Payameten Estimation Assignment

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for a Normal distribution @1)

Variance = Q_{χ} $\frac{1}{2}(\chi) = \frac{1}{2}(\chi - Q_{\chi})^{2}$ 1270,

interpretations: $\frac{1}{2}(x_1, x_2, x_3, \dots, x_n) = \prod_{i=1}^{n} f(x_i)$

 $L(X_1, X_2...X_n) = 1$ $(2 \times 0_1)^2$

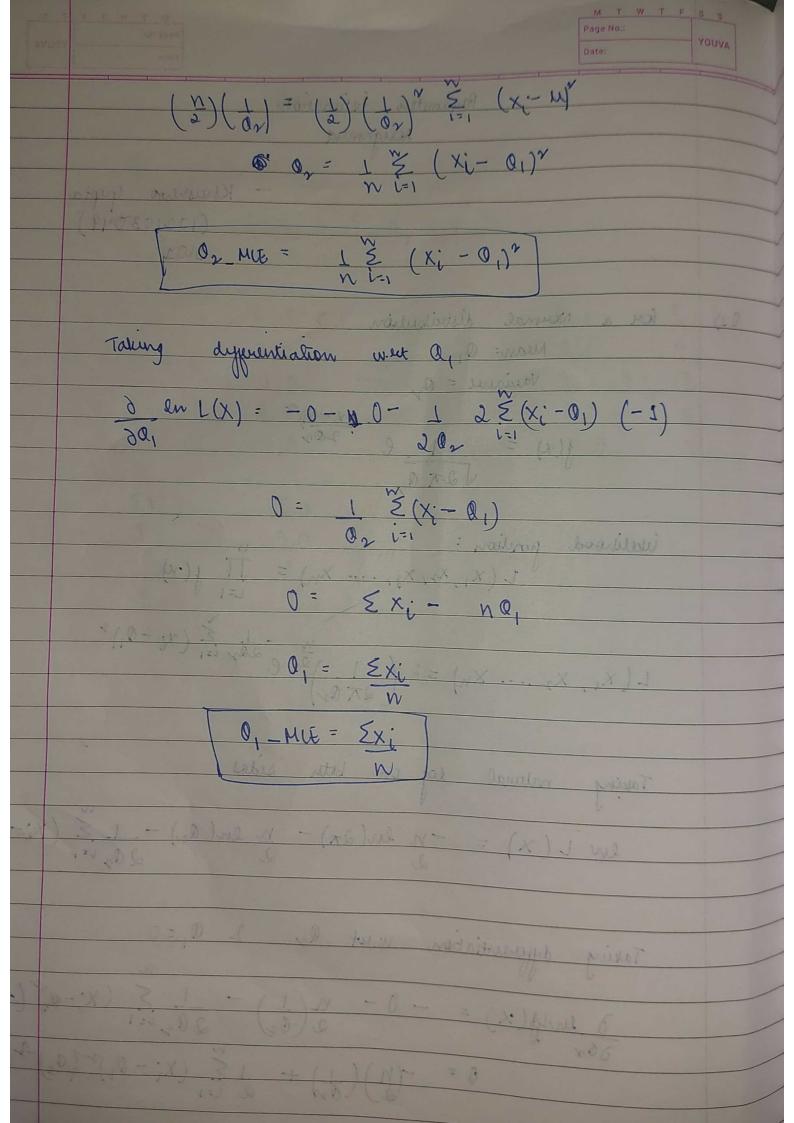
Taking natural log on beth sides

 $en L(X) = -n ln(2x) - n ln(0x) - L \(\int (Xi - 0i)^2 \)$

Toking dypocertiation what les & 0, =0

 $\frac{\partial \ln \mu(x)}{\partial \sigma} = -0 - \frac{\pi}{2} \frac{1}{(\sigma_2)} - \frac{1}{2} \frac{\xi}{(x_2 - \alpha_2)^2} \frac{(-1)(\sigma_2)^2}{(-1)(\sigma_2)^2}$

0 = -(h)(d) + 2 = (x; -0,)2 (0,)2 (1)



for binomial distribution B(m, p) 02) f(x) = m(2 px (1-p) m-x Willhood Junitani L(p) = TT m (xipni (1-p) m xi Taking natural esq on both sides \$\text{ln L(p) = \text{ln m(n)}} lm p (Eni) + ln(1-p) (m- Eni) = n(zlnp+(1-z) ln(1-p)) To perferentialing w.r.t p $\frac{\partial}{\partial \rho} \ln L(\rho) = n(\bar{x} - 1 - \bar{x}) = n(\bar{x} - \rho)$ $\frac{\partial}{\partial \rho} \ln L(\rho) = n(\bar{x} - \rho)$ · P-MLE 3 X

.. [0_MLE = X

En question p=0