
R Test Example version December 2017

(Time allowed: 60 minutes)

Name, Forename:

Matrikelnr.:

Please write your answers in the given boxes. If your answer is too long to fit in the box, please continue your answer on your own separate A4 paper, indicating clearly the question number and part.

Preliminaries:

You need to download a file which contains the following R-objects. `Reciepts`, `datf` and `datf2`

- Download the file noting which directory the file is stored in.
- Start RStudio.
- If required set your working directory.

- load the Data using

```
> load("TestOneExample.Rda")
```

- As a check type

```
> loaded()
```

You should get the text "The data for the test have loaded properly."

Exercise 1 (5 points)

The R object `Receipts` is a sample of till receipt totals (in Euros) from a café-Bar.

Enter the R Commands and the results to obtain the relevant statistics from these data.

R-Code and Output:

(a) The sample size

```
> length(Receipts)      25      (Example solution)
```

(b) The median

```
>
```

(c) The mean

```
>
```

(d) The $p = 0.4$ -quantile

```
>
```

(e) Give the command to obtain a histogram of the receipts. To get maximum points your histogram should include the following properties:

- The interval breaks should be at €0, 5, 10 , ... , 50 located.
- The histogram columns should be coloured grey
- A sensible title and axis labels.

R-Code:

>

Exercise 2 (5 points)

You have downloaded and installed two data frames called `datf` and `datf2`.

(R-Code and Output)

(a) One command to give the number of rows and variables in `datf`

>

(b) A command which outputs the variable names in `datf`

>

(c) A frequency table for the variable in `datf` called `ddd`

>

(d) A box-plot for `aaa` with a box for each level in `ddd`

>

(e) The mean value of `aaa` for each level of `ddd`

>

(R-Code and Output)

- (f) A command which appends the columns of `datf2` to the dataframe `datf`. The output is not required.

>

- (g) What property of `datf` and `datf2` is required for the command in part (f)

Exercise 3 (4 points)**(R-Code)**

- (a) Enter the commands and write the output:

```
> set.seed(100)
```

```
> rnorm(1)
```

- (b) Generate a sample of 30 random numbers with a Normal distribution with mean 10 and standard deviation 5. Assign the output to an object called `randsamp`.

>

- (c) Perform a one sample t -test testing whether the population mean is equal to 10.

>

- (d) From the output of this command give the sample mean and the p -value.

>

Finishing off (1pt)

- Add a comment to the top of your script file with your name and matriculation number.
- Save your script file.
- Go to the section *Test 1 script files* in Moodle and upload your file. If there are any problems with this then please ask the lecturer.