

Problem 1(2)

Gradient Descent Implementation

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The gradient descent method is implemented with the stopping criterion of $1e-6$ and without the Armijo line search. The initial guess value is $(1,1)$. The convergence and contour plots obtained are as follows. As observed, the values of A_{12} and A_{21} are 1.9572 and 1.685 respectively which agree with the values obtained by the implementation of the `lsqnonlin` command in MATLAB. See the attached gradient descent codes.

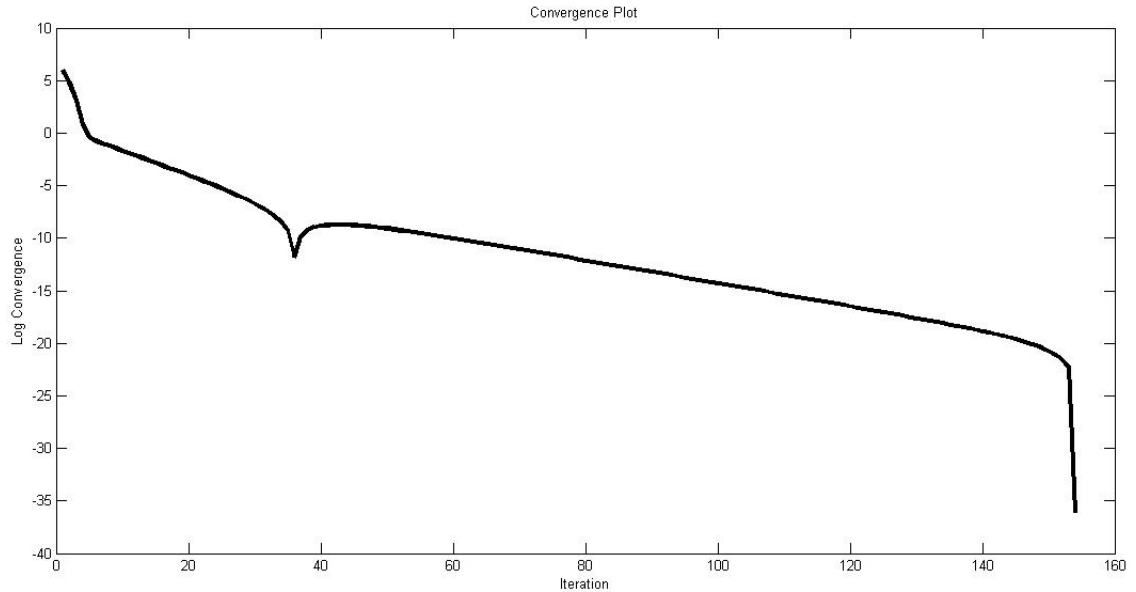


Figure 1: Convergence plot

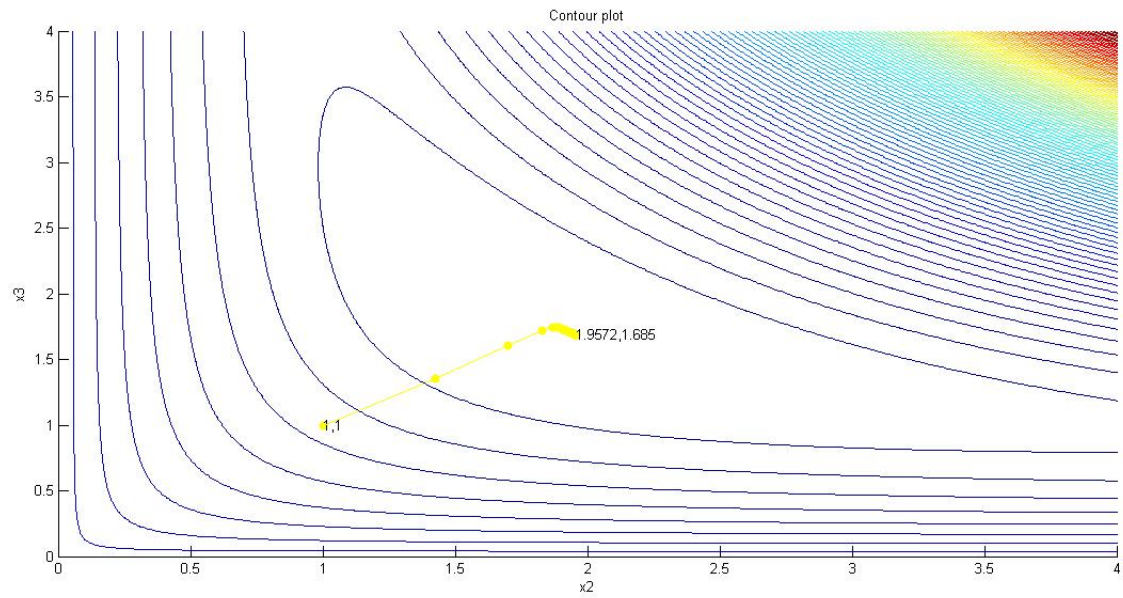


Figure 2: Contour plot with the values of A_{12} and A_{21}