

Stat 411/511

## R BOOTCAMP

Jan 11 2012

Charlotte Wickham

[stat511.cwick.co.nz](http://stat511.cwick.co.nz)

# Your turn

Get logged in to RStudio and run (from last time):

```
library(Sleuth2)
library(ggplot2)
qplot(Sex, Salary, data = case0102, geom = "boxplot")
```

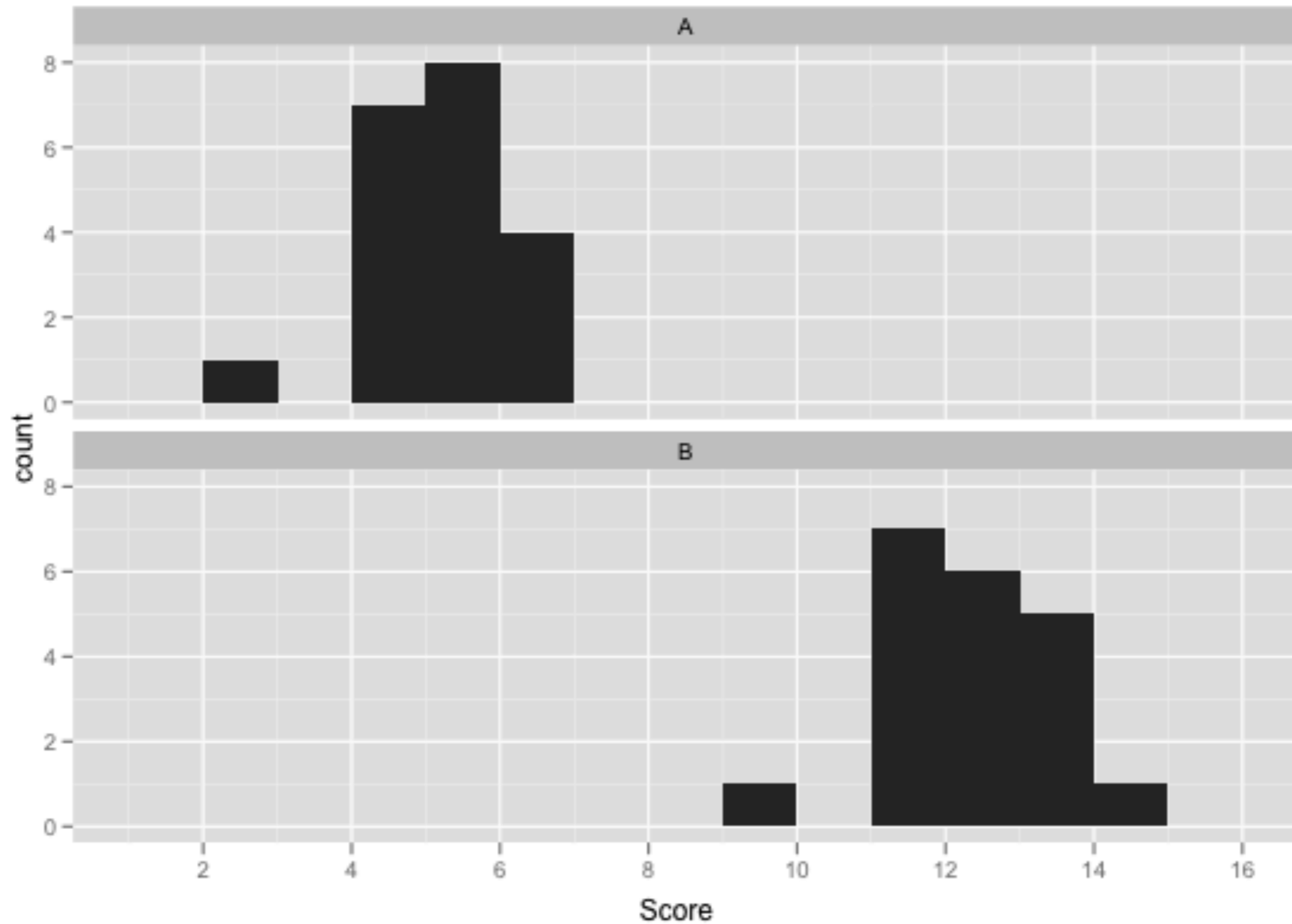
Also go to [stat511.cwick.co.nz](http://stat511.cwick.co.nz) and open today's lecture notes so you can copy and paste from them.

If you are having problems, ask me!

