

Problems to be submitted for the Assignment:

- 1) Text book, Chapter 3 Exercises #3.1, #3.2
- 2) Text book, Chapter 3 Exercises #3.6
- 3) Text book, Chapter 3 Exercise# 3.9
- 4) Text book, Chapter 3 Exercise #3.10
- 5) Text book, Chapter 3 Exercise #3.24
- 6) Text book, Chapter 3 Exercise #3.26
- 7) In the general linear model $\mathbf{Y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$, $E[\boldsymbol{\varepsilon}] = 0$, $V[\boldsymbol{\varepsilon}] = \sigma^2\mathbf{I}$. Let $\mathbf{X}_{n \times p} = [\mathbf{x}_1, \mathbf{x}_2, \dots, \mathbf{x}_p]$. Show that β_p is estimable if $\mathbf{x}_p \notin C[\mathbf{x}_1, \mathbf{x}_2, \dots, \mathbf{x}_{p-1}]$, the column space spanned by the other explanatory variables $\mathbf{x}_1, \mathbf{x}_2, \dots, \mathbf{x}_{p-1}$.

Try to work on as many of the following Unassigned Problems as possible:

- 1) Text book, Chapter 3 Exercises #3.7, #3.8, #3.9 {More practice part}, #3.16, #3.22, #3.25