CS5487 Programming Assignment 1

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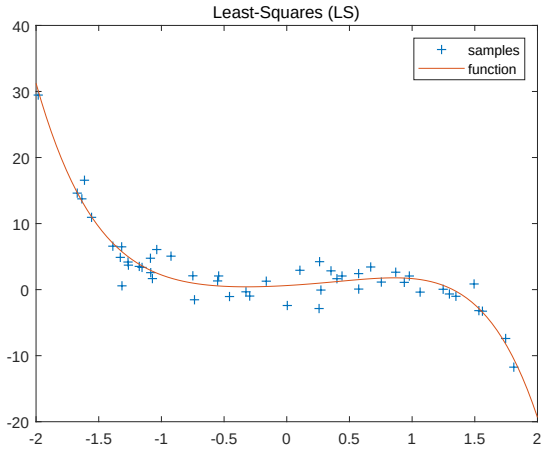
Polynomial Function

(a) Implement 5 regression algorithms

Source code can be found at `https://github.com/yangji12138/machine-learning/tree/master/Programming%201` or the Codes Appendix.

(b) Using Sample Data to estimate 5-th order poly function

	Least-Sqaures (LS)	Regularized LS (RLS) $\lambda = 0.48$	L1-Regularized LS (LASSO) $\lambda = 0.48$
MSE	0.4086	0.4076	0.4086
	Robust Regression (RR)	Bayesian Regression (BR)	
MSE	0.7680	0.4592	



Conclusion

Observe the experiment results, we can find that:

(i) For London, the cells could be approximately divided into two clusters: 45%(π) 0.8(λ); 55%(π) 1.0(λ).

(ii) For Antwerp, the cells could be approximately divided into two clusters: 40%(π) 0.85(λ); 60%(π) 2.3(λ).

Codes

Source code can be found at `https://github.com/yangji12138/machine-learning/tree/master/Programming%201`.