R Notebook

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

## [1] "popsize = 10,ngeracoes=10,p_Cross=0.1,p_Mutacao=0.1"

##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 16902  1  2   3   4   5
## 2   1  1  0  0  0  5 17182  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  0  0  3 17691  1  2   3   4   5
## 6   1  1  1  1  1  3 17660  1  2   3   4   5
## 7   1  1  1  1  0  3 17704  1  2   3   4   5
## 8   1  0  0  0  0  5 17102  1  2   3   4   5
## 9   1  1  0  0  0  1 17059  1  2   3   4   5
## 10  1  1  0  0  0  5 17182  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  3 17691  1  2   3   4   5
## 5   1  1  1  1  1  3 17660  1  2   3   4   5
## 6   1  1  0  0  0  5 17182  1  2   3   4   5
## 7   1  0  0  0  0  5 17102  1  2   3   4   5
## 8   1  1  0  0  0  1 17059  1  2   3   4   5
## 9   1  1  1  0  0  3 16932  2  5   1   3   4
## 10  1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 2
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  3 17691  1  2   3   4   5
## 5   1  1  1  1  1  3 17660  1  2   3   4   5
## 6   1  1  0  0  0  5 17182  1  2   3   4   5
## 7   1  0  0  0  0  5 17102  1  2   3   4   5
## 8   1  1  0  0  0  1 17059  1  2   3   4   5
## 9   1  1  1  0  0  3 16932  2  5   1   3   4
## 10  1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 3
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
```

```
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  3 17704  1  2   3   4   5
## 4    1  1  1  0  0  3 17691  1  2   3   4   5
## 5    1  1  1  1  1  3 17660  1  2   3   4   5
## 6    1  1  0  0  0  5 17182  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  1  0  0  0  1 17059  1  2   3   4   5
## 9    1  1  1  0  0  3 16932  2  5   1   3   4
## 10   1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 4
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  3 17704  1  2   3   4   5
## 4    1  1  1  0  0  3 17691  1  2   3   4   5
## 5    1  1  1  1  1  3 17660  1  2   3   4   5
## 6    1  1  0  0  0  5 17182  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  1  0  0  0  1 17059  1  2   3   4   5
## 9    1  1  1  0  0  3 16932  2  5   1   3   4
## 10   1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 5
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  3 17704  1  2   3   4   5
## 4    1  1  1  0  0  3 17691  1  2   3   4   5
## 5    1  1  1  1  1  3 17660  1  2   3   4   5
## 6    1  1  0  0  0  5 17182  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  1  0  0  0  1 17059  1  2   3   4   5
## 9    1  1  1  0  0  3 16932  2  5   1   3   4
## 10   1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 6
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  3 17704  1  2   3   4   5
## 4    1  1  1  0  0  3 17691  1  2   3   4   5
## 5    1  1  1  1  1  3 17660  1  2   3   4   5
## 6    1  1  0  0  0  5 17182  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  1  0  0  0  1 17059  1  2   3   4   5
## 9    1  1  1  0  0  3 16932  2  5   1   3   4
## 10   1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 7
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
```
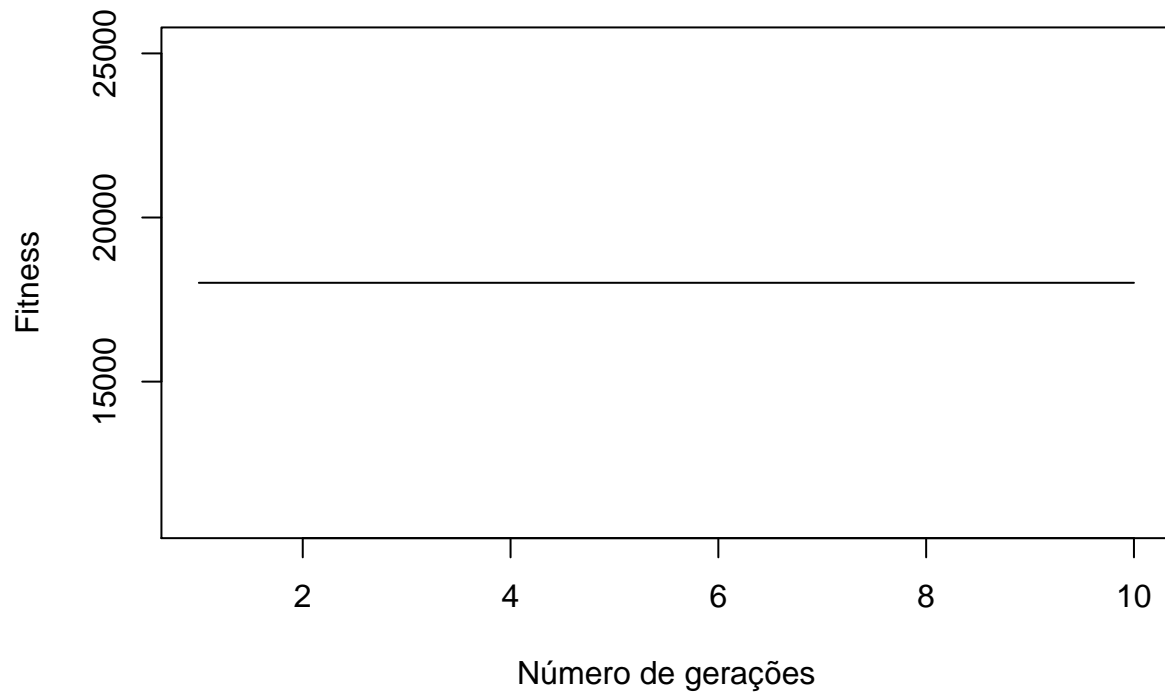
```
## 3    1  1  1  1  0  3 17704  1  2   3   4   5
## 4    1  1  1  0  0  3 17691  1  2   3   4   5
## 5    1  1  1  1  1  3 17660  1  2   3   4   5
## 6    1  1  0  0  0  5 17182  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  1  0  0  0  1 17059  1  2   3   4   5
## 9    1  1  1  0  0  3 16932  2  5   1   3   4
## 10   1  1  0  0  0  4 16902  1  2   3   4   5
## [1] "Geração:"
## [1] 8
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  3 17691  1  2   3   4   5
## 5   1  1  1  1  1  3 17660  1  2   3   4   5
## 6   1  1  0  0  0  5 17182  1  2   3   4   5
## 7   1  0  0  0  0  5 17102  1  2   3   4   5
## 8   1  0  0  0  0  2 17102  1  4   5   2   3
## 9   1  1  0  0  0  1 17059  1  2   3   4   5
## 10  1  1  1  0  0  3 16932  2  5   1   3   4
## [1] "Geração:"
## [1] 9
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  3 17691  1  2   3   4   5
## 5   1  1  1  1  1  3 17660  1  2   3   4   5
## 6   1  1  0  0  0  5 17182  1  2   3   4   5
## 7   1  0  0  0  0  5 17102  1  2   3   4   5
## 8   1  0  0  0  0  2 17102  1  4   5   2   3
## 9   1  1  0  0  0  1 17059  1  2   3   4   5
## 10  1  1  1  0  0  3 16932  2  5   1   3   4
## [1] "Geração:"
## [1] 10
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  3 17691  1  2   3   4   5
## 5   1  1  1  1  1  3 17660  1  2   3   4   5
## 6   1  1  0  0  0  5 17182  1  2   3   4   5
## 7   1  0  0  0  0  5 17102  1  2   3   4   5
## 8   1  0  0  0  0  2 17102  1  4   5   2   3
## 9   1  1  0  0  0  1 17059  1  2   3   4   5
## 10  1  1  1  0  0  4 17040  1  2   5   3   4
```

Fitness em função das gerações


