

Week_3 Exam

2022-07-21

```
library(dplyr)
library(ggplot2)
library(statsr)

data("arbuthnot")
```

1. How many variables are included in this data set (data set: arbuthnot)?

```
names(arbuthnot)

## [1] "year" "boys" "girls"
```

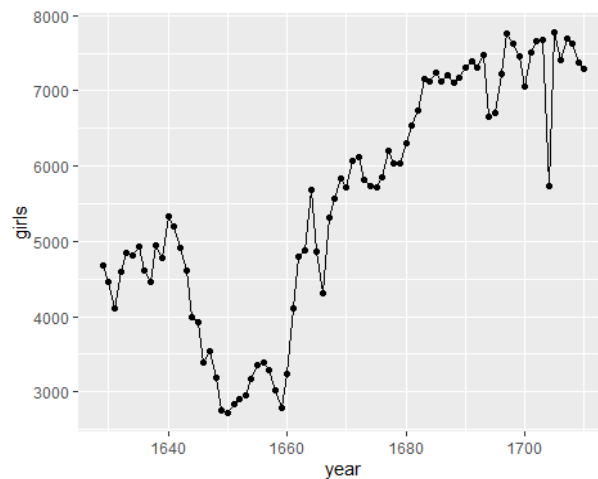
2 What command would you use to extract just the counts of girls born?"

```
arbuthnot$girls

## [1] 4683 4457 4102 4590 4839 4820 4928 4605 4457 4952 4784 5332 5200 4910 4617
## [16] 3997 3919 3395 3536 3181 2746 2722 2840 2908 2959 3179 3349 3382 3289 3013
## [31] 2781 3247 4107 4803 4881 5681 4858 4319 5322 5560 5829 5719 6061 6120 5822
## [46] 5738 5717 5847 6203 6033 6041 6299 6533 6744 7158 7127 7246 7119 7214 7101
## [61] 7167 7302 7392 7316 7483 6647 6713 7229 7767 7626 7452 7061 7514 7656 7683
## [76] 5738 7779 7417 7687 7623 7380 7288
```

3. Which of the following best describes the number of girls baptised over the years included in this dataset?

```
ggplot(data = arbuthnot, aes(x = year, y = girls)) +
  geom_point()+ geom_line()
```



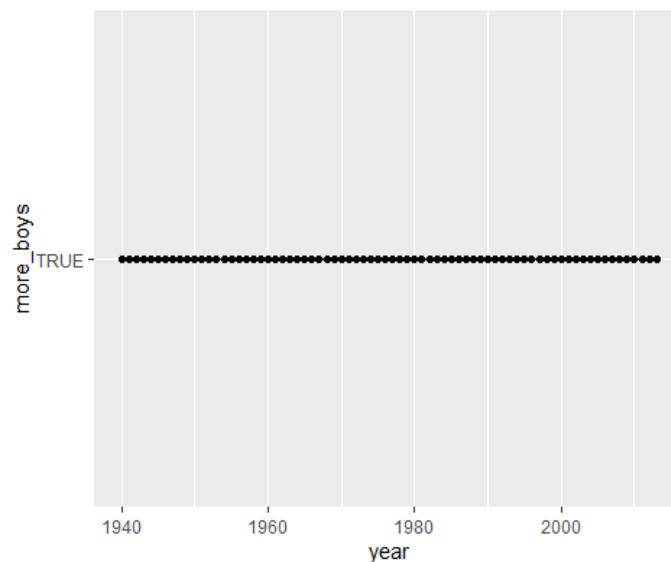
4. How many variables are included in this data set (data set: present)?

```
data("present")
names(present)

## [1] "year" "boys" "girls"
```

5. Create a new variable called `more_boys` which contains the value of either TRUE if that year had more boys than girls, or FALSE if that year did not. Based on this variable which of the following statements is true?

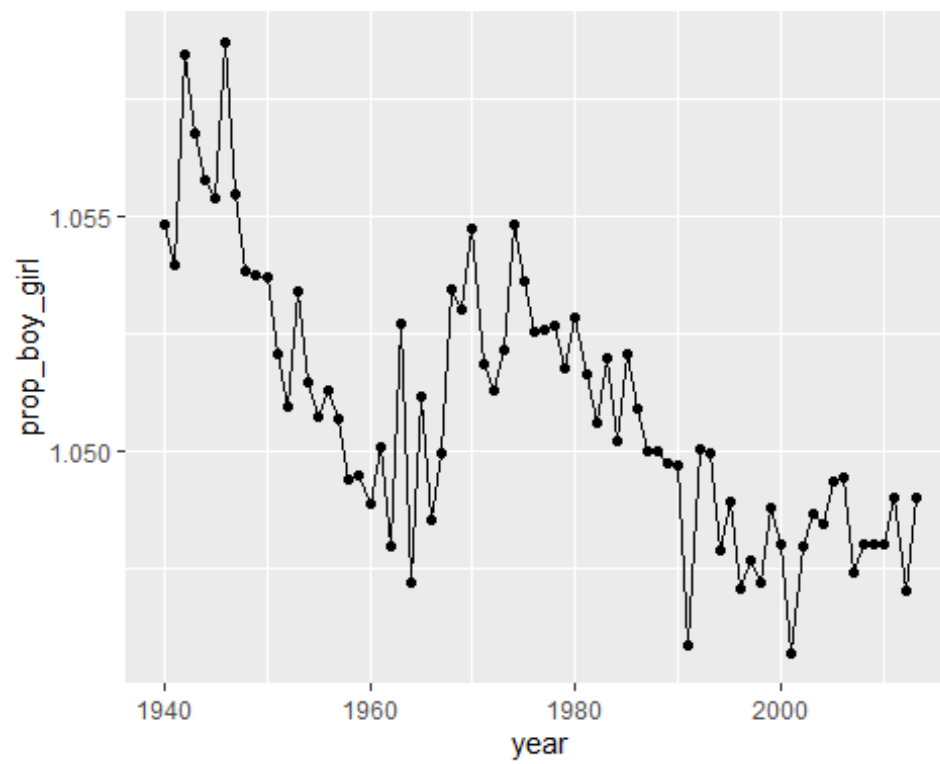
```
present <- present %>%
  mutate(more_boys = boys > girls)
ggplot(data=present, aes(x=year, y=more_boys))+
  geom_point() + geom_line()
```



7. Calculate the boy-to-girl ratio each year, and store these values in a new variable called `prop_boy_girl` in the `present` dataset. Plot these values over time. Which of the following best describes the trend?

```
present <- present %>%
  mutate(prop_boy_girl = boys/girls)

ggplot(data = present, aes(x=year, y=prop_boy_girl)) +
  geom_point() + geom_line()
```



8 In what year did we see the most total number of births in the U.S.?

```
present <- present %>%  
  mutate(total = boys + girls)%>%  
  arrange(desc(total))
```