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<u>Enrollment Number</u> – BT20ECE022

<u>Subject</u> - Artificial Intelligence (Contlo Assignment)

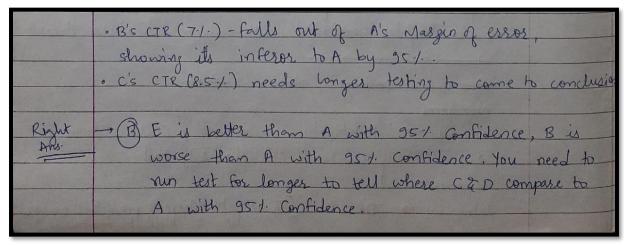
<u>Date</u> - 17/12/23

<u>Task 0</u>

Contlo Assignment	0.9
	1
QLA Assignment	
Q1) Likely relationship between warns, When, ,, K	newn, Wnewnie
Ans: case - Specific Model (Not be determined	due to
dependencies on other	ner properties)
General Case.	
for Costific Model:	
. The relationship b/w weights will depend or	n factors like
1) Regularization	1 1 1 1 1 1 1 1
2) Correlation blw features	
3) Model details	
4) Data Set Used.	
for General Case: Target Variable Affect	Unaffected
> Target Variable Affect	Hed,
Contail and O manufacture of the Charles	1-4
If Target Variable is Unaffected:	
· Duplicated feature has similar impact on	Torget
variable as by origional.	
. Therefore, we can expect relichip where	Wnewn &
Woem++ have similar values	
When & Whent	34
	USE .
If Target Variable is Affected:	
· puplicate feature provides redundant in	formation
& is highly corelated with origional fea	hire, then

	Wheno - Relatively Unchanged / Slight Change
- 4 1 1 1 1	Wnews -> } Similar / Slightly Adjusted
1 1 1 1 1 1 1	When -)
	When the Decrease [To allocate share of predictive power b/w 2 duplicate features]

(9.2)	Which of the following is true?
Ans:	On the first bok, we can say option (A) is wrong.
1	This is not true since sample size is constant for
Turk Sterry	all templates & CTR of template (A) is 10%, which
	can be compared to CTRs of other templates.
The Managers of	THE RESERVE THE PROPERTY OF THE PARTY OF THE
	For Calculating 95% Significance, we need Masgin
	O ESSA.
	Margin of Error = $Z \times (SD)^2$
	1 000
	where, Z -> critical value (1.96 for 95%) SD -> Standard Deviation (Assume SD=5-1.)
	SD -> Standard Devigtion (Assume SD=5-7.)
	. Margin of Error = 1.9 x \(\sigma \)
That it	Margin of Error = 3 /
	· E's CTR (14%) is outside A's Margin of Error (20+3%),
	confirming it is significantly Letter.
	· D's CTR(12:1-) falls outside A's Margin of Essos, indicat-
	-ing its superiority ambiguous (Not different).



Computational cost of each gradient descent iteration? Here, m > No. of training examples No. of training examples k > Arg. No. of Non-zero entities in each training example. In logistic regression, computation cost depends on No. of Non-zero entities in features vectors.
· Evaluating gradient descent update for logistic regression. ① Computing dot product between feature vector ? weight vector. (n multiplication ? additions?) ② Apply sigmoid function exponential function evaluation ? I division) ③ Compute prediction error (1 subtraction)
Coet = 0 ((m·k)+n) where, m·k -> Cost of evaluating dot product & applying sigmoid func for training ex. n -> Cost of computing prediction error & update weights for each feature.
Find p using @ MLE @ Bayesiam Estimate @ MAP? P > Probability of getting heads N > No. of Loin tosses k > No. of heads. @ MLE of P = k = 7 = 0.7 n 10 B Bayesiam Estimate of P = k+1 = 7+1 = 8 = 0.66 m+2 10+2 12 C MAP of P (Don't known) (Sossy 111) Hunch: MAP of P = k+1 = 0.67 n+2

9.4) Ans	Ranking models based on Accusacy. Considering Pure Accusacy as criteria for evaluating these methods, likely sanking will be:
	① Method3: Pick random sample of 1 million stones from 1000 news sources & have them labelled. (Away from) → This method has most potential of increasing accuracy of eyetem because it focuses on selecting stones where VI classifier's o/p is both wrong & farthest away from decision boundary. → Best to handle edge cases & trains model to learn from mistakes & improve accuracy on wider large of data.
	② Method 1: Run V1 classifier on #11 million random stories from 1000 news sources. (O/p closest to decision boundary ? get examples labelled). → Selecting ex. that are closest to decision boundary could provide come improvement but to a lesser extent.
	3 Method 2: Obtain tok random labelled stories from 1k news - Randomly celecting training dataset may not ensure diverse range of challenging Examples that com improve classifiers performance.
n	Based on the above analysis:- Method3 > Method1 > Method2