Unit 3 - Week 1

Assignment 1

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

Due on 2020-02-12, 23:59 IST.

1) Which of the following is a supervised learning problem? (multiple options may be correct) *1 point*

- [ ] Predicting credit approval based on historical data
- [ ] Grouping people in a social network.
- [ ] Predicting the gender of a person from his/her image. You are given the data of 1 Million images along the gender.
- [ ] Given the class labels of old news articles, predicting the class of a new news article from its content. Class of a news article can be such as sports, politics, technology, etc.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Predicting credit approval based on historical data
Predicting the gender of a person from his/her image. You are given the data of 1 Million images along the gender.
Given the class labels of old news articles, predicting the class of a new news article from its content. Class of a news article can be such as sports, politics, technology, etc.

2) Which of the following are classification problems? (multiple options may be correct) *1 point*

- [ ] Predicting the temperature (in Celsius) of a room from other environmental features (such as atmospheric pressure, humidity etc).
- [ ] Predicting if a cricket player is a batsman or bowler given his playing records.
- [ ] Finding the shorter route between two existing routes between two points.
- [ ] Predicting if a particular route between two points has traffic jam or not based on the travel time of vehicles.
- [ ] Filtering of spam messages

No, the answer is incorrect.
Score: 0

Accepted Answers:
Predicting if a cricket player is a batsman or bowler given his playing records.
Predicting if a particular route between two points has traffic jam or not based on the travel time of vehicles.
Filtering of spam messages

3) Which of the following is a regression task? (multiple options may be correct) *1 point*

- [ ] Predicting the monthly sales of a cloth store in rupees.
- [ ] Predicting if a user would like to listen to a newly released song or not based on historical data.
- [ ] Predicting the confirmation probability (in fraction) of your train ticket whose current status is waiting list based on historical data.
- [ ] Predicting if a patient has diabetes or not based on historical medical records.
- [ ] Predicting the gender of a human

No, the answer is incorrect.
Score: 0

Accepted Answers:
Predicting the monthly sales of a cloth store in rupees.
Predicting the confirmation probability (in fraction) of your train ticket whose current status is waiting list based on historical data.

4) Which of the following is an unsupervised task? *1 point*

- ( ) Learning to play chess.
- ( ) Predicting if an edible item is sweet or spicy based on the information of the ingredients and their quantities.
- ( ) Grouping related documents from an unannotated corpus.
- ( ) all of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Grouping related documents from an unannotated corpus.

5) Which of the following is a categorical feature? *1 point*

- [ ] Number of legs of an animal
- [ ] Number of hours you study in a day
- [ ] Branch of an engineering student
- [ ] Your weekly expenditure in rupees.
- [ ] Ethnicity of a person
- [ ] Height of a person in inches

No, the answer is incorrect.
Score: 0

Accepted Answers:
Branch of an engineering student
Ethnicity of a person

6) Let X and Y be a uniformly distributed random variable over the interval [0, 4] and [0, 6] respectively. If X and Y are independent events, then compute the probability, P(max(X, Y) > 2) *1 point*

- ( ) $\frac{1}{6}$
- ( ) $\frac{5}{6}$
- ( ) $\frac{2}{3}$
- ( ) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{5}{6}$

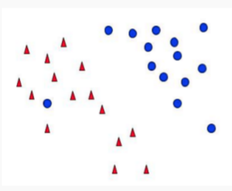
7) Let the trace and determinant of a matrix $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ be 3 and 4 respectively. The eigenvalues of A are *1 point*

- ( ) $\frac{3+\iota\sqrt{7}}{2}, \frac{3-\iota\sqrt{7}}{2}$, where $\iota = \sqrt{-1}$
- ( ) 1,3
- ( ) None of the above
- ( ) Can not be computed as the entries of the matrix A are not given.

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{3+\iota\sqrt{7}}{2}, \frac{3-\iota\sqrt{7}}{2}$, *where* $\iota = \sqrt{-1}$

8) What would be the ideal complexity of the curve which can be used for separating the two classes shown in the image below. *1 point*



- ( ) Linear
- ( ) Quadratic
- ( ) Cubic
- ( ) insufficient data to draw conclusion

No, the answer is incorrect.
Score: 0

Accepted Answers:
Linear

9) Based on a survey, it was found that the probability that a student likes to play football was 0.25 and the probability that a student likes to play cricket is 0.43. It was also found that the probability that a student likes to play both football and cricket is 0.12. What is the probability that a student does not like to play either? *1 point*

- ( ) 0.32
- ( ) 0.2
- ( ) 0.44
- ( ) 0.56

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.44

10) Which of the following are true about bias and variance of overfitted and underfitted models? (multiple options may be correct) *1 point*

- [ ] Underfitted models have high bias.
- [ ] Underfitted models have low bias.
- [ ] Overfitted models have high variance.
- [ ] Overfitted models have low variance.
- [ ] none of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
Underfitted models have high bias.
Overfitted models have high variance.