# Homework 1

Pascal Pilz, k12111234

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## Exercise 1

```
x <- c(0,3,3,3,6,0,1,0,0,1,1,3,0,4,3,1,4,6,4,2,0,1,1,0,1,1,0,1,0,3)

cat(sprintf("mean: %.3f, sd: %.3f,", mean(x), sd(x)),
    "quantiles:", sprintf("%.3f", quantile(x)))
```

```
## mean: 1.767, sd: 1.794, quantiles: 0.000 0.000 1.000 3.000 6.000
```

## Exercise 2

```
x1 <- c(157,184,162,166,168,163,178,185,190,187,176,174,179)

cat(sprintf("mean: %.3f, sd: %.3f,", mean(x1), sd(x1)),
    "quantiles:", sprintf("%.3f", quantile(x1)))
```

```
## mean: 174.538, sd: 10.572, quantiles: 157.000 166.000 176.000 184.000 190.000
```

```
x2 <- c(47,85,66,83,62,73,84,94,99,96,76,94,74)

cat(sprintf("mean: %.3f, sd: %.3f,", mean(x2), sd(x2)),
    "quantiles:", sprintf("%.3f", quantile(x2)))
```

```
## mean: 79.462, sd: 15.180, quantiles: 47.000 73.000 83.000 94.000 99.000
```

## Exercise 3

For this we realize that the final income in 200% of the initial income, thus we simply take the 10th root of 2.

```
x <- 2 ^ (1/10)

cat(sprintf("The average annual growth rate is %s%%", round((x-1)*100, 3)))
```

```
## The average annual growth rate is 7.177%
```