

Week 1

This file consists of exercises for the course *HarvardX PH525.1x Statistics and R*

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Exercise #2 Create a numeric vector containing the numbers 2.23, 3.45, 1.87, 2.11, 7.33, 18.34, 19.23.

What is the average of these numbers?

```
num_vec <- c(2.23, 3.45, 1.87, 2.11, 7.33, 18.34, 19.23)
mean(num_vec)
```

```
## [1] 7.794286
```

Exercise #3 Use a for loop to determine the value of $\sum_{i=1}^{25} i^2$

```
sum_vec <- NULL

for (i in 1:25) {

  sum_vec[i] = i^2

  total_sum = sum(sum_vec)

}

total_sum
```

```
## [1] 5525
```

Exercise #4 The cars dataset is available in base R. You can type cars to see it. Use the class() function to determine what type of object is cars.

```
class(cars)
```

```
## [1] "data.frame"
```

Exercise #5

How many rows does the cars object have?

```
nrow(cars)
```

```
## [1] 50
```

Exercise #6

What is the name of the second column of cars?

```
names(cars[2])
```

```
## [1] "dist"
```

Exercise #7

The simplest way to extract the columns of a matrix or data.frame is using [. For example you can access the second column with cars[,2].

What is the average distance traveled in this dataset?

```
dist_traveled <- data.frame(dist=cars[,2])
```

```
mean(dist_traveled[,1])
```

```
## [1] 42.98
```

Exercise #8

Familiarize yourself with the which() function. Which row of cars has a a distance of 85?

```
which(cars[,2]==85)
```

```
## [1] 50
```