

# S&DS 220: Homework 1

Solutions

2024-01-19

## Question 1

Write R code to create a numeric vector that repeats the sequence 1, 1, 2, 3, 5 eight hundred times. Store the result as `fib`.

*# your answer here*

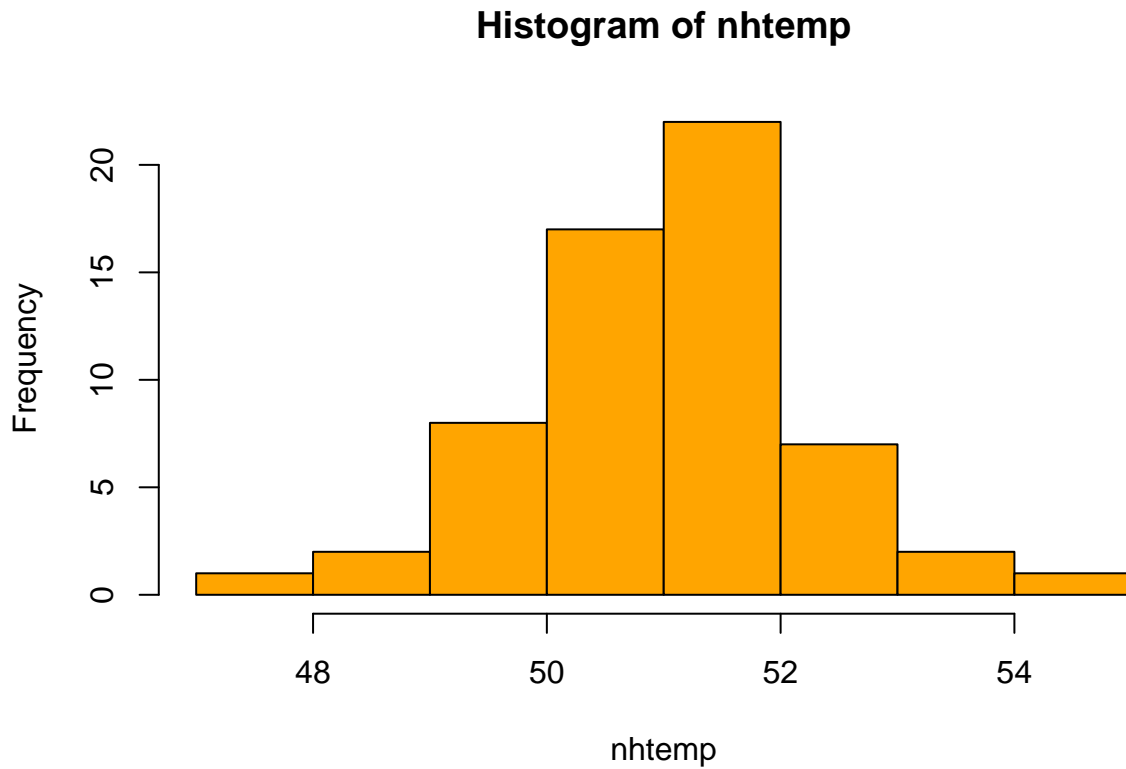
```
fib <- rep(c(1, 1, 2, 3, 5), times = 800)
```

## Question 2

`nhtemp` is a dataset that is built into R. Create a histogram of `nhtemp` using the `hist` function. Set the color of the histogram to a color that you like (but something other than the default).

*# your answer here*

```
hist(nhtemp, col = "orange")
```



### Question 3

In the console window call the `help` function on `nhtemp`. What is range of years for the data set?

*Your answer here:* 1912-1971

Call the function `str` on `nhtemp` to see what type of object it is.

*# your answer here*

```
str(nhtemp)
```

```
## Time-Series [1:60] from 1912 to 1971: 49.9 52.3 49.4 51.1 49.4 47.9 49.8 50.9 49.3 51.9 ...
```

#### Question 4

What is the mean temperature in the `nhtemp` data?

*# your answer here*

```
mean(nhtemp)
```

```
## [1] 51.16
```

What is the standard deviation of the temperatures in the `nhtemp` data?

*# your answer here*

```
sd(nhtemp)
```

```
## [1] 1.265608
```

What is the maximum temperature in the `nhtemp` data?

*# your answer here*

```
max(nhtemp)
```

```
## [1] 54.6
```

Which year had the maximum temperature in the `nhtemp` data? Do not manually inspect the data for the largest value. Use the function `which.max` and figure which year this corresponds to.

*# your answer here*

```
which.max(nhtemp) + 1911
```

```
## [1] 1953
```

*# solution 2*

```
time(nhtemp)[which.max(nhtemp)]
```

```
## [1] 1953
```

### Question 5

- Call the `plot` function on `nhtemp`.
- Change the label on the *x*-axis to “Year” with the `xlab` argument.
- Change the label on the *y*-axis to “Degrees Fahrenheit” with the `ylab` argument.
- Give the plot the title “Temperatures in New Haven, CT from 1912 to 1971” with the `main` argument.

*# your answer here*

```
plot(
  nhtemp,
  xlab = "Year",
  ylab = "Degrees Fahrenheit",
  main = "Temperatures in New Haven, CT from 1912 to 1971"
)
```

