Lab 4 Reliability Analyses

SPSS

To obtain descriptive statistics, such as mean, variance, skew, and kurtosis.
Analyze → Descriptive Statistics → Descriptives
Click the Options button, and check "Variance" under **Dispersion** and "Kurtosis and Skewness" under **Distribution**. Drag over the desired variables

To obtain frequency histograms
Analyze → Descriptive Statistics → Frequencies
Drag over the desired variables. Click the **Charts** button, and then check "Histograms" and "Show normal curve on histogram"

To recode variables
Transform -> Recode into Different Variables then in the dialog box use the arrow to move over the desired variables. Fill in **Output Variable: Name** and if desired **Label** (e.g., use the prior label and add "reversed" to the label). Then at the bottom of the dialog box, click on **Old and New Values.** One by one enter each value (e.g., starting with the number 1) in the **Old Value** box and then the recoded value (e.g., 5) into the **New Value** box and click on the **Add** button which will move the recode statements for each value to the **Old -> New** box. Continue until you have finished all values (e.g., 1 -> 5, 2 -> 4, 3 -> 3, 4 -> 2, 5 ->1). Then hit **Continue** and **Ok.** (You can also Recode into Same Variables, but I don't usually recommend doing that).

Note: always recheck the frequencies for the old and the new variable to make sure you did this correctly.

To obtain Cronbach's alpha and item statistics
Analyze → Scale → Reliability Analysis
Drag over the desired variables. Click the **Statistics** button and check "Item," "Scale," and "Scale-if-item-deleted" under **Descriptives**; check "Correlations" under **Inter-Item**, and "Means and Correlations" under **Summaries**

SPSS Syntax (optional method)

```
*Example of Cronbach's alpha.
*Get file retrieves data file, but can open with windows
* This location is default location of downloads on lab computers
get FILE='C:\Users\newsomj\Downloads\ias.sav'.

*this may work if your file location fails:

*cd 'c:/jason/spsswin/pmclass'.
*get file='examdata.sav'.

descriptives vars=q1 to q14.
frequencies vars=q1 to q14
     /histogram=normal.

recode  q5  (1=5) (2=4) (3=3) (4=2) (5=1)  into q5r .

*look at frequencies again to make sure recode worked.
frequencies vars=q5 q5r.

reliability variables=q1 to q4 q5r q6 to q14
   /scale(sma)=q1 to q4 q5r q6 to q14
   /statistics=correlations scale
  /summary=means corr total.
```

Output (selected tables only)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.737	.776	14

Check to see which Cronbach's Alpha if Item Deleted is smaller higher than the (unstandardized) Cronbach's Alpha above is.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 1.I am constantly posting on social media	32.6667	34.606	.231	.	.733
Q2 2.I find it hard to stop scrolling when I am using social media	31.2500	29.477	.567	.	.695
Q3 3.Social media usage is an obstacle in my completion of school/work tasks	32.4167	28.992	.643	.	.686
Q4 4.I use social media to distract myself from life	31.7500	29.114	.688	.	.683
q5r	30.8333	37.606	-.166	.	.770
Q6 6.In the last month, how often did you experience eye strain from using your electronic devices?	31.8333	37.970	-.194	.	.779
Q7 7.Friends or family express concern regarding my social media use.	32.9167	34.083	.175	.	.740
Q8 8.I have difficulty focusing on important tasks because of my social media use.	32.6667	28.970	.753	.	.678
Q9 9.I feel anxious when I don't check my social media.	33.1667	29.606	.733	.	.684
Q10 10.How often do you use social media?	31.5000	30.455	.712	.	.690
Q11 11.How often do you use social media during work/school hours?	32.3333	29.333	.591	.	.692
Q12 12.Social media is the first thing I do in the morning.	31.7500	29.477	.380	.	.722
Q13 13.How often do you skip out on social activities to spend time on social media?	33.4167	33.356	.583	.	.715
Q14 14.How often do you find yourself comparing your body to those you see on social media?	32.1667	37.788	-.177	.	.791

R Code

```
library(lessR)
#you will need to change your location
d = Read("C:/Jason/SPSSWIN/pmclass/sma.sav", quiet=TRUE)

Histogram(d)

pivot(d, c(mean,sd), c(Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q14))
```

```
library(lessR)
d$Q5R = d$Q5  #create new variable before recoding to keep old variable
d <- recode(Q5R,old=1:5, new=5:1)
#check the histogram again to double check it is correct
Histogram(Q5R)


#use the psyc package to get alpha and item statistics
#on first use of psych install it
#install.packages("psych")

#you will need to create a new data frame that contains Q5R rather than Q5
#base R function
newd <- subset(d, select=c(Q1,Q2,Q3,Q4,Q5R,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q14))

library(psych)
alpha(newd)
```

Output (selected output)

```
  raw_alpha std.alpha G6(smc) average_r S/N ase mean   sd median_r
      0.74      0.78    0.89       0.2 3.5 0.1  2.5 0.43     0.23


Reliability if an item is dropped:
    raw_alpha std.alpha G6(smc) average_r S/N var.r med.r
Q1       0.73      0.77    0.91      0.21 3.4  0.11  0.24
Q2       0.69      0.74    0.91      0.18 2.9  0.11  0.20
Q3       0.69      0.74    0.90      0.18 2.8  0.12  0.21
Q4       0.68      0.74    0.91      0.18 2.8  0.11  0.20
Q5R      0.77      0.81    0.93      0.24 4.2  0.11  0.29
Q6       0.78      0.81    0.93      0.25 4.3  0.10  0.29
Q7       0.74      0.77    0.92      0.21 3.4  0.12  0.26
Q8       0.68      0.73    0.93      0.17 2.7  0.12  0.20
Q9       0.68      0.72    0.89      0.17 2.6  0.11  0.20
Q10      0.69      0.73    0.90      0.17 2.7  0.11  0.20
Q11      0.69      0.75    0.93      0.18 2.9  0.12  0.20
Q12      0.72      0.77    0.92      0.20 3.3  0.13  0.24
Q13      0.71      0.74    0.94      0.18 2.8  0.12  0.21
Q14      0.79      0.81    0.91      0.25 4.4  0.10  0.31
```