

Tarefa Pre-processamento

Leonardo da Silva Correa

27/04/2021

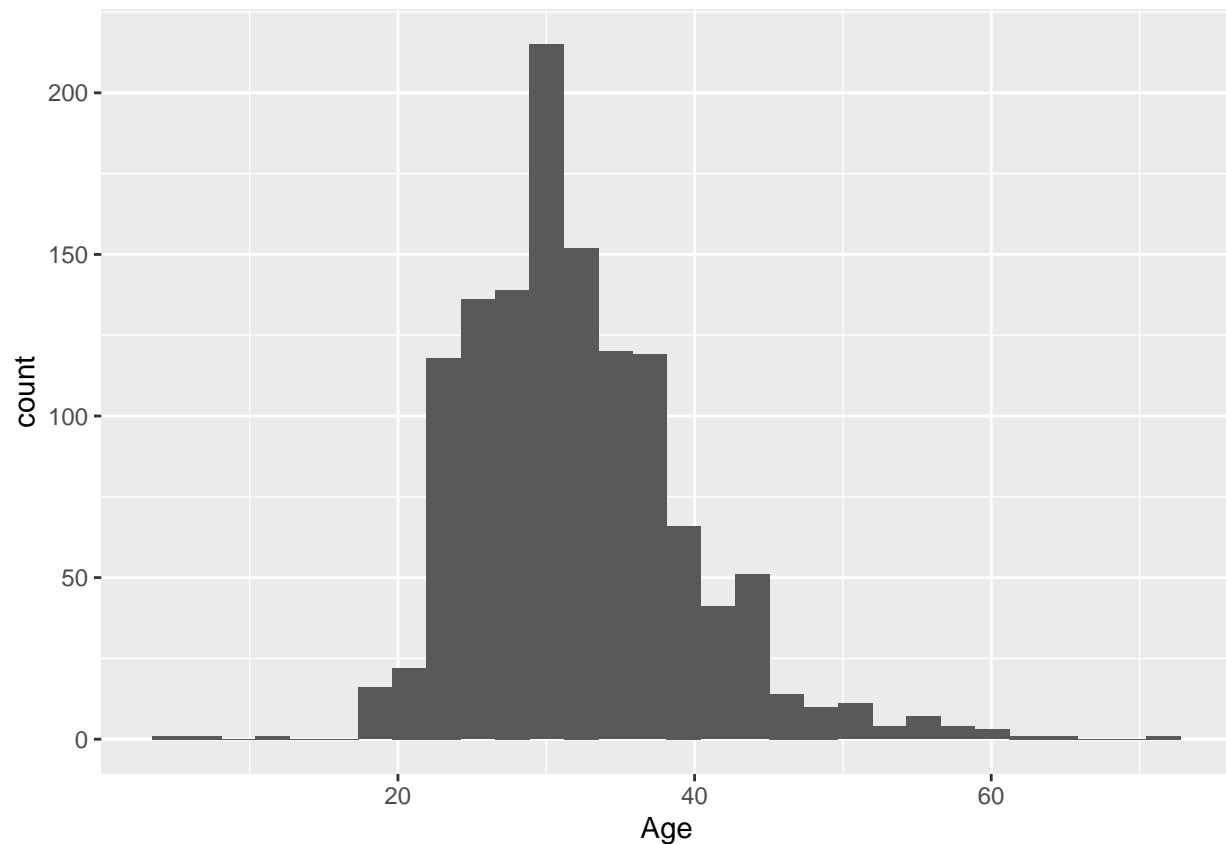
Mental health in tech survey

Preprocessamento

Discretização

```
dfCleaned <- filter(select(df, Age), Age > 0 & Age < 150)  
ggplot(dfCleaned, aes(Age)) + geom_histogram()
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



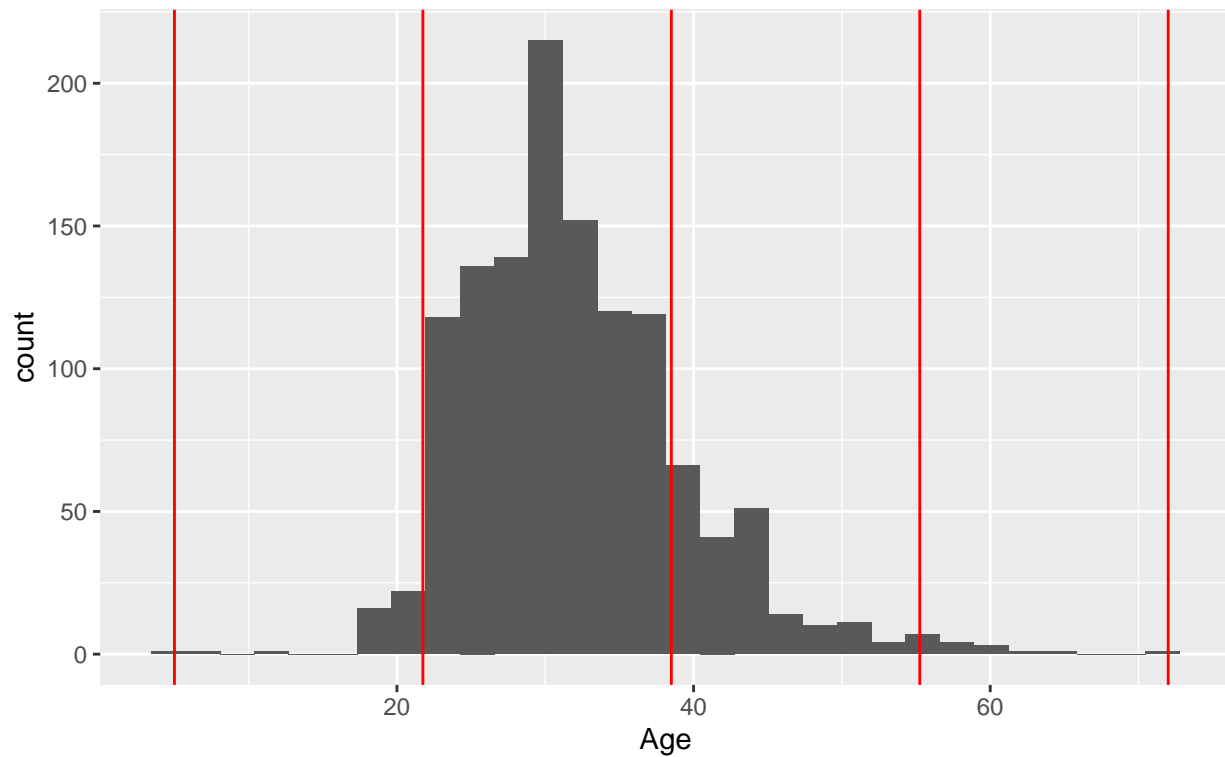
```
dfDiscretizadaIntervalar <- dfCleaned %>% pull(Age) %>% discretize(method = "interval", breaks = 4, labels = "interval")  
dfDiscretizadaPorFrequencia <- dfCleaned %>% pull(Age) %>% discretize(method = "frequency", breaks = 4, labels = "frequency")  
#DISCRETIZAÇÃO POR INTERVALO  
ggplot(dfCleaned, aes(Age)) + geom_histogram() +  
  geom_vline(xintercept = dfCleaned %>% pull(Age) %>% discretize(method = "interval", breaks = 4, labels = "interval"),
```

```
labs(title = "Discretização: interval", subtitle = "Linhas vermelhas separam a idade em 4 grupos")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

Discretização: interval

Linhas vermelhas separam a idade em 4 grupos



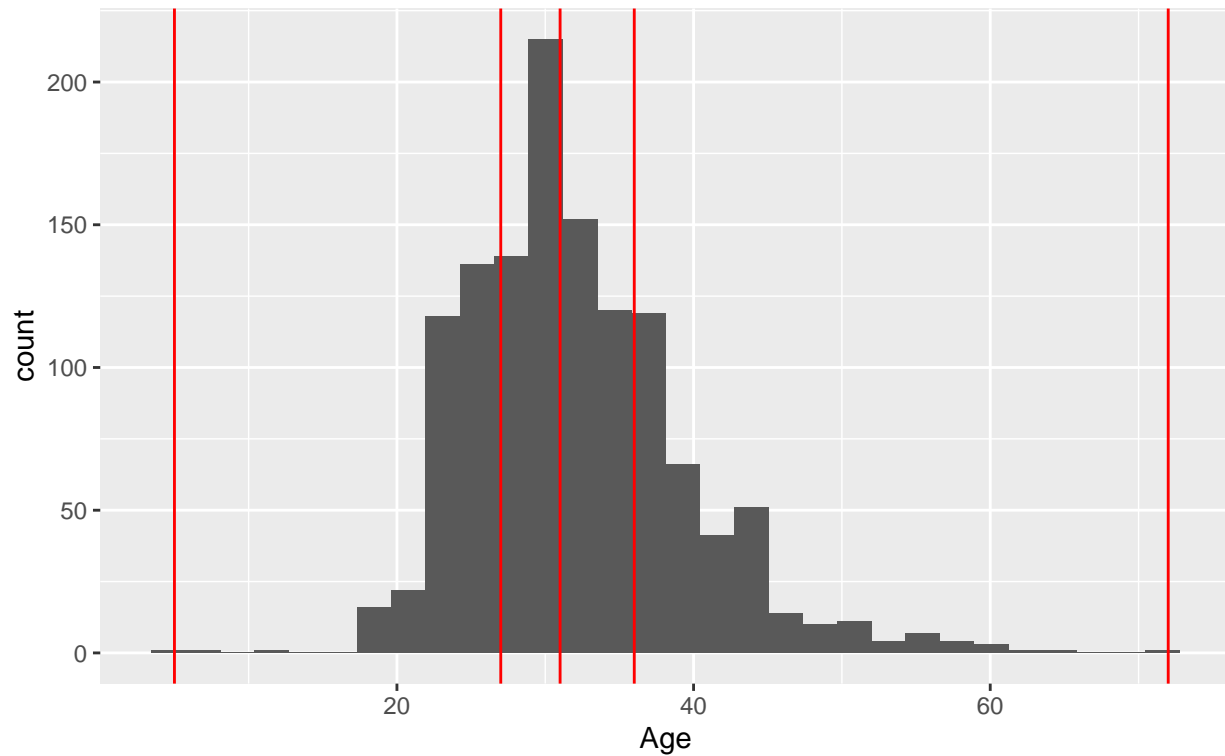
#DISCRETIZAÇÃO POR FREQUÊNCIA

```
ggplot(dfCleaned, aes(Age)) + geom_histogram() +  
  geom_vline(xintercept = dfCleaned %>% pull(Age) %>% discretize(method = "frequency", breaks = 4, only  
    labs(title = "Discretização: frequency", subtitle = "Linhas vermelhas separam a idade em 4 grupos")
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

Discretização: frequency

Linhas vermelhas separam a idade em 4 grupos



Padronização

```
summary(dfCleaned)
```

```
##      Age
##  Min.   : 5.00
##  1st Qu.:27.00
##  Median :31.00
##  Mean   :32.02
##  3rd Qu.:36.00
##  Max.   :72.00
```

```
dfCleaned
```

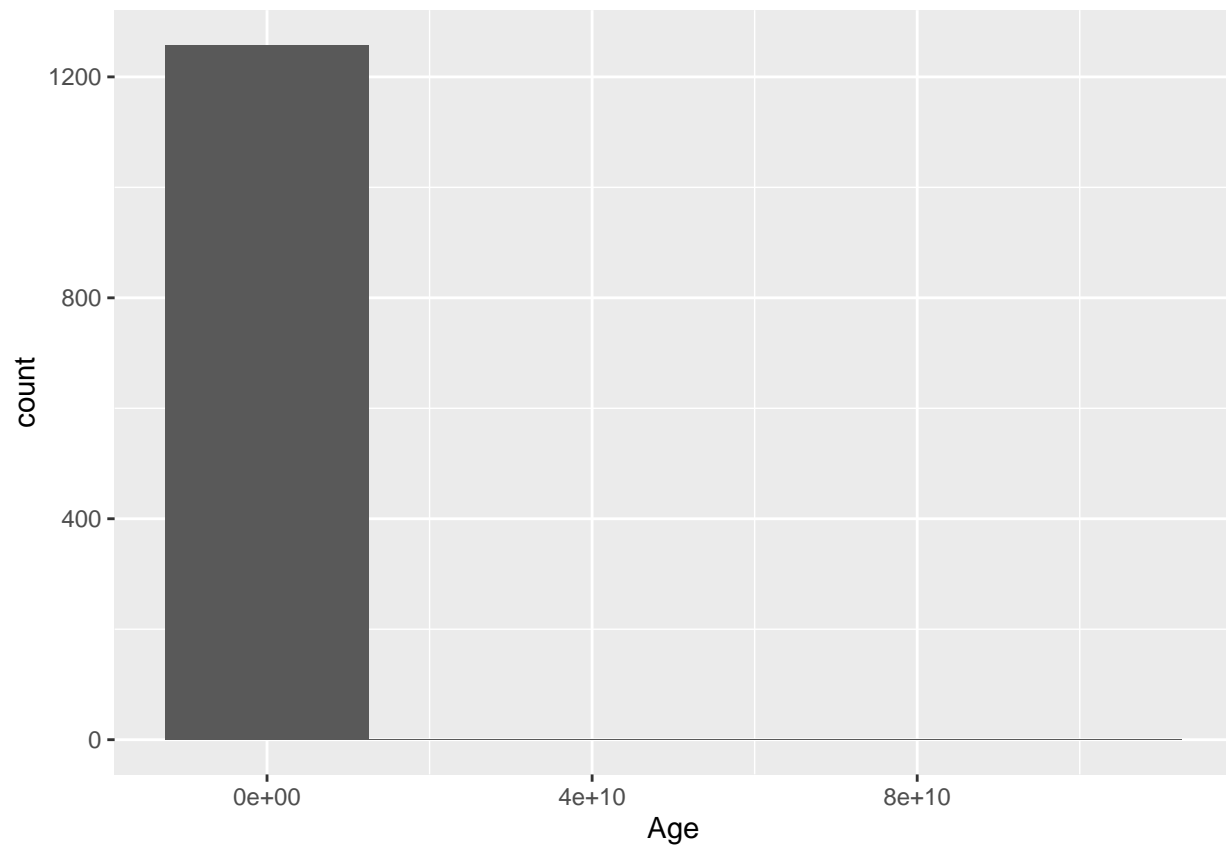
```
## # A tibble: 1,254 x 1
##   Age
##   <dbl>
## 1    37
## 2    44
## 3    32
## 4    31
## 5    31
## 6    33
## 7    35
## 8    39
## 9    42
## 10   23
## # ... with 1,244 more rows
```

