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ex5 test case linearRegCostFunction



Tom Mosher · Mentor · Assignment: Regularized Linear Regression and Bias/Variance · 3 years ago · Edited

Here is a test case for linearRegCostFunction().



```
1 X = [[1 1 1]' magic(3)];
2 y = [7 6 5]';
3 theta = [0.1 0.2 0.3 0.4]';
4 [J g] = linearRegCostFunction(X, y, theta, ?)
5
6 %--- results based on value entered for ? (lambda)
7 -----
8 lambda = 0 | lambda = 7
9 -----
10 J = 1.3533 | J = 1.6917
11 g = | g =
12 -1.4000 | -1.4000
13 -8.7333 | -8.2667
14 -4.3333 | -3.6333
15 -7.9333 | -7.0000
```

Here is a test case with just one training example in X.

- helps with debugging problems in learningCurve()

```
1 X = [1 2 3 4];
2 y = 5;
3 theta = [0.1 0.2 0.3 0.4]';
4 [J g] = linearRegCostFunction(X, y, theta, 7)
5
6 % results
7 J = 3.0150
8 g =
9 -2.0000
10 -2.6000
11 -3.9000
12 -5.2000
13
14
```

=====

keywords: ex5 test case linearregcostfunction

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David Gill · 2 years ago · Edited



This may be helpful to others as it's a convenient way to test via octave unit test. Here's the unit test version of the test case (just run with "test linearRegCostFunction"). Add to very bottom of code after end in file:



```
1 %!test
2 %! X = [[1 1 1]' magic(3)];
3 %! y = [7 6 5]';
4 %! theta = [0.1 0.2 0.3 0.4]';
5 %! lambda = 0
6 %! [J0 g0] = linearRegCostFunction(X, y, theta, lambda);
7 %! [J7 g7] = linearRegCostFunction(X, y, theta, 7);
8 %! Jexpected_lambda0 = 1.3533;
9 %! Gexpected_lambda0 = [-1.4000; -8.7333; -4.3333; -7.9333;];
10 %! Jexpected_lambda7 = 1.6917;
11 %! Gexpected_lambda7 = [-1.4000; -8.2667; -3.6333; -7.0000;];
12 %! assert(J0, Jexpected_lambda0, .0001);
13 %! assert(g0, Gexpected_lambda0, .0001);
14 %! assert(J7, Jexpected_lambda7, .0001);
15 %! assert(g7, Gexpected_lambda7, .0001);
16
```

↑ 15 Upvotes Reply



Li Lei · 2 years ago



Thanks a lot!!

An error come up when I submit: "Submission failed: unexpected error: A(I) = X:
X must have the same size as I." And the most interesting part is that it passed
ex5.

And this test help me find the root cause!

Thanks again!

↑ 0 Upvotes Reply

EZ

E. Kevin Zembower · 2 years ago



I've been working on the Ex 5 regularize gradient for the last two hours, but still
can't get the right answer for the test case:

```
1 > X = [[1 1 1]' magic(3)];
2 y = [7 6 5]';
3 theta = [0.1 0.2 0.3 0.4]';
4 [J g] = linearRegCostFunction(X, y, theta, 7)
5 >> J = 1.6917
6 g =
7 -9.8000
8 -60.6667
9 -29.6333
10 -54.6000
11 >
```

As you can see, the Cost is correct, but the gradient is wildly wrong.

In words, this is what I do to calculate the regularized gradient: