	Page No.: Date: YOUVA					
	Avanter Estination Maigneur					
٩ı	Let (X1, X2,) be a nondone sample of size or taken from a Normal Population with parameters; man = 8, and					
	variance = 82. Find the Maxwell Likelinood formations					
	Estimates of these parameters					
14	Given:					
	Souple (+1,+2 +1) foral a named distribution					
	Mean $\mu = \theta_1$, Variance $\sigma^2 = \theta_2$					
	likelihood Function for noveal distribution:					
	$\frac{1}{L(\theta_1, \theta_2 \mid x)} = \prod_{i=1}^{n} \frac{1}{2n \theta_2}$					
	7 211 82					
	8th Taking log on both sides					
	$\ln(L) = -\frac{n}{2} \ln(2\pi) - \frac{n}{2} \ln(\theta_2) - \frac{1}{2\theta_2} \sum_{i=1}^{2} (x_i - \theta_i)^2$					
	MLE for 8,: 3 lu(1)					
	Jane 191 6' : Operation					
	$\frac{3\ln(1)}{3\theta_{1}} = \frac{-0}{0} - \frac{1}{0} = \frac{(x)(-1)\sum_{i=1}^{n} (x_{i} - \theta_{i})}{2\theta_{n}}$					
	$\frac{\partial 2n(L)}{\partial \theta_{i}} = \sum_{i=1}^{n} (x_{i} - \theta_{i})$					
	701					
	· To set this to new and = 0					
	· To set this to new , Deule) = 0					
	$\Sigma(x_i - \theta_1) = 0$					
	$\sum_{i=1}^{\infty} (x_i - \theta_i) = 0$					
	$\Sigma x_i - u\theta_i > 0$					
	$\sum_{i=1}^{n} x_i^2 - u\theta^i > 0$					
	n					

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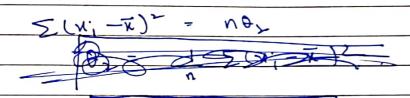
MLE for 02: 3 m (h)

 $\frac{\partial \ln(L)}{\partial \theta_{2}} = \frac{-n}{-0} - \frac{n}{2\theta_{2}} + \frac{1}{2\theta_{2}^{2}} \frac{\sum_{i=1}^{2} (x_{i} - \theta_{i})^{2}}{2\theta_{2}^{2}}$

To maximize, set the derivative to 0

$$\frac{-n}{2\theta_{2}} + \frac{1}{2\theta_{2}^{2}} \sum_{i=1}^{2} (x_{i} - \theta_{i})^{2} = 0$$

$$\frac{1}{2\theta_{2}^{2}}\sum_{i=1}^{n}(x_{i}-\theta_{i})^{2}=\frac{n}{2\theta_{2}}$$



$$\theta_{\nu} = \frac{1}{\nu} \sum_{i} (x_i - \overline{x})^2$$

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92	Let (X1, X2, Xn) be a random sample from B(m, 0)
	ai my numeral ni (1,0) @ 3 p eradou poissadudais
	a known positive virteger. Compute value of 8 using the
12	Given:
	O Cauple (X1, X2 - Xn) form a Binomial distribution Blogo
	@ ADM is a known positive integer
	(1,0) resented osil we is neurandru ai 8 (5)
	likelihood function for binarial distribution
	L(BIN) = & AZINI (I-A)MONON-ZINI
,	
	Taking eg -> en(L(BIX)) = (\(\frac{1}{2}\) \(\chi_1\) \(\lambda\)
	$3049Ll = \sum_{x=1}^{n} x = nm - \sum_{x=1}^{n} x$
	$\frac{\partial \text{onlg L}}{\partial \theta} = \frac{\sum_{i=1}^{n} x_{i}}{\theta} - \frac{\sum_{i=1}^{n} x_{i}}{1-\theta}$
	Solveing for B
	D= TEX
	nm ,