```
df_normalizado <- as.data.frame(apply(select(dfCleaned, Age), 2, function(x) (x - min(x))/(max(x)-min(x))))
summary(df_normalizado)
```

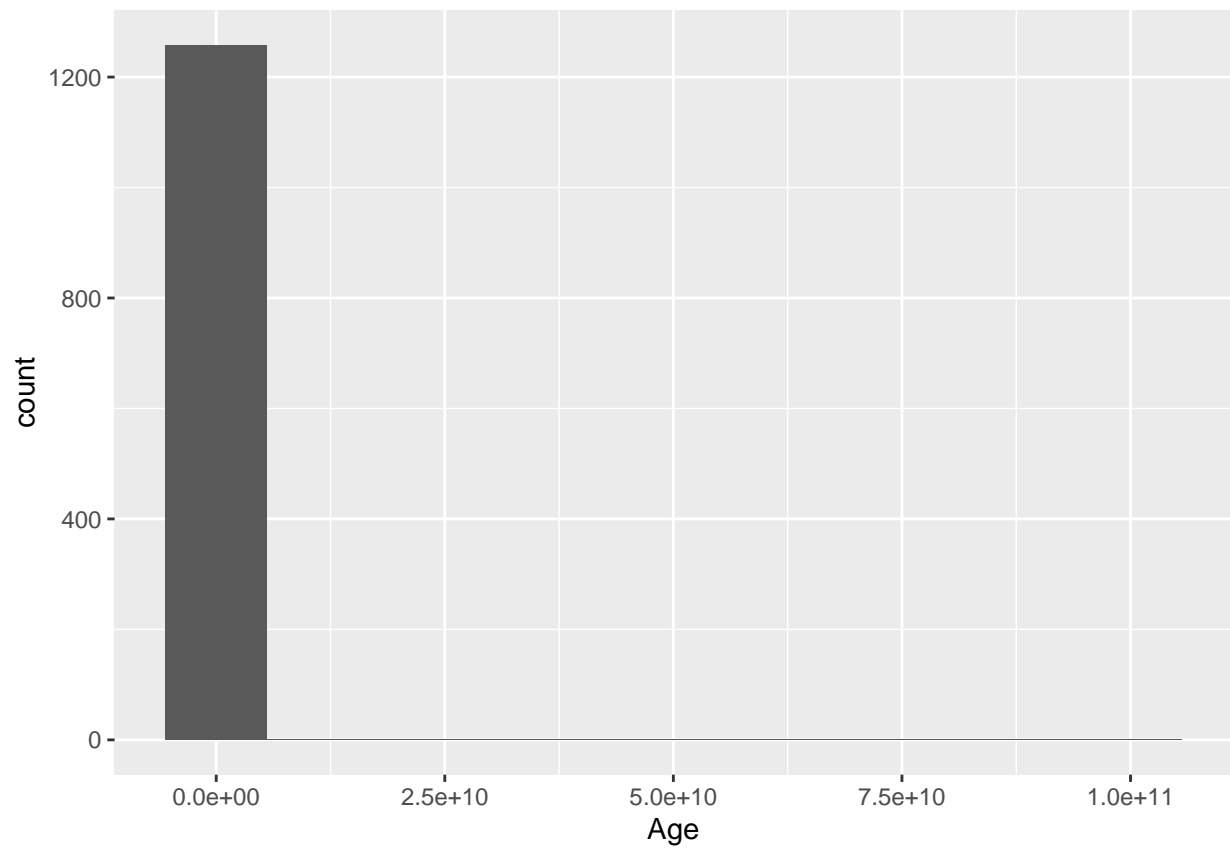
```
##      Age
## Min.   :0.0000
## 1st Qu.:0.3284
## Median :0.3881
## Mean   :0.4033
## 3rd Qu.:0.4627
## Max.   :1.0000
```

Outliers

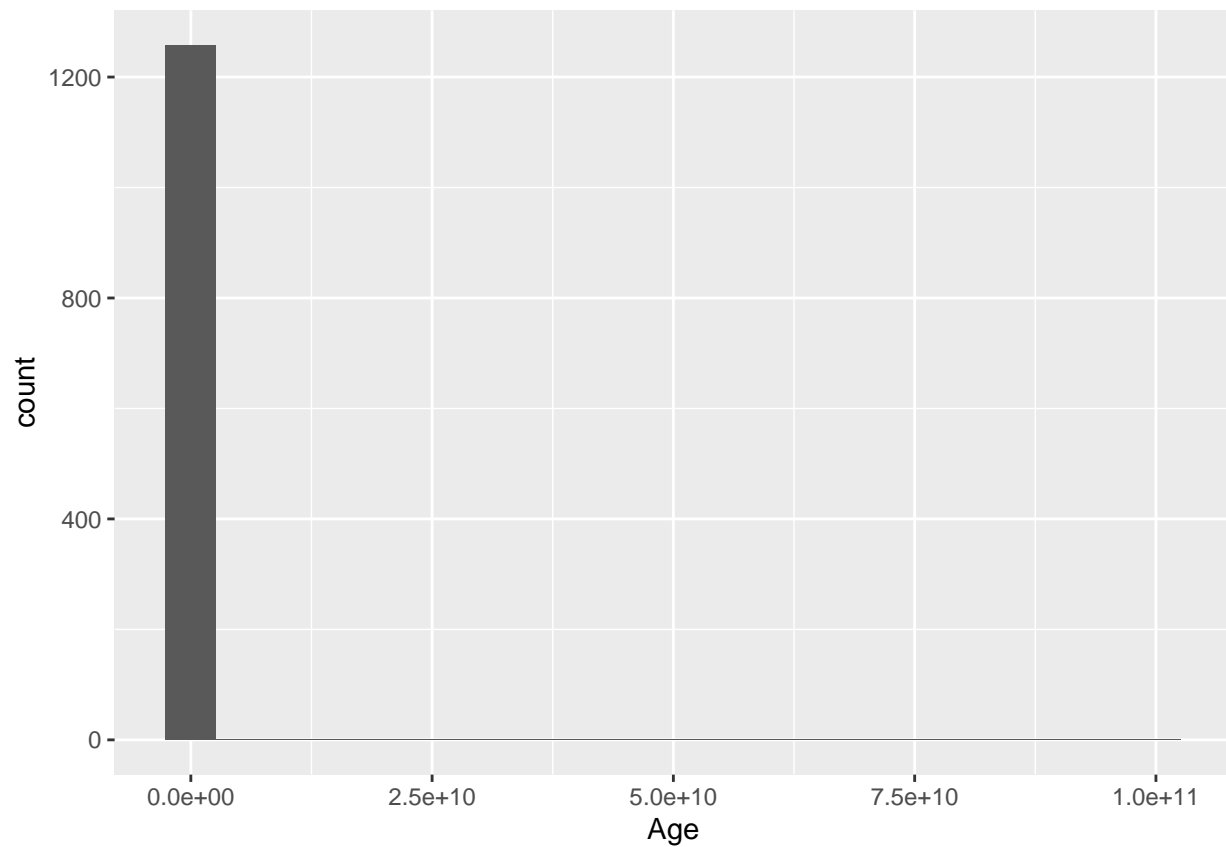
```
# HITOGRAMA COM DIFERENTES FAIXAS DE VALORES (DADOS ORIGINAIS)
ggplot(df, aes(Age)) + geom_histogram(bins = 5)
```



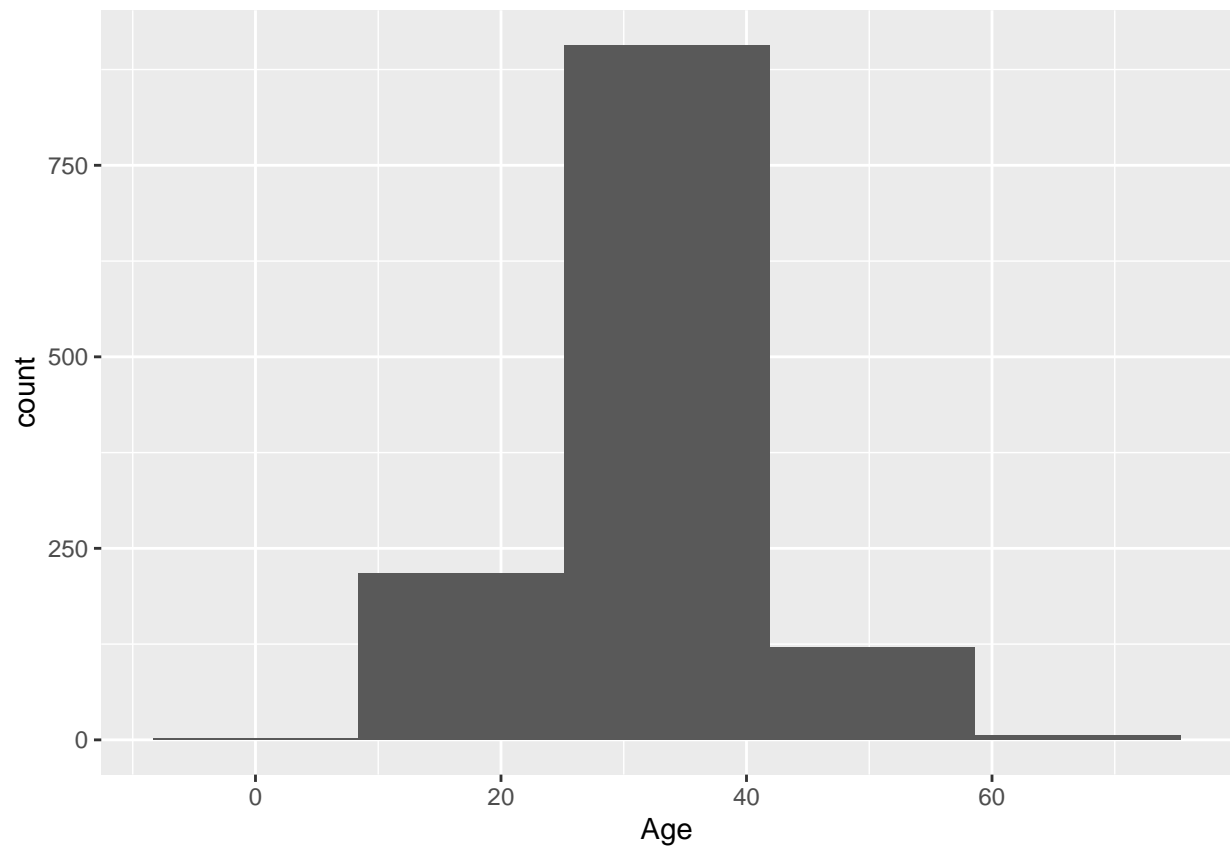
```
ggplot(df, aes(Age)) + geom_histogram(bins = 10)
