Evidencia Estadistica

Importacion de datos

```
salaries <- read.csv("ds_salaries.csv")
salaries <- subset(salaries, select = -X)
```

Medidas de tendencia central y dispersión

```
library(modeest)

for (col in names(salaries)) {
  if (class(salaries[,col]) == "integer") {
    c <- nchar(col)
    cl <- 0
    cr <- 0
    if (c %% 2 != 0) {
      cl <- c / 2
      cr <- c / 2
    } else {
      cl <- c / 2
      cr <- c / 2 + 1
    }

    cat(strrep('-', 30-cl), col, strrep('-', 30-cr), "\n")
    cat("Promedio: ", mean(salaries[,col]), " ",
        "Mediana: ", median(salaries[,col]), " ",
        "Moda: ", mfv(salaries[,col]), "\n")
    cat("Desviacion estandar: ", sd(salaries[,col]), " ", "Varianza: ", var(salaries[,col]), "\n")
    cat("Minimo: ", min(salaries[,col]), " ", "Maximo: ", max(salaries[,col]), "\n")
    cat("\n")
  }
}
```

```
## ------------------------- work_year -------------------------
## Promedio:  2021.405   Mediana:  2022   Moda:  2022
## Desviacion estandar:  0.692133   Varianza:  0.4790481
## Minimo:  2020   Maximo:  2022
##
## -------------------------- salary --------------------------
## Promedio:  324000.1   Mediana:  115000   Moda:  80000 100000
## Desviacion estandar:  1544357   Varianza:  2.38504e+12
## Minimo:  4000   Maximo:  30400000
##
## ----------------------- salary_in_usd -----------------------
## Promedio:  112297.9   Mediana:  101570   Moda:  100000
## Desviacion estandar:  70957.26   Varianza:  5034932663
```

```
## Minimo:  2859   Maximo:  600000
##
## ----------------------- remote_ratio -----------------------
## Promedio:  70.92257   Mediana:  100   Moda:  100
## Desviacion estandar:  40.70913   Varianza:  1657.233
## Minimo:  0   Maximo:  100
```

```r
for (col in names(salaries)) {
  if (class(salaries[,col]) == "character") {
    c <- nchar(col)
    cl <- 0
    cr <- 0
    if (c %% 2 != 0) {
      cl <- c / 2
      cr <- c / 2
    } else {
      cl <- c / 2
      cr <- c / 2 + 1
    }

    cat(strrep('-', 30-cl), col, strrep('-', 30-cr), "\n")
    cat("Moda: ", mfv(salaries[,col]), "\n")
    cat("\n")
    print(table(salaries[,col]))
    cat("\n")
  }
}
```

```
## ---------------------- experience_level ----------------------
## Moda:  SE
##
##
##  EN  EX  MI  SE
##  88  26 213 280
##
## ---------------------- employment_type -----------------------
## Moda:  FT
##
##
##  CT  FL  FT  PT
##   5   4 588  10
##
## ------------------------- job_title --------------------------
## Moda:  Data Scientist
##
##
##            3D Computer Vision Researcher
##                                        1
##                               AI Scientist
##                                        7
##                         Analytics Engineer
##                                        4
##                     Applied Data Scientist
##                                        5
##       Applied Machine Learning Scientist
```

```
##                                     4
##                         BI Data Analyst
##                                     6
##                       Big Data Architect
##                                     1
##                       Big Data Engineer
##                                     8
##                    Business Data Analyst
##                                     5
##                     Cloud Data Engineer
##                                     2
##                 Computer Vision Engineer
##                                     6
##         Computer Vision Software Engineer
##                                     3
##                             Data Analyst
##                                    97
##                  Data Analytics Engineer
##                                     4
##                      Data Analytics Lead
##                                     1
##                    Data Analytics Manager
##                                     7
##                           Data Architect
##                                    11
##                            Data Engineer
##                                   132
##                 Data Engineering Manager
##                                     5
##                  Data Science Consultant
##                                     7
##                    Data Science Engineer
##                                     3
##                     Data Science Manager
##                                    12
##                           Data Scientist
##                                   143
##                          Data Specialist
##                                     1
##              Director of Data Engineering
##                                     2
##                  Director of Data Science
##                                     7
##                            ETL Developer
##                                     2
##                     Finance Data Analyst
##                                     1
##                   Financial Data Analyst
##                                     2
##                             Head of Data
##                                     5
##                     Head of Data Science
##                                     4
##                  Head of Machine Learning
```