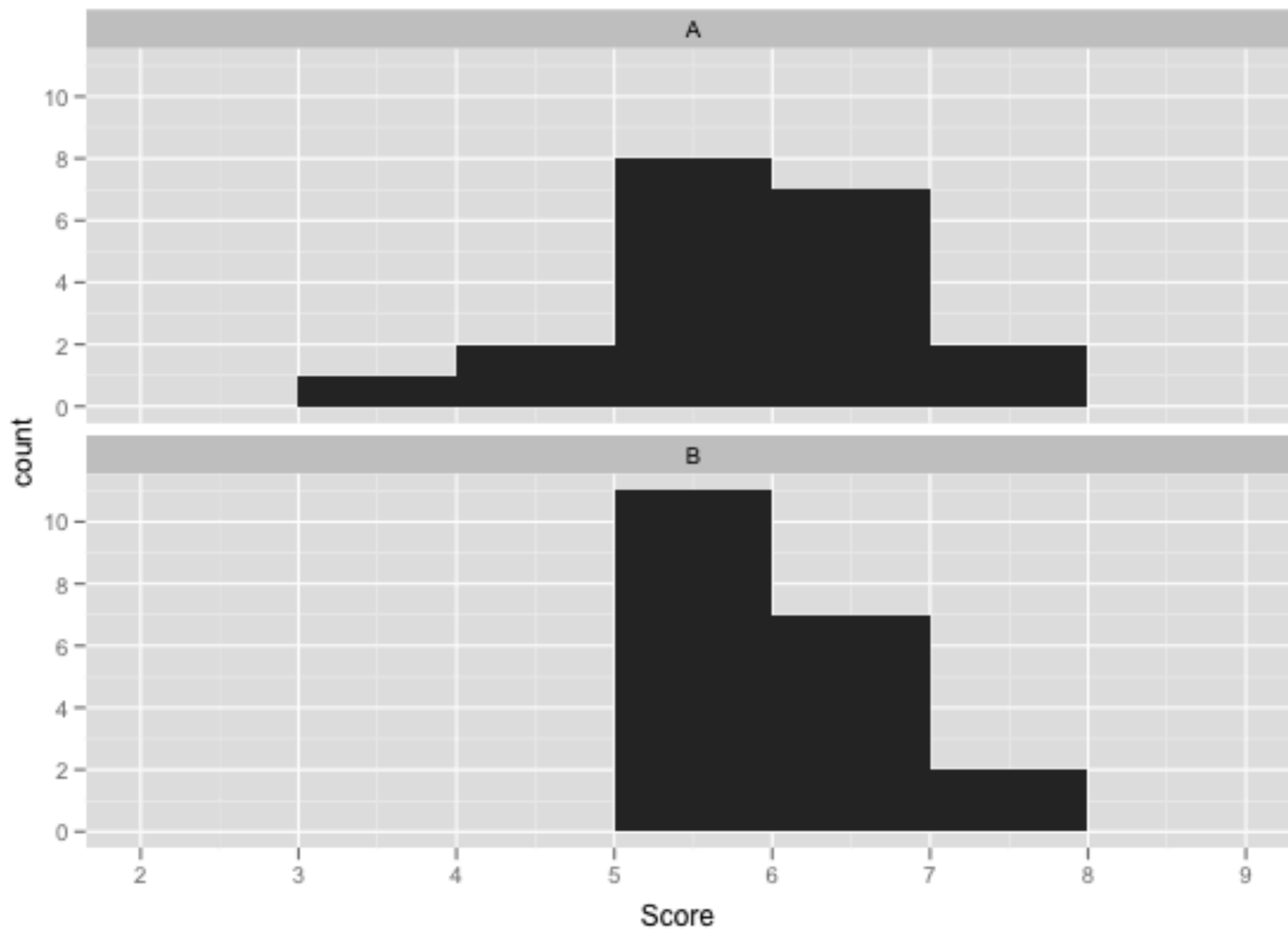
Blackboard is now set up, it will say 411 regardless of which you are registered in.

Your RStudio files are saved in your ONID file space, see [http://onid.oregonstate.edu/docs/use/file\\_management.shtml](http://onid.oregonstate.edu/docs/use/file_management.shtml) to learn how to access them.

# Do these groups have different means?



# What about these groups?





**A picture is worth a 1000 words**

~~A picture is worth a 1000 words~~

A picture is worth a 3-4 sentences

~~A picture is worth a 1000 words~~

A picture is worth a 3-4 sentences

A picture is often worth more than a p-value

# Data in R

Special object called a data.frame.

data.frames are rectangular:

Each row is a subject

Each column is a variable

For now: we will use datasets that come with packages:

```
library(Sleuth2)
data(package = "Sleuth2")
case0101
?case0101
```

# Your turn

```
library(Sleuth2)

case0101
head(case0101)
str(case0101)
summary(case0101)
```

```
# describe what each line does to
# your neighbour. Need a hint? Try:
```

```
?head
```

What are the variables called?  
How many subjects are there?

# \$ubsetting

The \$ lets you get variables out of a data.frame

```
case0101$Score
```

```
case0101$Treatment
```

```
mean(case0101$Score)
```

```
sd(case0101$Score)
```

```
table(case0101$Treatment)
```

# Your turn

What do each of the following commands give you?

```
case0101$Treatment == "Extrinsic"
```

```
case0101$Score[case0101$Treatment == "Extrinsic"]
```

```
subset(case0101, Treatment == "Extrinsic")
```

# Your turn

What do each of the following commands give you?

```
case0101$Treatment == "Extrinsic"
```

```
case0101$Score[case0101$Treatment == "Extrinsic"]
```

```
subset(case0101, Treatment == "Extrinsic")
```

A function with two arguments

# Your turn

What do each of the following commands give you?

```
case0101$Treatment == "Extrinsic"
```

```
case0101$Score[case0101$Treatment == "Extrinsic"]
```

```
subset(case0101, Treatment == "Extrinsic")
```



A function with two arguments

# Your turn

Find the mean Score of the Extrinsic group.

Find the mean Score of the Intrinsic group.

# Keeping a result

To save an object you use `<-`  
(type: a less than symbol and a dash)

```
intrinsic_scores <- subset(case0101,  
  Treatment == "Intrinsic")$Score
```

```
extrinsic_scores <- subset(case0101,  
  Treatment == "Extrinsic")$Score
```

```
mean(intrinsic_scores) - mean(extrinsic_scores)
```

# Your turn

Read the first paragraph of the Details section of  
`?make.names`

Which of these are valid names?

`two_groups`

`2groups`

`.two.groups`

`next`

`two/groups`

`twoGroups`

`two(groups)`