HW7 Large-scale Logistic Regression

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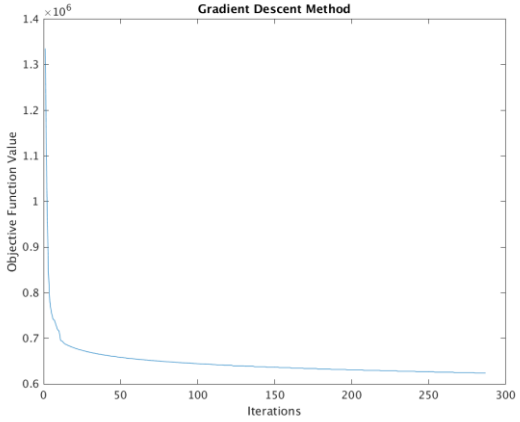
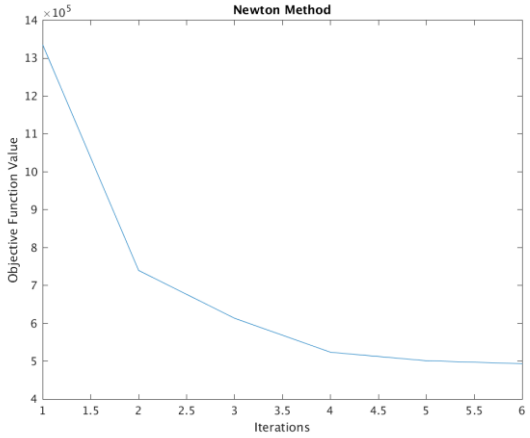
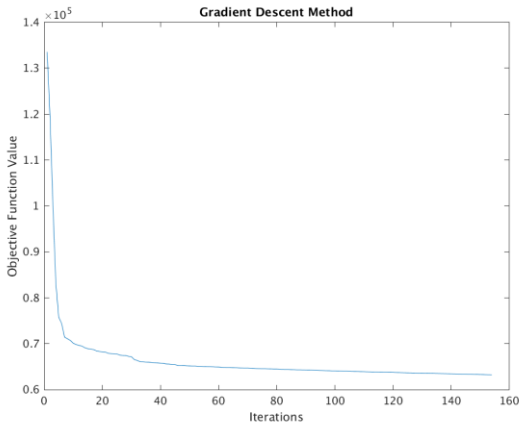
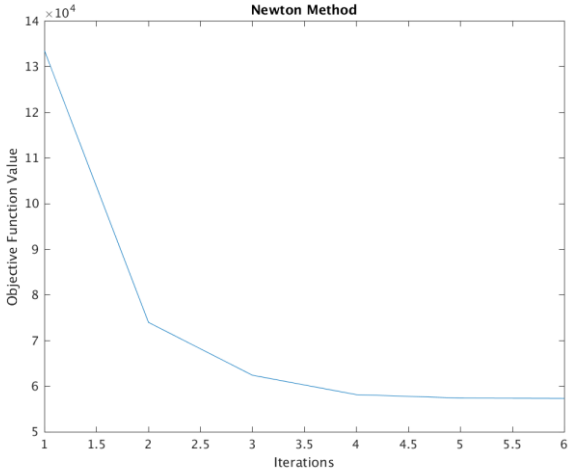
1. Learning Curve Comparison:

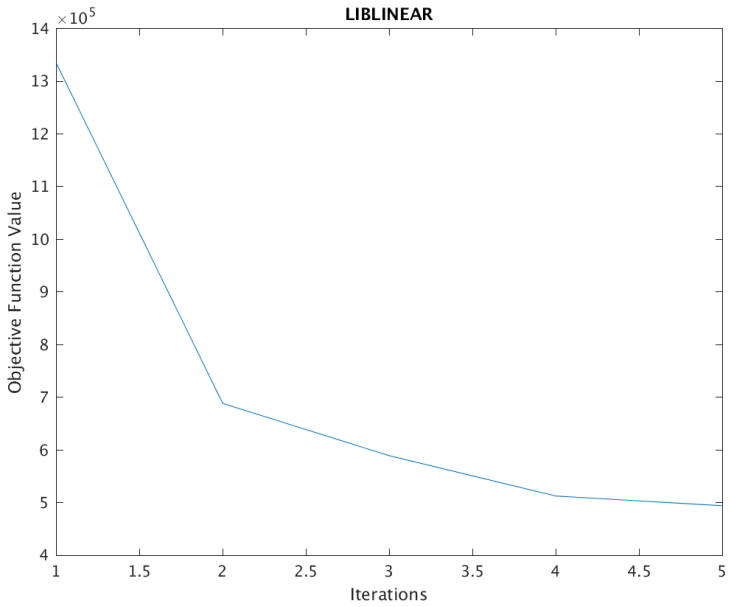
Setting: η = 0.01, ε = 0.01, ξ = 0.1

	Gradient Descent Method	Newton Method
C = 0.1		
C = 0.01		
Conclusion	No matter what C value is, Gradient Descent method requires more steps. Also, we can observe that as C value becomes greater, the more steps are needed.	For both C values, Newton Method converges extremely more quickly than Gradient Descent Method.

2. Compared with LIBLINEAR:

Command: ./liblinear/train -s 0 -c 0.1 -e 0.01 kddb kddb.model

LIBLINEAR Learning Curve



By the learning curve, we can easily conclude that LIBLINEAR use Newton Method. However, we cannot easily tell the difference between trust region and line search.