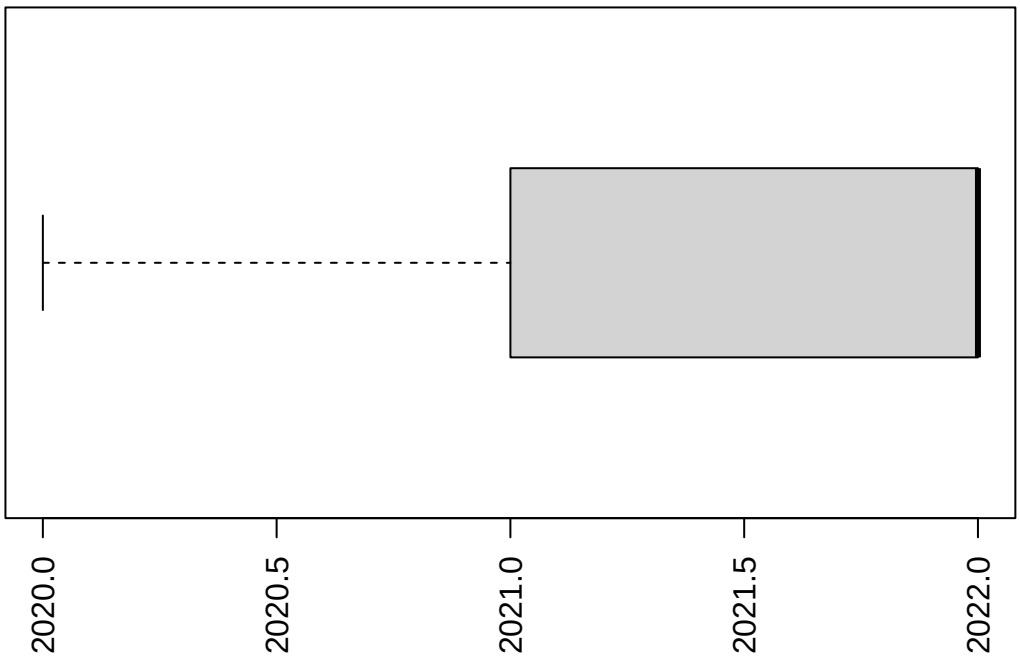
```
##                                     1
##                         Lead Data Analyst
##                                     3
##                        Lead Data Engineer
##                                     6
##                       Lead Data Scientist
##                                     3
##           Lead Machine Learning Engineer
##                                     1
##               Machine Learning Developer
##                                     3
##                Machine Learning Engineer
##                                    41
## Machine Learning Infrastructure Engineer
##                                     3
##                 Machine Learning Manager
##                                     1
##               Machine Learning Scientist
##                                     8
##                   Marketing Data Analyst
##                                     1
##                              ML Engineer
##                                     6
##                             NLP Engineer
##                                     1
##                   Principal Data Analyst
##                                     2
##                  Principal Data Engineer
##                                     3
##                Principal Data Scientist
##                                     7
##                     Product Data Analyst
##                                     2
##                       Research Scientist
##                                    16
##                     Staff Data Scientist
##                                     1
##
## ---------------------- salary_currency ----------------------
## Moda:  USD
##
##
## AUD BRL CAD CHF CLP CNY DKK EUR GBP HUF INR JPY MXN PLN SGD TRY USD
##   2   2  18   1   1   2   2  95  44   2  27   3   2   3   2   3 398
##
## --------------------- employee_residence --------------------
## Moda:  US
##
##
##  AE  AR  AT  AU  BE  BG  BO  BR  CA  CH  CL  CN  CO  CZ  DE  DK  DZ  EE  ES  FR
##   3   1   3   3   2   1   1   6  29   1   1   1   1   1  25   2   1   1  15  18
##  GB  GR  HK  HN  HR  HU  IE  IN  IQ  IR  IT  JE  JP  KE  LU  MD  MT  MX  MY  NG
##  44  13   1   1   1   2   1  30   1   1   4   1   7   1   1   1   1   2   1   2
##  NL  NZ  PH  PK  PL  PR  PT  RO  RS  RU  SG  SI  TN  TR  UA  US  VN
```

```
##   5   1   1   6   4   1   6   2   1   4   2   2   1   3   1 332   3
##
## ---------------------- company_location ---------------------
## Moda:  US
##
##
##  AE  AS  AT  AU  BE  BR  CA  CH  CL  CN  CO  CZ  DE  DK  DZ  EE  ES  FR  GB  GR
##   3   1   4   3   2   3  30   2   1   2   1   2  28   3   1   1  14  15  47  11
##  HN  HR  HU  IE  IL  IN  IQ  IR  IT  JP  KE  LU  MD  MT  MX  MY  NG  NL  NZ  PK
##   1   1   1   1   1  24   1   1   2   6   1   3   1   1   3   1   2   4   1   3
##  PL  PT  RO  RU  SG  SI  TR  UA  US  VN
##   4   4   1   2   1   2   3   1 355   1
##
## ------------------------ company_size -----------------------
## Moda:  M
##
##
##   L   M   S
## 198 326  83
```

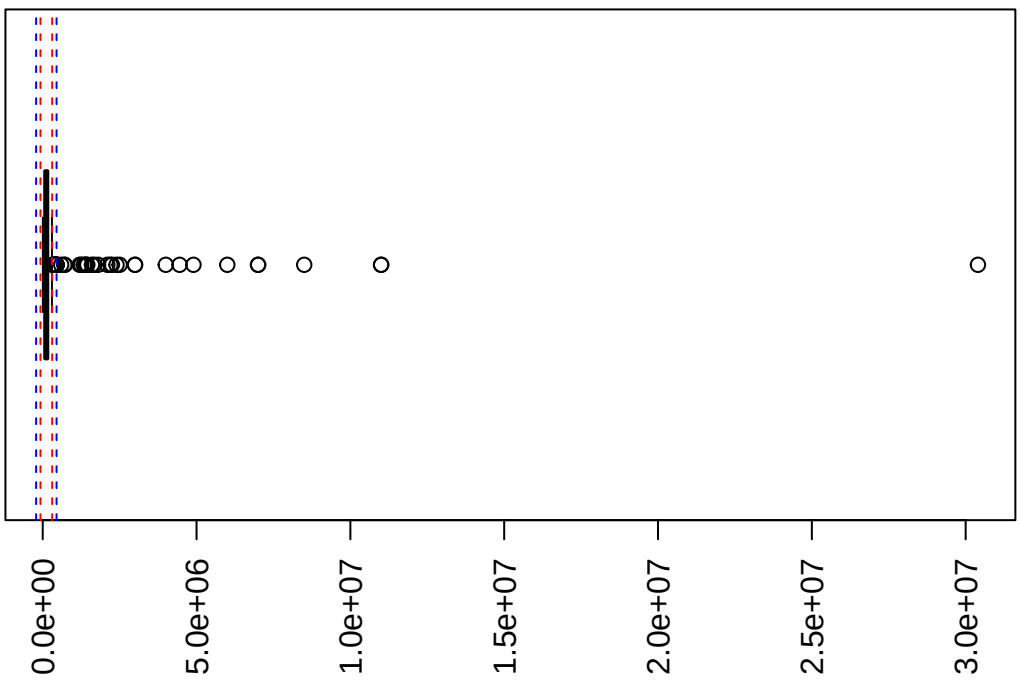
Medidas de distribución y medidas de posicion

```r
for (col in names(salaries)){
  if (class(salaries[,col]) == "integer"){
    x <- salaries[,col]
    q <- quantile(x, c(0.25, 0.75))
    ri <- q[2] - q[1]

    c <- nchar(col)
    cl <- 0
    cr <- 0
    if (c %% 2 != 0) {
        cl <- c / 2
        cr <- c / 2
        } else {
        cl <- c / 2
        cr <- c / 2 + 1
    }

    cat(strrep('-', 30-cl), col, strrep('-', 30-cr), "\n")
    cat("Quartil 1: ", q[1], " ", "Quartil 3: ", q[2], "\n")
    boxplot(x, main=col, las=2, xlab="", ylab="", horizontal = TRUE)
    abline(v=q[1] - 1.5*ri, lty=2, col="red")
    abline(v=q[2] + 1.5*ri, lty=2, col="red")
    abline(v=q[1] - 3*ri, lty=2, col="blue")
    abline(v=q[2] + 3*ri, lty=2, col="blue")
  }
}
```

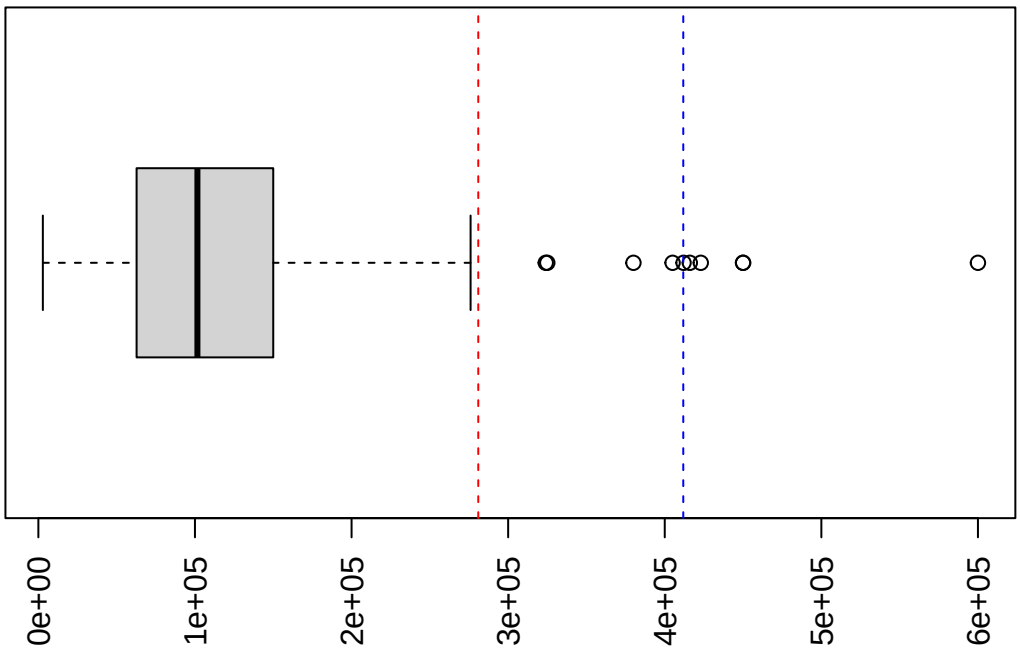
```
## ------------------------ work_year ------------------------
## Quartil 1:  2021   Quartil 3:  2022
```



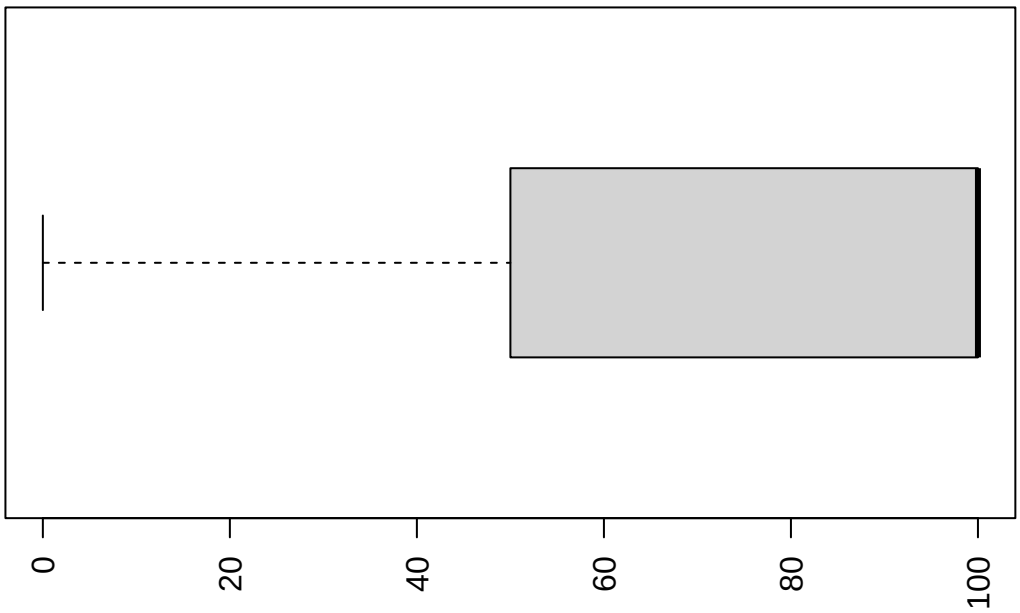

```
## --------------------------- salary ---------------------------
## Quartil 1:  70000   Quartil 3:  165000
```



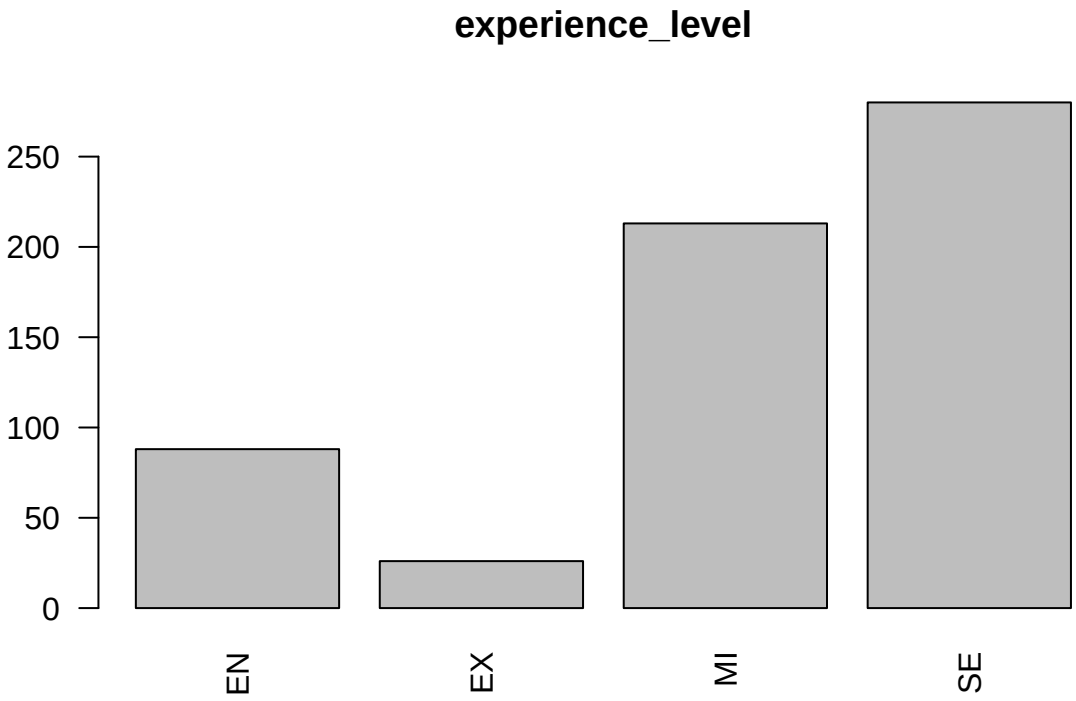

```
## ----------------------- salary_in_usd -----------------------
## Quartil 1:  62726   Quartil 3:  150000
```