```



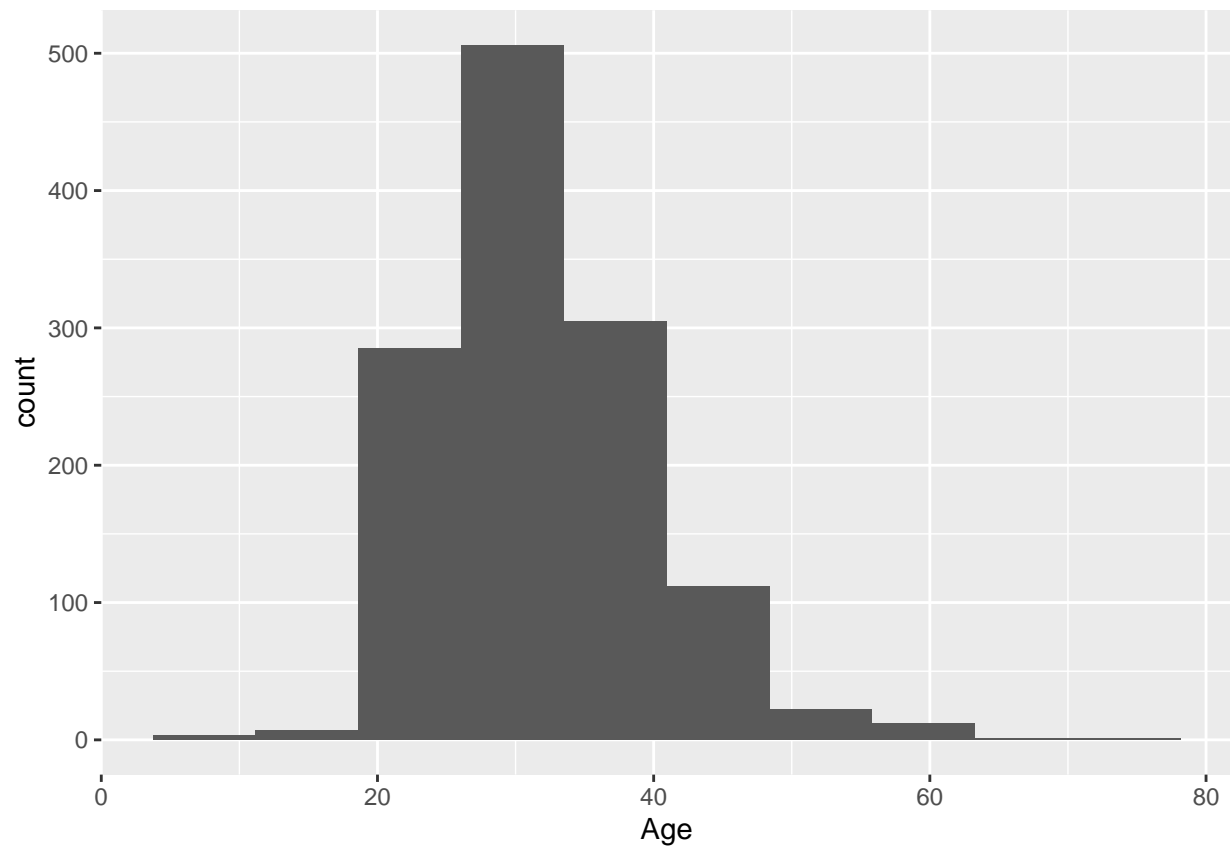
```
ggplot(df, aes(Age)) + geom_histogram(bins = 20)
```



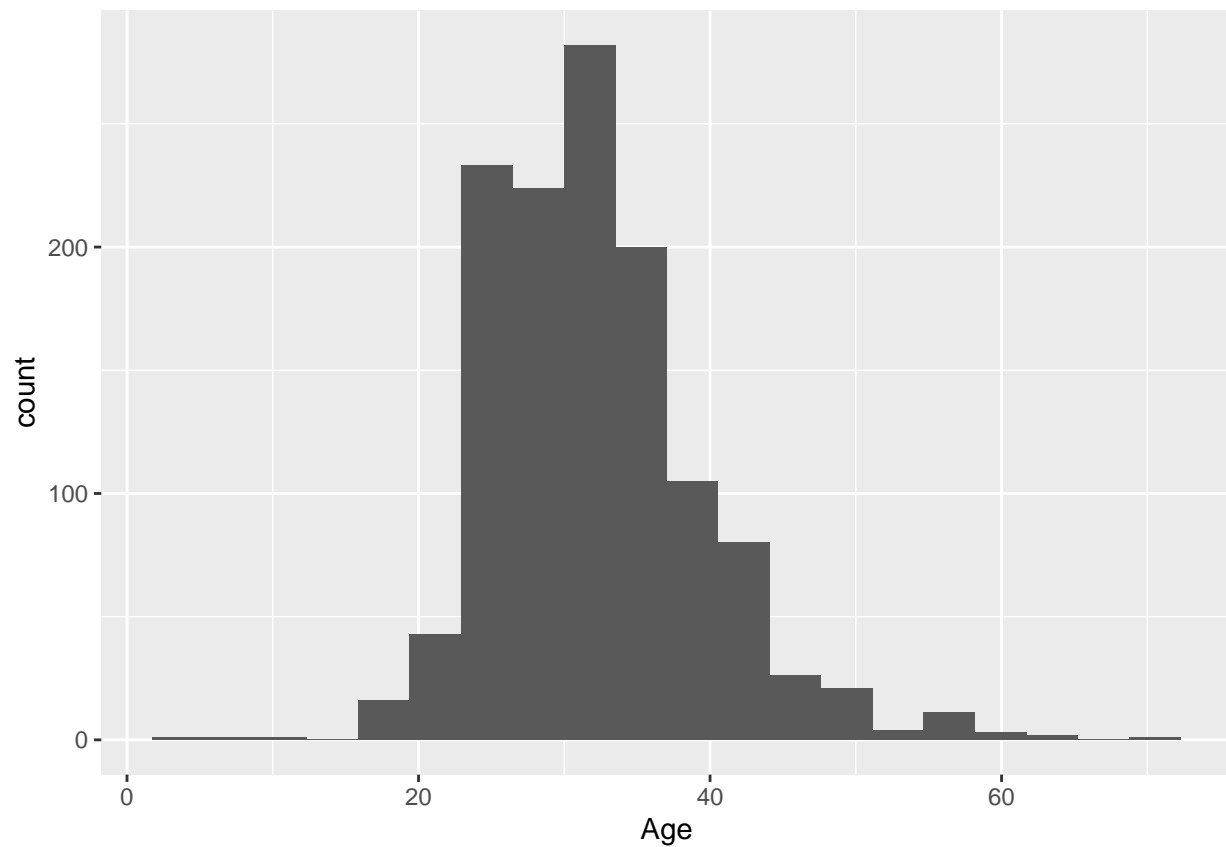
```
# HITOGRAMA COM DIFERENTES FAIXAS DE VALORES (DADOS FILTRADOS / SEM OUTLIERS)  
dfCleaned <-filter(select(df, Age),Age >0 & Age <150)  
ggplot(dfCleaned, aes(Age)) + geom_histogram(bins = 5)
```



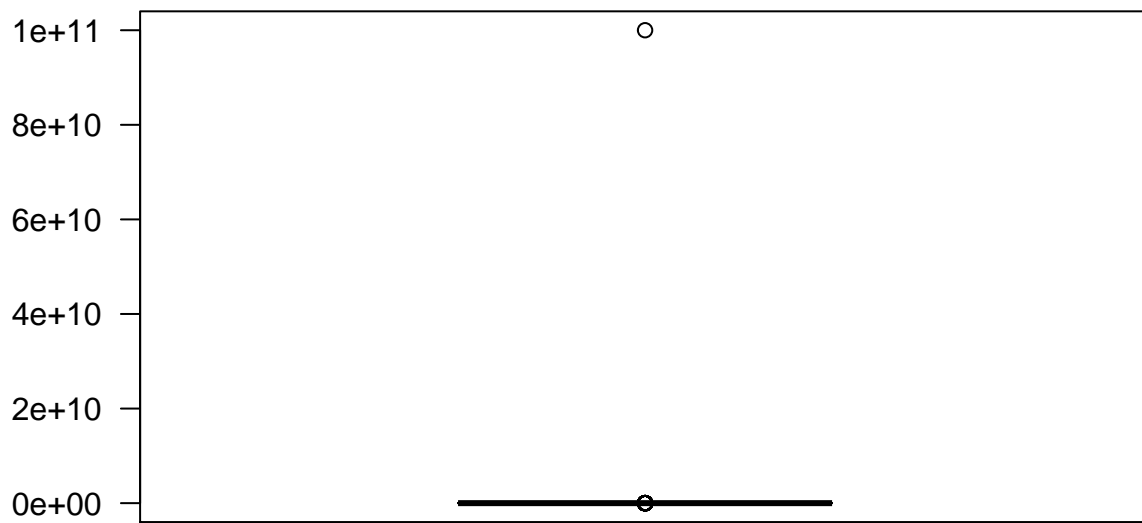
```
ggplot(dfCleaned, aes(Age)) + geom_histogram(bins = 10)
```



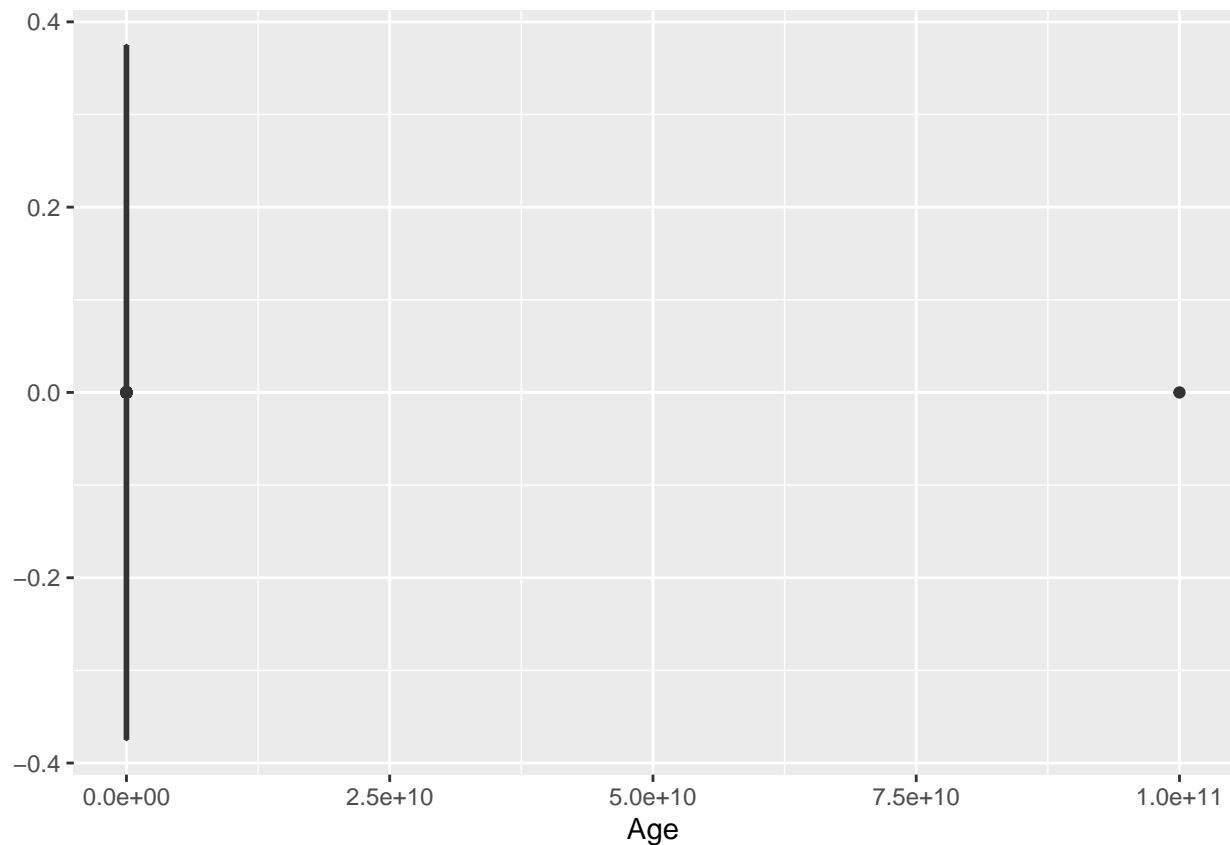
```
ggplot(dfCleaned, aes(Age)) + geom_histogram(bins = 20)
```

