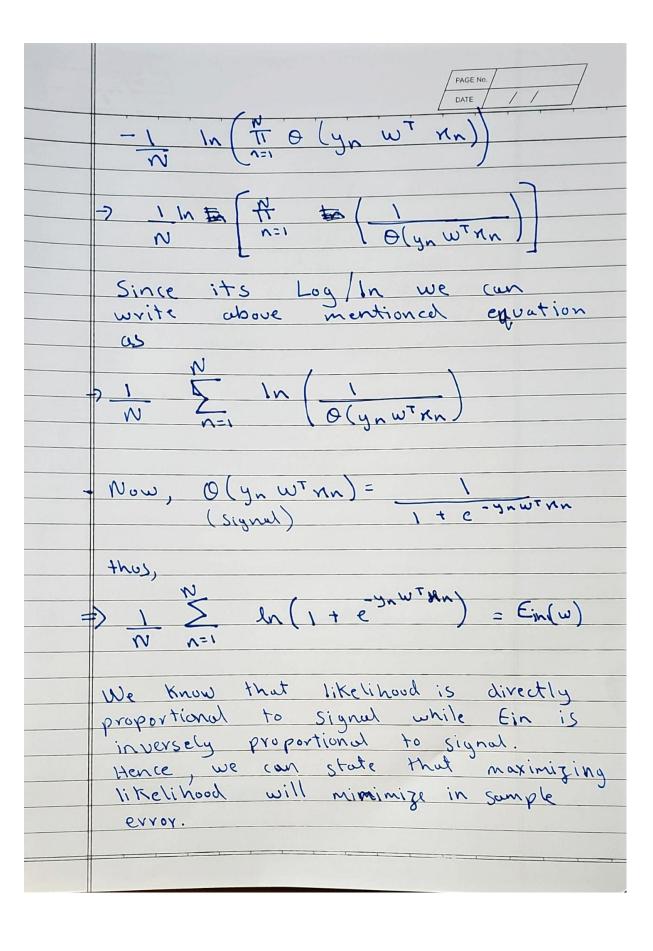
HW 2 – Machine Learning Introduction

All code is present in the GitHub repo
https://github.com/somesh-bagadiya/CMPE257-Fall23-Somesh-Bagadiya.git
Folder Name is HW 2

Task 1 HP 1

	PAGE NO DATE //
	Tick I Uni
	N
\rightarrow	N TT = P(yn Nn) is the likelihood N=1 Sor Linear Rey
	Now, Let's maximize it.
	Maximizing the like lihood is
	Morimizing the like lihood is equivalent to maximizing the below mentioned equation.
	mentioned equation.
	In (TO (yn w T Mn)) [mux]
	We are using 1 (In) because maximizi
	one one oriving thing perante waximist
	the above Likelihood will have
	monotonically increasing graph and
	monotonically increasing graph and the above mentioned eyn will also have monotonically increasing graph
	. But we don't want to maximize
	the in sample error, we want
	to minimize it.
	New ear will be.



Task 1 HP 2

	/ DAGE NO.
	DATE //
	· Task 1 , HP 2
	$\nabla E_{in} (w(t)) = ?$
	Eim (w) = 1 \sum In (1+e-9n w Trin)
19	220 1/120 N /N=1 /3//2/1990 2002
	TC. Vanutan
	VEIN = 1 \(\frac{1}{1+e^{-y_n w^T n n}} \) \(\left(\frac{1}{2} \nu w^T n n \right) \)
	1
	W W Tray
	$= \frac{1}{N} \sum_{n=1}^{N} \left(\frac{1}{1 + e^{-y_n w^T x n}} \right) \left(\frac{1}{1 + e^{-y_n w^T x n}} \right) \left(\frac{1}{1 + e^{-y_n w^T x n}} \right)$
J.	reve trends there will ever
- 27	12: W With tring words - shot my
7.	= 1 Et 1+ e-ynwikh (-ynkin e-ynwikh)
	, w (- 5n w Kn) -
	= -1 \(\frac{\sum_{\text{N}}}{\sum_{\text{N}}} \) \(\sum_{\t
	Q(S) = e ^S = 1
	:
-1	M N=1

Task 4

	Task 4 til o ca i) (ost Accept = (1-g(n)) (a
<u>a)</u>	
	complete classificat for Accept is True positive and Fuse Positive = g(n) xTP + (1-g(n) xFP
- IS	= g(rc)x0 + (1-g(rc)x (a = (1-g(rc)) (a ii) Similarly
	(ost Reject = g(n) x (r + (1-g(n)) xo
b)	Threshold is K, and Sov the
0)	System to be suiv (ost Accept = Cost Rejet $(1-g(r)) \cdot (\alpha = g(r)) \cdot (r)$
	$\frac{1}{O(N)} = \frac{CY}{C\alpha}$
	$\frac{1}{g(n)} = \frac{(\gamma + \alpha)}{\alpha} = \frac{g(n)}{(\gamma + \alpha)} = \frac{\alpha}{(\gamma + \alpha)}$

