Homework 5 - Model Selection

The following table gives the SSE values from fitting multiple regression models on a data set of size $n = 356$ that involves a continuous response Y and three predictors (X_1, X_2 continuous and X_3 categorical with 4 levels). Compute their corresponding AIC and BIC measures respectively and identify the best model accordingly. Note that

$$\begin{aligned} \text{AIC} &= n \cdot \log(SSE) + 2 \times (k+2) \\ \text{BIC} &= n \cdot \log(SSE) + \log(n) \times (k+2). \end{aligned}$$

Table 1: Sum of Squares for Error

Terms	**SSE**	**AIC**	**BIC**
X_1	332.53		
X_2	231.89		
X_3	226.34		
X_1, X_2	158.86		
X_1, X_3	89.45		
X_2, X_3	96.66		
X_1, X_2, X_3	87.34		

Answer Key: the k values for the above models are 1, 1, 3, 2, 4, 4, and 5, respectively.