NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

MACHINE LEARNING FOR SOIL AND CROP MANAGEMENT

Assignment- Week 12

TYPE OF QUESTION: MCQ/MSQ

Number of questions: 15 **Total mark: 15 X 1 = 15**

QUESTION 1:

In regression kriging the final estimate is

a. Fitted deterministic part

b. Interpolated residual

c. Combination of fitted deterministic part and interpolated residual

d. None of the above

Correct Answer: c

Detailed Solution: In regression kriging the final estimate is combination of fitted deterministic part and interpolated residual

QUESTION 2:

Producers' Accuracy refers

a. The total number of correct predictions of a class is divided by the total number of observations of that class (i.e. the column sum).

b. The total number of correct predictions of a class is divided by the total number of predictions that were predicted in that category,

c. The total number of correct predictions of a class

d. None of the above

Correct Answer: a

Detailed Solution: Producers' Accuracy refers the total number of correct predictions of a class is divided by the total number of observations of that class (i.e. the column sum).

QUESTION 3:

_____ is based on the difference between how much agreement is actually present compared to how much agreement would be expected to be present by chance alone.

a. Producers' Accuracy

b. User Accuracy

c. Kappa Coefficient

d. Regression-Krigging

Correct Answer: c

Detailed Solution: Kappa Coefficient is based on the difference between how much agreement is actually present compared to how much agreement would be expected to be present by chance alone.

QUESTION 4:

The Kappa coefficient (k) is defined as:

a. $(P_o - P_e) / (1-P_e)$

b. $(P_o - P_e) / (1+P_e)$

c. $(P_o + P_e) / (1-P_e)$

d. None of the above

where *po* is the overall or observed accuracy, and *pe* is the expected accuracy

Correct Answer: a

Detailed Solution: The Kappa coefficient is defined as: $(P_o - P_e) / (1-P_e)$; where *po* is the overall or observed accuracy, and *pe* is the expected accuracy

QUESTION 5:

_____used to model nominal outcome variables, in which the log odds of the outcomes are modelled as a linear combination of the predictor variables.

a. Regression
b. Multinomial regression
c. Multinomial logistic regression
d. None of the above

Correct Answer: c

Detailed Solution: Multinomial logistic regression used to model nominal outcome variables, in which the log odds of the outcomes are modelled as a linear combination of the predictor variables.

QUESTION 6:

_____forms lots of decision trees (regression/classification) with random selection of samples/observations and random selection of features/variables

a. Logistic regression
b. Decision tree
c. Random forest
d. None of the above

Correct Answer: c

Detailed Solution: Random forest forms lots of decision trees (regression/classification) with random selection of samples/observations and random selection of features/variables

QUESTION 7:

Which of the following is/are advantages of Bagging?

a. Reduces over-fitting of the model
b. Handles higher dimensionality data
c. Maintains accuracy for missing data
d. All of these

Correct Answer: d

Detailed Solution: Bagging advantages- Reduces over-fitting of the model, handles higher dimensionality data, and maintains accuracy for missing data.

QUESTION 8:

_____refers training each individual learner on different bootstrapped subsets of the data and then averaging the predictions

a. Averaging
b. Bagging
c. Boosting
d. None of these

Correct Answer: b

Detailed Solution: Bagging refers training each individual learner on different bootstrapped subsets of the data and then averaging the predictions

QUESTION 9:

_____score validate the random forest model

a. Average
b. Out of bag
c. Individual
d. None of these

Correct Answer: b

Detailed Solution: Out of bag score validate the random forest model

QUESTION 10:

In _____learners are learned sequentially with early learners fitting simple models to the data and then analysing data for errors

a. Bagging
b. Boosting
c. Random forest
d. None of these

Correct Answer: b

Detailed Solution: In boosting, learners are learned sequentially with early learners fitting simple models to the data and then analysing data for errors

QUESTION 11:

_____is an algorithm that uses cross- validation to estimate the performance of multiple machine learning models, or the same model with different settings. It then creates an optimal weighted average of those models, aka an "ensemble", using the test data performance.

a. Gradient boost
b. Learner
c. Superlearner
d. None of these

Correct Answer: c

Detailed Solution: Superlearner is an algorithm that uses cross- validation to estimate the performance of multiple machine learning models, or the same model with different settings. It then creates an optimal weighted average of those models, aka an "ensemble", using the test data performance.

QUESTION 12:

Which of the following attributes does not fall under Bioclimatic Variables?

a. Plan curvature
b. Temperature Seasonality
c. Rainfall of Wettest Quarter
d. Annual Precipitation

Correct Answer: a

Detailed Solution: Plan curvature is a terrain attributes and does not fall under Bioclimatic Variables.

QUESTION 13:

Which of the following play an important role in XGBoost?

a. Weights of the features/variables
b. Normality of the features/variables
c. Kurtosis
d. None of these

Correct Answer: a

Detailed Solution: Weights of the features play an important role in XGBoost.

QUESTION 14:

The following statements are true for the model Random forest

a. Forms lots of decision trees
b. Random selection of samples/observation and random selection of features/variables
c. Provides the class of dependent variable based on many trees
d. All of these

Correct Answer: d

Detailed Solution: Random forest Forms lots of decision trees with random selection of samples/observation and random selection of features/variables. It provides the class of dependent variable based on many trees

QUESTION 15:

Kappa coefficient 0.80-0.99 refers

a. Slight agreement
b. Fair agreement
c. Moderate agreement
d. Almost perfect agreement

Correct Answer: d

Detailed Solution: Kappa coefficient 0.80-0.99 refers almost perfect agreement