Week 3 Lab

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Packages

We will need the following package for this lab:

```
library(ggplot2)
```

Data

For this lab, we will be using the data set `msleep`. Take some time to get familiar with the data set using the help function.

```
?msleep
```

Problem 1

Create a `data.frame` for the variable `vore` that contains the following:

- The different categories of `vore`
- The frequencies
- The relative frequencies (percentages)
- Appropriate column names

Make sure you print the `data.frame`.

```
a_sleep <- data.frame(table(msleep$vore))
a_sleep["Percent"] <- round(a_sleep$Freq/length(msleep$vore), 4)
colnames(a_sleep) <- c("Vore", "Frequency", "Percent")
a_sleep
```

```
     Vore Frequency Percent
1   carni        19  0.2289
2   herbi        32  0.3855
3 insecti         5  0.0602
4    omni        20  0.2410
```

Problem 2

Find the deciles (that is, every 10th percentile starting with 10th and ending with 90th) for the variable `sleep_total`.

```
quantile(msleep$sleep_total, c(0.1, .2, .3, .4, .5, .6, .7, .8, .9))
```

```
  10%   20%   30%   40%   50%   60%   70%   80%   90% 
3.920 6.240 8.520 9.480 10.100 11.140 12.800 14.400 15.880 
```

Problem 3

Calculate the mean, median, min, max, variance, standard deviation, and range of `sleep_total`. Round all values to 2 decimals. Put all of these values in a `data.frame`. Print the `data.frame`.

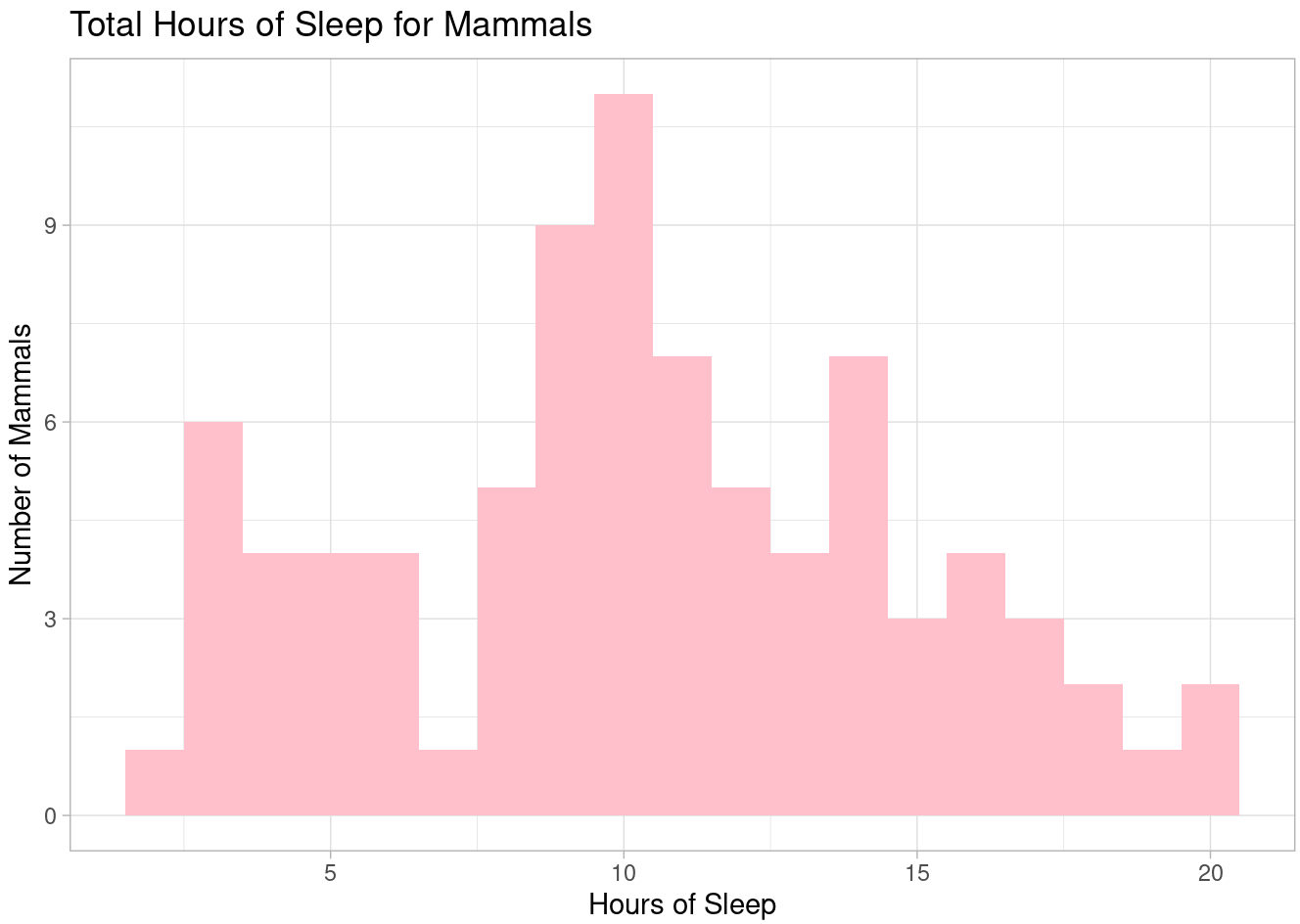
```
sleepy <- data.frame(
  "Mean" = round(mean(msleep$sleep_total), digits = 2),
  "Median" = round(median(msleep$sleep_total), digits = 2),
  "Min" = round(min(msleep$sleep_total), digits = 2),
  "Max" = round(max(msleep$sleep_total), digits = 2),
  "Variance" = round(var(msleep$sleep_total), digits = 2),
  "Standard Deviation" = round(sd(msleep$sleep_total), digits = 2),
  "Range" = round((max(msleep$sleep_total)-min(msleep$sleep_total)), digits = 2)
)
sleepy
```

```
   Mean Median Min  Max Variance Standard.Deviation Range
1 10.43   10.1 1.9 19.9    19.81                4.45    18
```

Problem 4

Create a `ggplot2` graph that you believe is a good visual for the variable `sleep_total`. Make sure to use a title, theme, axis labels, ect.

```
ggplot(msleep, aes(sleep_total)) +
  geom_histogram(binwidth = 1, fill = "pink") +
  xlab("Hours of Sleep") +
  ylab("Number of Mammals") +
  ggtitle("Total Hours of Sleep for Mammals") +
  theme_light()
```



Submitting

Submit the following to Canvas:

- Your rendered PDF titled Lastname_3R. Make sure your name is at the top of the document.
- Your .qmd file