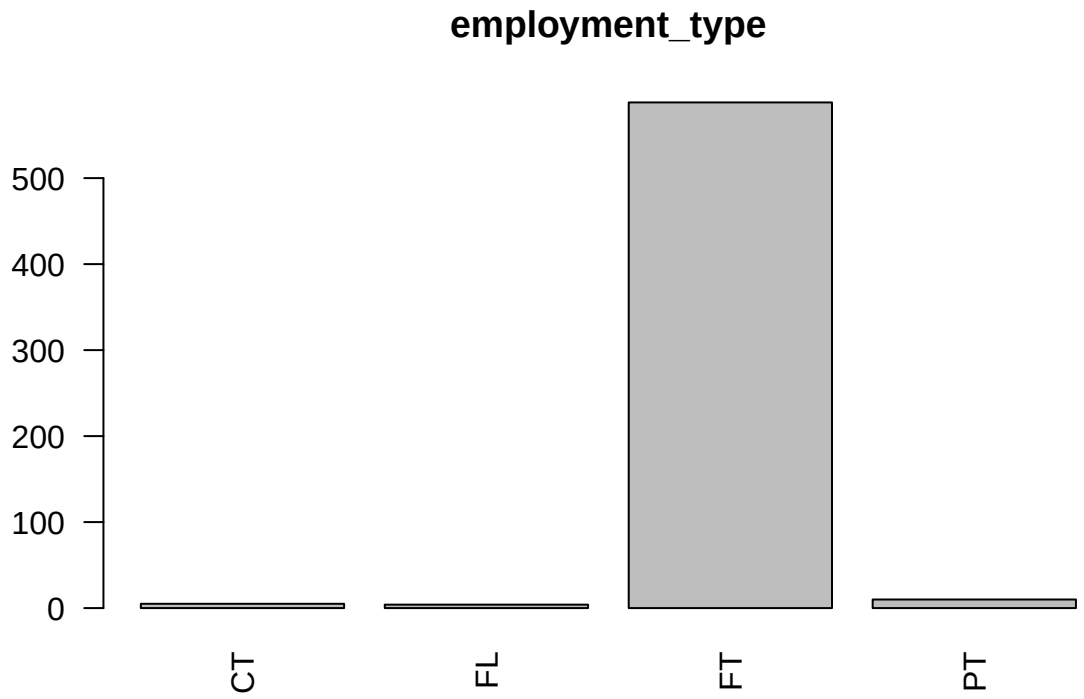


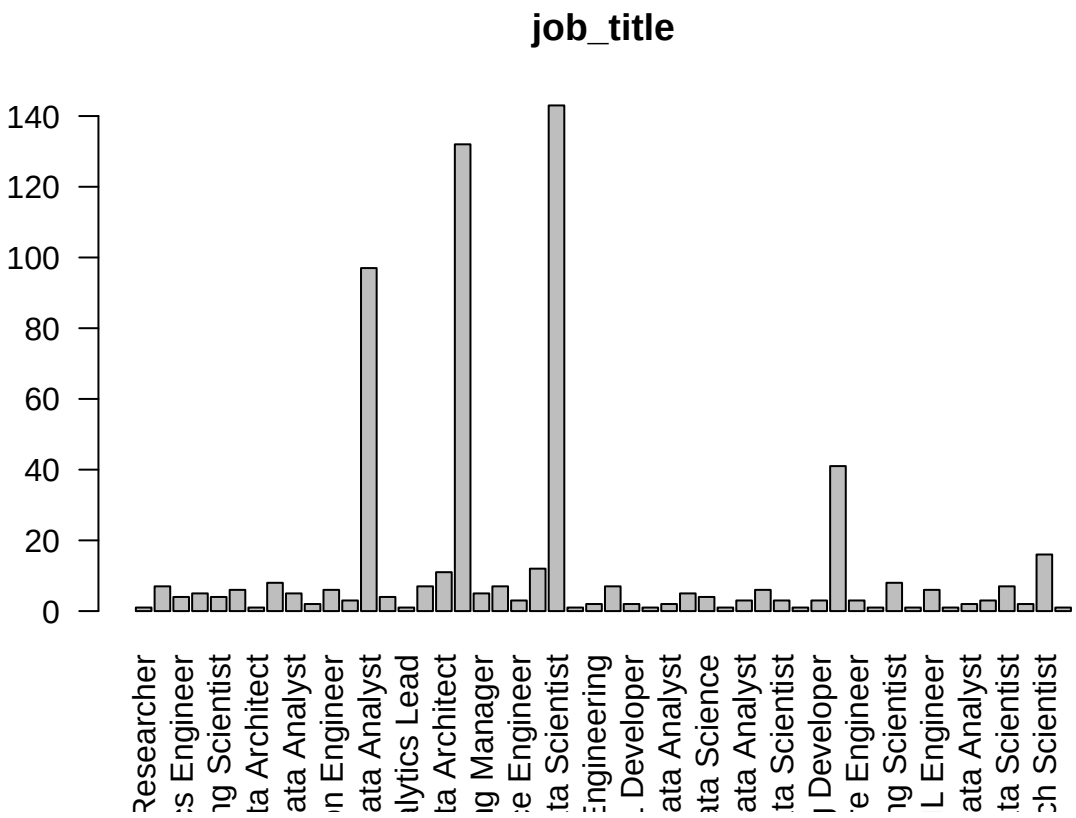

```
## ------------------------ remote_ratio ----------------------
## Quartil 1:  50   Quartil 3:  100
```

