1 Simple Linear Regression

1.1 Question of the Day

1.2 The Model

$$
\begin{aligned}
f(\beta_0, \beta_1, \sigma \mid y) &= \frac{\text{prior} \cdot \text{likelihood}}{\int \text{prior} \cdot \text{likelihood}} \\
&= \frac{f(\beta_0) f(\beta_1) f(\sigma) \cdot [\prod_{i=1}^{n} L(\beta_0, \beta_1, \sigma | y_i)]}{\int \int \int f(\beta_0) f(\beta_1) f(\sigma) \cdot [\prod_{i=1}^{n} L(\beta_0, \beta_1, \sigma | y_i)] \, d\beta_0 d\beta_1 d\sigma}
\end{aligned}
$$

1.3 Posterior Prediction

Steps

1. Calculate the regression trend.
2. Sample from Normal Likelihood model centered at this trend with standard deviation $\sigma^{(i)}$.

How good is the posterior predictive model?