

# Unit 5 - Week 4

## Course outline

### How to access the portal?

### Week 1: Introduction to Learning Analytics

### Week 2: Data Collection

### Week 3: Descriptive Analytics

### Week 4

- Lecture 15 : Linear Regression
- Lecture 16 : Weka demo and how to read the results
- Lecture 17 : MOOC data for Course Project
- Lecture 18 : Summary of the Course
- Week 4: Learning by Doing (LbD)
- Learning Extension Trajectory (LxT) 4
- Quiz : Assimilation Quiz 4
- Course Project
- Course Project Assignment
- Quiz : Assignment 4
- Weekly Feedback

### Live Sessions

### Download Videos

## Assignment 4

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2019-08-28, 23:59 IST.**

1) Consider the following linear regression model:  $2y - 4x - 12 = 0$   
What are the values of the intercept and the slope? 1 point

- Intercept = 2, slope = 12
- Intercept = 6, slope = 2
- Intercept = 12, slope = 4
- Intercept = 2, slope = 6

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Intercept = 6, slope = 2*

2) Consider the data of 5 students in your class, which of the following is the best linear regression model to fit this data? 1 point

| No of practice tests attempted | Final score in the exam |
|--------------------------------|-------------------------|
| 2                              | 3.5                     |
| 3                              | 4                       |
| 9                              | 9                       |
| 1                              | 3                       |
| 5                              | 6                       |

- $y = 2x + 3$
- $y = 2x + 2$
- $y = 0.8x + 2$
- $y = 0.5x + 10$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 *$y = 0.8x + 2$*

3) You are a teacher in a classroom. You are trying to check how effective a new teaching method is. In one class, you teach using the old teaching method. In another class, you teach using the same topic using the new teaching method. You conduct the same test in both classes for the topic. What is the dependent variable (DV) and independent variables(IV) in this scenario? 1 point

- IV - teaching method DV - performance in test
- IV - performance in test DV - teaching method
- IV - old teaching method DV - new teaching method
- IV - new teaching method DV - old teaching method

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*IV - teaching method DV - performance in test*

4) You have the NPTEL data of 1000 students who took the learning analytics course. Using this data, you are trying to determine the relationship between the number of hours the student is logged in in NPTEL and the score in the final exam. Which is the dependent variable in this case? 1 point

- Number of hours logged in
- Performance
- Both number of hours logged in and Performance
- None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Performance*

5) Consider the following linear regression model model of students interacting with a learning environment: 1 point

$Y = 0.2x_1 + 0.8x_2 + 10$ , where

Y: is the performance in the final test

$x_1$ : is the number of hours spent on the learning environment

$x_2$ : is the number of quizzes attempted in the learning environment

Which is a greater predictor of the students performance in the final test?

- a. Number of hours spent
- b. Number of quizzes attempted
- Both a and b equally predict
- None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*b. Number of quizzes attempted*

6) Based on the confusion matrix given below, what is the precision of A, B, and C? 0 points

|   | A | B  | C |
|---|---|----|---|
| A | 8 | 2  | 0 |
| B | 0 | 16 | 1 |
| C | 0 | 0  | 9 |

- 0.8, 0.94, 1
- 1, 0.88, 0.9
- 1, 0.9, 0.88
- 0.8, 0.16, 0.9

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*0.8, 0.94, 1*

7) Based on the confusion matrix given above (Refer Question-6), what is the recall of A, B, and C? 0 points

- 0.8, 0.16, 0.9
- 1, 0.88, 0.9
- 0.8, 0.94, 1
- 0.2, 1, 0.9

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*1, 0.88, 0.9*

8) Based on the confusion matrix given above (Refer Question-6), what is the f-score of A, B, and C? 1 point

- 4.5, 4.4, 4.2
- 2.25, 2.2, 2.1
- 0.44, 0.45, 0.47
- 0.88, 0.9, 0.94

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*0.88, 0.9, 0.94*

9) Which of the following sentence(s) is true about kappa? 1 point

- Kappa is always less than equal to one
- A value of 1 implies no agreement between the two raters
- Kappa is the fraction of retrieved documents that are relevant to the query
- Kappa is the harmonic mean precision and recall

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Kappa is always less than equal to one*

10) What is 10-fold cross validation? 1 point

- The original sample is randomly partitioned into 10 equal sub-samples. Of the 10 sub-samples, a single sub-sample is retained for testing the model and the remaining 9 are used as training data.
- The original data set is randomly split into 10% testing data and 90% training the model. This process is repeated exactly 10 times, and the average is calculated to obtain an estimate.
- The original sample is randomly partitioned into 10 equal sub-samples. Of the 10 sub-samples, a single sub-sample is retained for testing the model and the remaining 9 are used as training data. This process is repeated 10 times with each of the sub-sample used exactly once as testing data. The results are then averaged.
- The original data set is randomly split into 10% testing data and 90% training the model.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*The original sample is randomly partitioned into 10 equal sub-samples. Of the 10 sub-samples, a single sub-sample is retained for testing the model and the remaining 9 are used as training data. This process is repeated 10 times with each of the sub-sample used exactly once as testing data. The results are then averaged.*