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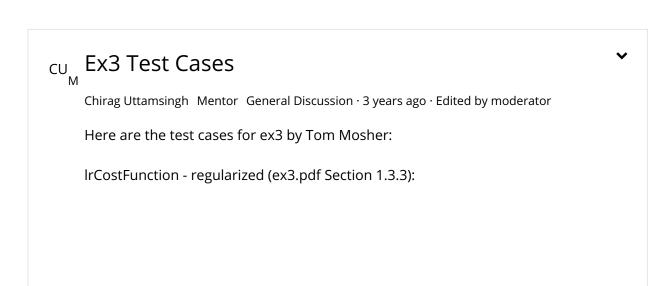
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Ex3 Test Cases

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

Here are the test cases for ex3 by Tom Mosher:

lrCostFunction - regularized (ex3.pdf Section 1.3.3):

```
 1  % input
 2  theta = [-2; -1; 1; 2];
 3  X = [ones(5,1) reshape(1:15,5,3)/10];
 4  y = [1;0;1;0;1] >= 0.5;          % creates a logical array
 5
 6  % test the unregularized results
 7  [J grad] = lrCostFunction(theta, X, y, 0)
 8
 9  % results
10  J =  0.73482
11  grad =
12
13     0.146561
14     0.051442
15     0.124722
16     0.198003
17
18  % test the regularized results
19  lambda = 3;
20  [J grad] = lrCostFunction(theta, X, y, lambda)
21
22  % results
23  J =  2.5348
24  grad =
25
26     0.14656
27    -0.54856
28     0.72472
29     1.39800
```

Note: your cost function must return the gradient as a column vector (size n x 1), NOT as a row vector (1 x n).

====

oneVsAll:

```
 1  %input:
 2  X = [magic(3) ; sin(1:3); cos(1:3)];
 3  y = [1; 2; 2; 1; 3];
 4  num_labels = 3;
 5  lambda = 0.1;
 6  [all_theta] = oneVsAll(X, y, num_labels, lambda)
 7  %output:
 8  all_theta =
 9    -0.559478   0.619220  -0.550361  -0.093502
10    -5.472920  -0.471565   1.261046   0.634767
11     0.068368  -0.375582  -1.652262  -1.410138
```

====

predictOneVsAll:

```
 1   % input:
 2   all_theta = [1 -6 3; -2 4 3];
 3   X = [1 7; 4 5; 7 8; 1 4];
 4   predictOneVsAll(all_theta, X)
 5   %output:
 6   ans =
 7      1
 8      2
 9      2
10      1
```

Note: your prediction function should NOT include any use of a fixed threshold. Select the classifier with the maximum output.

=====

predict:

```
 1   Theta1 = reshape(sin(0 : 0.5 : 5.9), 4, 3);
 2   Theta2 = reshape(sin(0 : 0.3 : 5.9), 4, 5);
 3   X = reshape(sin(1:16), 8, 2);
 4   p = predict(Theta1, Theta2, X)
 5   % you should see this result
 6   p =
 7      4
 8      1
 9      1
10      4
11      4
12      4
13      4
14      2
```

Note: your prediction function should NOT include any use of a fixed threshold. Select the classifier with the maximum output.

Here are the values for the "a3" layer in the test case for predict().

```
 1   a3 =
 2
 3      0.53036    0.54588    0.55725    0.56352
 4      0.54459    0.54298    0.53754    0.52875
 5      0.49979    0.49616    0.49288    0.49024
 6      0.41357    0.42199    0.43736    0.45844
 7      0.37321    0.40368    0.44349    0.48911
 8      0.42073    0.45935    0.50210    0.54464
 9      0.50962    0.53216    0.55173    0.56659
10      0.54882    0.55033    0.54738    0.54021
```
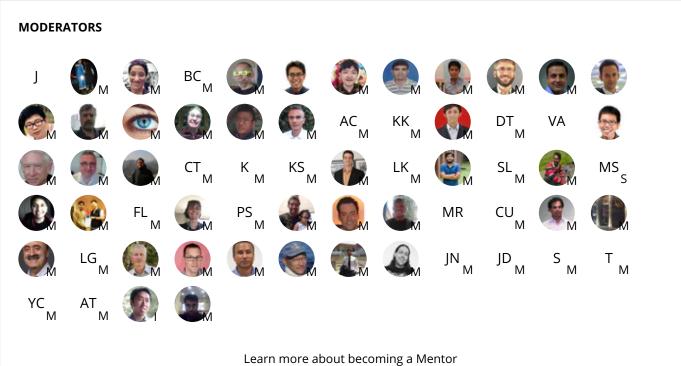
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