ds105-practice

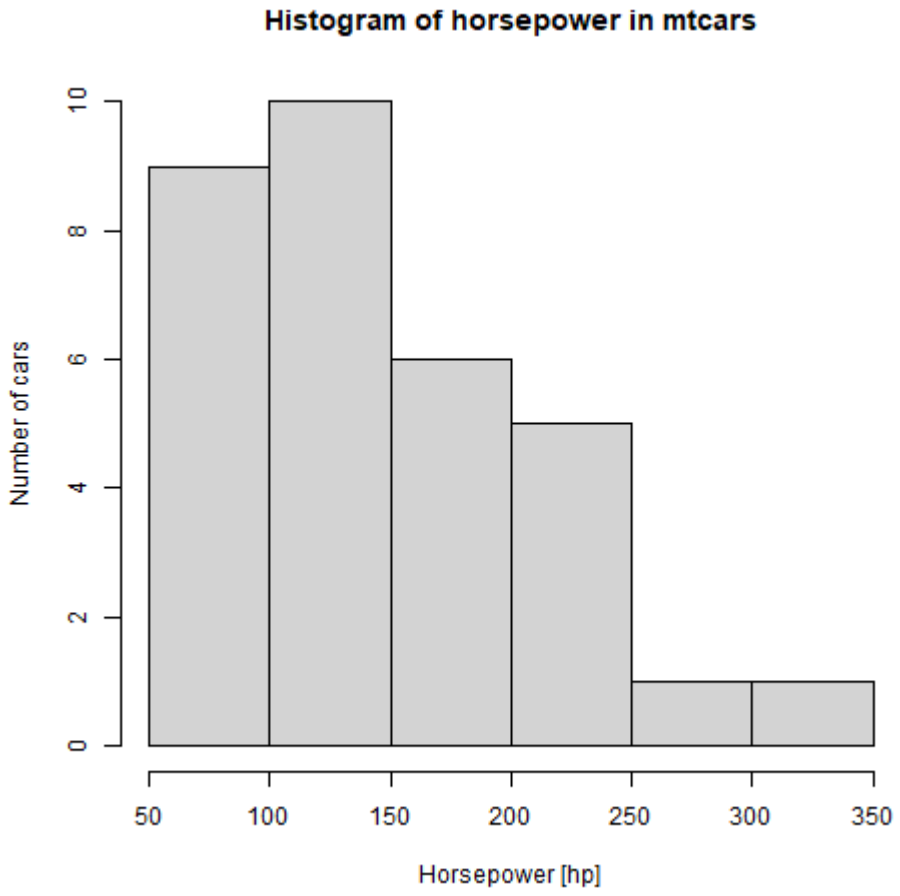
File: 9_histogrampractice.org

1. Create a histogram of the horsepower data of the 32 cars in the `mtcars` data set. Run the code.
2. Label the x-axis. Run the code.
3. Label the y-axis. Run the code.
4. Title the plot. Run the code.
5. Print the binwidth.
6. Plot the logarithm of hp to base 10.
7. Plot only the car count for cars with a horsepower of greater or equal `sub = 220 hp`.
8. Change the x-axis label so that it automatically shows `sub`.

Solutions

- Histogram with customization

```
h <- hist(mtcars$hp, #1
          main="Histogram of horsepower in mtcars", #2
          xlab="Horsepower [hp]",     #3
          ylab="Number of cars")   #4
h
```



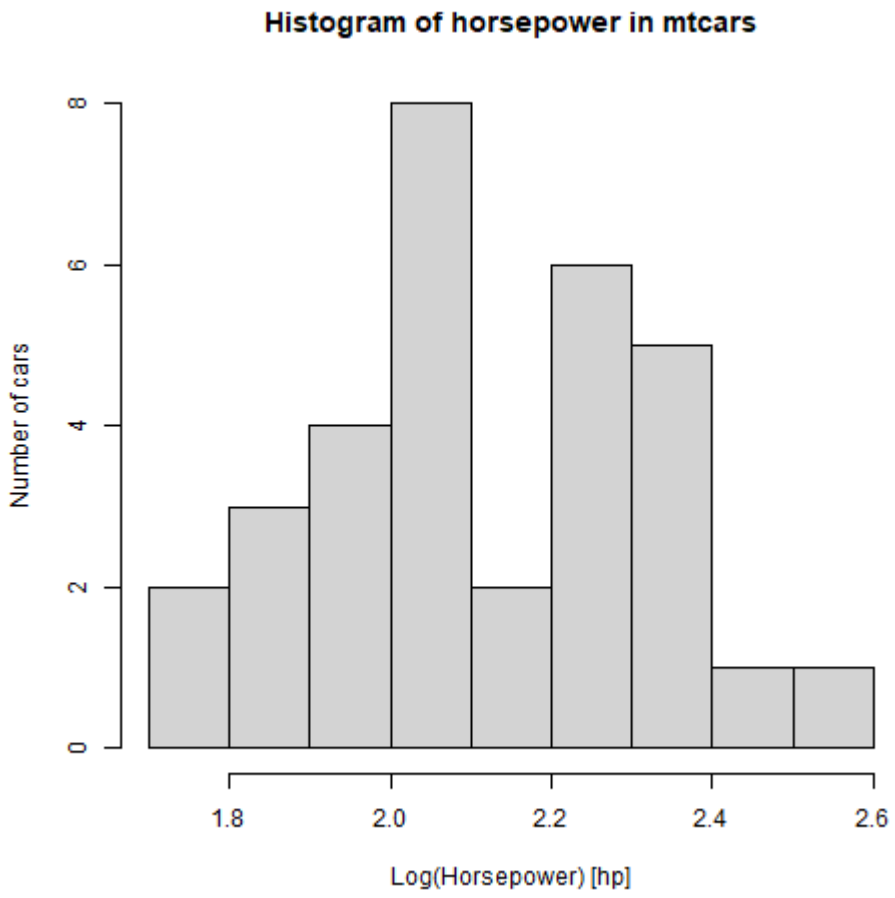
- Print the binwidth of the last plot

```
h$breaks[2]-h$breaks[1]  #5
```

```
[1] 50
```

