HW 10 Problems

Linear mixed effect models
Consider the following model
$$y_{ij} = x'_{ij}\beta + z'_{ij}\alpha_i + e_{ij}$$
$$e_{ij} \sim N(0, \sigma^2)$$
$$x_{ij} = z_{ij} = (1, age_{ij})'$$

We can choose the following priors
$$\alpha_i \sim N_2(0, \Omega)$$
$$\beta \sim N_2(0, I)$$
$$\sigma^{-2} \sim Ga(1, 1)$$

Consider 2 different approaches for random effect covariance
(1) $\Omega \sim IW(3, I)$
(2) Let $\alpha_i = \Lambda\alpha_i^*$ where $\alpha_i^* \sim N_2(0, I)$ and define a "reasonable" conditionally-conjugate prior for Ω

To do:
Normalize y's
Derive Gibbs in both cases and code it
Implement for provided blood pressure data and comment on between vs. within subject variance