

Lab 1 - Data visualization

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Questions

Part 1

```
library(tidyverse)
```

```
-- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
v dplyr      1.1.4      v readr      2.1.6
v forcats    1.0.1      v stringr    1.6.0
v ggplot2    4.0.1      v tibble     3.3.0
v lubridate  1.9.4      v tidyr      1.3.2
v purrr      1.2.0
-- Conflicts ----- tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()     masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become
```

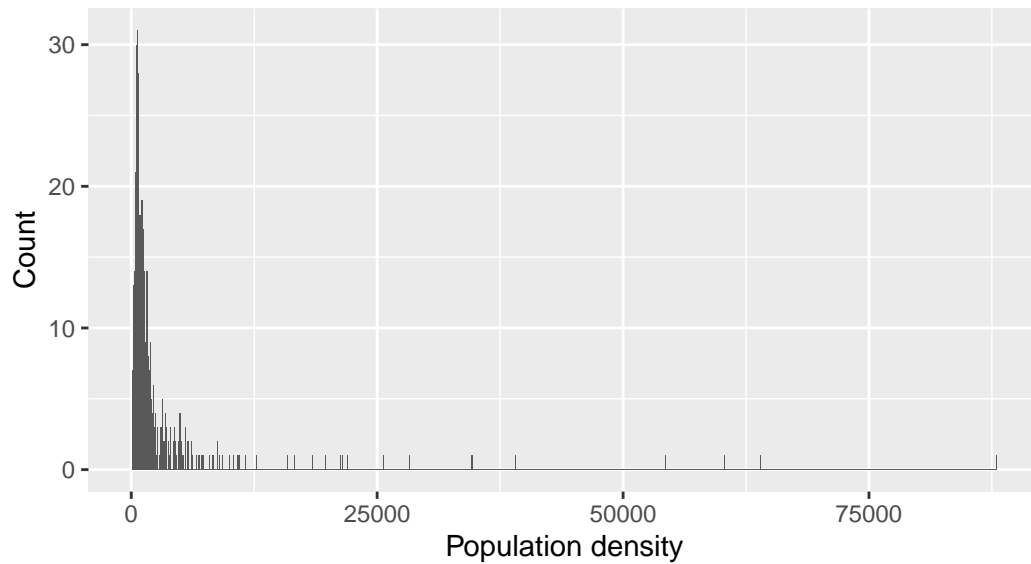
Question 1

Binwidth = 100

```
ggplot(midwest, aes(x = popdensity)) +
  geom_histogram(binwidth = 100) +
  labs(
    x = "Population density",
    y = "Count",
    title = "Population density of midwestern counties",
    subtitle = "Binwidth = 100"
  )
```

Population density of midwestern counties

Binwidth = 100

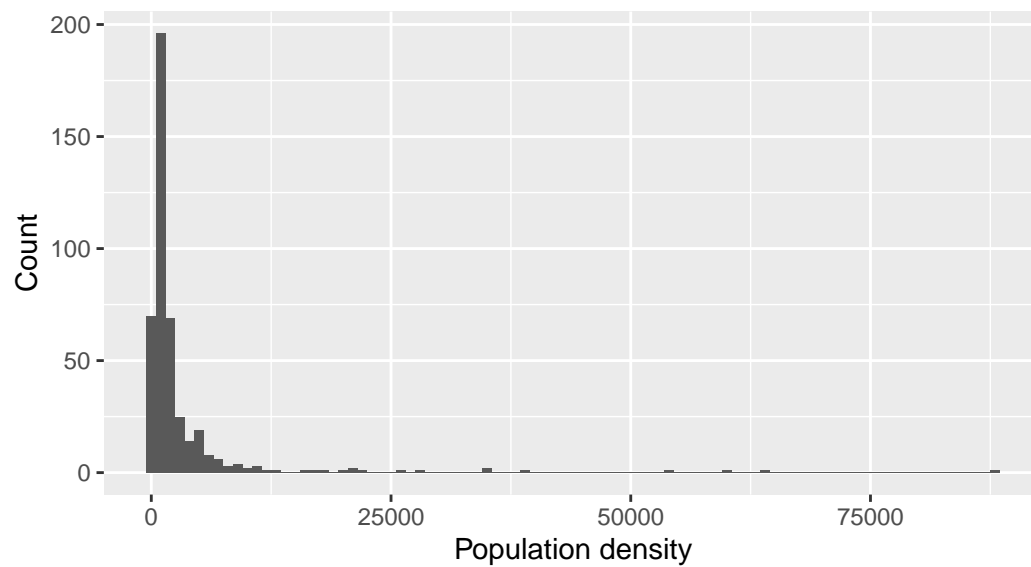


Binwidth = 1000

```
ggplot(midwest, aes(x = popdensity)) +  
  geom_histogram(binwidth = 1000) +  
  labs(  
    x = "Population density",  
    y = "Count",  
    title = "Population density of midwestern counties",  
    subtitle = "Binwidth = 1000"  
  )
```