```
## [1] "popsize = 10,ngeracoes=10,p_Cross=0.9,p_Mutacao=0.9"

##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  0  0  0  0  3 17102  1  2   3   4   5
## 2   1  1  1  0  0  2 17890  1  2   3   4   5
## 3   1  1  1  0  0  4 17834  1  2   3   4   5
## 4   1  0  0  0  0  2 17102  1  2   3   4   5
## 5   1  1  1  1  0  5 18073  1  2   3   4   5
## 6   1  1  0  0  0  2 17019  1  2   3   4   5
## 7   1  1  1  1  1  5 18101  1  2   3   4   5
## 8   1  1  0  0  0  1 17059  1  2   3   4   5
## 9   1  1  1  1  0  1 17980  1  2   3   4   5
## 10  1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  0  1 17980  1  2   3   4   5
## 4   1  1  1  1  0  2 17965  1  2   3   4   5
## 5   1  1  0  0  0  5 17931  1  3   5   4   2
## 6   1  1  1  0  0  1 17925  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  0  0  2 17890  1  2   3   4   5
## 9   1  1  1  0  0  4 17834  1  2   3   4   5
## 10  1  1  0  0  0  5 17182  1  2   3   4   5
## [1] "Geração:"
```

```
## [1] 2
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  0  0  5 18009  1  2   3   4   5
## 4   1  1  1  1  1  2 17993  1  2   3   4   5
## 5   1  1  1  1  0  1 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   4   2
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## [1] "Geração:"
## [1] 3
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   4   2   5
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  1  0  2 17965  1  2   3   4   5
## 10  1  1  1  0  0  5 17959  1  5   3   4   2
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   4   2   5
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  1  0  2 17965  1  2   3   4   5
## 10  1  1  1  0  0  5 17959  1  5   3   4   2
## [1] "Geração:"
## [1] 5
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   4   2   5
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  1  0  2 17965  1  2   3   4   5
## 10  1  1  1  0  0  5 17959  1  5   3   4   2
## [1] "Geração:"
## [1] 6
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
```

