MATH 3070 Lab Project 8

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October 6, 2016

Remember: I expect to see commentary either in the text, in the code with comments created using `#`*, or (preferably) both!* ***Failing to do so may result in lost points!***

Problem 1 (Verzani problem 3.2)

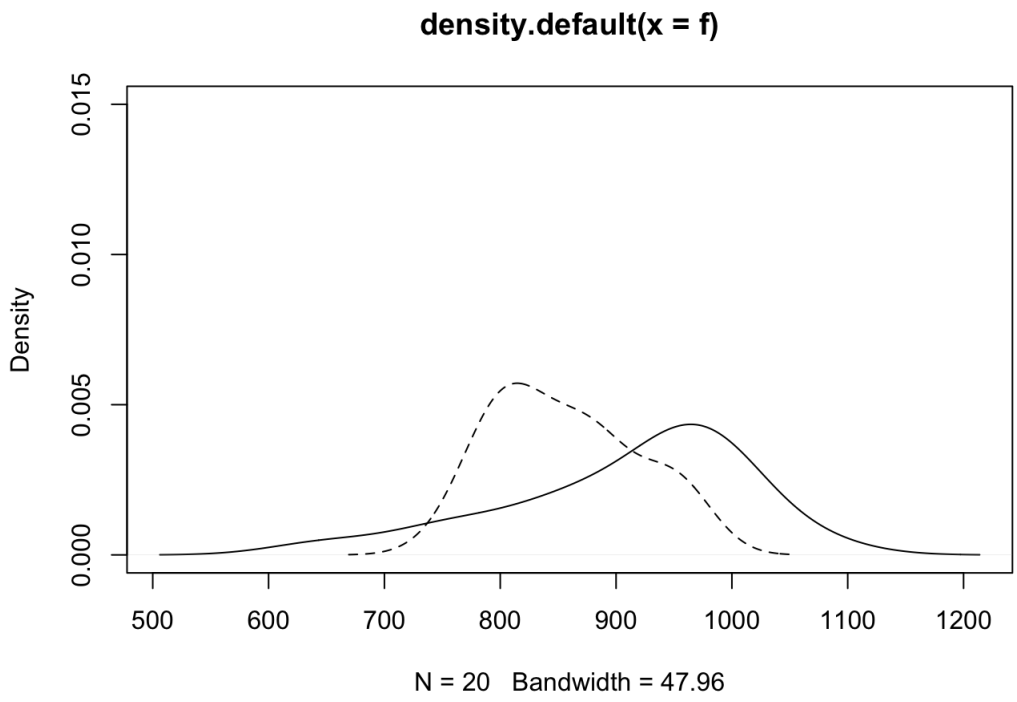
For the `michelson` *(**MASS**) data set, produce a density plot comparing* `Speed` *between Experiments 1 and 2.*

```
# Your code here
library("MASS")
View(michelson)
```

```
## Error in check_for_XQuartz(): X11 library is missing: install XQuartz from xquartz.macosforge.org
```

```
splitfunc <- with(michelson, split(Speed, Expt))
f <- splitfunc$`1`
s <- splitfunc$`2`


plot(density(f), lty = 1, ylim = c(0, 0.015))
lines(density(s), lty = 2)
```



Problem 2 (Verzani problem 3.4)

Three students record the time spent on homework per class. Their data is:

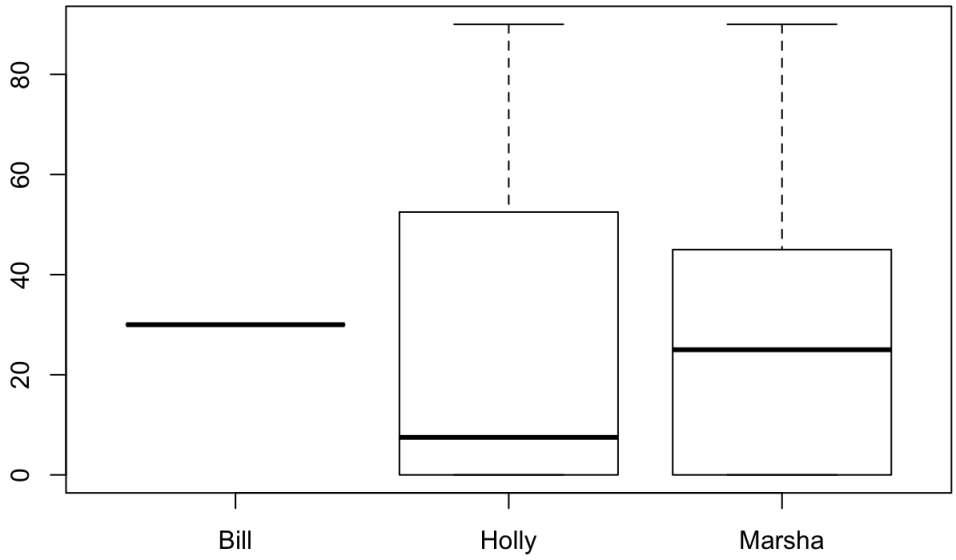
Student	1	2	3	4	5
Marsha	25	0	45	90	0
Bill	30	30	30	30	

Student	1	2	3	4	5
Holly	15	0	90	0	

Use a list to store these values. Then create a boxplot to compare. (You must use `boxplot()`'s formula interface for this problem.)

```
# Your code here
l <- list(time = c(25, 0, 45, 90, 0, 30, 30, 30, 30, 15, 0, 90, 0), Student = c("Marsha",
    "Marsha", "Marsha", "Marsha", "Marsha", "Bill", "Bill", "Bill", "Bill",
    "Holly", "Holly", "Holly", "Holly"))

boxplot(l$time ~ l$Student)
```



Problem 3 (Verzani problem 3.5)

A group of nursing students take turns measuring some basic assessments. Their data is:

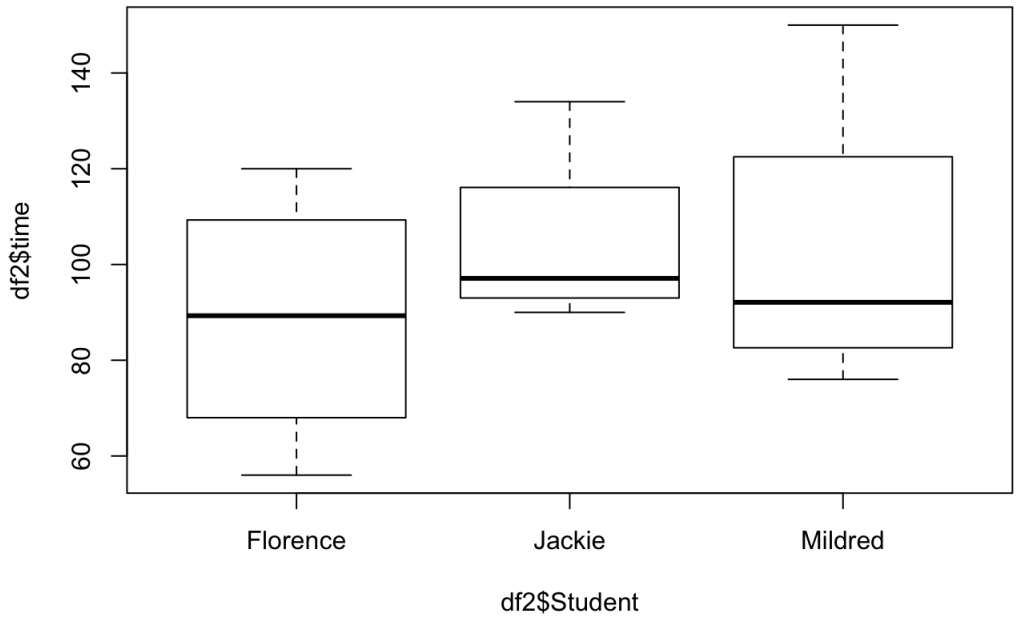
	Temp	Pulse	Systolic	Diastolic
Jackie	98.2	96	134	90
Florence	98.6	56	120	80
Mildred	98.2	76	150	95

Create a data frame of these values. Will `plot()` and `boxplot()` produce the same graphic?

