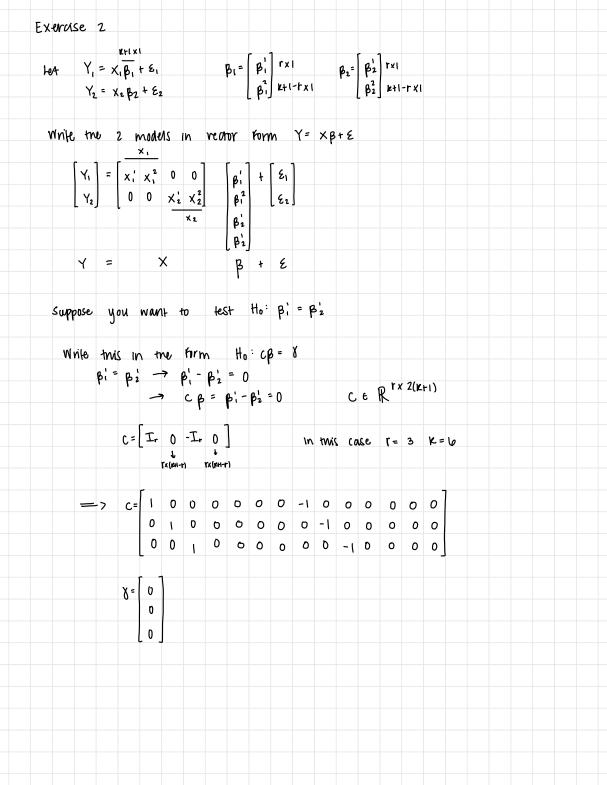
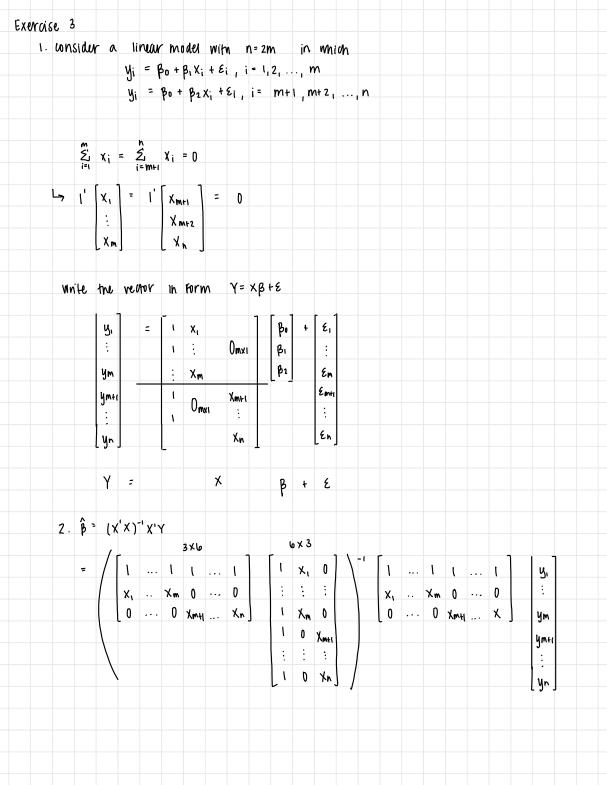
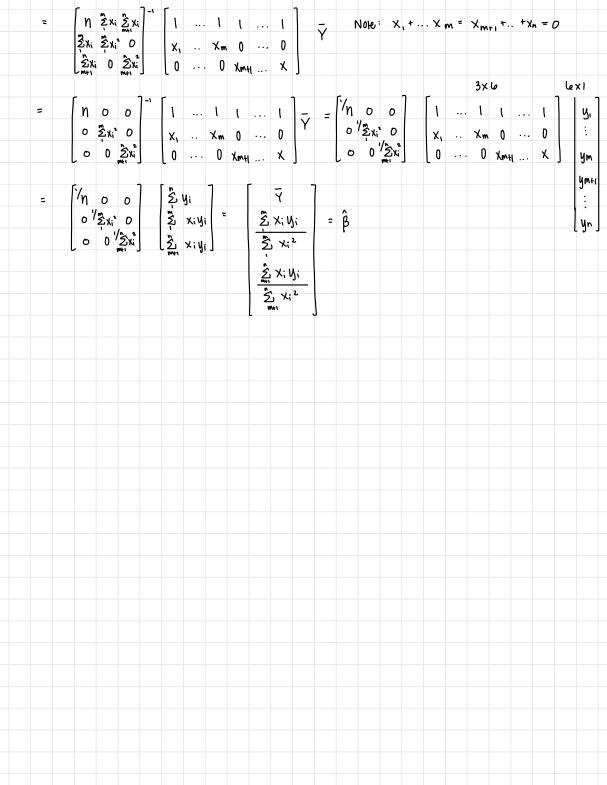
Expresse [a. $\Gamma_{yu}^{-1} = \frac{\text{SSE} \{x_{s_1}, x_{s_1}, x_{u_1}\} - \text{SSE} \{x_{s_1}, x_{s_1}, x_{u_1}\}}{\text{SSE} \{x_{s_1}, x_{s_1}, x_{u_1}\}} = 0.79491$ = $\frac{1}{1^2} + (n - k - 1) = \frac{(-5.529)^2}{(-5.529)^2 \cdot 354} = 0.79491$ b. $VIF_1 = (n - 1) S_{x_1}^2 V_{u_1} = (359 - 1) = 0.7300493 (7.007232 \times 10^{-5}) = 1.0515$ c. $\hat{J}_1 = \hat{J}_1 = \hat{J}_2 = \hat{J}_1 = 1.0515$ Var $(\hat{J}_1) = \hat{J}_2 = \hat{J}_1 = 1.0515$ var $(\hat{J}_1) = \hat{J}_1 = 1.0515$ 1. $(n - 1) S_{x_1}^2 = 1.0515$ 2. $(n - 1) S_{x_1}^2 = 1.0515$ 3. $(n - 1) S_{x_1}^2 = 1.0515$ 4. $\hat{J}_2 = \hat{J}_1 = 1.0515$ 3. $\hat{J}_3 = \hat{J}_1 = 1.0515$ 4. $\hat{J}_3 = \hat{J}_1 = 1.0515$ 5. $\hat{J}_4 = \hat{J}_1 = 1.0515$ 6. $\hat{J}_5 = \hat{J}_1 = 1.0515$ 7. $\hat{J}_5 = 1.0515$ 8. $\hat{J}_5 = 1.0515$ 9. