Business Analytics

BSMS2002

TA sessions
Utkarsh Sahu (21f1001107@ds.study.iitm.ac.in)

https://github.com/utkarsh4tech/BSMS2002

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1. Prof. Dr. Malolan Sundararaman - @Milo
2. Prof. Swaminathan - @ram158
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What is/are the application(s) of logistic regression?

a. Predicting binary outcomes
b. Predicting the multi-class output
c. Predicting the odds of the occurrence of a specific event
d. All of these

What is the objective function of logistic regression?

a. Minimization of squared errors

b. Maximisation of log-likelihood

c. Minimisation of residuals

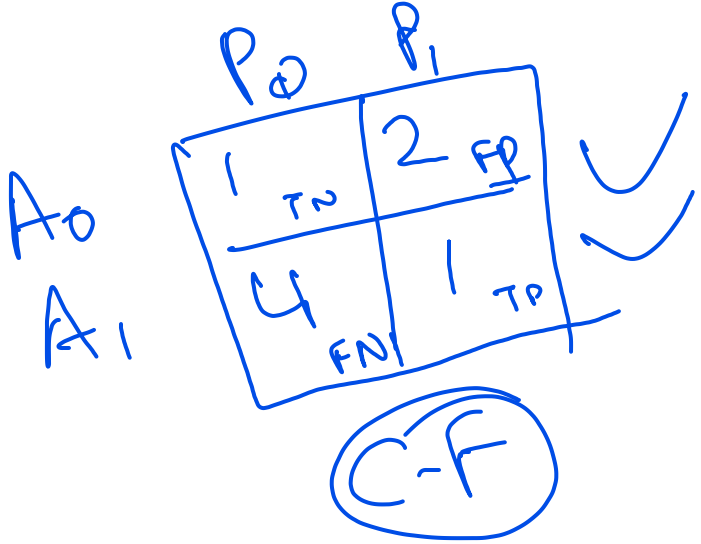
d. None of these

An AI engine to scrutinize applications for the BS program is being developed. The aim of the AI engine is to shortlist applicants who have the highest chance of completing the program. Hence, the AI engine classifies every applicant as either “Selected” or “Not Selected” based on the “Probability of Completion” which is computed using an applicant’s previous academic and professional records (X mark, XII mark, work experience, conduct and number of extracurricular certificates)

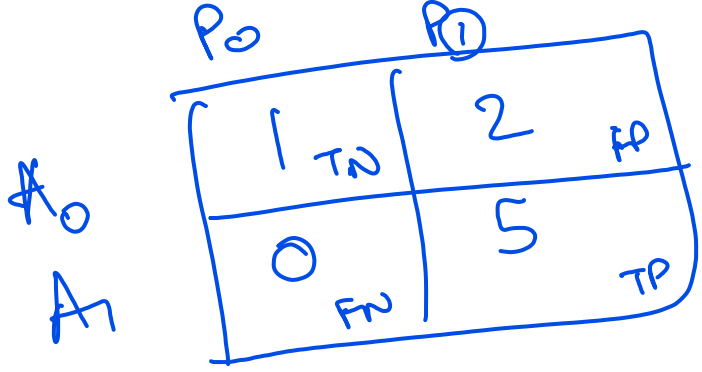
To test the model, past student data was captured. Using the past data, the AI model predicted the probability for completion. This is provided in Table. The table also provides the information of whether the student actually completed the course.Given this information, answer the subquestions.

Student ID	Probability for the student to complete the course	Did the student actually complete the course
NBA11234	0.80	NO
NBC11245	0.62	YES
NBN31256	0.70	YES
NBN76340	0.52	YES
MNV89201	0.47	YES
JKS012671	0.71	NO
YTX00112	0.64	YES
TTQ32741	0.39	NO

1) At a threshold of 0.7, what is the accuracy of the AI engine?
2) At a threshold of 0.7, what is the precision for “Not Selected” category for the AI engine?
3) At a threshold of 0.7, what is the recall for “Selected” category for the AI engine?
4) At a threshold of 0.4, how many “False Positives” is the AI engine predicting?
5) At a threshold of 0.4, how many “False ~~Positives~~” is the AI engine predicting?
6) At a threshold of 0.4, how many “True Negatives” is the AI engine predicting?



Th = 0.7



Th = 0.4

$$A = \frac{2}{8} \quad | \quad P_0 = \frac{TN}{TN+FN}; P_1 = \frac{TP}{TP+FN}$$