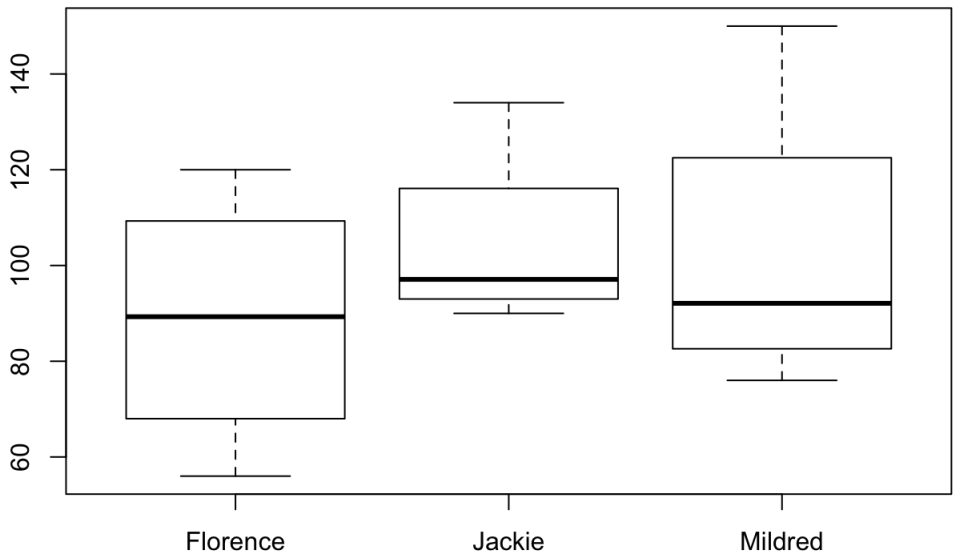
```
# Your code here

df1 <- data.frame(c("jackie", "florence", "mildred"), Temp = c(98.2, 98.6, 98.2),
    Pulse = c(96, 56, 76), Systolic = c(134, 120, 150), Diastolic = c(90, 80,
        95))

df2 <- data.frame(time = c(98.2, 96, 134, 90, 98.6, 56, 120, 80, 89.2, 76, 150,
    95), Student = c("Jackie", "Jackie", "Jackie", "Jackie", "Florence", "Florence",
    "Florence", "Florence", "Mildred", "Mildred", "Mildred", "Mildred"))
plot(df2$time ~ df2$Student)
```




```
boxplot(df2$time ~ df2$Student)
```




```
# same!
```

Problem 4 (Verzani problem 3.8)

The second argument to `split` can be a list of factors. The result is that all interactions (possible combinations) are used for the groups. In the `ToothGrowth` data set, growth (`len`) is measured for two types of supplements (`supp`) and three doses (`dose`). Split this `len` value into 6 groups.

```
# Your code here
View(ToothGrowth)
```

```
## Error in check_for_XQuartz(): X11 library is missing: install XQuartz from xquartz.macosforge.org
```

```
View(DescTools)
```

```
## Error in as.data.frame(x): 找不到对象'DescTools'
```

```
split(ToothGrowth$len, list(ToothGrowth$supp, ToothGrowth$dose))
```

```
## $OJ.0.5
##  [1] 15.2 21.5 17.6  9.7 14.5 10.0  8.2  9.4 16.5  9.7
##
## $VC.0.5
##  [1]  4.2 11.5  7.3  5.8  6.4 10.0 11.2 11.2  5.2  7.0
##
## $OJ.1
##  [1] 19.7 23.3 23.6 26.4 20.0 25.2 25.8 21.2 14.5 27.3
##
## $VC.1
##  [1] 16.5 16.5 15.2 17.3 22.5 17.3 13.6 14.5 18.8 15.5
##
## $OJ.2
##  [1] 25.5 26.4 22.4 24.5 24.8 30.9 26.4 27.3 29.4 23.0
##
## $VC.2
##  [1] 23.6 18.5 33.9 25.5 26.4 32.5 26.7 21.5 23.3 29.5
```