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NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » Introduction To Machine Learning (course)

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Course outline

- **How does an NPTEL online course work? ()**
- **Week 0 ()**
- **Week 1 ()**
- **Week 2 ()**
- **Week 3 ()**
  - Linear Classification (unit?unit=42&lesson=43)

Week 3: Assignment 3

The due date for submitting this assignment has passed.

Due on 2023-08-16, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which of the following are differences between LDA and Logistic Regression? ***1 point***

- Logistic Regression is typically suited for binary classification, whereas LDA is directly applicable to multi-class problems
- Logistic Regression is robust to outliers whereas LDA is sensitive to outliers
- both (a) and (b)
- None of these

No, the answer is incorrect.
Score: 0
Accepted Answers:
both (a) and (b)

2) We have two classes in our dataset. The two classes have the **same mean** but **different variance.** ***1 point***

- LDA can classify them perfectly.
- LDA can NOT classify them perfectly.
- LDA is not applicable in data with these properties
- Insufficient information

No, the answer is incorrect.
Score: 0
Accepted Answers:
LDA can NOT classify them perfectly.

3) We have two classes in our dataset. The two classes have the **same variance** but **different mean.** ***1 point***

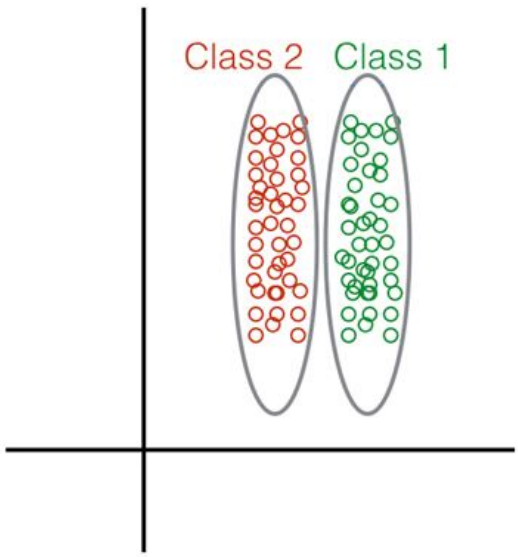
Logistic Regression (unit?unit=42&lesson=44)
Linear Discriminant Analysis - I - Introduction (unit?unit=42&lesson=45)
Linear Discriminant Analysis - II (unit?unit=42&lesson=46)
Linear Discriminant Analysis - III - Another view of LDA (unit?unit=42&lesson=47)
Tutorial (unit?unit=42&lesson=48)
Practice: Week 3: Assignment 3 (Non Graded) (assessment?name=178)
Quiz: Week 3: Assignment 3 (assessment?name=203)
Week 3 Feedback Form : Introduction To Machine Learning (unit?unit=42&lesson=191)
Week 3: Solution (unit?unit=42&lesson=210)

- LDA can classify them perfectly.
- LDA can NOT classify them perfectly.
- LDA is not applicable in data with these properties
- Insufficient information

No, the answer is incorrect.
Score: 0

Accepted Answers:
Insufficient information

4) Given the following distribution of data points: ***1 point***



What method would you choose to perform Dimensionality Reduction?

- Linear Discriminant Analysis
- Principal Component Analysis
- Both LDA and/or PCA.
- None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Linear Discriminant Analysis

5) If ***1 point***

$$log(\frac{1-p(x)}{1+p(x)}) = \beta_0 + \beta x$$

What is $p(x)$?

- $p(x) = \frac{1+e^{\beta_0+\beta x}}{e^{\beta_0+\beta x}}$
- $p(x) = \frac{1+e^{\beta_0+\beta x}}{1-e^{\beta_0+\beta x}}$
- $p(x) = \frac{e^{\beta_0+\beta x}}{1+e^{\beta_0+\beta x}}$
-

Week 4 ()
Week 5 ()
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Problem Solving Session - July 2023 ()

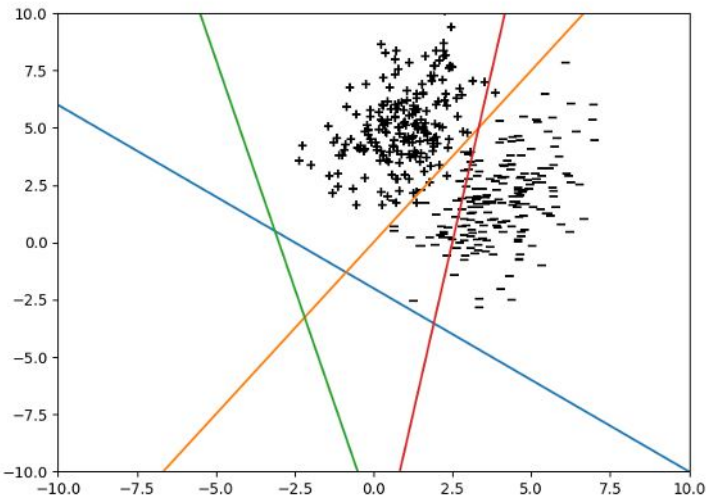
$p(x) = \frac{1-e^{\beta_0+\beta x}}{1+e^{\beta_0+\beta x}}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$p(x) = \frac{1-e^{\beta_0+\beta x}}{1+e^{\beta_0+\beta x}}$

6) For the two classes '+' and '-' shown below. ***1 point***



While performing LDA on it, which line is the most appropriate for projecting data points?

- Red
- Orange
- Blue
- Green

No, the answer is incorrect.
Score: 0

Accepted Answers:
Blue

7) Which of these techniques do we use to optimise Logistic Regression: ***1 point***

- Least Square Error
- Maximum Likelihood
- (a) or (b) are equally good
- (a) and (b) perform very poorly, so we generally avoid using Logistic Regression
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
Maximum Likelihood

8) LDA assumes that the class data is distributed as: ***1 point***

- Poisson
- Uniform
- Gaussian

- LDA makes no such assumption.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Gaussian

9) Suppose we have two variables, X and Y (the dependent variable), and we wish to find their relation. An expert tells us that relation between the two has the form $Y = me^X + c$. Suppose the samples of the variables X and Y are available to us. Is it possible to apply linear regression to this data to estimate the values of m and c? ***1 point***

- No.
- Yes.
- Insufficient information.
- None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Yes.

10) What might happen to our logistic regression model if the number of features is more than the number of samples in our dataset? ***1 point***

- It will remain unaffected
- It will not find a hyperplane as the decision boundary
- It will over fit
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
It will over fit