Coursework 6: STAT 570

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1. In this question, you will implement the algorithm you described in Question 4 of Exercises 5. The algorithm derived in 4(b) will now be implemented for the prostate cancer data. These data are available in the R package `lasso2` and are named `Prostate`. Take Y as log prostate specific antigen and x as log cancer volume. Implement the blocked Gibbs sampling algorithm using the prior given in the first equation of the aforementioned question, with $m_0 = m_1 = 0$, $v_{00} = v_{11} = 2$, $v_{01} = 0$, and $a = b = 0$. Run two chains, one with starting values corresponding to the unbiased estimates of the parameters and one starting from a point randomly generated from the prior $\pi(\beta_0, \beta_1)$. Report:

   (a)

   (b)

   (c)