```
## 1    1   1   0   0   0   4 18550   3   1    4    2    5
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   2    3    4    5
## 6    1   1   1   1   1   2 17993   1   2    3    4    5
## 7    1   1   1   1   0   1 17980   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   1   0   2 17965   1   2    3    4    5
## 10   1   1   1   0   0   5 17959   1   5    3    4    2
## [1] "Geração:"
## [1] 7
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   3   1    4    2    5
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   2    3    4    5
## 6    1   1   1   0   0   5 18009   1   5    3    4    2
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   0   1 17980   1   2    3    4    5
## 9    1   1   1   1   1   4 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 8
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   3   1    4    2    5
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   2    3    4    5
## 6    1   1   1   0   0   5 18009   1   5    3    4    2
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   0   1 17980   1   2    3    4    5
## 9    1   1   1   1   1   4 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 9
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   3   1    4    2    5
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   2    3    4    5
## 6    1   1   1   0   0   5 18009   1   5    3    4    2
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   0   1 17980   1   2    3    4    5
## 9    1   1   1   1   1   4 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 10
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   3   1    4    2    5
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
```
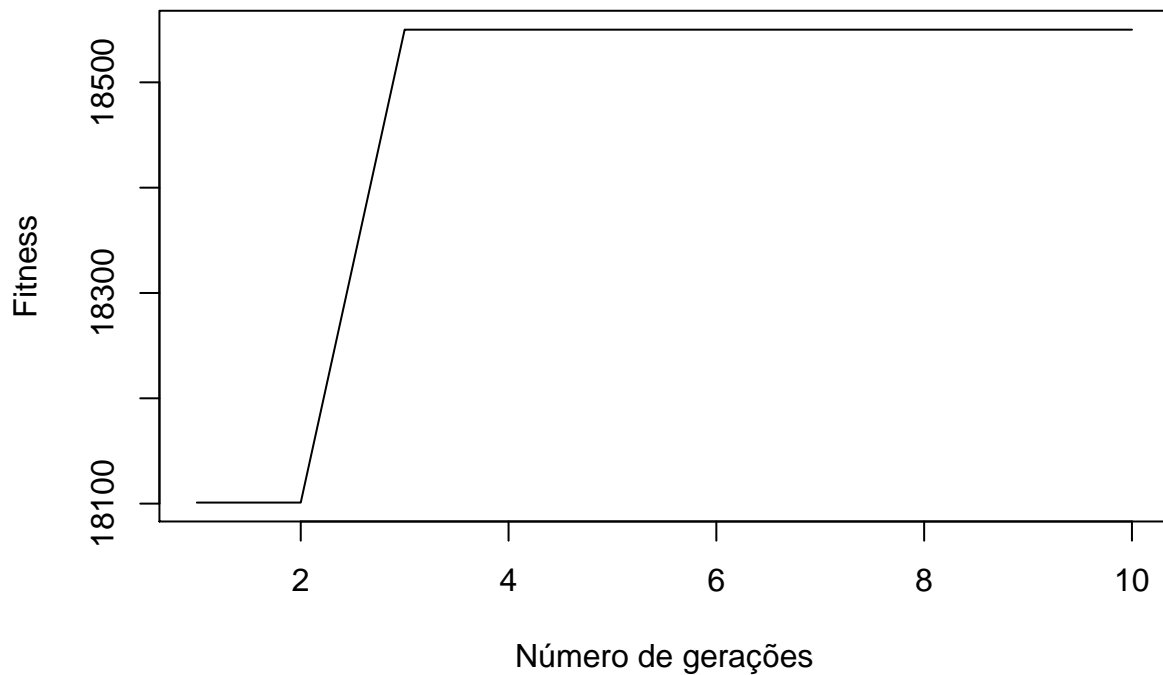
```
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  2   3   4   5
## 6    1  1  1  0  0  5 18009  1  5   3   4   2
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  0  1 17980  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
```

Fitness em função das gerações

Número de gerações

```
## [1] "popsize = 10,ngeracoes=10,p_Cross=0.9,p_Mutacao=0.1"

##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  2 17019  1  2   3   4   5
## 2    1  1  1  0  0  2 17890  1  2   3   4   5
## 3    1  0  0  0  0  1 17102  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  0  0  0  0  5 17102  1  2   3   4   5
## 6    1  1  0  0  0  3 17006  1  2   3   4   5
## 7    1  1  1  1  0  5 18073  1  2   3   4   5
## 8    1  0  0  0  0  3 17102  1  2   3   4   5
## 9    1  1  1  1  0  2 17965  1  2   3   4   5
## 10   1  0  0  0  0  4 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  1  0  2 17965  1  2   3   4   5
```

```
## 3    1  1  1  0  0  2 17890  1  2   3   4   5
## 4    1  0  0  0  0  1 17102  1  2   3   4   5
## 5    1  0  0  0  0  5 17102  1  2   3   4   5
## 6    1  0  0  0  0  3 17102  1  2   3   4   5
## 7    1  0  0  0  0  4 17102  1  2   3   4   5
## 8    1  0  0  0  0  1 17102  1  4   2   3   5
## 9    1  1  0  0  0  5 17091  5  1   3   4   2
## 10   1  1  0  0  0  2 17019  1  2   3   4   5
## [1] "Geração:"
## [1] 2
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  2 17890  1  2   3   4   5
## 6    1  0  0  0  0  1 17102  1  2   3   4   5
## 7    1  0  0  0  0  5 17102  1  2   3   4   5
## 8    1  0  0  0  0  3 17102  1  2   3   4   5
## 9    1  0  0  0  0  4 17102  1  2   3   4   5
## 10   1  0  0  0  0  1 17102  1  4   2   3   5
## [1] "Geração:"
## [1] 3
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  2 17890  1  2   3   4   5
## 6    1  1  1  0  0  4 17834  1  2   3   4   5
## 7    1  1  1  1  0  3 17704  1  2   3   4   5
## 8    1  0  0  0  0  1 17102  1  2   3   4   5
## 9    1  0  0  0  0  5 17102  1  2   3   4   5
## 10   1  0  0  0  0  3 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 4
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  1 17925  1  2   3   4   5
## 6    1  1  1  0  0  2 17890  1  2   3   4   5
## 7    1  1  1  0  0  4 17834  1  2   3   4   5
## 8    1  1  1  1  0  3 17704  1  2   3   4   5
## 9    1  1  1  0  0  3 17691  1  2   3   4   5
## 10   1  0  0  0  0  1 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 5
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
```

