

Course: 0604 Unsupervised Multivariate Methods
Assessment: Unsupervised Methods Concepts
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Correct answers: 34 / 34
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Attempt#: 2

To standardize variables for the K means method:

- ☒ Subtract mean and divide by standard deviation
- ☐ Subtract mean
- ☐ Multiply by suitable constant

Correct answer

Subtract mean and divide by standard deviation

Which of the following condition is true in PCA?

- ☒ Zero correlation between principal components
- ☐ Perfect positive correlation between principal components
- ☐ Sum of squares of coefficients of principal components should be greater than one

Correct answer

Zero correlation between principal components

Is the following statement true or false?

In PCA, the number of principal components can be more than the number of variables used in the analysis.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false?

Finding useful insights and hidden patterns from a dataset without labeled target variables is the objective of unsupervised learning.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false? Principal Components are always uncorrelated.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Principal component analysis is an example of:

- ☐ Supervised learning
- ☐ Semi-supervised learning
- ☒ Unsupervised learning

Correct answer

Unsupervised learning

The importance of using PCA before K means clustering is to:

- ☒ Reduce the number of variables for clustering
- ☐ Obtain optimum K
- ☐ Decrease variation in data
- ☐ -

Correct answer

Reduce the number of variables for clustering

For two cases to be similar, the Euclidean distance between them should be:

- ☒ Small
- ☐ Large
- ☐ 1

Correct answer

Small

Which of the following option is correct in the K-means clustering method?

- ☒ Intraclass distances are minimised and interclass distances are maximised
- ☐ Interclass distances are minimised and intraclass distances are maximised

Correct answer

Intraclass distances are minimised and interclass distances are maximised

Is the following statement true or false?

The K-means clustering method always requires a dependent variable.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false? “Within sum of squares” is a measure of homogeneity within a cluster.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false? PCA is the most widely used method for time series modelling.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Principal components selected should:

- ☐ Explain minimum variation in data
- ☒ Explains maximum variation in data
- ☐ Explain maximum skewness in data

Correct answer

Explains maximum variation in data

Is the following statement true or false?

Customer segmentation in the banking sector can be obtained through the K-means clustering algorithm?

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

The sum of squares of coefficients of a principal component is:

- ☐ -
- ☒ 1
- ☐ Can be any value between 0 and ∞

Correct answer

1

Is the following statement true or false? Principal component analysis is an alternative method to the k means method.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

If a data set has 8 variables, then the number of principal components which can be derived is:

- ☐
- ☐ >8
- ☒ =8

Correct answer

=8

Is the following statement true or false? Each principal component in PCA has zero correlation with each original variable.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false?

Principal component analysis is most suitable when original variables are uncorrelated.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false?

Principal components can be used to resolve the problem of multicollinearity in linear regression.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false?

The K means method is widely used as a classification method for classifying cases into one of the three categories.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false? The PCA method can be called dimension reduction method.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false? The PCA method can be used to predict stock market returns for the next day.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false? The K means method requires original variables to be highly correlated.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false?

The K means method can be used in the telecom sector to obtain groups of customers with similar usage patterns.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false?

The PCA method is based on the Euclidean distance concept.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false? The PCA method can be used as an alternative to One Way ANOVA.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Is the following statement true or false?

The `cor=T` option in the `princomp` function in R is same as standardizing raw variables.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false?

If there are 10 variables then the `princomp` function in R gives 10 principal components.

- ☒ True
- ☐ False

Correct answer

True

Feedback

- That is correct! Well done!

Is the following statement true or false?

If `pc` is the `princomp` object in R, then `pc$loadings` displays the estimated score for each case in the data based on the first principal component.

- ☐ True

☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Which of the following functions in R is written for unsupervised methods.

- ☐ glm
- ☒ princomp
- ☐ lm

Correct answer

princomp

Is the following statement true or false? The kmeans function in R standardizes all variables before executing the algorithm.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!

Which of the following functions in R is not used for unsupervised methods?

- ☒ lm

- ☐ kmeans
- ☐ princomp

Correct answer

lm

Is the following statement true or false?

The kmeans function in R evaluates cluster solutions for various values of k and provides best solution.

- ☐ True
- ☒ False

Correct answer

False

Feedback

- That is correct! Well done!