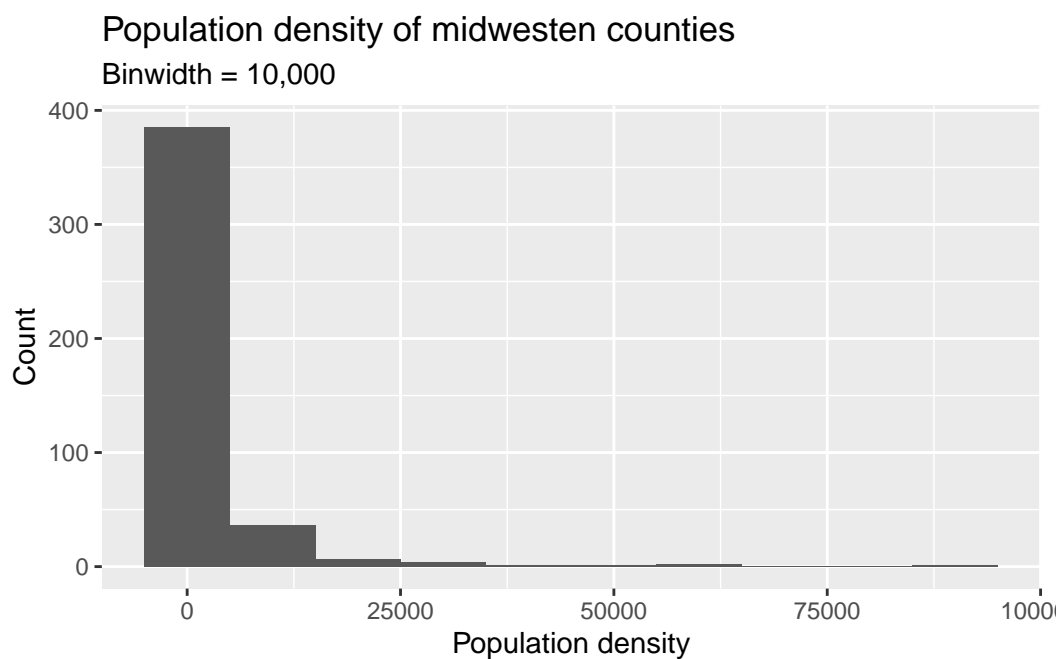
Population density of midwestern counties

Binwidth = 1000



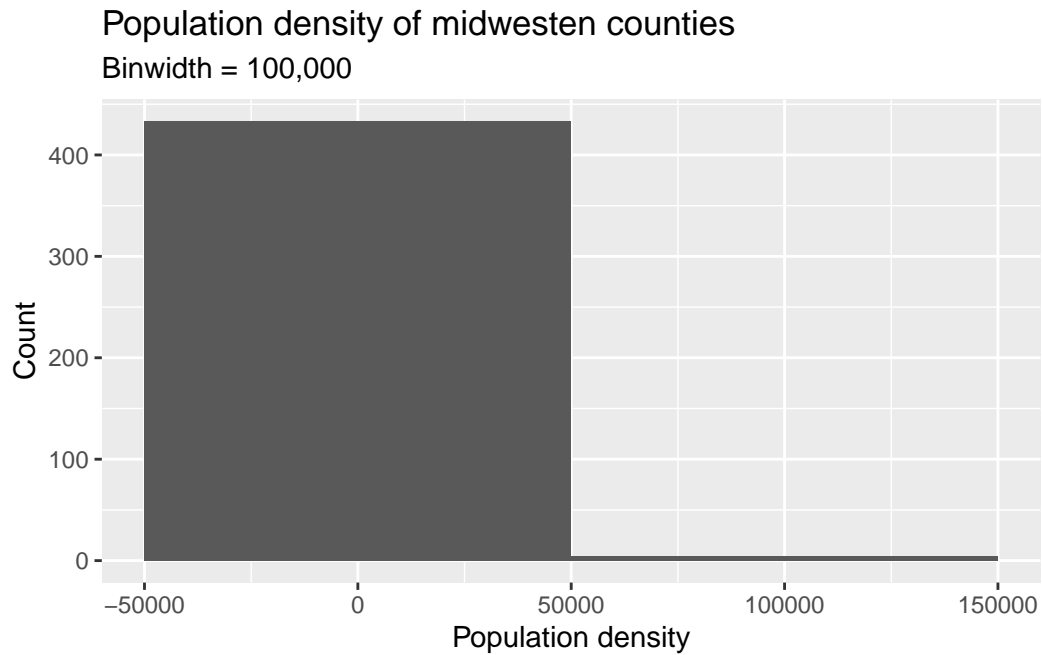
Binwidth = 10,000

```
ggplot(midwest, aes(x = popdensity)) +  
  geom_histogram(binwidth = 10000) +  
  labs(  
    x = "Population density",  
    y = "Count",  
    title = "Population density of midwestern counties",  
    subtitle = "Binwidth = 10,000"  
  )
```



Binwidth = 100,000

```
ggplot(midwest, aes(x = popdensity)) +  
  geom_histogram(binwidth = 100000) +  
  labs(  
    x = "Population density",  
    y = "Count",  
    title = "Population density of midwestern counties",  
    subtitle = "Binwidth = 100,000"  
  )
```



Comment: A graph with bandwidth 1,000 is the most appropriate because it shows the overall distribution clearly without losing important detail, not too noisy nor oversmooth.

Question 2

Question 3

Question 4

Question 5

Question 6

Question 7

Part 2

Enough about the Midwest!

Question 8

Question 9