Unit 9 Pre-Class Warm-Up

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Q1. Is there a difference between the amount of money a senator raises and the amount spent?

Q1.1. Are the assumptions for a t-test met?

Yes, if we are looking at the difference bewteen the amount raised and spent, each random variable is identically distributed and independent. The distributions should be normal.

Q1.2. Is a paired test or an unpaired test more appropriate?

The paired test is more appropriate because we are trying to compare the difference for each senator.

Q1.3.
```
senator = read.csv("united_states_senate_2014_v2.csv")
summary(senator)
```

```
##          Senator.Names     Gender            State            Party
##  Alan Franken    : 1    Female:20    Alabama   : 2    Democrat   :53
##  Amy Klobuchar   : 1    Male  :80    Alaska    : 2    Independent: 2
##  Angus King      : 1                 Arizona   : 2    Republican :45
##  Barbara Boxer   : 1                 Arkansas  : 2
##  Barbara Mikulski: 1                 California: 2
##  Benjamin Cardin : 1                 Colorado  : 2
##  (Other)       :94                   (Other)  :88
##            Religion   Campaign.Money.Raised..millions.of...
##  Protestant      :49    Min.   : 0.100
##  Catholic        :27    1st Qu.: 4.575
##  Jewish          :10    Median : 7.550
##  Other Christian : 7    Mean   : 9.645
##  Mormon          : 2    3rd Qu.:13.800
##  Unaffiliated    : 2    Max.   :44.200
##  (Other)         : 3
##  Campaign.Money.Spent..millions.of...    NRA.Rating
##  Min.   : 0.200                        A      :34
##  1st Qu.: 2.975                        F      :34
##  Median : 6.000                        A+     : 9
##  Mean   : 8.227                               : 5
##  3rd Qu.:12.225                        AQ     : 5
##  Max.   :43.400                        C      : 3
##                                        (Other):10
```

Q2. Do female Democratic senators raise more or less money than female Republican senators?

Q2.1. Are the assumptions for a t-test met?

Yes, the female Democratic senators and female Republican senators should be identically distributed and independent. The distributions should be normal.

Q2.2. Is a paired test or an unpaired test more appropriate? An unpaired test is more appropriate because

we are comparing the amount of money raised across two different groups of females.

Q3. Does the NRA prefer male senators or female senators?

Q2.1. Are the assumptions for a t-test met?

Yes, the NRA ratings for male and NRA ratings for female should be identically distributed and independent. The distributions should be normal.

Q2.2. Is a paired test or an unpaired test more appropriate? An unpaired test is more appropriate because we are comparing the NRA ratings between the two genders.