

PATENTING OF THE STATE OF Maharashira, Affiliated to University of Mumbal) (Religious Jain Minority)

togistic Rogension

linear Rog. - Predict quantitative variable

Sometimes, me may need to predict a discrete variable. For eg., la model can predict whether a person is male or female based on their

bothered about the output label and not the exact value is called classification problem.

algorithm used when the response variable is dichotomous (Loro).

The output variable ye is thus a realization of a sandom variable y; that can take the values I and o with probabilities p; and 1-1; respectively

Examples of binary classification model -

Sparm detection credit cound kand detection Courser detection

In logistic regression, we get a probability core that reflects the probability of occurrence of the event, in contrast to linear regression which gives the actual predicted output.

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log (1-p) = a+b11, + b242 + - - + bn7n



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91	will occur.
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1	But, there are other ways also to represent the chances of the event occurring. one of which
	chances of the event occurring, one of which
in.	is odds.
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4	the expected no. of times that the times it
-	will occur to the experted to of
+	will not occur.
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1 3	0 = P = Prob. of event.
+	11 prosing two events
+	
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	manuforming prob to odds remove the upper bo
5	If we then take the hog of odds, we als
	remove the lower bound.
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	Thus, togistic model frame -
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4	109 Pi] = x+Bx; + B2x; + + Bxx; K-
	1-9:
_	the breakly of the books of the
- 1	me expression log Pi 7 is called logit func.
18	1-6:
	THE TAXABLE PARTY OF THE PARTY
	we can colve logit eg for p. to obtain express
7.	we can solve logic eg for fi
273	



PATRIMENTAL OF THE CANONICAL (Approved by AICTE New Delhi & Govt. of Maharashira, Affiliated to University of Mumbal) (Religious Jain Minority)

 $\frac{\beta^{2}}{1 + \exp(x + \beta_{1}x_{11} + \beta_{2}x_{12} + \dots + \beta_{K}x_{1K})} = 2$

and to the profession (got

Eg D com be simplified by dividing both numerator & donominator by numerator itself.

fine is the weight regression fune.

predicted y lies within o and I range.

Fig: Logistic regression func used in classification.

Maximum Likelihood Estimation ->

In linear hyprestion is we used method of least square to estimate regulation weighticuts.

logistic regression -> me use maximum likelihood

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observed	data.			_

Example of logistic legression-	
Example of logistic legression-)_

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likelihood maximum

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	7 - 1
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	2
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Negative Predictive Value: TN+FN	
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recall Sensitivity = TP	all the same to do a like
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(True Positive Recognition TP+FM Kolte)	
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	= TN + FP
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	confusion Matory:
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	Predicted 0 (FP)
	Actual 0 8 (TN)
	Q (TP)
al l	Actual 1 2 (FN)
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117	Accuracy = 10 20 20
1/	
\dashv	Precision = 19+5P 8+2 10
-	Precision = TP+FP 8+2 10
V	Pauliahire Pare TN - 8 : 0.8
	Neg. Predictive Rate : TN - 8 : 0.8
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1	Sensitivity = TP = \$ = 0.8
13	THE PARTY OF THE P
11	coulhinty = TN = 8 = 0.8
	Speupnty = TN+FP 10
1 100	
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