```
## 5    1  1  1  0  0  1 17925  1  2   3   4   5
## 6    1  1  1  0  0  2 17890  1  2   3   4   5
## 7    1  1  1  0  0  4 17834  1  2   3   4   5
## 8    1  1  1  1  0  3 17704  1  2   3   4   5
## 9    1  1  1  0  0  3 17691  1  2   3   4   5
## 10   1  0  0  0  0  1 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 6
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  1 17925  1  2   3   4   5
## 6    1  1  1  0  0  2 17890  1  2   3   4   5
## 7    1  1  1  0  0  4 17834  1  2   3   4   5
## 8    1  1  1  1  0  3 17704  1  2   3   4   5
## 9    1  1  1  0  0  3 17691  1  2   3   4   5
## 10   1  0  0  0  0  1 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 7
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  1 17925  1  2   3   4   5
## 6    1  1  1  0  0  2 17890  1  2   3   4   5
## 7    1  1  1  0  0  4 17834  1  2   3   4   5
## 8    1  1  1  1  0  3 17704  1  2   3   4   5
## 9    1  1  1  0  0  3 17691  1  2   3   4   5
## 10   1  0  0  0  0  1 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 8
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  0  5 18073  1  2   3   4   5
## 2   1  1  1  0  0  5 18009  1  2   3   4   5
## 3   1  1  1  1  0  1 17980  1  2   3   4   5
## 4   1  1  1  1  0  2 17965  1  2   3   4   5
## 5   1  1  1  0  0  5 17959  5  3   1   4   2
## 6   1  1  1  0  0  1 17925  1  2   3   4   5
## 7   1  1  1  0  0  2 17890  1  2   3   4   5
## 8   1  1  1  0  0  4 17834  1  2   3   4   5
## 9   1  1  1  1  0  3 17704  1  2   3   4   5
## 10  1  1  1  0  0  3 17691  1  2   3   4   5
## [1] "Geração:"
## [1] 9
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  1  0  1 17980  1  2   3   4   5
## 4    1  1  1  1  0  2 17965  1  2   3   4   5
## 5    1  1  1  0  0  5 17959  5  3   1   4   2
## 6    1  1  1  0  0  1 17925  1  2   3   4   5
```
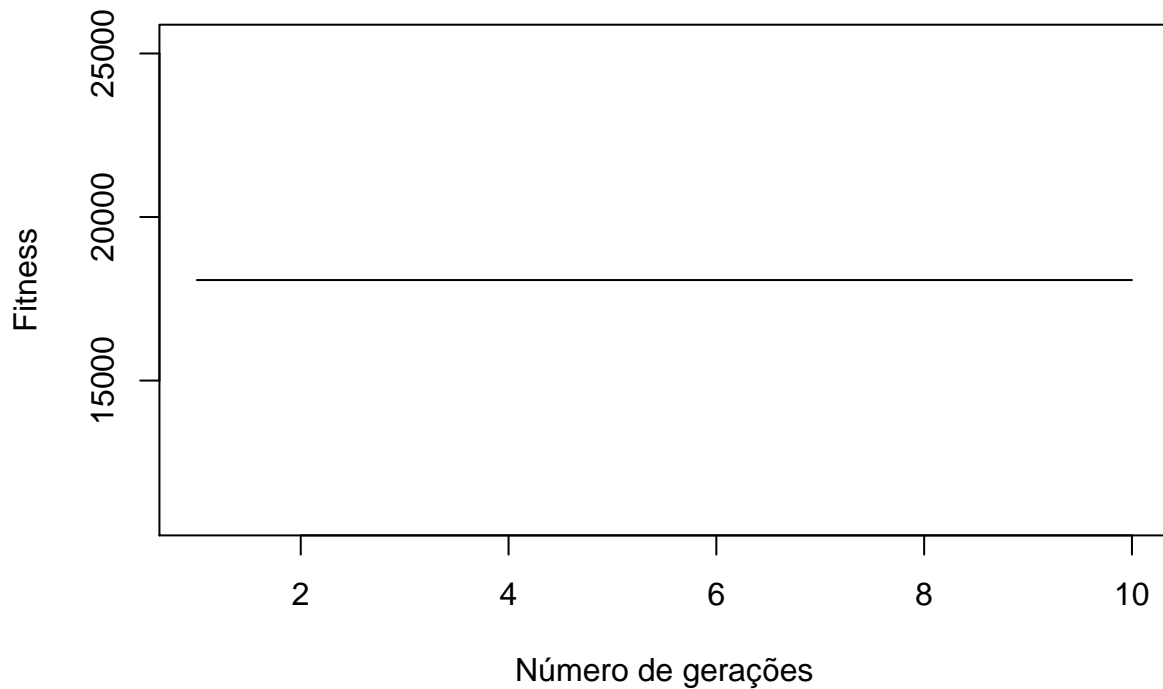
```
## 7    1  1  1  0  0  1 17925  5  3   1   4   2
## 8    1  1  1  1  0  4 17907  1  2   3   4   5
## 9    1  1  1  0  0  2 17890  1  2   3   4   5
## 10   1  1  1  0  0  4 17834  1  2   3   4   5
## [1] "Geração:"
## [1] 10
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  0  5 18073  1  2   3   4   5
## 2    1  1  1  0  0  5 18009  1  2   3   4   5
## 3    1  1  1  0  0  5 18009  5  3   1   4   2
## 4    1  1  1  1  0  1 17980  1  2   3   4   5
## 5    1  1  1  1  0  2 17965  1  2   3   4   5
## 6    1  1  1  0  0  5 17959  5  3   1   4   2
## 7    1  1  1  0  0  1 17925  1  2   3   4   5
## 8    1  1  1  0  0  1 17925  5  3   1   4   2
## 9    1  1  1  1  0  4 17907  1  2   3   4   5
## 10   1  1  1  0  0  2 17890  1  2   3   4   5
```

Fitness em função das gerações


