neural_network_l2_number_of_unzero_coef

January 30, 2019

In [1]:
```
import numpy
from models import neural_network
```

In [2]:
```
X = numpy.loadtxt("./data/Train/X_train.txt")
y = numpy.loadtxt("./data/Train/y_train.txt")
```

In [5]:
```
C = [1e-4, 2e-4, 5e-4, 1e-3, 2e-3, 5e-3, 1e-2, 1e-1, 1, 1e1, 1e2]
report = []
for c in C:
    clf = neural_network.penalty_l2(X, y, c)
    non_zero = 0
    for coefi in clf.coefs_:
        for coefij in coefi:
            for coefijk in coefij:
                if(coefijk > 1e-6):
                    non_zero += 1
    data = {
        'C': c,
        'non-zeros': non_zero
    }
    report.append(data)
    print("{} is completed".format(c))
```

```
0.0001 is completed
0.0002 is completed
0.0005 is completed
0.001 is completed
0.002 is completed
0.005 is completed
0.01 is completed
0.1 is completed
1 is completed
10.0 is completed
100.0 is completed
```

In [6]:
```
report
```

```
Out[6]: [{'C': 0.0001, 'non-zeros': 16195},
         {'C': 0.0002, 'non-zeros': 15969},
         {'C': 0.0005, 'non-zeros': 16018},
         {'C': 0.001, 'non-zeros': 16220},
         {'C': 0.002, 'non-zeros': 16072},
         {'C': 0.005, 'non-zeros': 16238},
         {'C': 0.01, 'non-zeros': 16109},
         {'C': 0.1, 'non-zeros': 16141},
         {'C': 1, 'non-zeros': 16031},
         {'C': 10.0, 'non-zeros': 15967},
         {'C': 100.0, 'non-zeros': 14581}]
```