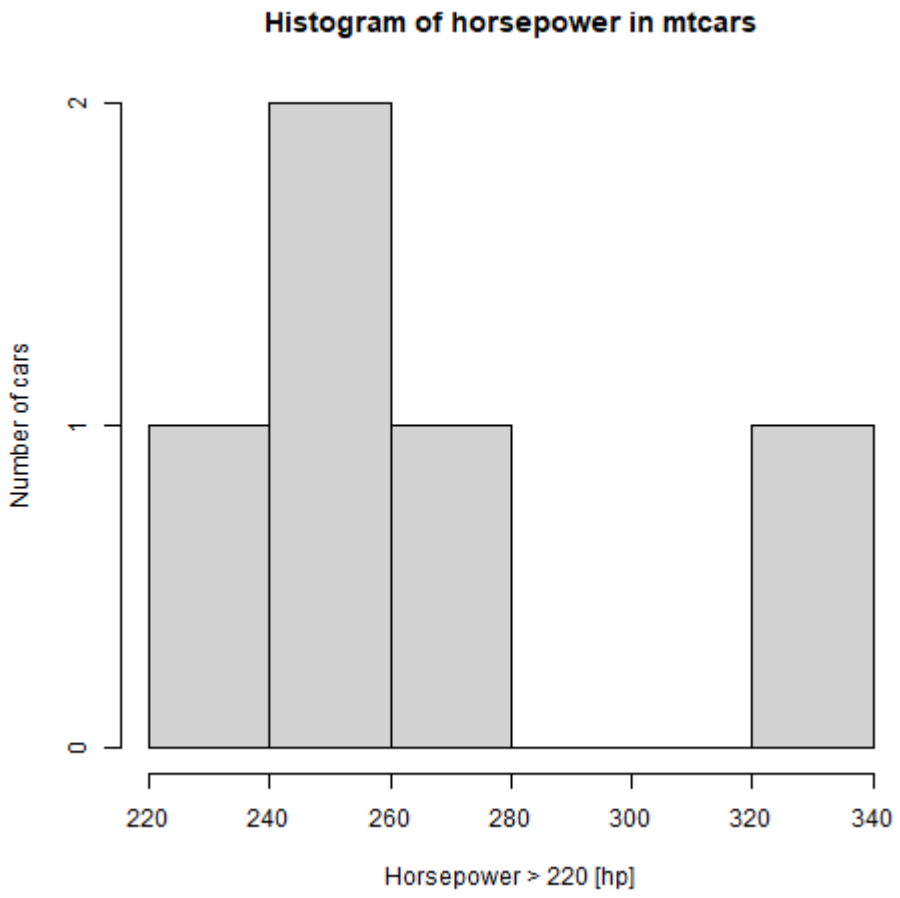
- Logarithmic transformation:

```
hp <- mtcars$hp
hist(log10(hp),  #6
     main="Histogram of horsepower in mtcars",
     xlab="Log(Horsepower) [hp]",
     ylab="Number of cars")
```



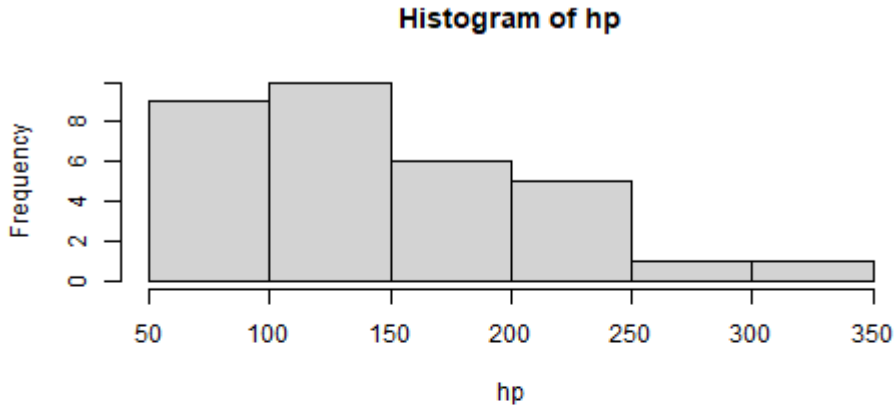
- Horsepower greater or equal than 220 hp:

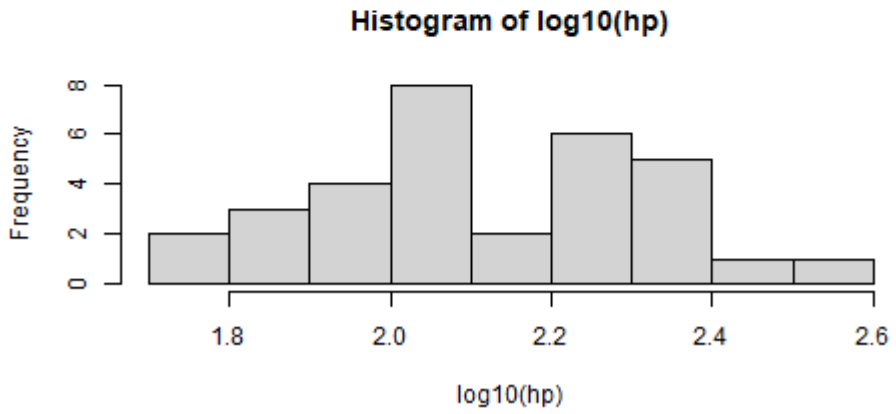
```
    hp <- mtcars$hp
    sub <- 220  # store cut off value
    idx <- which(hp >= sub)
    hpsub <- hp[idx]  # hp subset
#   hist(mtcars$hp[which(mtcars$hp>=220)]) full expression
    hist(hpsub,  #7
         main="Histogram of horsepower in mtcars",
         xlab=paste("Horsepower >", sub,"[hp]"),   #8
         ylab="Number of cars")
```



- Put the log10 plot and the original plot in one plot array (on top of one another) - without any customization.

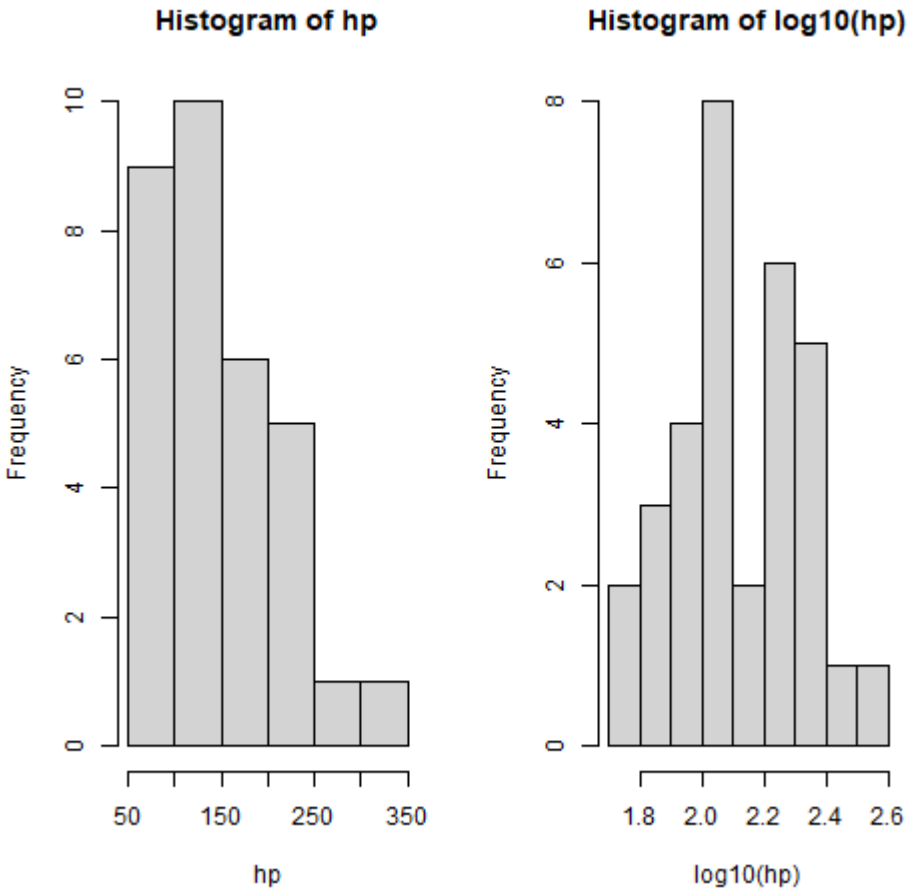
```
par(mfrow=c(2,1))
hist(hp)
hist(log10(hp))
```





- Put the log10 plot and the original plot in one plot array (side by side) - without any customization.

```
par(mfrow=c(1,2))
hist(hp)
hist(log10(hp))
```



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