

1 point

1.

Consider the logistic regression model trained on **amazon_baby.gl** using GraphLab Create.

Using accuracy as the evaluation metric, was our **logistic regression model** better than the **majority class classifier**?

☒

Yes

☐

No

1 point

2.

How many predicted values in the **test set** are **false positives**?

1443

1 point

3.

Consider the scenario where each false positive costs \$100 and each false negative \$1.

Given the stipulation, what is the cost associated with the logistic regression classifier's performance on the **test set**?

☐

Between \$0 and \$100,000

☒

Between \$100,000 and \$200,000

☐

Between \$200,000 and \$300,000

☐

Above \$300,000

1 point

4.

Out of all reviews in the **test set** that are predicted to be positive, what fraction of them are **false positives**? (Round to the second decimal place e.g. 0.25)

0.04

1 point

5.

Based on what we learned in lecture, if we wanted to reduce this fraction of false positives to be below 3.5%, we would:

☐

Discard a sufficient number of positive predictions

☐

Discard a sufficient number of negative predictions

☒

Increase threshold for predicting the positive class ($\hat{y} = +1$)

☐

Decrease threshold for predicting the positive class ($\hat{y} = +1$)

1 point

6.

What fraction of the positive reviews in the **test_set** were correctly predicted as positive by the classifier? Round your answer to 2 decimal places.

0.95

1 point

7.

What is the recall value for a classifier that predicts **+1** for all data points in the **test_data**?

1

1 point

8.

What happens to the number of positive predicted reviews as the threshold increased from 0.5 to 0.9?

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More reviews are predicted to be positive.

☒

Fewer reviews are predicted to be positive.

1 point

9.

Consider the metrics obtained from setting the threshold to 0.5 and to 0.9.

Does the **precision** increase with a higher threshold?

☒

Yes

☐

No

1 point

10.

Among all the threshold values tried, what is the **smallest** threshold value that achieves a precision of 96.5% or better? Round your answer to 3 decimal places.

0.838

1 point

11.

Using threshold = 0.98, how many **false negatives** do we get on the **test_data**? (**Hint:** You may use the graphlab.evaluation.confusion_matrix function implemented in GraphLab Create.)

5826

1 point

12.

Questions 13 and 14 are concerned with the reviews that contain the word **baby**.

Among all the threshold values tried, what is the **smallest** threshold value that achieves a precision of 96.5% or better for the reviews of data in **baby_reviews**? Round your answer to 3 decimal places.

0.864

1 point

13.

Questions 13 and 14 are concerned with the reviews that contain the word **baby**.

Is this threshold value smaller or larger than the threshold used for the entire dataset to achieve the same specified precision of 96.5%?

☒

Larger

☐

Smaller