```
#BOXPLOT
boxplot(select(df, Age), las=2)
```



```
ggplot(select(df, Age), aes(Age)) + geom_boxplot()
```



Mostra-se que existe um valor muito alto com OUTLIERS. Abaixo um BOXPLOT eliminando esses valores muito altos.

```
#IDADES ACIMA DE 100 ANOS
```

```
dfAge <-filter(select(df, Age),Age >100)
```

```
dfAge
```

```
## # A tibble: 2 x 1
```

```
##       Age
```

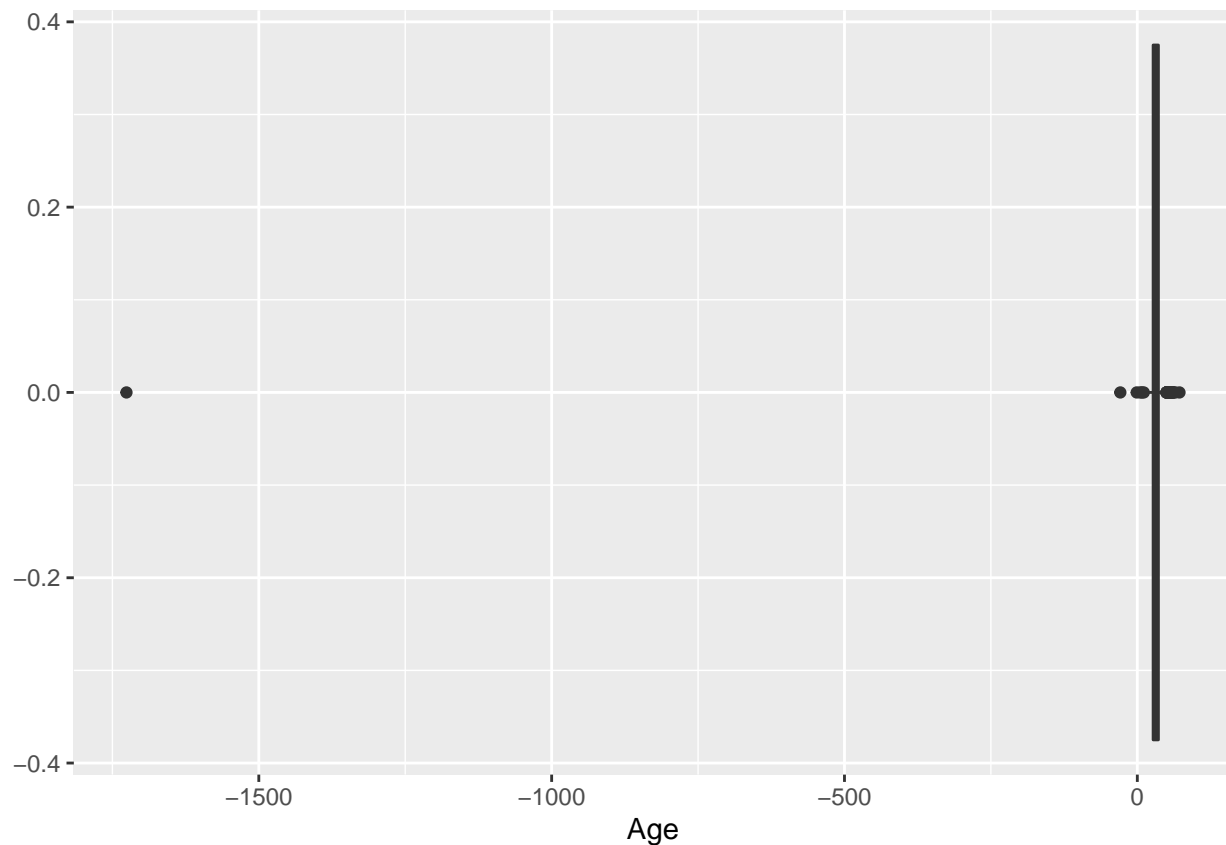
```
##      <dbl>
```

```
## 1      329
```

```
## 2 99999999999
```

```
dfAge <-filter(select(df, Age),Age <100)
```

```
ggplot(select(dfAge, Age), aes(Age)) + geom_boxplot()
```

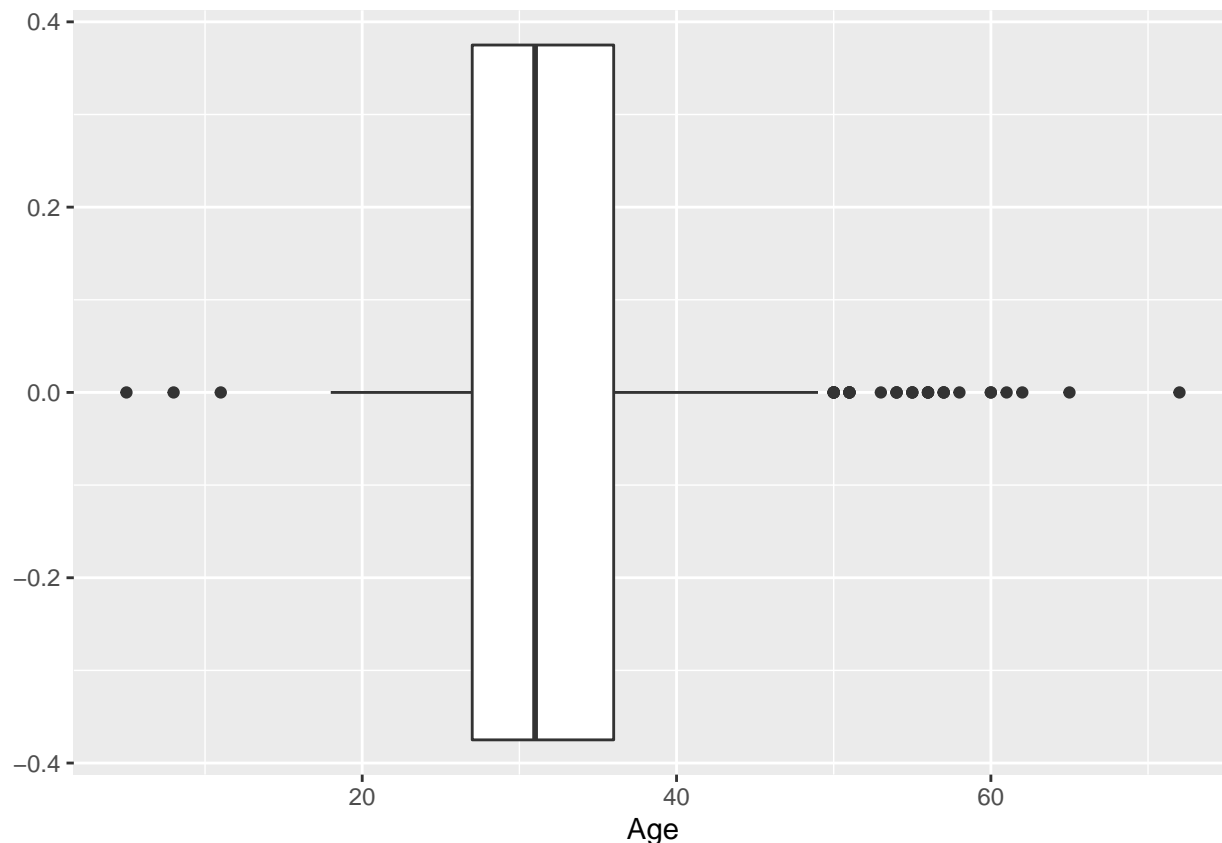


Após remover OUTLIERS altos, verificamos que existem OUTLIERS negativos. Abaixo também mostraremos como ficaria um BOXPLOT eliminando estes OUTLIERS baixos também.

```
#OUTLIERS
dfAge <-filter(select(df, Age),Age < 0 | Age > 100)
dfAge

## # A tibble: 5 x 1
##       Age
##   <dbl>
## 1    -29
## 2    329
## 3 9999999999
## 4   -1726
## 5     -1

dfAge <-filter(select(df, Age),Age >0 & Age <150)
ggplot(select(dfAge, Age), aes(Age)) + geom_boxplot()
```



Agregação

```
df_new <- df
df_new$work_interfere[is.na(df_new$work_interfere)] = 0
df_new$work_interfere[df_new$work_interfere == "Never"] = 1
df_new$work_interfere[df_new$work_interfere == "Rarely"] = 2
df_new$work_interfere[df_new$work_interfere == "Sometimes"] = 3
df_new$work_interfere[df_new$work_interfere == "Often"] = 4
df_new$work_interfere = as.numeric(df_new$work_interfere)
df_new$mental_health_consequence[df_new$mental_health_consequence == "No"] = 0
df_new$mental_health_consequence[df_new$mental_health_consequence == "Yes"] = 1
df_new$mental_health_consequence[df_new$mental_health_consequence == "Maybe"] = 2
df_new$mental_health_consequence = as.numeric(df_new$mental_health_consequence)

df_new$tech_company[df_new$tech_company == "No"] = 0
df_new$tech_company[df_new$tech_company == "Yes"] = 1
df_new$tech_company = as.numeric(df_new$tech_company)
df_new$remote_work[df_new$remote_work == "No"] = 0
df_new$remote_work[df_new$remote_work == "Yes"] = 1
df_new$remote_work = as.numeric(df_new$remote_work)

groups <- filter(df_new, Age > 0 & Age < 100) %>% group_by(Country, tech_company)
groups <- groups %>% summarise(Age = mean(Age))
```

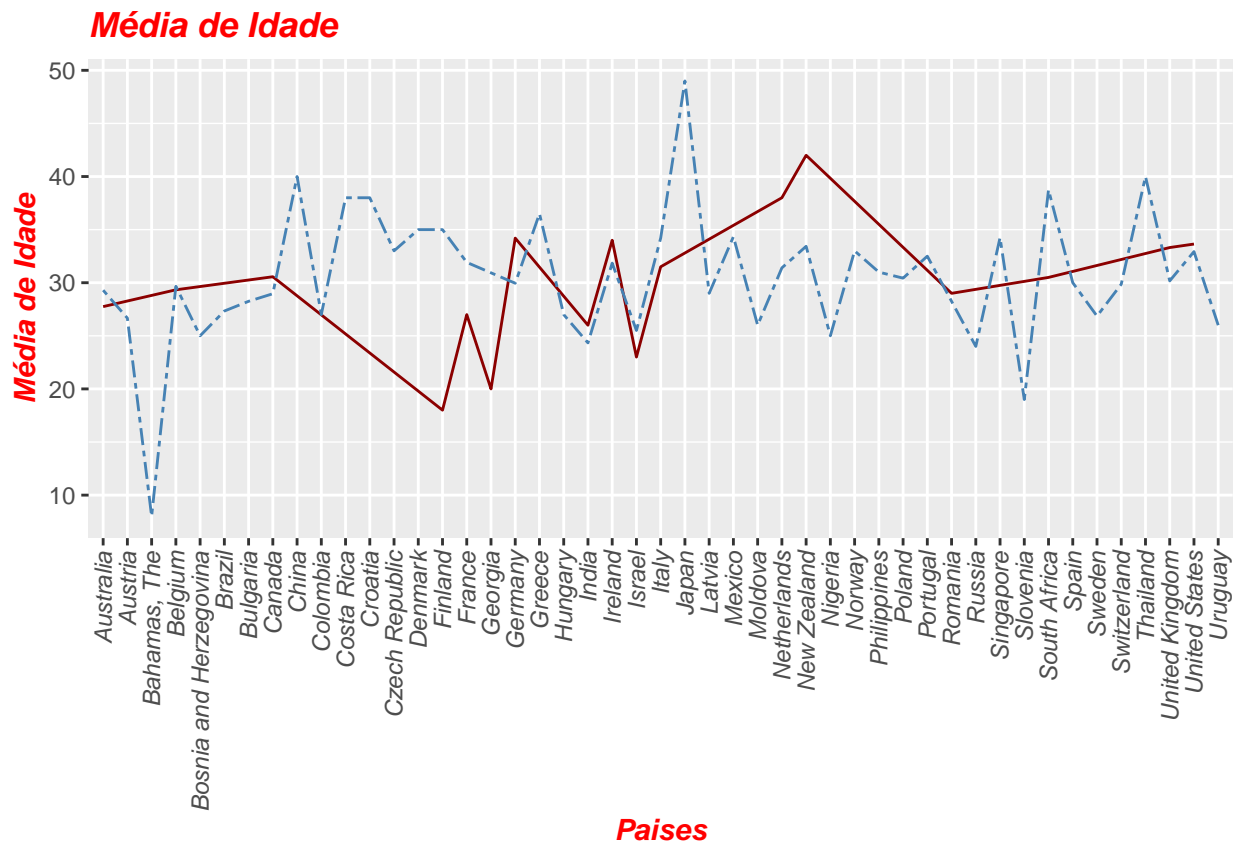
`summarise()` has grouped output by 'Country'. You can override using the `.groups` argument.

groups

```
## # A tibble: 62 x 3
## # Groups:   Country [47]
##   Country          tech_company  Age
##   <chr>              <dbl> <dbl>
## 1 Australia          0  27.8
## 2 Australia          1  29.3
## 3 Austria            1  26.7
## 4 Bahamas, The       1    8
## 5 Belgium            0  29.3
## 6 Belgium            1  29.7
## 7 Bosnia and Herzegovina 1   25
## 8 Brazil             1  27.3
## 9 Bulgaria           1  28.2
## 10 Canada            0  30.6
## # ... with 52 more rows
```

```
#filter(select(groups, Country, Age), tech_company==0, Country=="United States")
```

```
grafico <- ggplot() + geom_line(data=filter(groups, tech_company==0), aes(x=Country, y=Age, group=1), color="red")
grafico.labs <- grafico + labs(title = "Média de Idade", x = "Países", y = "Média de Idade")
red.bold.italic.text <- element_text(face = "bold.italic", color = "red")
grafico.labs + theme(title = red.bold.italic.text, axis.title = red.bold.italic.text, axis.text.x = element_text(angle = 45))
```



Correção de valores faltantes

#ANTES DA CORREÇÃO DE VALORES FALTANTES

df\$work_interfere

##	[1]	"Often"	"Rarely"	"Rarely"	"Often"	"Never"	"Sometimes"
##	[7]	"Sometimes"	"Never"	"Sometimes"	"Never"	"Sometimes"	"Never"
##	[13]	"Sometimes"	"Never"	"Never"	"Rarely"	"Sometimes"	"Sometimes"
##	[19]	"Sometimes"	NA	"Sometimes"	"Never"	"Often"	"Never"
##	[25]	"Rarely"	"Sometimes"	NA	"Rarely"	"Sometimes"	"Sometimes"
##	[31]	"Never"	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"
##	[37]	"Rarely"	NA	NA	"Rarely"	"Sometimes"	NA
##	[43]	"Sometimes"	"Often"	"Sometimes"	"Sometimes"	NA	NA
##	[49]	"Sometimes"	"Rarely"	"Often"	NA	NA	"Never"
##	[55]	NA	"Rarely"	NA	"Sometimes"	NA	"Often"
##	[61]	"Sometimes"	"Sometimes"	"Never"	NA	"Sometimes"	"Sometimes"
##	[67]	"Often"	"Sometimes"	NA	"Rarely"	"Never"	"Never"
##	[73]	"Rarely"	NA	"Never"	NA	NA	"Sometimes"
##	[79]	"Sometimes"	"Never"	"Sometimes"	"Never"	"Never"	"Often"
##	[85]	"Never"	NA	"Often"	"Rarely"	"Sometimes"	NA
##	[91]	"Never"	"Sometimes"	NA	NA	"Sometimes"	"Never"
##	[97]	"Rarely"	"Sometimes"	"Sometimes"	"Often"	"Sometimes"	"Never"
##	[103]	NA	"Sometimes"	"Never"	"Rarely"	"Sometimes"	"Rarely"
##	[109]	"Never"	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"	"Never"
##	[115]	NA	"Never"	"Often"	"Rarely"	"Rarely"	NA
##	[121]	"Never"	NA	"Sometimes"	"Often"	"Never"	"Never"
##	[127]	NA	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"
##	[133]	"Never"	NA	"Never"	"Never"	"Never"	"Often"
##	[139]	NA	NA	"Sometimes"	"Sometimes"	"Never"	NA
##	[145]	NA	"Rarely"	"Never"	"Sometimes"	"Rarely"	NA
##	[151]	NA	"Never"	"Rarely"	"Never"	"Rarely"	"Sometimes"
##	[157]	"Sometimes"	"Often"	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"
##	[163]	"Never"	"Rarely"	"Sometimes"	NA	"Never"	NA
##	[169]	"Sometimes"	"Rarely"	"Sometimes"	"Often"	"Never"	NA
##	[175]	"Sometimes"	"Never"	NA	"Often"	"Sometimes"	NA
##	[181]	"Never"	"Sometimes"	"Never"	"Sometimes"	"Often"	NA
##	[187]	"Sometimes"	NA	NA	"Never"	"Often"	"Sometimes"
##	[193]	"Sometimes"	"Rarely"	"Sometimes"	"Never"	"Never"	"Rarely"
##	[199]	NA	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	"Sometimes"
##	[205]	NA	"Sometimes"	"Sometimes"	"Often"	"Never"	NA
##	[211]	NA	"Sometimes"	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[217]	"Often"	NA	"Never"	NA	NA	NA
##	[223]	"Rarely"	"Sometimes"	"Never"	NA	"Rarely"	"Sometimes"
##	[229]	"Never"	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[235]	NA	"Never"	"Often"	NA	"Sometimes"	"Sometimes"
##	[241]	NA	"Sometimes"	"Sometimes"	NA	"Never"	"Sometimes"
##	[247]	"Often"	NA	"Sometimes"	"Rarely"	"Sometimes"	NA
##	[253]	"Rarely"	NA	"Sometimes"	"Often"	"Sometimes"	"Never"
##	[259]	NA	"Often"	"Rarely"	"Sometimes"	"Sometimes"	"Rarely"
##	[265]	NA	NA	"Sometimes"	"Sometimes"	"Often"	"Never"
##	[271]	"Sometimes"	"Never"	NA	"Sometimes"	"Rarely"	NA
##	[277]	NA	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"	"Never"
##	[283]	"Sometimes"	"Sometimes"	NA	"Sometimes"	"Rarely"	"Never"
##	[289]	"Sometimes"	"Rarely"	"Never"	"Never"	"Sometimes"	"Never"

##	[295]	"Never"	NA	"Sometimes"	NA	"Sometimes"	"Never"
##	[301]	"Sometimes"	"Sometimes"	"Rarely"	"Often"	"Rarely"	"Often"
##	[307]	"Rarely"	NA	NA	"Sometimes"	"Often"	"Rarely"
##	[313]	"Never"	"Sometimes"	NA	NA	NA	"Never"
##	[319]	"Often"	NA	"Rarely"	"Sometimes"	"Never"	"Sometimes"
##	[325]	"Rarely"	NA	"Never"	"Sometimes"	"Never"	"Rarely"
##	[331]	NA	"Sometimes"	NA	"Often"	NA	"Never"
##	[337]	"Sometimes"	"Sometimes"	NA	NA	NA	"Sometimes"
##	[343]	"Sometimes"	NA	"Rarely"	"Sometimes"	"Sometimes"	"Never"
##	[349]	"Sometimes"	"Sometimes"	"Often"	"Sometimes"	"Never"	"Often"
##	[355]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	NA
##	[361]	NA	"Rarely"	"Rarely"	"Rarely"	"Often"	"Sometimes"
##	[367]	NA	"Often"	"Rarely"	"Sometimes"	NA	"Often"
##	[373]	"Rarely"	"Sometimes"	"Rarely"	"Never"	"Rarely"	"Sometimes"
##	[379]	"Rarely"	"Never"	"Never"	"Rarely"	"Sometimes"	"Often"
##	[385]	"Sometimes"	"Rarely"	"Never"	"Sometimes"	"Sometimes"	"Rarely"
##	[391]	"Often"	"Rarely"	"Never"	"Often"	NA	"Never"
##	[397]	NA	"Sometimes"	"Never"	"Sometimes"	"Often"	"Sometimes"
##	[403]	NA	"Sometimes"	"Sometimes"	NA	"Never"	NA
##	[409]	"Never"	NA	"Often"	"Rarely"	"Never"	"Sometimes"
##	[415]	"Sometimes"	"Often"	"Sometimes"	NA	"Never"	"Sometimes"
##	[421]	"Rarely"	NA	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"
##	[427]	"Sometimes"	NA	NA	NA	"Never"	"Rarely"
##	[433]	"Often"	"Sometimes"	"Sometimes"	"Never"	NA	NA
##	[439]	"Sometimes"	"Rarely"	"Sometimes"	"Rarely"	"Sometimes"	NA
##	[445]	"Sometimes"	"Often"	NA	"Sometimes"	"Rarely"	"Rarely"
##	[451]	"Often"	"Never"	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[457]	"Rarely"	"Never"	"Never"	NA	NA	"Never"
##	[463]	"Sometimes"	"Never"	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"
##	[469]	"Never"	"Rarely"	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[475]	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	NA	NA
##	[481]	"Never"	"Sometimes"	"Sometimes"	"Rarely"	"Never"	"Sometimes"
##	[487]	"Sometimes"	"Often"	"Sometimes"	"Never"	NA	"Rarely"
##	[493]	NA	"Sometimes"	NA	"Often"	"Sometimes"	"Often"
##	[499]	"Sometimes"	"Rarely"	NA	NA	NA	"Never"
##	[505]	"Sometimes"	"Sometimes"	"Never"	"Sometimes"	"Sometimes"	NA
##	[511]	"Sometimes"	"Sometimes"	NA	"Never"	"Sometimes"	NA
##	[517]	"Rarely"	"Sometimes"	"Sometimes"	"Often"	"Never"	NA
##	[523]	NA	"Rarely"	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[529]	"Sometimes"	"Sometimes"	NA	"Rarely"	"Sometimes"	"Rarely"
##	[535]	"Never"	"Sometimes"	"Often"	"Never"	"Never"	"Sometimes"
##	[541]	"Often"	"Rarely"	"Never"	"Often"	"Rarely"	NA
##	[547]	"Never"	"Sometimes"	NA	"Often"	NA	"Sometimes"
##	[553]	"Sometimes"	"Sometimes"	"Rarely"	"Often"	"Sometimes"	NA
##	[559]	"Sometimes"	NA	NA	"Sometimes"	"Never"	"Rarely"
##	[565]	"Never"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[571]	"Rarely"	"Often"	"Sometimes"	"Sometimes"	"Never"	"Never"
##	[577]	NA	"Sometimes"	"Never"	"Sometimes"	"Often"	NA
##	[583]	"Never"	"Never"	"Sometimes"	"Never"	"Often"	"Never"
##	[589]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[595]	"Never"	"Rarely"	"Sometimes"	NA	NA	"Rarely"
##	[601]	"Often"	NA	"Sometimes"	"Often"	NA	"Sometimes"
##	[607]	"Sometimes"	"Never"	NA	"Never"	"Sometimes"	"Rarely"
##	[613]	"Often"	"Sometimes"	"Rarely"	"Often"	"Never"	"Rarely"

##	[619]	"Often"	"Sometimes"	"Sometimes"	"Never"	"Often"	"Sometimes"
##	[625]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[631]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"	"Rarely"	"Never"
##	[637]	"Often"	"Often"	NA	"Sometimes"	NA	NA
##	[643]	"Sometimes"	"Never"	"Rarely"	"Never"	"Sometimes"	"Sometimes"
##	[649]	"Sometimes"	"Often"	"Rarely"	"Never"	"Sometimes"	"Never"
##	[655]	"Never"	NA	"Rarely"	"Never"	"Sometimes"	NA
##	[661]	"Rarely"	"Never"	"Never"	"Never"	"Sometimes"	"Sometimes"
##	[667]	NA	NA	"Never"	NA	"Never"	"Sometimes"
##	[673]	NA	"Never"	"Sometimes"	"Sometimes"	NA	"Rarely"
##	[679]	NA	"Often"	"Rarely"	"Sometimes"	"Often"	"Rarely"
##	[685]	NA	"Sometimes"	"Rarely"	"Sometimes"	NA	"Sometimes"
##	[691]	"Sometimes"	"Never"	NA	NA	NA	"Sometimes"
##	[697]	NA	NA	NA	NA	NA	"Rarely"
##	[703]	"Sometimes"	"Often"	"Sometimes"	"Rarely"	"Never"	"Sometimes"
##	[709]	NA	"Often"	NA	NA	"Never"	"Never"
##	[715]	"Sometimes"	"Sometimes"	NA	NA	NA	NA
##	[721]	NA	"Sometimes"	NA	"Never"	"Sometimes"	"Never"
##	[727]	"Rarely"	"Sometimes"	NA	"Sometimes"	"Often"	NA
##	[733]	NA	NA	NA	"Never"	NA	"Sometimes"
##	[739]	NA	"Sometimes"	"Sometimes"	NA	"Sometimes"	"Sometimes"
##	[745]	"Sometimes"	"Sometimes"	NA	NA	"Rarely"	"Sometimes"
##	[751]	NA	NA	"Sometimes"	"Never"	"Never"	"Sometimes"
##	[757]	"Sometimes"	"Sometimes"	"Rarely"	"Often"	"Sometimes"	"Rarely"
##	[763]	"Sometimes"	"Sometimes"	"Sometimes"	NA	"Sometimes"	"Never"
##	[769]	"Never"	"Never"	"Sometimes"	"Sometimes"	NA	NA
##	[775]	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"	NA	NA
##	[781]	"Never"	"Sometimes"	"Sometimes"	NA	NA	"Sometimes"
##	[787]	NA	"Sometimes"	NA	"Never"	"Rarely"	"Sometimes"
##	[793]	"Often"	"Sometimes"	"Sometimes"	"Never"	"Often"	NA
##	[799]	NA	"Sometimes"	"Never"	"Sometimes"	NA	NA
##	[805]	NA	"Sometimes"	"Sometimes"	NA	NA	"Sometimes"
##	[811]	"Never"	"Sometimes"	"Often"	"Never"	"Sometimes"	"Sometimes"
##	[817]	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	"Sometimes"	"Often"
##	[823]	"Never"	NA	NA	"Often"	"Never"	"Sometimes"
##	[829]	"Rarely"	"Sometimes"	"Sometimes"	"Never"	"Rarely"	"Rarely"
##	[835]	"Sometimes"	"Sometimes"	"Often"	NA	NA	"Rarely"
##	[841]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"	NA	"Sometimes"
##	[847]	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"	NA
##	[853]	"Never"	"Sometimes"	NA	NA	"Never"	NA
##	[859]	NA	"Rarely"	"Rarely"	"Rarely"	"Never"	"Often"
##	[865]	"Rarely"	NA	"Sometimes"	NA	"Sometimes"	NA
##	[871]	"Rarely"	"Sometimes"	NA	NA	NA	"Sometimes"
##	[877]	NA	NA	"Never"	"Never"	"Sometimes"	"Never"
##	[883]	"Never"	"Never"	"Sometimes"	"Never"	"Rarely"	NA
##	[889]	NA	"Sometimes"	"Sometimes"	"Rarely"	NA	"Never"
##	[895]	"Often"	NA	"Never"	"Sometimes"	"Never"	"Sometimes"
##	[901]	"Rarely"	"Rarely"	"Often"	NA	"Never"	"Sometimes"
##	[907]	NA	"Sometimes"	"Rarely"	"Never"	"Sometimes"	"Rarely"
##	[913]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"	"Never"	"Sometimes"
##	[919]	NA	"Often"	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[925]	NA	"Sometimes"	"Sometimes"	NA	NA	"Never"
##	[931]	"Sometimes"	"Often"	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"
##	[937]	"Often"	NA	"Rarely"	"Sometimes"	"Rarely"	"Sometimes"

##	[943]	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	NA	"Rarely"
##	[949]	"Sometimes"	"Sometimes"	"Rarely"	"Often"	"Sometimes"	"Rarely"
##	[955]	NA	"Often"	"Never"	"Rarely"	"Rarely"	NA
##	[961]	NA	"Sometimes"	"Sometimes"	"Often"	"Often"	"Sometimes"
##	[967]	"Sometimes"	"Never"	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"
##	[973]	"Rarely"	"Never"	NA	NA	"Never"	NA
##	[979]	"Never"	"Often"	"Sometimes"	"Rarely"	"Often"	"Often"
##	[985]	"Never"	"Sometimes"	"Rarely"	"Often"	"Sometimes"	"Often"
##	[991]	NA	NA	"Sometimes"	NA	"Sometimes"	"Sometimes"
##	[997]	"Rarely"	"Never"	"Rarely"	NA	"Often"	"Sometimes"
##	[1003]	"Often"	"Sometimes"	"Sometimes"	"Never"	"Sometimes"	"Sometimes"
##	[1009]	"Sometimes"	NA	NA	"Never"	"Sometimes"	"Sometimes"
##	[1015]	"Sometimes"	NA	NA	"Often"	"Sometimes"	"Rarely"
##	[1021]	"Never"	"Sometimes"	"Never"	NA	"Sometimes"	"Sometimes"
##	[1027]	"Never"	"Sometimes"	"Never"	NA	NA	"Rarely"
##	[1033]	"Sometimes"	"Often"	"Never"	"Sometimes"	"Sometimes"	NA
##	[1039]	"Sometimes"	NA	"Sometimes"	NA	"Sometimes"	"Sometimes"
##	[1045]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	"Sometimes"
##	[1051]	"Sometimes"	"Sometimes"	"Often"	"Never"	"Rarely"	"Sometimes"
##	[1057]	"Never"	"Never"	"Often"	"Rarely"	"Often"	"Sometimes"
##	[1063]	"Never"	"Often"	"Sometimes"	"Often"	"Never"	"Never"
##	[1069]	"Never"	NA	"Sometimes"	"Sometimes"	"Rarely"	"Never"
##	[1075]	"Sometimes"	"Sometimes"	"Sometimes"	"Often"	"Sometimes"	"Sometimes"
##	[1081]	"Often"	"Often"	"Often"	"Often"	"Sometimes"	NA
##	[1087]	"Sometimes"	"Never"	"Sometimes"	"Sometimes"	"Never"	"Never"
##	[1093]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"
##	[1099]	NA	"Never"	NA	"Sometimes"	"Often"	"Sometimes"
##	[1105]	"Never"	"Rarely"	"Sometimes"	"Rarely"	"Often"	"Often"
##	[1111]	"Sometimes"	"Often"	NA	"Sometimes"	NA	"Sometimes"
##	[1117]	"Never"	"Sometimes"	"Rarely"	"Never"	"Rarely"	"Sometimes"
##	[1123]	"Never"	"Rarely"	NA	"Often"	"Sometimes"	"Often"
##	[1129]	"Sometimes"	NA	"Sometimes"	NA	"Rarely"	"Rarely"
##	[1135]	"Rarely"	"Sometimes"	"Sometimes"	NA	"Sometimes"	"Sometimes"
##	[1141]	"Often"	"Rarely"	"Sometimes"	NA	"Never"	"Sometimes"
##	[1147]	"Sometimes"	"Sometimes"	"Often"	"Rarely"	"Sometimes"	"Never"
##	[1153]	"Rarely"	"Rarely"	"Often"	"Never"	"Never"	"Never"
##	[1159]	"Rarely"	"Never"	"Sometimes"	"Never"	NA	"Sometimes"
##	[1165]	"Often"	"Sometimes"	"Sometimes"	"Never"	"Often"	"Sometimes"
##	[1171]	NA	NA	"Sometimes"	"Sometimes"	"Rarely"	NA
##	[1177]	"Rarely"	"Never"	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[1183]	"Never"	"Sometimes"	"Often"	"Never"	"Rarely"	"Sometimes"
##	[1189]	NA	"Sometimes"	"Sometimes"	"Sometimes"	"Never"	"Never"
##	[1195]	NA	"Sometimes"	"Rarely"	"Often"	"Often"	NA
##	[1201]	"Often"	"Rarely"	NA	NA	"Never"	"Sometimes"
##	[1207]	"Often"	"Sometimes"	"Often"	"Sometimes"	NA	"Never"
##	[1213]	"Sometimes"	"Sometimes"	"Often"	NA	"Rarely"	"Never"
##	[1219]	NA	"Sometimes"	"Often"	"Sometimes"	"Rarely"	"Never"
##	[1225]	"Sometimes"	"Rarely"	NA	"Never"	"Sometimes"	NA
##	[1231]	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"	"Often"
##	[1237]	"Often"	"Sometimes"	"Often"	"Sometimes"	"Sometimes"	"Often"
##	[1243]	"Rarely"	"Rarely"	NA	"Often"	"Never"	"Often"
##	[1249]	"Sometimes"	"Sometimes"	"Often"	"Often"	"Sometimes"	"Rarely"
##	[1255]	NA	"Often"	"Sometimes"	NA	"Sometimes"	

#CORREÇÃO DE VALORES FALTANTES

```
df$work_interfere[is.na(df$work_interfere)] = "Não Informado"  
df$work_interfere
```

```
##      [1] "Often"      "Rarely"      "Rarely"      "Often"  
##      [5] "Never"      "Sometimes"   "Sometimes"   "Never"  
##      [9] "Sometimes"  "Never"      "Sometimes"   "Never"  
##     [13] "Sometimes"  "Never"      "Never"      "Rarely"  
##     [17] "Sometimes"  "Sometimes"  "Sometimes"   "Não Informado"  
##     [21] "Sometimes"  "Never"      "Often"      "Never"  
##     [25] "Rarely"     "Sometimes"  "Não Informado" "Rarely"  
##     [29] "Sometimes"  "Sometimes"  "Never"      "Rarely"  
##     [33] "Sometimes"  "Sometimes"  "Sometimes"   "Rarely"  
##     [37] "Rarely"     "Não Informado" "Não Informado" "Rarely"  
##     [41] "Sometimes"  "Não Informado" "Sometimes"   "Often"  
##     [45] "Sometimes"  "Sometimes"  "Não Informado" "Não Informado"  
##     [49] "Sometimes"  "Rarely"     "Often"      "Não Informado"  
##     [53] "Não Informado" "Never"      "Não Informado" "Rarely"  
##     [57] "Não Informado" "Sometimes"  "Não Informado" "Often"  
##     [61] "Sometimes"  "Sometimes"  "Never"      "Não Informado"  
##     [65] "Sometimes"  "Sometimes"  "Often"      "Sometimes"  
##     [69] "Não Informado" "Rarely"     "Never"      "Never"  
##     [73] "Rarely"     "Não Informado" "Never"      "Não Informado"  
##     [77] "Não Informado" "Sometimes"  "Sometimes"   "Never"  
##     [81] "Sometimes"  "Never"      "Never"      "Often"  
##     [85] "Never"      "Não Informado" "Often"      "Rarely"  
##     [89] "Sometimes"  "Não Informado" "Never"      "Sometimes"  
##     [93] "Não Informado" "Não Informado" "Sometimes"   "Never"  
##     [97] "Rarely"     "Sometimes"  "Sometimes"   "Often"  
##    [101] "Sometimes"  "Never"      "Não Informado" "Sometimes"  
##    [105] "Never"      "Rarely"     "Sometimes"   "Rarely"  
##    [109] "Never"      "Sometimes"  "Sometimes"   "Sometimes"  
##    [113] "Rarely"     "Never"      "Não Informado" "Never"  
##    [117] "Often"      "Rarely"     "Rarely"      "Não Informado"  
##    [121] "Never"      "Não Informado" "Sometimes"   "Often"  
##    [125] "Never"      "Never"      "Não Informado" "Rarely"  
##    [129] "Sometimes"  "Sometimes"  "Sometimes"   "Rarely"  
##    [133] "Never"      "Não Informado" "Never"      "Never"  
##    [137] "Never"      "Often"      "Não Informado" "Não Informado"  
##    [141] "Sometimes"  "Sometimes"  "Never"      "Não Informado"  
##    [145] "Não Informado" "Rarely"     "Never"      "Sometimes"  
##    [149] "Rarely"     "Não Informado" "Não Informado" "Never"  
##    [153] "Rarely"     "Never"      "Rarely"      "Sometimes"  
##    [157] "Sometimes"  "Often"      "Rarely"      "Sometimes"  
##    [161] "Sometimes"  "Sometimes"  "Never"      "Rarely"  
##    [165] "Sometimes"  "Não Informado" "Never"      "Não Informado"  
##    [169] "Sometimes"  "Rarely"     "Sometimes"   "Often"  
##    [173] "Never"      "Não Informado" "Sometimes"   "Never"  
##    [177] "Não Informado" "Often"      "Sometimes"   "Não Informado"  
##    [181] "Never"      "Sometimes"  "Never"      "Sometimes"  
##    [185] "Often"      "Não Informado" "Sometimes"   "Não Informado"  
##    [189] "Não Informado" "Never"      "Often"      "Sometimes"  
##    [193] "Sometimes"  "Rarely"     "Sometimes"   "Never"  
##    [197] "Never"      "Rarely"     "Não Informado" "Sometimes"
```

##	[201]	"Sometimes"	"Sometimes"	"Often"	"Sometimes"
##	[205]	"Não Informado"	"Sometimes"	"Sometimes"	"Often"
##	[209]	"Never"	"Não Informado"	"Não Informado"	"Sometimes"
##	[213]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[217]	"Often"	"Não Informado"	"Never"	"Não Informado"
##	[221]	"Não Informado"	"Não Informado"	"Rarely"	"Sometimes"
##	[225]	"Never"	"Não Informado"	"Rarely"	"Sometimes"
##	[229]	"Never"	"Sometimes"	"Sometimes"	"Rarely"
##	[233]	"Sometimes"	"Sometimes"	"Não Informado"	"Never"
##	[237]	"Often"	"Não Informado"	"Sometimes"	"Sometimes"
##	[241]	"Não Informado"	"Sometimes"	"Sometimes"	"Não Informado"
##	[245]	"Never"	"Sometimes"	"Often"	"Não Informado"
##	[249]	"Sometimes"	"Rarely"	"Sometimes"	"Não Informado"
##	[253]	"Rarely"	"Não Informado"	"Sometimes"	"Often"
##	[257]	"Sometimes"	"Never"	"Não Informado"	"Often"
##	[261]	"Rarely"	"Sometimes"	"Sometimes"	"Rarely"
##	[265]	"Não Informado"	"Não Informado"	"Sometimes"	"Sometimes"
##	[269]	"Often"	"Never"	"Sometimes"	"Never"
##	[273]	"Não Informado"	"Sometimes"	"Rarely"	"Não Informado"
##	[277]	"Não Informado"	"Sometimes"	"Rarely"	"Sometimes"
##	[281]	"Sometimes"	"Never"	"Sometimes"	"Sometimes"
##	[285]	"Não Informado"	"Sometimes"	"Rarely"	"Never"
##	[289]	"Sometimes"	"Rarely"	"Never"	"Never"
##	[293]	"Sometimes"	"Never"	"Never"	"Não Informado"
##	[297]	"Sometimes"	"Não Informado"	"Sometimes"	"Never"
##	[301]	"Sometimes"	"Sometimes"	"Rarely"	"Often"
##	[305]	"Rarely"	"Often"	"Rarely"	"Não Informado"
##	[309]	"Não Informado"	"Sometimes"	"Often"	"Rarely"
##	[313]	"Never"	"Sometimes"	"Não Informado"	"Não Informado"
##	[317]	"Não Informado"	"Never"	"Often"	"Não Informado"
##	[321]	"Rarely"	"Sometimes"	"Never"	"Sometimes"
##	[325]	"Rarely"	"Não Informado"	"Never"	"Sometimes"
##	[329]	"Never"	"Rarely"	"Não Informado"	"Sometimes"
##	[333]	"Não Informado"	"Often"	"Não Informado"	"Never"
##	[337]	"Sometimes"	"Sometimes"	"Não Informado"	"Não Informado"
##	[341]	"Não Informado"	"Sometimes"	"Sometimes"	"Não Informado"
##	[345]	"Rarely"	"Sometimes"	"Sometimes"	"Never"
##	[349]	"Sometimes"	"Sometimes"	"Often"	"Sometimes"
##	[353]	"Never"	"Often"	"Sometimes"	"Sometimes"
##	[357]	"Sometimes"	"Sometimes"	"Sometimes"	"Não Informado"
##	[361]	"Não Informado"	"Rarely"	"Rarely"	"Rarely"
##	[365]	"Often"	"Sometimes"	"Não Informado"	"Often"
##	[369]	"Rarely"	"Sometimes"	"Não Informado"	"Often"
##	[373]	"Rarely"	"Sometimes"	"Rarely"	"Never"
##	[377]	"Rarely"	"Sometimes"	"Rarely"	"Never"
##	[381]	"Never"	"Rarely"	"Sometimes"	"Often"
##	[385]	"Sometimes"	"Rarely"	"Never"	"Sometimes"
##	[389]	"Sometimes"	"Rarely"	"Often"	"Rarely"
##	[393]	"Never"	"Often"	"Não Informado"	"Never"
##	[397]	"Não Informado"	"Sometimes"	"Never"	"Sometimes"
##	[401]	"Often"	"Sometimes"	"Não Informado"	"Sometimes"
##	[405]	"Sometimes"	"Não Informado"	"Never"	"Não Informado"
##	[409]	"Never"	"Não Informado"	"Often"	"Rarely"
##	[413]	"Never"	"Sometimes"	"Sometimes"	"Often"

##	[417]	"Sometimes"	"Não Informado"	"Never"	"Sometimes"
##	[421]	"Rarely"	"Não Informado"	"Sometimes"	"Sometimes"
##	[425]	"Rarely"	"Sometimes"	"Sometimes"	"Não Informado"
##	[429]	"Não Informado"	"Não Informado"	"Never"	"Rarely"
##	[433]	"Often"	"Sometimes"	"Sometimes"	"Never"
##	[437]	"Não Informado"	"Não Informado"	"Sometimes"	"Rarely"
##	[441]	"Sometimes"	"Rarely"	"Sometimes"	"Não Informado"
##	[445]	"Sometimes"	"Often"	"Não Informado"	"Sometimes"
##	[449]	"Rarely"	"Rarely"	"Often"	"Never"
##	[453]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[457]	"Rarely"	"Never"	"Never"	"Não Informado"
##	[461]	"Não Informado"	"Never"	"Sometimes"	"Never"
##	[465]	"Sometimes"	"Sometimes"	"Rarely"	"Sometimes"
##	[469]	"Never"	"Rarely"	"Sometimes"	"Rarely"
##	[473]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[477]	"Sometimes"	"Often"	"Não Informado"	"Não Informado"
##	[481]	"Never"	"Sometimes"	"Sometimes"	"Rarely"
##	[485]	"Never"	"Sometimes"	"Sometimes"	"Often"
##	[489]	"Sometimes"	"Never"	"Não Informado"	"Rarely"
##	[493]	"Não Informado"	"Sometimes"	"Não Informado"	"Often"
##	[497]	"Sometimes"	"Often"	"Sometimes"	"Rarely"
##	[501]	"Não Informado"	"Não Informado"	"Não Informado"	"Never"
##	[505]	"Sometimes"	"Sometimes"	"Never"	"Sometimes"
##	[509]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
##	[513]	"Não Informado"	"Never"	"Sometimes"	"Não Informado"
##	[517]	"Rarely"	"Sometimes"	"Sometimes"	"Often"
##	[521]	"Never"	"Não Informado"	"Não Informado"	"Rarely"
##	[525]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[529]	"Sometimes"	"Sometimes"	"Não Informado"	"Rarely"
##	[533]	"Sometimes"	"Rarely"	"Never"	"Sometimes"
##	[537]	"Often"	"Never"	"Never"	"Sometimes"
##	[541]	"Often"	"Rarely"	"Never"	"Often"
##	[545]	"Rarely"	"Não Informado"	"Never"	"Sometimes"
##	[549]	"Não Informado"	"Often"	"Não Informado"	"Sometimes"
##	[553]	"Sometimes"	"Sometimes"	"Rarely"	"Often"
##	[557]	"Sometimes"	"Não Informado"	"Sometimes"	"Não Informado"
##	[561]	"Não Informado"	"Sometimes"	"Never"	"Rarely"
##	[565]	"Never"	"Sometimes"	"Sometimes"	"Sometimes"
##	[569]	"Sometimes"	"Sometimes"	"Rarely"	"Often"
##	[573]	"Sometimes"	"Sometimes"	"Never"	"Never"
##	[577]	"Não Informado"	"Sometimes"	"Never"	"Sometimes"
##	[581]	"Often"	"Não Informado"	"Never"	"Never"
##	[585]	"Sometimes"	"Never"	"Often"	"Never"
##	[589]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[593]	"Sometimes"	"Sometimes"	"Never"	"Rarely"
##	[597]	"Sometimes"	"Não Informado"	"Não Informado"	"Rarely"
##	[601]	"Often"	"Não Informado"	"Sometimes"	"Often"
##	[605]	"Não Informado"	"Sometimes"	"Sometimes"	"Never"
##	