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 3. $\hat{J}_5 = 1.0515$ 4. $\hat{J}_5 = 1.0515$ 5. $\hat{J}_5 = 1.0515$ 6. $\hat{J}_5 = 1.0515$ 7. $\hat{J}_5 = 1.0515$ 9. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 3. $\hat{J}_5 = 1.0515$ 4. $\hat{J}_5 = 1.0515$ 5. $\hat{J}_5 = 1.0515$ 6. $\hat{J}_5 = 1.0515$ 7. $\hat{J}_5 = 1.0515$ 9. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 3. $\hat{J}_5 = 1.0515$ 4. $\hat{J}_5 = 1.0515$ 5. $\hat{J}_5 = 1.0515$ 6. $\hat{J}_5 = 1.0515$ 7. $\hat{J}_5 = 1.0515$ 9. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 3. $\hat{J}_5 = 1.0515$ 4. $\hat{J}_5 = 1.0515$ 5. $\hat{J}_5 = 1.0515$ 6. $\hat{J}_5 = 1.0515$ 7. $\hat{J}_5 = 1.0515$ 9. $\hat{J}_5 = 1.0515$ 1. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 2. $\hat{J}_5 = 1.0515$ 2.	1. A T/N (/	(CO. 1															Blas		
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Exeruse 4

