

Experimental Design and Data Analysis:

Assignment 2

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1 Exercise 1

Exercise 1 stuff...

2 Exercise 2

I needed to put the light1882 on 1 line, else it can't be imported as a table, because it would not have a full last line. See Fig:1 for the histograms of the two datasets.

The 95% confidence interval of the mean of Light1879 is 836.7226 - 868.0774

The 95% confidence interval of the mean of Light1879 is 712.4417 - 799.9931

The 95% confidence interval of the median of Light1879 is 834.5142 - 865.4858

The 95% confidence interval of the median of Light1879 is 730.2243 - 817.7757

3 Exercise 3

Looking at the graphs of the data, see Fig:2 , it is clear that this dataset is not normally distributed. So the t-test should not be used. Instead of this, we use the sign-test, which can be used for any other sort of distribution. The results of this test are as follows:

One-sample Sign-Test

```
data: klm
s = 36, p-value = 0.155
alternative hypothesis: true median is not equal to 35
95 percent confidence interval:
 32.00000 56.07713
sample estimates:
```

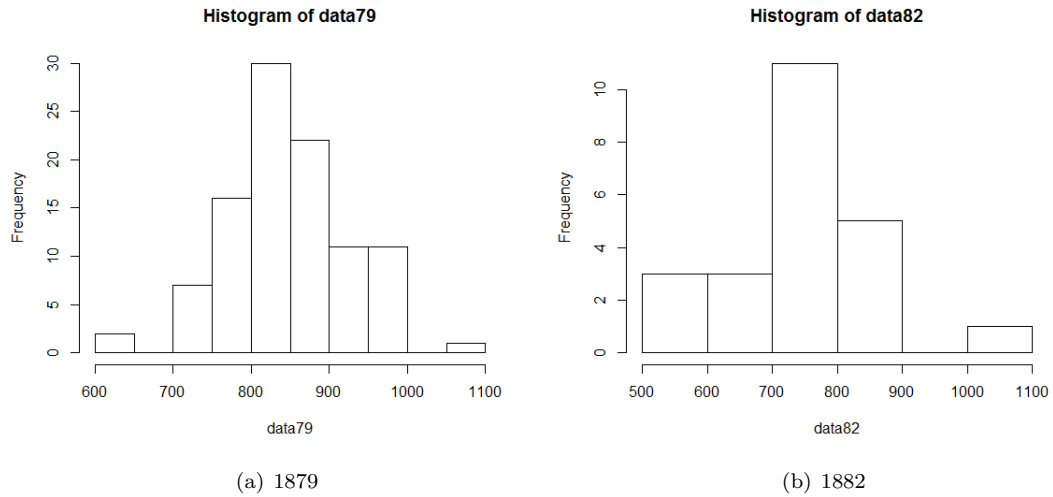


Figure 1: Histograms of the datasets Light1879 and Light1882

median of x
42

	Conf. Level	L.E. pt	U.E. pt
Lower Achieved CI	0.9481	32	56.0000
Interpolated CI	0.9500	32	56.0771
Upper Achieved CI	0.9727	32	57.0000

This means that H_0 is rejected, the mean is not equal to 35.

Now for the test if at most 10% of the parts arrives after the maximum delivery period of 70 days. The self written program can be found in 5.3. The results of this test are as follows:

Exact **binomial** test

data: 14 and 3464

number of successes = 14, number of trials = 3464, p-value < 2.2e-16

alternative hypothesis: true probability of success **is not equal** to 0.5
99.5 percent confidence interval:

0.001661284 0.008114514

sample estimates:

probability of success
0.00404157

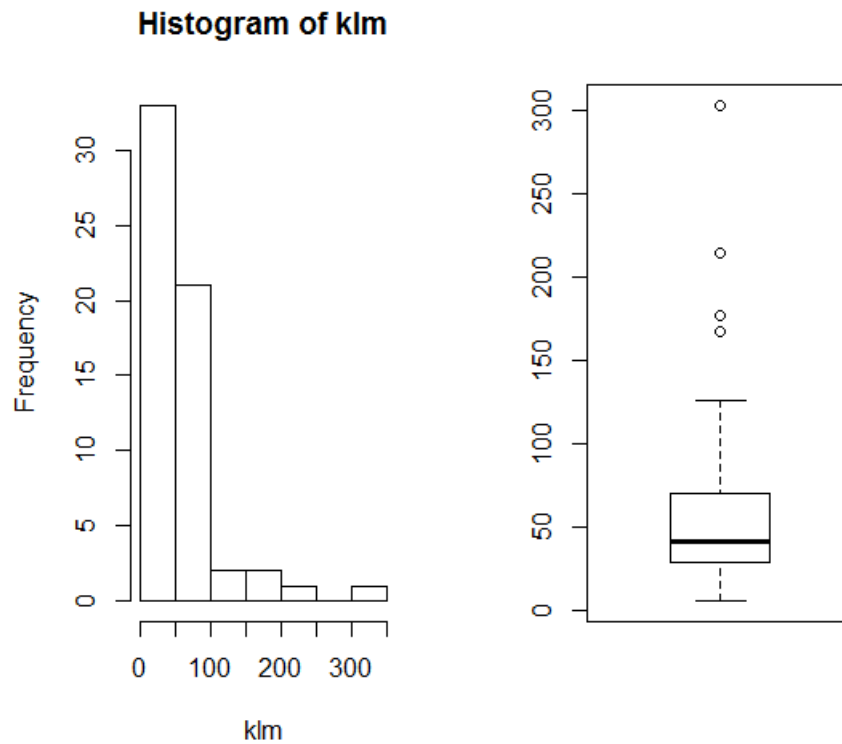


Figure 2: Histogram of the dataset klm

This means that H_0 is not rejected and that less than 10% of the parts arrive after the 70 day mark.

4 Exercise 4

Exercise 4 stuff...

5 R-Code

5.1 Exercise 1

5.2 Exercise 2

5.3 Exercise 3

5.4 Exercise 4