[609]	"Não Informado"	"Never"	"Sometimes"	"Rarely"
##	[613]	"Often"	"Sometimes"	"Rarely"	"Often"
##	[617]	"Never"	"Rarely"	"Often"	"Sometimes"
##	[621]	"Sometimes"	"Never"	"Often"	"Sometimes"
##	[625]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[629]	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"

##	[633]	"Sometimes"	"Sometimes"	"Rarely"	"Never"
##	[637]	"Often"	"Often"	"Não Informado"	"Sometimes"
##	[641]	"Não Informado"	"Não Informado"	"Sometimes"	"Never"
##	[645]	"Rarely"	"Never"	"Sometimes"	"Sometimes"
##	[649]	"Sometimes"	"Often"	"Rarely"	"Never"
##	[653]	"Sometimes"	"Never"	"Never"	"Não Informado"
##	[657]	"Rarely"	"Never"	"Sometimes"	"Não Informado"
##	[661]	"Rarely"	"Never"	"Never"	"Never"
##	[665]	"Sometimes"	"Sometimes"	"Não Informado"	"Não Informado"
##	[669]	"Never"	"Não Informado"	"Never"	"Sometimes"
##	[673]	"Não Informado"	"Never"	"Sometimes"	"Sometimes"
##	[677]	"Não Informado"	"Rarely"	"Não Informado"	"Often"
##	[681]	"Rarely"	"Sometimes"	"Often"	"Rarely"
##	[685]	"Não Informado"	"Sometimes"	"Rarely"	"Sometimes"
##	[689]	"Não Informado"	"Sometimes"	"Sometimes"	"Never"
##	[693]	"Não Informado"	"Não Informado"	"Não Informado"	"Sometimes"
##	[697]	"Não Informado"	"Não Informado"	"Não Informado"	"Não Informado"
##	[701]	"Não Informado"	"Rarely"	"Sometimes"	"Often"
##	[705]	"Sometimes"	"Rarely"	"Never"	"Sometimes"
##	[709]	"Não Informado"	"Often"	"Não Informado"	"Não Informado"
##	[713]	"Never"	"Never"	"Sometimes"	"Sometimes"
##	[717]	"Não Informado"	"Não Informado"	"Não Informado"	"Não Informado"
##	[721]	"Não Informado"	"Sometimes"	"Não Informado"	"Never"
##	[725]	"Sometimes"	"Never"	"Rarely"	"Sometimes"
##	[729]	"Não Informado"	"Sometimes"	"Often"	"Não Informado"
##	[733]	"Não Informado"	"Não Informado"	"Não Informado"	"Never"
##	[737]	"Não Informado"	"Sometimes"	"Não Informado"	"Sometimes"
##	[741]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
##	[745]	"Sometimes"	"Sometimes"	"Não Informado"	"Não Informado"
##	[749]	"Rarely"	"Sometimes"	"Não Informado"	"Não Informado"
##	[753]	"Sometimes"	"Never"	"Never"	"Sometimes"
##	[757]	"Sometimes"	"Sometimes"	"Rarely"	"Often"
##	[761]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[765]	"Sometimes"	"Não Informado"	"Sometimes"	"Never"
##	[769]	"Never"	"Never"	"Sometimes"	"Sometimes"
##	[773]	"Não Informado"	"Não Informado"	"Rarely"	"Sometimes"
##	[777]	"Sometimes"	"Sometimes"	"Não Informado"	"Não Informado"
##	[781]	"Never"	"Sometimes"	"Sometimes"	"Não Informado"
##	[785]	"Não Informado"	"Sometimes"	"Não Informado"	"Sometimes"
##	[789]	"Não Informado"	"Never"	"Rarely"	"Sometimes"
##	[793]	"Often"	"Sometimes"	"Sometimes"	"Never"
##	[797]	"Often"	"Não Informado"	"Não Informado"	"Sometimes"
##	[801]	"Never"	"Sometimes"	"Não Informado"	"Não Informado"
##	[805]	"Não Informado"	"Sometimes"	"Sometimes"	"Não Informado"
##	[809]	"Não Informado"	"Sometimes"	"Never"	"Sometimes"
##	[813]	"Often"	"Never"	"Sometimes"	"Sometimes"
##	[817]	"Sometimes"	"Sometimes"	"Sometimes"	"Often"
##	[821]	"Sometimes"	"Often"	"Never"	"Não Informado"
##	[825]	"Não Informado"	"Often"	"Never"	"Sometimes"
##	[829]	"Rarely"	"Sometimes"	"Sometimes"	"Never"
##	[833]	"Rarely"	"Rarely"	"Sometimes"	"Sometimes"
##	[837]	"Often"	"Não Informado"	"Não Informado"	"Rarely"
##	[841]	"Sometimes"	"Sometimes"	"Sometimes"	"Sometimes"
##	[845]	"Não Informado"	"Sometimes"	"Sometimes"	"Sometimes"

##	[849]	"Sometimes"	"Rarely"	"Sometimes"	"Não Informado"
##	[853]	"Never"	"Sometimes"	"Não Informado"	"Não Informado"
##	[857]	"Never"	"Não Informado"	"Não Informado"	"Rarely"
##	[861]	"Rarely"	"Rarely"	"Never"	"Often"
##	[865]	"Rarely"	"Não Informado"	"Sometimes"	"Não Informado"
##	[869]	"Sometimes"	"Não Informado"	"Rarely"	"Sometimes"
##	[873]	"Não Informado"	"Não Informado"	"Não Informado"	"Sometimes"
##	[877]	"Não Informado"	"Não Informado"	"Never"	"Never"
##	[881]	"Sometimes"	"Never"	"Never"	"Never"
##	[885]	"Sometimes"	"Never"	"Rarely"	"Não Informado"
##	[889]	"Não Informado"	"Sometimes"	"Sometimes"	"Rarely"
##	[893]	"Não Informado"	"Never"	"Often"	"Não Informado"
##	[897]	"Never"	"Sometimes"	"Never"	"Sometimes"
##	[901]	"Rarely"	"Rarely"	"Often"	"Não Informado"
##	[905]	"Never"	"Sometimes"	"Não Informado"	"Sometimes"
##	[909]	"Rarely"	"Never"	"Sometimes"	"Rarely"
##	[913]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[917]	"Never"	"Sometimes"	"Não Informado"	"Often"
##	[921]	"Sometimes"	"Rarely"	"Sometimes"	"Sometimes"
##	[925]	"Não Informado"	"Sometimes"	"Sometimes"	"Não Informado"
##	[929]	"Não Informado"	"Never"	"Sometimes"	"Often"
##	[933]	"Sometimes"	"Sometimes"	"Sometimes"	"Rarely"
##	[937]	"Often"	"Não Informado"	"Rarely"	"Sometimes"
##	[941]	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"
##	[945]	"Sometimes"	"Often"	"Não Informado"	"Rarely"
##	[949]	"Sometimes"	"Sometimes"	"Rarely"	"Often"
##	[953]	"Sometimes"	"Rarely"	"Não Informado"	"Often"
##	[957]	"Never"	"Rarely"	"Rarely"	"Não Informado"
##	[961]	"Não Informado"	"Sometimes"	"Sometimes"	"Often"
##	[965]	"Often"	"Sometimes"	"Sometimes"	"Never"
##	[969]	"Rarely"	"Sometimes"	"Sometimes"	"Sometimes"
##	[973]	"Rarely"	"Never"	"Não Informado"	"Não Informado"
##	[977]	"Never"	"Não Informado"	"Never"	"Often"
##	[981]	"Sometimes"	"Rarely"	"Often"	"Often"
##	[985]	"Never"	"Sometimes"	"Rarely"	"Often"
##	[989]	"Sometimes"	"Often"	"Não Informado"	"Não Informado"
##	[993]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
##	[997]	"Rarely"	"Never"	"Rarely"	"Não Informado"
##	[1001]	"Often"	"Sometimes"	"Often"	"Sometimes"
##	[1005]	"Sometimes"	"Never"	"Sometimes"	"Sometimes"
##	[1009]	"Sometimes"	"Não Informado"	"Não Informado"	"Never"
##	[1013]	"Sometimes"	"Sometimes"	"Sometimes"	"Não Informado"
##	[1017]	"Não Informado"	"Often"	"Sometimes"	"Rarely"
##	[1021]	"Never"	"Sometimes"	"Never"	"Não Informado"
##	[1025]	"Sometimes"	"Sometimes"	"Never"	"Sometimes"
##	[1029]	"Never"	"Não Informado"	"Não Informado"	"Rarely"
##	[1033]	"Sometimes"	"Often"	"Never"	"Sometimes"
##	[1037]	"Sometimes"	"Não Informado"	"Sometimes"	"Não Informado"
##	[1041]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
##	[1045]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[1049]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
##	[1053]	"Often"	"Never"	"Rarely"	"Sometimes"
##	[1057]	"Never"	"Never"	"Often"	"Rarely"
##	[1061]	"Often"	"Sometimes"	"Never"	"Often"

## [1065]	"Sometimes"	"Often"	"Never"	"Never"
## [1069]	"Never"	"Não Informado"	"Sometimes"	"Sometimes"
## [1073]	"Rarely"	"Never"	"Sometimes"	"Sometimes"
## [1077]	"Sometimes"	"Often"	"Sometimes"	"Sometimes"
## [1081]	"Often"	"Often"	"Often"	"Often"
## [1085]	"Sometimes"	"Não Informado"	"Sometimes"	"Never"
## [1089]	"Sometimes"	"Sometimes"	"Never"	"Never"
## [1093]	"Often"	"Sometimes"	"Sometimes"	"Sometimes"
## [1097]	"Rarely"	"Sometimes"	"Não Informado"	"Never"
## [1101]	"Não Informado"	"Sometimes"	"Often"	"Sometimes"
## [1105]	"Never"	"Rarely"	"Sometimes"	"Rarely"
## [1109]	"Often"	"Often"	"Sometimes"	"Often"
## [1113]	"Não Informado"	"Sometimes"	"Não Informado"	"Sometimes"
## [1117]	"Never"	"Sometimes"	"Rarely"	"Never"
## [1121]	"Rarely"	"Sometimes"	"Never"	"Rarely"
## [1125]	"Não Informado"	"Often"	"Sometimes"	"Often"
## [1129]	"Sometimes"	"Não Informado"	"Sometimes"	"Não Informado"
## [1133]	"Rarely"	"Rarely"	"Rarely"	"Sometimes"
## [1137]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
## [1141]	"Often"	"Rarely"	"Sometimes"	"Não Informado"
## [1145]	"Never"	"Sometimes"	"Sometimes"	"Sometimes"
## [1149]	"Often"	"Rarely"	"Sometimes"	"Never"
## [1153]	"Rarely"	"Rarely"	"Often"	"Never"
## [1157]	"Never"	"Never"	"Rarely"	"Never"
## [1161]	"Sometimes"	"Never"	"Não Informado"	"Sometimes"
## [1165]	"Often"	"Sometimes"	"Sometimes"	"Never"
## [1169]	"Often"	"Sometimes"	"Não Informado"	"Não Informado"
## [1173]	"Sometimes"	"Sometimes"	"Rarely"	"Não Informado"
## [1177]	"Rarely"	"Never"	"Sometimes"	"Sometimes"
## [1181]	"Sometimes"	"Sometimes"	"Never"	"Sometimes"
## [1185]	"Often"	"Never"	"Rarely"	"Sometimes"
## [1189]	"Não Informado"	"Sometimes"	"Sometimes"	"Sometimes"
## [1193]	"Never"	"Never"	"Não Informado"	"Sometimes"
## [1197]	"Rarely"	"Often"	"Often"	"Não Informado"
## [1201]	"Often"	"Rarely"	"Não Informado"	"Não Informado"
## [1205]	"Never"	"Sometimes"	"Often"	"Sometimes"
## [1209]	"Often"	"Sometimes"	"Não Informado"	"Never"
## [1213]	"Sometimes"	"Sometimes"	"Often"	"Não Informado"
## [1217]	"Rarely"	"Never"	"Não Informado"	"Sometimes"
## [1221]	"Often"	"Sometimes"	"Rarely"	"Never"
## [1225]	"Sometimes"	"Rarely"	"Não Informado"	"Never"
## [1229]	"Sometimes"	"Não Informado"	"Sometimes"	"Sometimes"
## [1233]	"Sometimes"	"Rarely"	"Sometimes"	"Often"
## [1237]	"Often"	"Sometimes"	"Often"	"Sometimes"
## [1241]	"Sometimes"	"Often"	"Rarely"	"Rarely"
## [1245]	"Não Informado"	"Often"	"Never"	"Often"
## [1249]	"Sometimes"	"Sometimes"	"Often"	"Often"
## [1253]	"Sometimes"	"Rarely"	"Não Informado"	"Often"
## [1257]	"Sometimes"	"Não Informado"	"Sometimes"	

Amostragem