```
## [1] "popsize = 10,ngeracoes=20,p_Cross=0.1,p_Mutacao=0.1"

##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  0  0  0  0  5 17102  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  0  0  0  0  4 17102  1  2   3   4   5
## 4    1  1  0  0  0  3 17006  1  2   3   4   5
## 5    1  1  1  1  1  1 18011  1  2   3   4   5
## 6    1  0  0  0  0  5 17102  1  2   3   4   5
```

```
## 7    1  1  1  1  0  2 17965  1  2   3   4   5
## 8    1  1  1  1  0  5 18073  1  2   3   4   5
## 9    1  0  0  0  0  4 17102  1  2   3   4   5
## 10   1  1  1  0  0  5 18009  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  0  5 18073  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  0  0  5 18009  1  2   3   4   5
## 4   1  1  1  1  0  2 17965  1  2   3   4   5
## 5   1  0  0  0  0  5 17102  1  2   3   4   5
## 6   1  0  0  0  0  4 17102  1  2   3   4   5
## 7   1  0  0  0  0  2 17102  1  3   5   2   4
## 8   1  1  0  0  0  3 17006  1  2   3   4   5
## 9   1  1  0  0  0  1 16908  4  1   3   2   5
## 10  1  1  1  1  0  5 18073  1  2   3   4   5
## [1] "Geração:"
## [1] 2
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  0  2 17965  1  2   3   4   5
## 6   1  1  1  1  0  4 17907  1  2   3   4   5
## 7   1  1  1  0  0  3 17691  1  2   3   4   5
## 8   1  1  0  0  0  5 17182  1  2   3   4   5
## 9   1  0  0  0  0  5 17102  1  2   3   4   5
## 10  1  0  0  0  0  4 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 3
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  0  0  3 17691  1  2   3   4   5
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  0  0  3 17691  1  2   3   4   5
```

```
## 9    1  1  0  0  0  5 17182  1  2   3   4   5
## 10   1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 5
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  2 17965  1  2   3   4   5
## 7    1  1  1  1  0  4 17907  1  2   3   4   5
## 8    1  1  1  0  0  3 17691  1  2   3   4   5
## 9    1  1  0  0  0  5 17182  1  2   3   4   5
## 10   1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 6
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  2 17965  1  2   3   4   5
## 7    1  1  1  1  0  4 17907  1  2   3   4   5
## 8    1  1  1  0  0  3 17691  1  2   3   4   5
## 9    1  1  0  0  0  5 17182  1  2   3   4   5
## 10   1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 7
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  2 17965  1  2   3   4   5
## 7    1  1  1  1  0  4 17907  1  2   3   4   5
## 8    1  1  1  0  0  3 17691  1  2   3   4   5
## 9    1  1  0  0  0  5 17182  1  2   3   4   5
## 10   1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 8
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  2 17965  1  2   3   4   5
## 7    1  1  1  1  0  4 17907  1  2   3   4   5
## 8    1  1  1  0  0  3 17691  1  2   3   4   5
## 9    1  1  0  0  0  5 17182  1  2   3   4   5
## 10   1  0  0  0  0  5 17102  1  2   3   4   5
```

```
## [1] "Geração:"
## [1] 9
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  0  0  3 17691  1  2   3   4   5
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 10
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  0  0  3 17691  1  2   3   4   5
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  5 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 11
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  1  0  3 17704  1  2   3   4   5
## 9   1  1  1  0  0  3 17691  1  2   3   4   5
## 10  1  1  0  0  0  5 17182  1  2   3   4   5
## [1] "Geração:"
## [1] 12
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  1  0  3 17704  1  2   3   4   5
## 9   1  1  1  0  0  3 17691  1  2   3   4   5
## 10  1  1  0  0  0  5 17192  1  4   2   3   5
## [1] "Geração:"
## [1] 13
```

