**Week 3 Coding Assignment**

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Make sure to install and load the **‘nFactors’ package** in R before you work on this quiz.

In addition, it is wise to have **"[FactorAnalysis](https://courses.edx.org/asset-v1:ColumbiaX+BAMM.104x+1T2020+type@asset+block/Factoranalysis.nb.html" \t "[object Object])" file** handy because you will be asked to replicate the class learning on Perceptual Mapping using a new dataset.

This dataset ([PersonalityData.csv](https://courses.edx.org/assets/courseware/v1/3e73844d0711afde07356b8acc7f1e31/asset-v1:ColumbiaX+BAMM.104x+1T2020+type@asset+block/PersonalityData.csv)) contains a set of responses from a personality questionnaire.  Use this dataset to run a factor analysis using R and answer the following questions:

Q1

1 point possible (graded)

Using the eigenvalue (of the correlation matrix) criterion, how many factors should be retained?

Hint: You should verify that all the appropriate variables (columns) are being used.

5

3

4

2

unanswered

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**Use the principal() function in R to run a factor analysis for n=5 factors without rotation and**

**answer questions two and three:**

Q2

1 point possible (graded)

What is the cumulative variance explained if you retain 2 factors?

54.8%

16.9%

41.0%

24.1%

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Q3

1 point possible (graded)

What is the cumulative variance explained if you retain 4 factors?

13.8%

80.1%

6.7%

61.5%

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**Use the principal() function in R to run factor analysis for n=3 factors with a Varimax rotation and answer questions 4 through 9:**

Q4

1 point possible (graded)

Examine the $loadings output. What is the cumulative variance explained if you retain 3 factors?

18.3%

36.6%

54.8%

18.2%

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Q5

1 point possible (graded)

Examine the $loadings output. How do you interpret the RC3 factor?

Pleasant/Unpleasant

Fearful/Non fearful

Extrovert/Introvert

Dependable/Non dependable

unanswered

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Q6

1 point possible (graded)

Examine the $loadings output. How do you interpret the RC2 factor?

Dependable/Non dependable

Extrovert/Introvert

Happy/Sad

Friendly/Unfriendly

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Q7

1 point possible (graded)

Examine the $loadings output. How do you interpret the RC1 factor?

Anxious/Non anxious

Outgoing/reserved

Reliable/unreliable

Workaholic/Lazy

unanswered

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Q8

1 point possible (graded)

Examine the factor $weights. What is the weight of variable “talkative” in computing the scores of the RC1 factor?

0.124

0.070

-0.026

0.353

unanswered

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Q9

1 point possible (graded)

Examine the factor $scores for subject 1. How do you describe this person?

Extrovert, non-dependable, anxious

Extrovert, dependable, non-anxious

Slightly non-anxious, dependable, slightly extrovert

Introvert, non-dependable, anxious

unanswered

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Q10

1 point possible (graded)

What are the use(s) of factor analysis?

Deal with multicollinearity

Construct perceptual maps

Data reduction (i.e., identify the underlying dimensions behind a set of variables)

All of the above (a, b, c)

unanswered

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