Class 9

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Plan:

- Exam structure
- Practice questions
- Pub quiz

Midterm

- One hour and 50 minutes (may start anytime between 11:00 AM and 8:00PM)
- Mixture of multiple choice (5) and analysis (8)
- I will be available to answer questions by email

Computing correlations

```
partisan.affect <- read.csv("affect.csv")
```

1. We use the *cor()* function to compute correlations in R. cor() will return a signed coefficient.

Compute the correlation between republican.therm and democrat.therm for everyone, for Democrats and for Republicans.

2. What do you notice?

Exam Practice

Today we will practice some analysis. You will work on the practice by yourself. I will answer questions as if this were an exam.

Time management will be important during the midterm. You should be able to answer the questions below in less than 60 minutes

We will analyze the relationship between indiscriminate violence and insurgent attacks using data about Russian artillery fire in Chechnya from 2000 to 2005.

This exercise is based on: Lyall, J. 2009. "Does Indiscriminate Violence Incite Insurgent Attacks?: Evidence from Chechnya." *Journal of Conflict Resolution* 53(3): 331–62.

Some believe that indiscriminate violence increases insurgent attacks by creating more cooperative relationships between citizens and insurgents. Others believe that indiscriminate violence can be effective in suppressing insurgents' activities.

```r
chechen <- read.csv("chechen.csv")
```

Name	Description
village	Name of Chechnya village
groznyy	Variable indicating whether a village is in Groznyy (equal to 1) or not (equal to 0)
fire	Whether Russians struck a village with artillery fire (equal to 1) or not (equal to 0)
deaths	Estimated number of individuals killed during Russian artillery fire
preattack	The number of insurgent attacks before Russian artillery fire
postattack	The number of insurgent attacks after Russian artillery fire

Question 1

1.1. How many villages were hit by Russian fire? Note that villages will appear multiple times (one record for each time the Russians fired).

```r
length(unique(chechen$village[chechen$fire == 1]))
```

```
## [1] 75
```

```r
# or

length(table(chechen$village[chechen$fire == 1]))
```

```
## [1] 75
```