```
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  1  0  3 17704  1  2   3   4   5
## 9   1  1  1  0  0  3 17691  1  2   3   4   5
## 10  1  1  0  0  0  5 17192  1  4   2   3   5
## [1] "Geração:"
## [1] 14
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  2 17965  1  2   3   4   5
## 7   1  1  1  1  0  4 17907  1  2   3   4   5
## 8   1  1  1  1  0  3 17704  1  2   3   4   5
## 9   1  1  1  0  0  3 17691  1  2   3   4   5
## 10  1  1  0  0  0  5 17192  1  4   2   3   5
## [1] "Geração:"
## [1] 15
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  1 17980  1  2   3   4   5
## 7   1  1  1  1  0  2 17965  1  2   3   4   5
## 8   1  1  1  1  0  4 17907  1  2   3   4   5
## 9   1  1  1  0  0  4 17834  1  2   3   4   5
## 10  1  1  1  0  0  1 17777  5  1   3   4   2
## [1] "Geração:"
## [1] 16
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  1  4 17980  1  2   3   4   5
## 6   1  1  1  1  0  1 17980  1  2   3   4   5
## 7   1  1  1  1  0  2 17965  1  2   3   4   5
## 8   1  1  1  1  0  4 17907  1  2   3   4   5
## 9   1  1  1  0  0  4 17834  1  2   3   4   5
## 10  1  1  1  0  0  1 17777  5  1   3   4   2
## [1] "Geração:"
## [1] 17
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
```
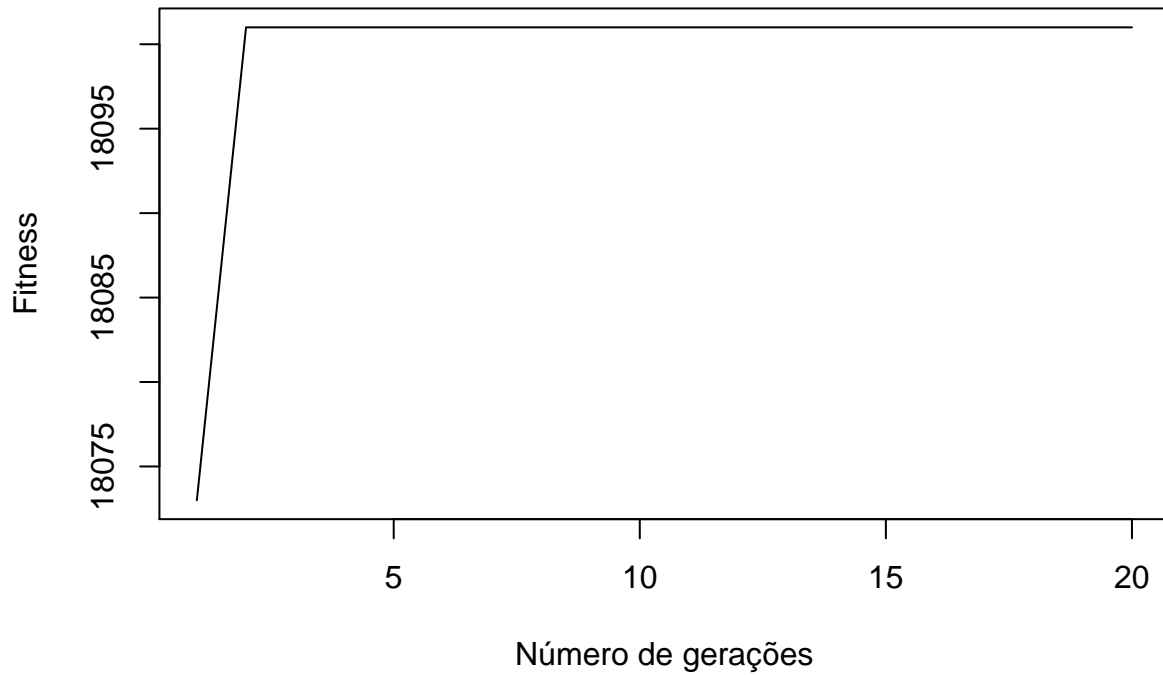
```
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  1 17980  1  2   3   4   5
## 7    1  1  1  1  0  2 17965  1  2   3   4   5
## 8    1  1  1  1  0  4 17907  1  2   3   4   5
## 9    1  1  1  0  0  4 17834  1  2   3   4   5
## 10   1  1  1  0  0  1 17777  5  1   3   4   2
## [1] "Geração:"
## [1] 18
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  2 17993  1  2   3   4   5
## 6    1  1  1  1  1  4 17980  1  2   3   4   5
## 7    1  1  1  1  0  1 17980  1  2   3   4   5
## 8    1  1  1  1  0  2 17965  1  2   3   4   5
## 9    1  1  1  0  0  1 17925  1  2   3   4   5
## 10   1  1  1  0  0  1 17925  5  1   3   4   2
## [1] "Geração:"
## [1] 19
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  2 17993  1  2   3   4   5
## 6    1  1  1  1  1  4 17980  1  2   3   4   5
## 7    1  1  1  1  0  1 17980  1  2   3   4   5
## 8    1  1  1  1  0  2 17965  1  2   3   4   5
## 9    1  1  1  0  0  1 17925  1  2   3   4   5
## 10   1  1  1  0  0  1 17925  5  1   3   4   2
## [1] "Geração:"
## [1] 20
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  0  0  5 18009  1  2   3   4   5
## 5    1  1  1  1  1  2 17993  1  2   3   4   5
## 6    1  1  1  1  1  4 17980  1  2   3   4   5
## 7    1  1  1  1  0  1 17980  1  2   3   4   5
## 8    1  1  1  1  0  2 17965  1  2   3   4   5
## 9    1  1  1  0  0  1 17925  1  2   3   4   5
## 10   1  1  1  0  0  1 17925  5  1   3   4   2
```

Fitness em função das gerações


```
## [1] "popsize = 10,ngeracoes=20,p_Cross=0.1,p_Mutacao=0.9"

##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  4 17980  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  0  0  0  0  2 17102  1  2   3   4   5
## 4   1  1  0  0  0  5 17182  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  1  1  4 17980  1  2   3   4   5
## 7   1  1  0  0  0  4 16902  1  2   3   4   5
## 8   1  1  1  1  0  3 17704  1  2   3   4   5
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  1 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  1 18011  1  2   3   4   5
## 2   1  1  1  1  1  4 17980  1  2   3   4   5
## 3   1  1  1  1  0  3 17704  1  2   3   4   5
## 4   1  1  1  0  0  5 17195  2  1   5   3   4
## 5   1  1  0  0  0  5 17182  1  2   3   4   5
## 6   1  0  0  0  0  2 17102  1  2   3   4   5
## 7   1  0  0  0  0  1 17102  1  2   3   4   5
## 8   1  1  0  0  0  4 16902  1  2   3   4   5
## 9   1  1  0  0  0  1 16867  1  5   4   3   2
## 10  1  1  0  0  0  2 15851  5  3   4   1   2
## [1] "Geração:"
```

