Solution to Exercise 1

What results do you expect of the following commands?

```
x <- c(2, 5, 6, 5)
y <- c(3, 5, 8)

?class
class(x)
```

```
## [1] "numeric"
```

```
x + 1
```

```
## [1] 3 6 7 6
```

```
x + y
```

```
## Warning in x + y: Länge des längeren Objektes
##       ist kein Vielfaches der Länge des kürzeren Objektes
```

```
## [1]  5 10 14  8
```

Explanation to `x + y`:
When you add vectors, the first element of the first vector is added to the first element of the second vector (i.e. `x + y = c(x[1] + y[1], x[2] + y[2], etc.)`). If one vector is longer than the other (in this case `x`), the shorter vector is recycled (i.e. `(x + y)[4] = x[4] + y[1]`).

```
y[2:3]
```

```
## [1] 5 8
```

```
x[x > 5]
```

```
## [1] 6
```

```
x <- x[1:2]
length(x)
```

```
## [1] 2
```

```
member <- c(TRUE, TRUE, FALSE, TRUE)
?sum
sum(member)
```

```
## [1] 3
```

```
shoe_size <- c(35, 42, 44, 36, 38, 39)
length(shoe_size)
```

```
## [1] 6
```

```
mean(shoe_size)
```

```
## [1] 39
```

```
median(shoe_size)
```

```
## [1] 38.5
```

```
?which.max
which.max(shoe_size)
```

```
## [1] 3
```

Explanation to `which.max()`:
The function `which.max()` returns the position of the element with the maximum value inside a vector. In this case, the maximum value is `44`, which is at the third position inside the vector `shoe_size`. Therefore, `which.max(shoe_size)` returns the value `3`.