```
df$work_interfere[is.na(df$work_interfere)] = "Não informado"
id2 <- strata(df_new, stratanames="work_interfere", size=c(10,10,10,10,10), method="srswor")
```

```
s2 <- df %>% slice(id2$ID_unit)
summary(s2)
```

```
##      Timestamp                Age                Gender
## Min.      :2014-08-27 11:34:00 Min.      :23.00 Length:50
## 1st Qu.:2014-08-27 13:20:27 1st Qu.:27.00 Class :character
## Median :2014-08-27 22:28:48 Median :31.50 Mode  :character
## Mean    :2014-09-20 19:17:05 Mean    :32.68
## 3rd Qu.:2014-08-29 06:46:40 3rd Qu.:37.00
## Max.    :2016-02-01 23:04:31 Max.    :46.00
##      Country                state                self_employed                family_history
## Length:50                Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character          Mode  :character
##
##
##      treatment                work_interfere                no_employees                remote_work
## Length:50                Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character          Mode  :character
##
##
##      tech_company                benefits                care_options                wellness_program
## Length:50                Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character          Mode  :character
##
##
##      seek_help                anonymity                leave
## Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character
##
##
##      mental_health_consequence phys_health_consequence coworkers
## Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character
##
##
##      supervisor                mental_health_interview phys_health_interview
## Length:50                Length:50                Length:50
## Class :character          Class :character          Class :character
## Mode  :character          Mode  :character          Mode  :character
##
##
##      mental_vs_physical obs_consequence                comments
## Length:50                Length:50                Length:50
```



```
## Class :character    Class :character    Class :character
## Mode  :character    Mode  :character    Mode  :character
##
##
##
```

```
s2
```

```
## # A tibble: 50 x 27
##   Timestamp                Age Gender Country  state self_employed family_history
##   <dtm>                <dbl> <chr>  <chr>    <chr> <chr>          <chr>
## 1 2014-08-27 11:35:48    46 Male  United S~ MA      No            No
## 2 2014-08-27 15:24:55    26 Male  Canada  <NA>      No            Yes
## 3 2014-08-27 16:27:04    23 Female United S~ NY      No            Yes
## 4 2014-08-27 18:00:39    26 F      United S~ MN      No            Yes
## 5 2014-08-28 01:30:12    31 Female United S~ WA      No            No
## 6 2014-08-28 08:43:23    45 Male  United S~ VA      No            No
## 7 2014-08-29 09:01:01    28 male  United S~ NY      No            Yes
## 8 2014-08-29 11:22:46    29 f      United K~ <NA>      No            No
## 9 2014-08-30 11:48:52    29 M      France  <NA>      No            No
## 10 2014-09-04 23:42:28   46 Female United S~ CA      No            No
## # ... with 40 more rows, and 20 more variables: treatment <chr>,
## #   work_interfere <chr>, no_employees <chr>, remote_work <chr>,
## #   tech_company <chr>, benefits <chr>, care_options <chr>,
## #   wellness_program <chr>, seek_help <chr>, anonymity <chr>, leave <chr>,
## #   mental_health_consequence <chr>, phys_health_consequence <chr>,
## #   coworkers <chr>, supervisor <chr>, mental_health_interview <chr>,
## #   phys_health_interview <chr>, mental_vs_physical <chr>,
## #   obs_consequence <chr>, comments <chr>
```

Análise

```
#summary(filter(df,Gender))
dfAnalise <- filter(df, Age > 0 & Age < 100)
dfAnalise$Age <- dfAnalise %>% pull(Age) %>% discretize(method = "interval", breaks = 5, labels = c("Cr
dfAnalise <- select(dfAnalise, Age, tech_company, treatment) %>% group_by(Age, tech_company, treatment) %>%
dfAnalise %>% data.frame
```

```
##      Age tech_company treatment    n
## 1   Jovem          Yes        No 279
## 2   Jovem          Yes        Yes 256
## 3 Adulto 1          Yes        Yes 224
## 4 Adulto 1          Yes        No 213
## 5 Adulto 1          No         Yes  69
## 6   Jovem          No         No  57
## 7   Jovem          No         Yes  47
## 8 Adulto 1          No         No  43
## 9 Adulto 2          Yes        Yes  25
## 10 Adulto 2          Yes        No  18
## 11 Criança          Yes        No   5
## 12 Adulto 2          No         Yes   5
## 13 Criança          Yes        Yes   4
## 14 Adulto 2          No         No   2
## 15 Idoso            Yes        No   2
## 16 Idoso            Yes        Yes   2
```

```
## 17 Criança      No      No  1
## 18 Idoso       No      No  1
## 19 Idoso       No      Yes 1
```

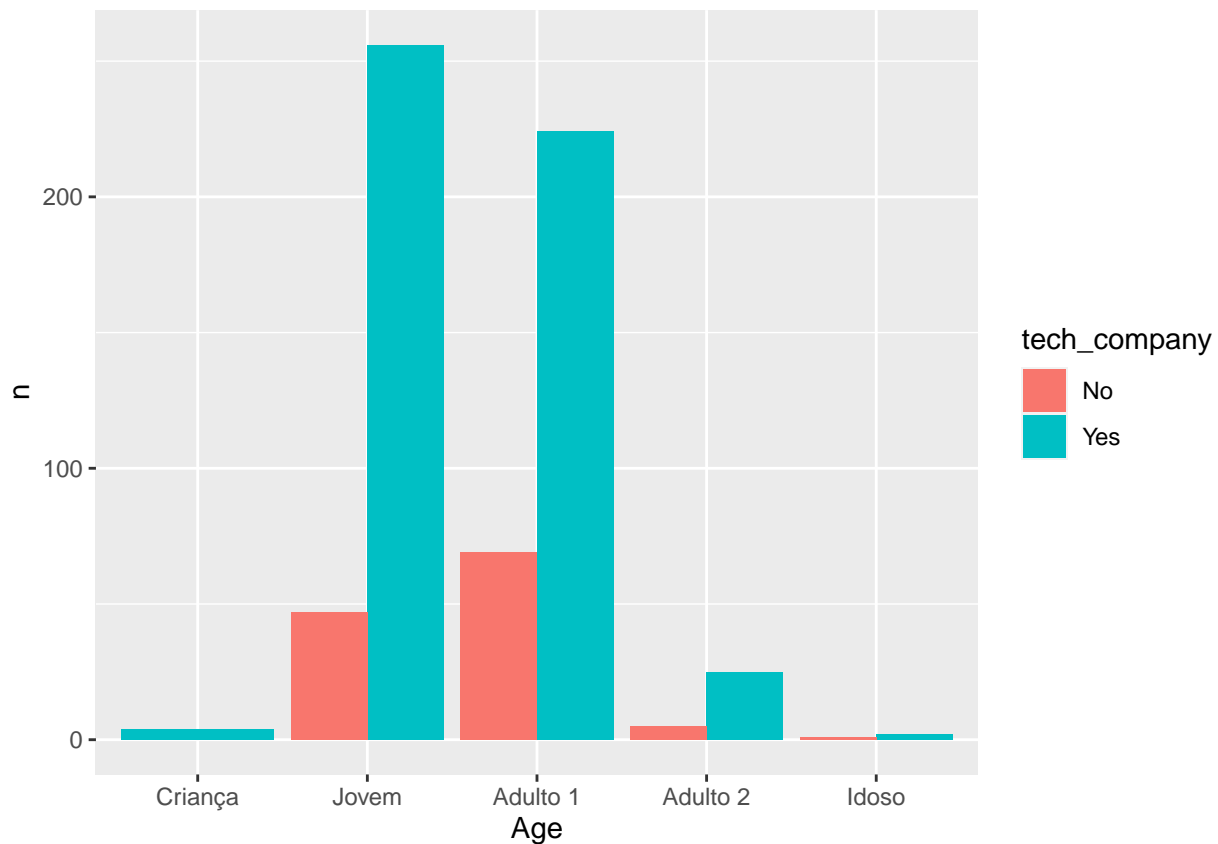
```
#pessoas fora da área de tecnologia
sum(filter(dfAnalise,tech_company=='No')[, 'n'])
```

```
## [1] 226
```

```
#pessoas da área de tecnologia
sum(filter(dfAnalise,tech_company=='Yes')[, 'n'])
```

```
## [1] 1028
```

```
ggplot(data=filter(dfAnalise, treatment=='Yes'), aes(x=Age, y=n, fill=tech_company)) +
  geom_bar(stat="identity", position=position_dodge())
```



Podemos verificar com o gráfico apresentado que o número de profissionais da tecnologia que buscam tratamento é muito superior aos demais profissionais. Outra análise possível é o número de profissionais pesquisados de idade média muito elevado.