```
## [1] 2
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  1 17925  2  1   5   3   4
## 6   1  1  1  1  0  3 17704  1  2   3   4   5
## 7   1  1  1  0  0  5 17242  4  1   5   2   3
## 8   1  1  1  0  0  5 17195  2  1   5   3   4
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  2 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 3
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  1 17925  2  1   5   3   4
## 6   1  1  1  1  0  3 17704  1  2   3   4   5
## 7   1  1  1  0  0  5 17242  4  1   5   2   3
## 8   1  1  1  0  0  5 17195  2  1   5   3   4
## 9   1  1  0  0  0  5 17182  1  2   3   4   5
## 10  1  0  0  0  0  2 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  1 17925  2  1   5   3   4
## 6   1  1  1  0  0  1 17925  2  1   3   4   5
## 7   1  1  1  1  0  3 17704  1  2   3   4   5
## 8   1  1  1  0  0  3 17691  3  1   2   4   5
## 9   1  1  1  0  0  3 17691  1  3   2   5   4
## 10  1  1  1  0  0  5 17242  4  1   5   2   3
## [1] "Geração:"
## [1] 5
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  1 17925  2  1   5   3   4
## 6   1  1  1  0  0  1 17925  2  1   3   4   5
## 7   1  1  1  0  0  4 17834  2  1   3   4   5
## 8   1  1  1  0  0  4 17729  5  3   1   2   4
## 9   1  1  1  1  0  3 17704  1  2   3   4   5
## 10  1  1  1  0  0  3 17691  3  1   2   4   5
## [1] "Geração:"
## [1] 6
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
```

```
## 1    1   1   1   1   1   5 18101   1   2   3   4    5
## 2    1   1   1   1   1   1 18011   1   2   3   4    5
## 3    1   1   1   1   1   4 17980   1   2   3   4    5
## 4    1   1   1   1   0   1 17980   1   2   3   4    5
## 5    1   1   1   0   0   5 17979   1   3   4   2    5
## 6    1   1   0   0   0   5 17931   1   3   5   2    4
## 7    1   1   1   0   0   1 17925   2   1   5   3    4
## 8    1   1   1   0   0   1 17925   2   1   3   4    5
## 9    1   1   1   0   0   4 17834   2   1   3   4    5
## 10   1   1   0   0   0   3 17812   3   1   4   5    2
## [1] "Geração:"
## [1] 7
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   1   1   1   5 18101   1   2   3   4    5
## 2    1   1   1   1   1   1 18011   1   2   3   4    5
## 3    1   1   1   1   1   4 17980   1   2   3   4    5
## 4    1   1   1   1   0   1 17980   1   2   3   4    5
## 5    1   1   1   0   0   5 17979   1   3   4   2    5
## 6    1   1   0   0   0   5 17931   1   3   5   2    4
## 7    1   1   1   0   0   1 17925   2   1   5   3    4
## 8    1   1   1   0   0   1 17925   2   1   3   4    5
## 9    1   1   1   0   0   4 17834   2   1   3   4    5
## 10   1   1   0   0   0   3 17812   3   1   4   5    2
## [1] "Geração:"
## [1] 8
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   1   1   1   5 18101   1   2   3   4    5
## 2    1   1   1   1   1   1 18011   1   2   3   4    5
## 3    1   1   1   1   1   4 17980   1   2   3   4    5
## 4    1   1   1   1   0   1 17980   1   2   3   4    5
## 5    1   1   1   0   0   5 17979   1   3   4   2    5
## 6    1   1   0   0   0   5 17931   1   3   5   2    4
## 7    1   1   1   0   0   1 17925   2   1   5   3    4
## 8    1   1   1   0   0   1 17925   2   1   3   4    5
## 9    1   1   1   0   0   4 17834   2   1   3   4    5
## 10   1   1   0   0   0   3 17812   3   1   4   5    2
## [1] "Geração:"
## [1] 9
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   1   1   1   5 18101   1   2   3   4    5
## 2    1   1   1   1   1   1 18011   1   2   3   4    5
## 3    1   1   1   1   1   4 17980   1   2   3   4    5
## 4    1   1   1   1   0   1 17980   1   2   3   4    5
## 5    1   1   1   0   0   5 17979   1   3   4   2    5
## 6    1   1   1   0   0   5 17959   1   5   3   4    2
## 7    1   1   0   0   0   5 17931   1   3   5   2    4
## 8    1   1   1   0   0   1 17925   2   1   5   3    4
## 9    1   1   1   0   0   1 17925   2   1   3   4    5
## 10   1   1   1   0   0   4 17834   2   1   3   4    5
## [1] "Geração:"
## [1] 10
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   1   1   1   5 18101   1   2   3   4    5
## 2    1   1   1   1   1   1 18011   1   2   3   4    5
```

