```
C:\Users\Chenkov\AppData\Local\Programs\Python\Python35\python.exe "C:/Users/Chenkov/source/repos/CSE 691 AS2_2/runSvmSoftmax.py"
Using TensorFlow backend.
Train image shape:    (49000, 32, 32, 3)
Train label shape:    (49000,)
Validate image shape: (1000, 32, 32, 3)
Validate label shape: (1000,)
Test image shape:     (10000, 32, 32, 3)
Test label shape:     (10000,)
Train image shape after add bias column:   (49000, 3073)
Val image shape after add bias column:     (1000, 3073)
Test image shape after add bias column:    (10000, 3073)

############################################################################################
Start training Svm classifier
Loop 0 loss 154732.15199477275
Loop 100 loss 20718.522316164763
Loop 200 loss 2777.7602872808466
Loop 300 loss 375.6369899717783
Loop 400 loss 55.4377341245892
Loop 500 loss 13.120482229327635
Loop 600 loss 7.2961210704489154
Loop 700 loss 6.979803104177125
Loop 800 loss 6.981198517991036
Loop 900 loss 7.034248163747257
Loop 1000 loss 6.905268774987727
Loop 1100 loss 6.815247145060927
Loop 1200 loss 6.528803182949577
Loop 1300 loss 6.600383141059076
Loop 1400 loss 6.974982357441167
Training time: 5.381791591644287
Training acc:   35.58571428571429%
Validating acc: 36.1%
Testing acc:    35.66%

Finding best model for Svm classifier
Best validation accuracy: 38.2
Best Model parameter, lr = 0.1, reg = 0.08
Training acc:   38.26122448979592%
Validating acc: 38.2%
Testing acc:    36.4%

############################################################
```

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42 ####################################
43 Start training Softmax classifier
44 Loop 0 loss 154881.42094040208
45 Loop 100 loss 20751.626260628254
46 Loop 200 loss 2779.648189453939
47 Loop 300 loss 373.60925502174456
48 Loop 400 loss 51.7462785614722
49 Loop 500 loss 8.795419556688083
50 Loop 600 loss 3.0562877839199296
51 Loop 700 loss 2.2163702759196395
52 Loop 800 loss 2.1648095643623564
53 Loop 900 loss 2.141086250474265
54 Loop 1000 loss 2.1975597390645176
55 Loop 1100 loss 2.1314557577293045
56 Loop 1200 loss 2.150309477679954
57 Loop 1300 loss 2.182779680642658
58 Loop 1400 loss 2.1688429072264843
59 Training time: 5.376464366912842
60 Training acc:   31.00204081632653%
61 Validating acc: 32.7%
62 Testing acc:    31.55%
63
64 Finding best model for Softmax classifier
65 C:\Users\Chenkov\source\repos\CSE 691 AS2_2\softmax.py:59
   : RuntimeWarning: divide by zero encountered in log
66   loss_i = - np.log(p_yi)
67 Best validation accuracy: 35.099999999999994
68 Best Model parameter, lr = 0.1, reg = 0.08
69 Training acc:   33.06530612244898%
70 Validating acc: 35.099999999999994%
71 Testing acc:    30.620000000000005%
72
73 Process finished with exit code 0
74
```