1.2. Which village had the largest number of deaths?

```r
tapply(chechen$deaths, chechen$village, sum, na.rm = T)
```

```
##                  Achireshki               Achkoi-Martan
##                           0                           0
##                  Agishbatoi                      Agishty
##                           0                          25
##             Akhkinchu-Barze                 Alkhan-Kala
##                           0                           0
##                  Alkhan-Yurt                 Alkhazurovo
##                           0                           0
##                       Argun           Aslanbek-Sherpivo
##                          35                           0
##                   Avarskoye                       Avtury
##                           0                           0
##                  Bachi-Yurt                 Bas-Gordali
##                           0                           0
##                    Belgatoy                       Benoy
##                          34                           0
##                    Berdakel                      Borzoi
##                           0                           0
##                  Chechen-Aul                  Chiri-Yurt
##                           1                           0
```

```
##               Dachu-Borzoi                        Dai
##                          0                          0
##                     Dargo                   Dolinskoe
##                          0                          0
##                 Duba-Yurt                Dutsu-khote
##                          0                          0
##               Dyshne-Vedeno                     Dzhalka
##                          4                          1
##                 Dzhugurty                  Elistanzhi
##                          0                          1
##                   Ersenoi                 Eshilkhatoy
##                          0                          1
##                      Evli                   Gansolchu
##                          0                          0
##                  Gargachi                  Gatin-Kali
##                          2                          0
##       Gekhi (Blagodatnoye)                  Gekhi-Chu
##                          0                          0
##       Geldagan (Gel'dygen)                 Germenchuk
##                          0                          0
##                    Gikalo                 Gikalovskiy
##                          0                          0
##                    Goichu                       Goity
##                          0                          2
##     Goryacheistochnenskaya          Grozny  (Zavodskiy)
##                          0                          3
##         Grozny (Leninskiy)           Grozny (Zavodskiy)
##                         21                          2
##                 Grushevoye                    Gudermes
##                          0                          0
##                       Guni                Ilaskhan-Yurt
##                          0                          0
##                  Ishtiburi                     Isti-Su
##                          0                          0
##                 Khal-Keloi                 Khambi-Irze
##                          0                          0
##                  Kharsenoi                     Khatuni
##                          0                          1
##               Khidi-Khutor                  Kirov-Yurt
##                          0                          0
##                     Kirova                 Komsomolskoe
##                          0                          0
##                     Kulary                    Kurchaloi
##                          0                          0
##                  Leshkoroy                     Lipovka
##                          0                          0
##                    Makhkety     Maloye (Malyye Varandy)
##                         14                          0
##               Malye Shuani                Marshen-Kali
##                          0                          0
##                  Martan-Chu                     Mayrtup
##                          0                          7
##                    Mesedoy                  Mesker-Yurt
##                          0                          1
```

```
##                   Michurina                Morzoi-Mokkh
##                          20                           0
##                  Musolt-Aul                 Nadrech'ye
##                           0                           0
##                  Neftyanoye               Nikolaevskaya
##                           0                           0
##                  Nizhny Dai             Novogroznenskoi
##                           0                           0
##                  Novye Aldy                 Novye Atagi
##                           2                           5
##                Oktya'brskoe      Oktyabr'skiy (Groznyy)
##                           0                           0
##                  Ortsi-Yurt                   Pamyatoy
##                           0                           0
##                Pervomayskaya            Petropavlovskaya
##                           0                           2
##                   Podgornyy                 Prigorodny
##                           0                           0
##                      Regety             Regety (Regita)
##                           0                           0
##                  Roshni-chu               Sel'mentauzen
##                           0                           2
##                 Serzhen-Yurt                 Shaami-Yurt
##                          37                           1
##                       Shali                 Sharo-Argun
##                           5                           1
##                      Shatoi              Shena (Shuani)
##                           2                           0
##                 Shirdi-Mokhk                 Sovetskoye
##                           0                           0
##            Sredniye kurchali              Staraya Sunzha
##                           0                           0
## Staropomyslovskiy (Groznyy)                Starye Atagi
##                           0                           5
##                     Tangy-Chu                       Tashi
##                           0                           0
##                  Tazen-Kale                     Tevzena
##                           1                           0
##                 Tolstoy-Yurt                Trekhgor'ye
##                           0                           0
##                  Tsa-Vedeno                 Tsotan-Yurt
##                           0                          16
##                   Ulus-Kert                 Urus-Martan
##                           2                           1
##                      Valerik                      Vedeno
##                           1                           6
##                  Verkhny Dai                Yalkhoy-Mokhk
##                           0                           0
##                 Yermolovskiy                  Zakan-Yurt
##                           1                           0
##                       Zumsoj
##                           0
```

```
sort(tapply(chechen$deaths, chechen$village, sum, na.rm = T),
    decreasing = T)[1]
```

```
## Serzhen-Yurt
##           37
```

Question 2

2.1. Did Russian artillery result in a greater number of deaths in Groznyy compared to the villages outside of Groznyy? Compute a mean difference in deaths for the two groups.

```
mean(chechen$deaths[chechen$groznyy == 1], na.rm = T) - mean(chechen$deaths[chechen$groznyy ==
    0], na.rm = T)
```

```
## [1] 2.141917
```

2.2. Conduct the same comparison but use median differences.

```
median(chechen$deaths[chechen$groznyy == 1], na.rm = T) - median(chechen$deaths[chechen$groznyy ==
    0], na.rm = T)
```

```
## [1] 3
```

Question 3

3.1. Compare the average number of insurgent attacks after Russian fire for villages hit by artillery fire and those that were not hit.

```
mean(chechen$postattack[chechen$fire == 1]) - mean(chechen$postattack[chechen$fire ==
    0])
```

```
## [1] -0.5534591
```

Question 4

4.1. Compute the mean difference in the `diffattack` (the difference between preattack and postattack) variable between villages shelled and villages not shelled.

```
chechen$diffattack <- chechen$preattack - chechen$postattack

mean(chechen$diffattack[chechen$fire == 1]) - mean(chechen$diffattack[chechen$fire ==
    0])
```

```
## [1] 0.5157233
```