

Linear Model:

$$y_i = b_0 + b_{SNP1} \cdot X_{i,1} + b_{SNP2} \cdot X_{i,2} + \dots + b_{SNP150000} \cdot X_{i,150000} + e_i$$

$$\underline{b} = \begin{bmatrix} b_0 \\ b_{SNP1} \\ b_{SNP2} \\ \vdots \\ b_{SNP150000} \\ b_{\epsilon} \end{bmatrix}$$

Important

Least Squares Solution
can no longer be used
because $(X^T X)^{-1}$ cannot
be computed.

In R: `lm(---)` \Rightarrow Error

Solution:

1. Separate meaningful predictors from predictors which are not important
 \Rightarrow Model selection.