# Experiment1.1

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```
# load libraries
library(tidyverse)
library(future.apply) #parallel processing
library(tictoc) #timing code
library(knitr) #tables

#load functions
source("ProjectFunctions.R")

# set up parallel processing
plan(multisession)

# set seed for reproducibility
set.seed(42)

# load data
data <- read.csv("data_generic.csv")
```

```
# fit base model
mod1 <- lm(y~x1+ x2 + x3 +x4 +x5 +x6 +x7 +x8 +x9, data = data)
coefs1 <- unname(mod1$coefficients)
```

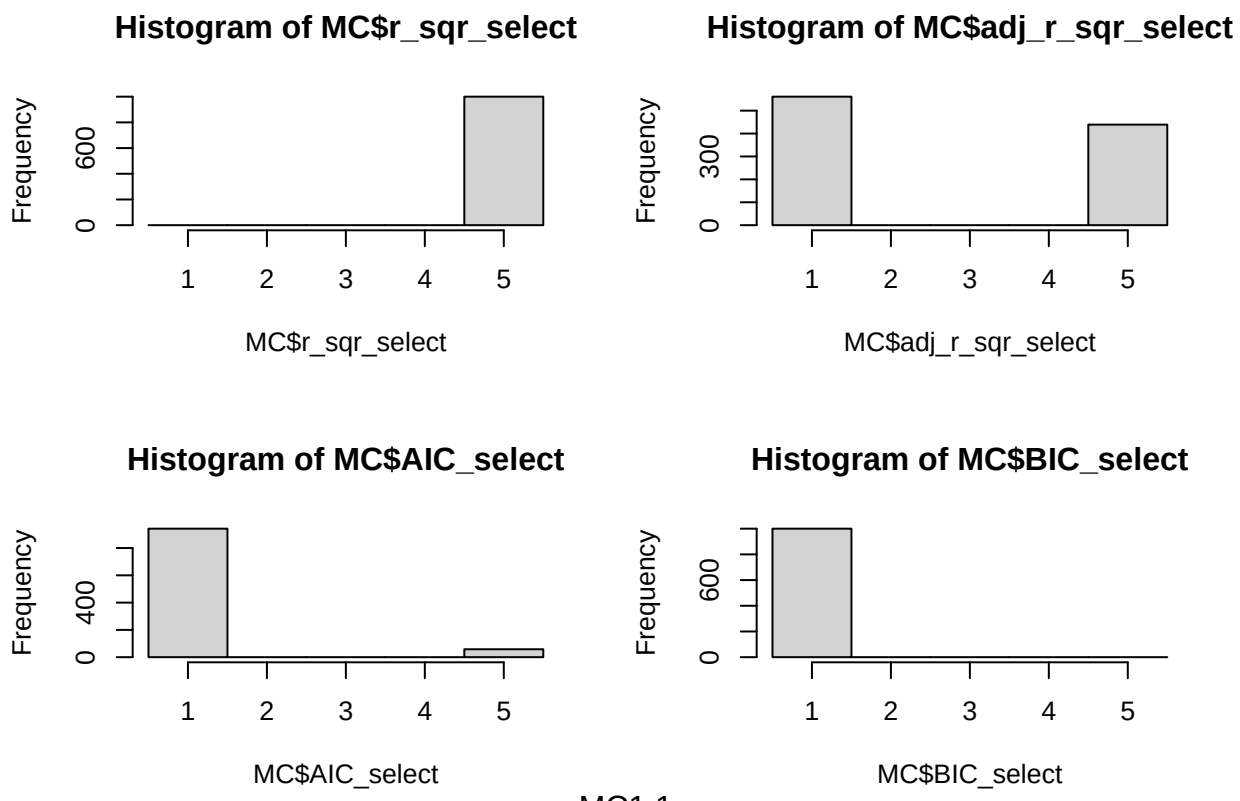
```
# run simulations
# this returns a matrix where each column is a simulation run,
# and the rows are the selections of a criteria
tic()
MC1.1 <- future_replicate(1000, experiment1(sd = 10000, data = data),
                          future.seed = TRUE)
toc()
```

```
## 105.43 sec elapsed
```

```
# transpose so each row is a simulation run
# and each column represents the selections of a criteria
# convert to data frame
MC1.1 <- as.data.frame(t(MC1.1))
kable(head(MC1.1))
```

| r_sqr_select | adj_r_sqr_select | AIC_select | BIC_select |
|---|---|---|---|
| 5 | 1 | 1 | 1 |
| 5 | 1 | 1 | 1 |
| 5 | 1 | 1 | 1 |
| 5 | 1 | 1 | 1 |
| 5 | 5 | 1 | 1 |
| 5 | 1 | 1 | 1 |

```
#results
histo(MC1.1, title =  "MC1.1")
```




```
kable(props(MC1.1))
```

| models | r_sqr_prop | adj_r_sqr_prop | AIC_prop | BIC_prop |
|---|---|---|---|---|
| 1 | 0 | 0.561 | 0.942 | 1 |
| 2 | 0 | 0.000 | 0.000 | 0 |
| 3 | 0 | 0.000 | 0.000 | 0 |
| 4 | 0 | 0.000 | 0.000 | 0 |
| 5 | 1 | 0.439 | 0.058 | 0 |

```
kable(props(MC1.1), "latex")
```

| models | r_sqr_prop | adj_r_sqr_prop | AIC_prop | BIC_prop |
|---|---|---|---|---|
| 1 | 0 | 0.561 | 0.942 | 1 |
| 2 | 0 | 0.000 | 0.000 | 0 |
| 3 | 0 | 0.000 | 0.000 | 0 |
| 4 | 0 | 0.000 | 0.000 | 0 |
| 5 | 1 | 0.439 | 0.058 | 0 |