Suppose a nuw case
$$(Y_0, X_0)$$
 is added to the data (Y_1X) . Snow that the new entry sum of squares will increase by

$$\begin{array}{c}
e^2 \\
\hline
1! X_0'(X'X)^TX & \text{where } e = Y_0 - X_0' \hat{p}_{\text{add}} & \text{and } \hat{p}_{\text{ad}} = (X'X)^{-1}X'Y \\
\hline
\text{From handout $$^{\pm}46$}.
\\
SSE_{\text{num}} = (Y_0 - X_0^{\pm})^{\pm} + (Y_0 - X_0^{\pm})^{$$

$$= \underbrace{e^{i}e}_{} + e^{2} \left(1 - \frac{2(n+n^{2})}{(1+n^{2})} + \frac{n+n^{2}}{(1+n^{2})} \right) = \underbrace{e^{i}e}_{} + e^{2} \left(1 - \frac{n+n^{2}}{(1+n^{2})} \right)$$

$$= \underbrace{e^{1}e}_{} + e^{2} \left[\frac{(1+n)^{2} - h - h^{2}}{(1+h)^{2}} \right] = \underbrace{e^{1}e}_{} + \underbrace{e^{2}}_{} \left[\frac{1+2h + h^{2} - h - h^{2}}{(1+h)^{2}} \right]$$

$$= \underbrace{e^{1}e}_{} + e^{2} \left[\frac{1-h}{(1-h)^{2}} \right] = \underbrace{e^{1}e}_{} + \underbrace{e^{2}}_{} + \underbrace{e^{2}}_{} + \underbrace{h - X_{o}^{1}(X'X)^{-1}X_{o}} \right]$$

$$= > \underbrace{SSE_{nw}}_{} = \underbrace{SSE}_{} + \underbrace{e^{2}}_{} + \underbrace{h - X_{o}^{1}(X'X)^{-1}X_{o}}$$

$$= > \underbrace{SSE_{nw}}_{} = \underbrace{SSE}_{} + \underbrace{e^{2}}_{} + \underbrace{h - X_{o}^{1}(X'X)^{-1}X_{o}}$$

Exercise 5

B~ Geta
$$(\frac{1}{2} \alpha, \frac{1}{2} \beta)$$
 $F = \frac{\beta \beta}{\alpha(1-\beta)}$

$$F_{F}(t) = P(F \leq t) = P(\frac{\alpha(1-B)}{B} \leq t) = P(\frac{1-B}{B} \leq \frac{\beta}{\alpha t})$$

snow that F~ Fair

$$= P(B \leq \frac{\alpha F}{\beta} (1 - B)) = P(B \leq \frac{\alpha F}{\beta} - \frac{B\alpha F}{\beta})$$

$$= P(B + \frac{B\alpha F}{\beta} \leq \frac{\alpha F}{\beta}) = P(B(\frac{\beta + \alpha F}{\beta}) \leq \frac{\alpha F}{\beta})$$

$$= P(B + \frac{B \alpha F}{\beta} \leq \frac{\alpha F}{\beta}) = P(B(\frac{B + \alpha F}{\beta}) \leq \frac{\alpha F}{\beta})$$

$$= P(B \leq \frac{\alpha F}{\beta + \alpha F}) = P(F(F) = F_B(\frac{\alpha F}{\beta + \alpha F}) \leq \frac{\alpha F}{\beta})$$

$$F_{F}(F) = F_{B}\left(\frac{\alpha F}{\beta + \alpha F}\right) = \frac{\alpha F}{\beta + \alpha F} = \frac{\alpha F}{\beta + \alpha F}$$

$$F_{F}(F) = F_{B}\left(\frac{\alpha F}{\beta + \alpha F}\right) = \frac{\alpha (\beta + \alpha F) - \alpha (\alpha F)}{(\beta + \alpha F)^{2}} F_{B}\left(\frac{\alpha F}{\beta + \alpha F}\right)$$

$$F_{F}(F) = \frac{\alpha B}{(\beta + \alpha F)^{2}} \frac{\Gamma(\alpha + \beta)}{\Gamma(\alpha) \Gamma(\beta)} \left(\frac{\alpha F}{\beta + \alpha F}\right)^{\alpha - 1} \left(1 - \frac{\alpha F}{\beta + \alpha F}\right)^{\beta - 1}$$

$$=\frac{\Gamma\left(\alpha+\beta\right)}{\Gamma\left(\alpha\right)\Gamma\left(\beta\right)}\left(\frac{\alpha}{\beta}\right)^{\alpha/2}\left(\frac{\alpha F}{\beta + \alpha F}\right)^{\frac{\alpha}{2}-1}\left(1+\frac{\alpha}{\beta}\left(\frac{\alpha F}{\beta + \alpha F}\right)\right]^{-\frac{1}{2}}\left(\alpha + \beta\right)$$

Know the part of
$$X \sim F_{n_1, n_2}$$
 is:
$$F(X) = \frac{\Gamma\left(\frac{n_1+n_2}{2}\right)}{\Gamma\left(\frac{n_1}{2}\right)\Gamma\left(\frac{n_2}{2}\right)} \left(\frac{n_1}{n_2}\right)^{n_1/2} X^{\frac{n_1}{2}-1} \left(1 + \frac{n_1}{n_2} X\right)^{-1/2} (n_1 + n_2)$$

=> if
$$X = \frac{x F}{\beta + \alpha F}$$
, $N_1 = \alpha$, $N_2 = \beta$
thum $\frac{\beta \beta}{\alpha (1 - \beta)}$ if $F_{\alpha, \beta}$