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CS 542 Problem Set 3  
Discussed with classmates  
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1. Written Problems

1. Bishop 5.3

Let

If is fixed and known, then we would have

If otherwise, then we have

By setting derivative w.r.t.

1. Bishop 5.4

Let be the true class label.

1. Bishop 5.26

Since , we have

, which is equivalent to (5.128)

Now, we have

As is propagated forward by , we have for the output layer, and can the be computed as

For the derivatives,

Let

Then

With 5.74, we can get

2. Programming

Available in ‘starter’ folder.