30     2.09490     6.51432     9.97120     8.94869
31     0.00000     2.30339     7.66348    10.81361
32     2.30339     0.00000     2.49799     7.16213
33     7.66348     2.49799     0.00000     2.12753
34    10.81361     7.16213     2.12753     0.00000
35
36
37 % ===== computeCentroids() =====
38 X = reshape([1:24],8,3);
39 computeCentroids(X, [1 1 3 3 4 4 2 2]',4)
40
41 % result
42 ans =
43     1.5000     9.5000    17.5000
44     7.5000    15.5000    23.5000
45     3.5000    11.5000    19.5000
46     5.5000    13.5000    21.5000
47
48 % ===== pca() =====
49 [U, S] = pca(sin([0 1; 2 3; 4 5]))
50
51 % result
52 U =
53    -0.65435   -0.75619
54    -0.75619    0.65435
55
56 S =
57 Diagonal Matrix
58     0.79551     0
59     0         0.22019
60
```



```
61 % ===== projectData() =====
62 X = sin(reshape([0:11],4,3));
63 projectData(X, magic(3), 2)
64
65 % result
66 ans =
67     1.68703    5.12021
68     5.50347   -0.24408
69     4.26005   -5.38397
70    -0.90004   -5.57386
71
72 % ===== recoverData() =====
73 Q = reshape([1:15],5,3);
74 recoverData(Q, magic(5), 3)
75
76 % result
77 ans =
78     172    130    183    291    394
79     214    165    206    332    448
80     256    200    229    373    502
81     298    235    252    414    556
82     340    270    275    455    610
```

The random initialization of the centroids is not required to pass the grader for ex7, but the compressed image from running ex7.m will come out as uniform grey if you forget to implement *kMeansInitCentroids*. Note that the code needed is explicitly given in ex7.pdf.

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Tom Mosher · Mentor · 2 years ago



Update: Nov: 2016:

Re-formatted the test cases into one text box.

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Tom Mosher · Mentor · 2 years ago



Update: Sept 2016:

Modified the 2nd test case for findClosestCentroids(), so that it uses more features than the ex7 test case, but fewer than the submit grader uses. The previous test case used the same number of features as the image



compression example in ex7, so the test case didn't catch errors due to assuming the the number of features would never be larger than 3.

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