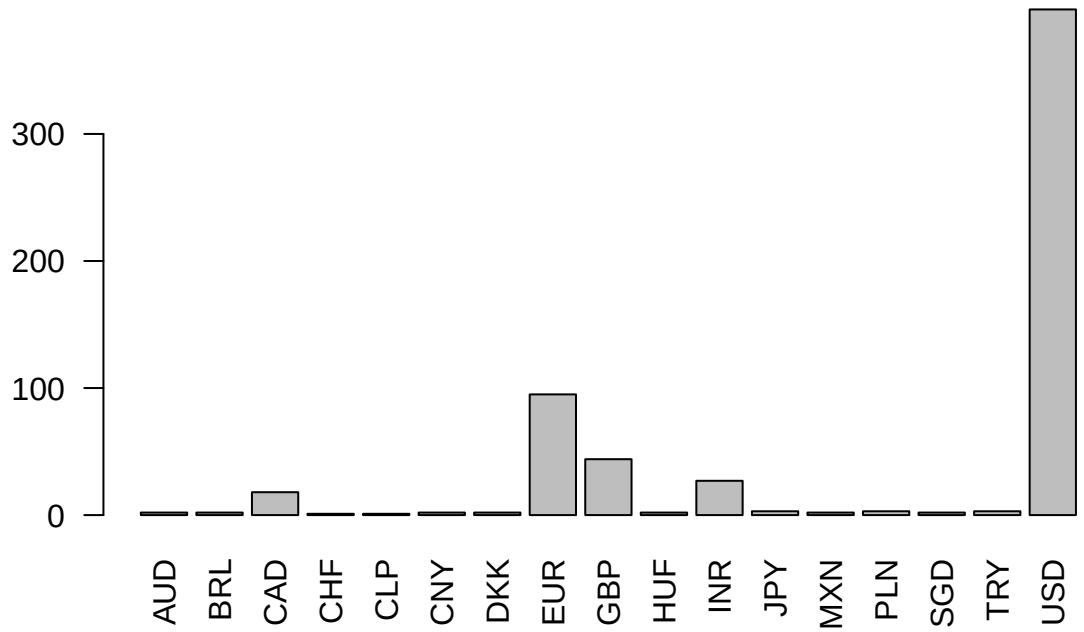


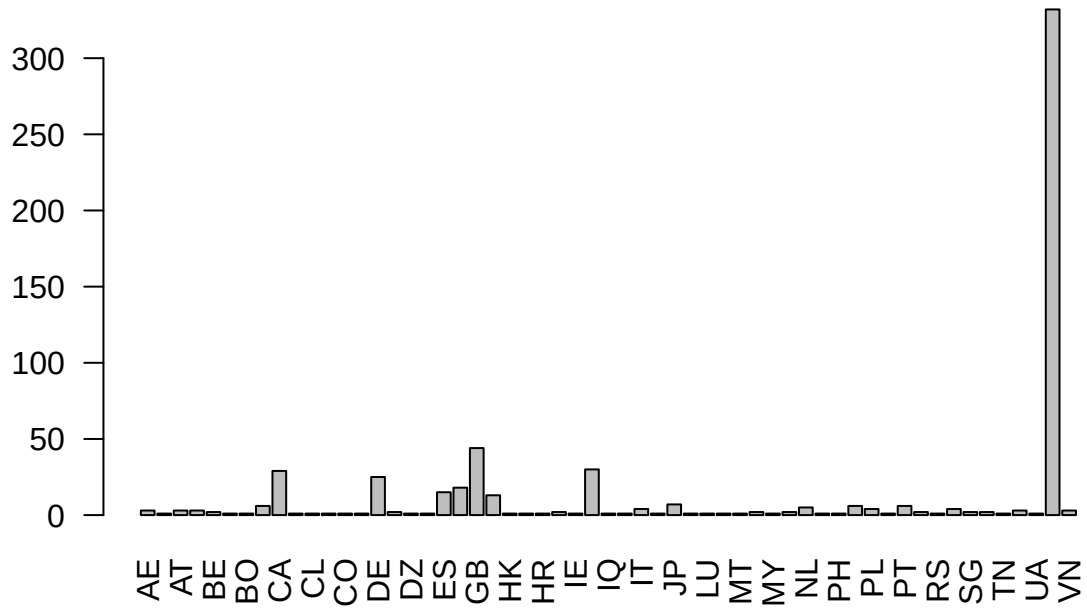

```
for (col in names(salaries)){
  if (class(salaries[,col]) == "character"){
    x <- table(salaries[,col])
    barplot(x, main=col, las=2, xlab="", ylab="")
  }
}
```

