BRED - Assignment 2

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Question 1

The measure used to assess the agreement among the raters is [Pearson's coefficient](#) and is calculated between a pair of two raters. The values calculated is:

```
Pearson Correlation Coefficient (Rater A vs Rater B): 0.87
Pearson Correlation Coefficient (Rater A vs Rater C): 0.08
Pearson Correlation Coefficient (Rater B vs Rater C): 0.12
```

Every pair that has RaterC involved has a very low coefficient. We can conclude that this rater isn't in agreement with the others and will benefit the experiment if removed.

Question 2

For this dataset, the ideal way to systematically measure the internal consistency is to employ Crohnbach's Alpha on each of the constructs. The following are the results for each of the constructs:

```
Cronbach Alpha for Fantasy Scale:
[0.7655482497115723, 0.7632391963815768, 0.719877760464404,
0.7833891518412401, 0.766674489762346, 0.702146830352075,
0.6962434333429458, 0.7071679744341195]

Cronbach Alpha for Empathic Concern:
[0.8102508984674047, 0.7737892223738062, 0.7938263359372999,
0.7904985286191117, 0.7833905797569531, 0.7952626583584369,
0.7796404127010712, 0.7808707381251071]

Cronbach Alpha for Perspective Taking:
[0.7385086569772058, 0.7499999999999999, 0.5779923469298444,
0.5779923469298444, 0.9474137649151189, 0.5779923469298444,
0.5779923469298444, 0.5779923469298444]

Cronbach Alpha for Personal Distress:
[0.7705650861956915, 0.7211928460674537, 0.7467412484106818,
0.7868250954428053, 0.7266001435259544, 0.7620582745245836,
0.7014433618916291, 0.7378597699183166]
```

> *Output interpretation:* *Given for each construct are 8 values. The first one will be for the entirety of the questions in the construct. The following 7 are values that would arise if that question were removed.*

For the **Fantasy Scale**, most questions appear to contribute to the final reliability since the alpha without the questions end up lower than the total. Excepting Q3, that exhibits a slightly higher alpha. Removing this would be beneficial.

For the **Empathic Concern**, most questions appear to contribute to the final reliability since the alpha without the questions end up lower than the total. Removal of none of the questions will help in this construct.

For the **Perspective Taking**, Q1 and Q4 appear troublesome. Removing them would improve the reliability.

For the **Personal Distress**, most questions appear to contribute to the final reliability since the alpha without the questions end up lower than the total. Excepting Q3, that exhibits a slightly higher alpha. Removing this would be beneficial.

Question 3

- **Q1:** Not problematic
- **Q2:** Collects even though it could be hypothetical, leading to a measure of how well the user can predict themselves rather than measuring the actual likelihood
- **Q3:** Confusing question phrasing due to the double negatives.
- **Q4:** Asking the user to guess leads to a test of memory and estimation more than anything else that needs to be measured.
- **Q5:** Gives the notion of being the best in town, within the question. Could lead to biased values.
- **Q6:** Question phrasings leads the user. Could lead to biased values.

Question 4

a)
Needs stratified sampling across two features. Stratas featuring many age groups and stratas featuring many regions are required.

b)
Due to the large amount that needs to be tested and the requirement that all of the items should be the same, random samplings can be taken.

c)
Stratified sampling is needed again with stratas that contain students across majors and across years of study.

d)
Volunteer sampling could be employed. a pop-up can be displayed and only those willing to give the survey can be given the survey. But could lead to a bias wherein those dissatisfied might be much more eager to have their opinions conveyed. If a smaller survey can be ensured, the survey can be given to customers as a part of the billing process where the website can ask for a few short answers (perhaps on a Likert scale to make it quick). At this point customers will already be used to filling things in such as their address, payment details etc. and won't be averse to filling in a few questions regarding their satisfaction as well.