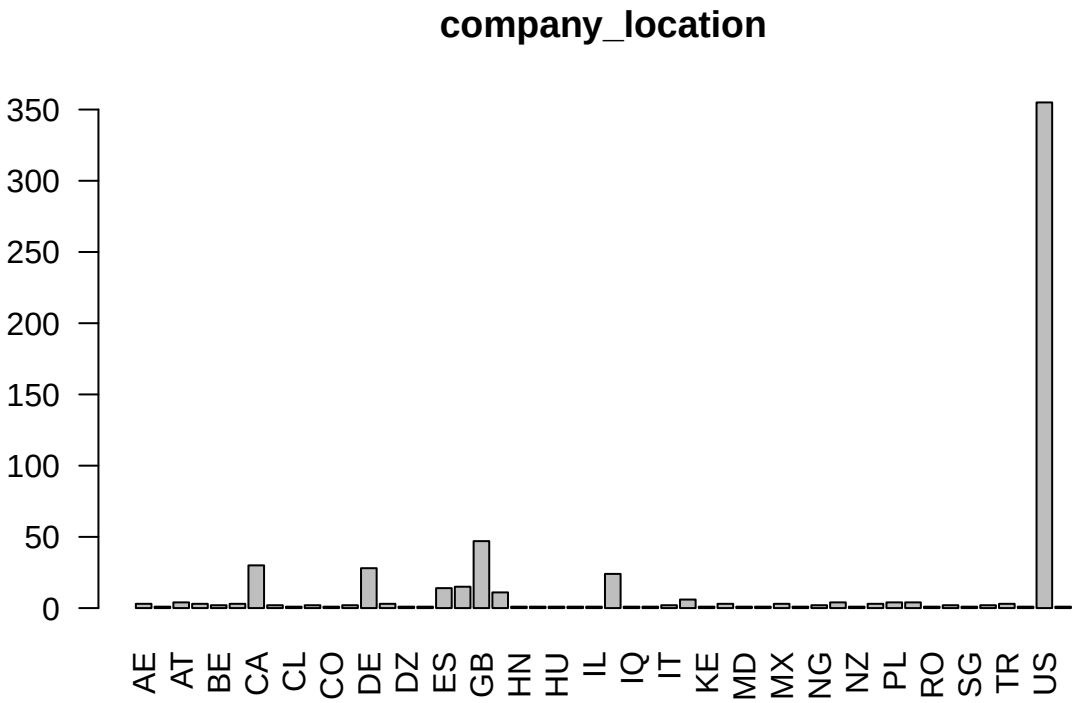

experience_level
250
200
150
100
50
0
EN
EX
MI
SE

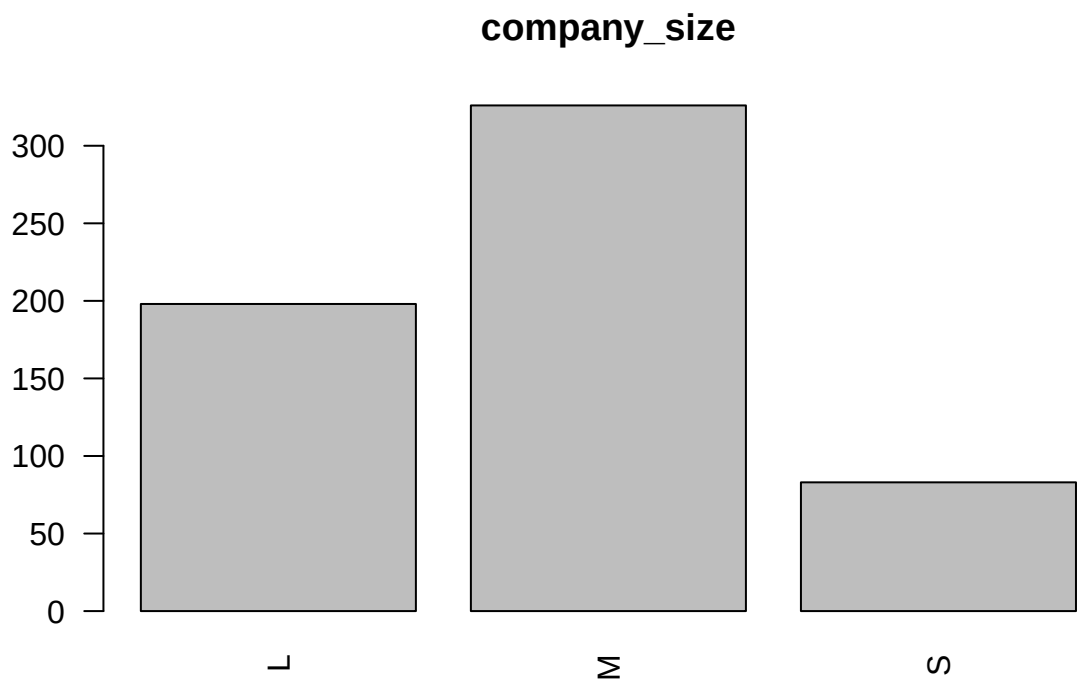

employment_type
500
400
300
200
100
0
CT
FL
FT
PT


job_title
140
120
100
80
60
40
20
0
Researcher
s Engineer
g Scientist
ta Architect
ata Analyst
n Engineer
ata Analyst
alytics Lead
ta Architect
g Manager
e Engineer
ta Scientist
Engineering
. Developer
ata Analyst
ata Science
ata Analyst
ta Scientist
Developer
e Engineer
g Scientist
L Engineer
ata Analyst
ta Scientist
ch Scientist


salary_currency
300
200
100
0
AUD
BRL
CAD
CHF
CLP
CNY
DKK
EUR
GBP
HUF
INR
JPY
MXN
PLN
SGD
TRY
USD


employee_residence
300
250
200
150
100
50
0
AE
AT
BE
BO
CA
CL
CO
DE
DZ
ES
GB
HK
HR
IE
IQ
IT
JP
LU
MT
MY
NL
PH
PL
PT
RS
SG
TN
UA
VN


company_location
350
300
250
200
150
100
50
0
AE
AT
BE
CA
CL
CO
DE
DZ
ES
GB
HN
HU
IL
IQ
IT
KE
MD
MX
NG
NZ
PL
RO
SG
TR
US



Calidad de datos

```
for (col in names(salaries)){
  c <- nchar(col)
  cl <- 0
  cr <- 0
  if (c %% 2 != 0) {
    cl <- c / 2
    cr <- c / 2
  } else {
    cl <- c / 2
    cr <- c / 2 + 1
  }
  cat(strrep('-', 30-cl), col, strrep('-', 30-cr), "\n")

  cat("NAs: " , sum(is.na(salaries[,col])), "\n")
}
```

```
## ------------------------ work_year ------------------------
## NAs:  0
## --------------------- experience_level ---------------------
## NAs:  0
## --------------------- employment_type ----------------------
## NAs:  0
## ------------------------ job_title ------------------------
## NAs:  0
## ------------------------- salary --------------------------
```

```
## NAs:  0
## ---------------------- salary_currency ----------------------
## NAs:  0
## ----------------------- salary_in_usd -----------------------
## NAs:  0
## ---------------------- employee_residence ----------------------
## NAs:  0
## ------------------------ remote_ratio ------------------------
## NAs:  0
## ---------------------- company_location ----------------------
## NAs:  0
## ------------------------ company_size ------------------------
## NAs:  0
```