```
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  5 17979  1  3   4   2   5
## 6   1  1  1  0  0  5 17959  1  5   3   4   2
## 7   1  1  0  0  0  5 17931  1  3   5   2   4
## 8   1  1  1  0  0  1 17925  2  1   5   3   4
## 9   1  1  1  0  0  1 17925  2  1   3   4   5
## 10  1  1  1  0  0  4 17834  2  1   3   4   5
## [1] "Geração:"
## [1] 11
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  1  5 18101  1  2   3   4   5
## 2   1  1  1  1  1  1 18011  1  2   3   4   5
## 3   1  1  1  1  1  4 17980  1  2   3   4   5
## 4   1  1  1  1  0  1 17980  1  2   3   4   5
## 5   1  1  1  0  0  5 17979  1  3   4   2   5
## 6   1  1  1  0  0  5 17959  1  5   3   4   2
## 7   1  1  0  0  0  5 17931  1  3   5   2   4
## 8   1  1  1  0  0  1 17925  2  1   5   3   4
## 9   1  1  1  0  0  1 17925  2  1   3   4   5
## 10  1  1  0  0  0  1 17921  1  3   4   5   2
## [1] "Geração:"
## [1] 12
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   5   4   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  1  1  4 17980  1  2   3   4   5
## 5   1  1  1  1  0  1 17980  1  2   3   4   5
## 6   1  1  1  0  0  5 17979  1  3   4   2   5
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   2   4
## 9   1  1  1  0  0  1 17925  2  1   5   3   4
## 10  1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 13
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   5   4   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  1  1  4 17980  1  2   3   4   5
## 5   1  1  1  1  0  1 17980  1  2   3   4   5
## 6   1  1  1  0  0  5 17979  1  3   4   2   5
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   2   4
## 9   1  1  1  0  0  1 17925  2  1   5   3   4
## 10  1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 14
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   5   4   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  1  1  4 17980  1  2   3   4   5
```

```
## 5    1  1  1  1  0  1 17980  1  2   3   4   5
## 6    1  1  1  0  0  5 17979  1  3   4   2   5
## 7    1  1  1  0  0  5 17959  1  5   3   4   2
## 8    1  1  0  0  0  5 17931  1  3   5   2   4
## 9    1  1  1  0  0  1 17925  2  1   5   3   4
## 10   1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 15
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   5   4   2
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  1  1  4 17980  1  2   3   4   5
## 5    1  1  1  1  0  1 17980  1  2   3   4   5
## 6    1  1  1  0  0  5 17979  1  3   4   2   5
## 7    1  1  1  0  0  5 17959  1  5   3   4   2
## 8    1  1  0  0  0  5 17931  1  3   5   2   4
## 9    1  1  1  0  0  1 17925  2  1   5   3   4
## 10   1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 16
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   5   4   2
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  1  1  4 17980  1  2   3   4   5
## 5    1  1  1  1  0  1 17980  1  2   3   4   5
## 6    1  1  1  0  0  5 17979  1  3   4   2   5
## 7    1  1  1  0  0  5 17959  1  5   3   4   2
## 8    1  1  0  0  0  5 17931  1  3   5   2   4
## 9    1  1  1  0  0  1 17925  2  1   5   3   4
## 10   1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 17
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   5   4   2
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  1  1  4 17980  1  2   3   4   5
## 5    1  1  1  1  0  1 17980  1  2   3   4   5
## 6    1  1  1  0  0  5 17979  1  3   4   2   5
## 7    1  1  1  0  0  5 17959  1  5   3   4   2
## 8    1  1  0  0  0  5 17931  1  3   5   2   4
## 9    1  1  1  0  0  1 17925  2  1   5   3   4
## 10   1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 18
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   5   4   2
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  1  1  4 17980  1  2   3   4   5
## 5    1  1  1  1  0  1 17980  1  2   3   4   5
## 6    1  1  1  0  0  5 17979  1  3   4   2   5
```

```
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   2   4
## 9   1  1  1  0  0  1 17925  2  1   5   3   4
## 10  1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 19
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   5   4   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  1  1  4 17980  1  2   3   4   5
## 5   1  1  1  1  0  1 17980  1  2   3   4   5
## 6   1  1  1  0  0  5 17979  1  3   4   2   5
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   2   4
## 9   1  1  1  0  0  1 17925  2  1   5   3   4
## 10  1  1  1  0  0  1 17925  2  1   3   4   5
## [1] "Geração:"
## [1] 20
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   5   4   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  1  1 18011  1  2   3   4   5
## 4   1  1  1  1  1  4 17980  1  2   3   4   5
## 5   1  1  1  1  0  1 17980  1  2   3   4   5
## 6   1  1  1  0  0  5 17979  1  3   4   2   5
## 7   1  1  1  0  0  5 17959  1  5   3   4   2
## 8   1  1  0  0  0  5 17931  1  3   5   2   4
## 9   1  1  1  0  0  1 17925  2  1   5   3   4
## 10  1  1  1  0  0  1 17925  2  1   3   4   5
```

Fitness em função das gerações


```
## [1] "popsize = 10,ngeracoes=20,p_Cross=0.9,p_Mutacao=0.9"

##      V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  1 18011  1  2   3   4   5
## 2    1  1  1  1  1  4 17980  1  2   3   4   5
## 3    1  1  1  1  1  2 17993  1  2   3   4   5
## 4    1  1  1  1  1  4 17980  1  2   3   4   5
## 5    1  1  0  0  0  5 17182  1  2   3   4   5
## 6    1  1  1  1  1  5 18101  1  2   3   4   5
## 7    1  0  0  0  0  1 17102  1  2   3   4   5
## 8    1  1  1  1  0  5 18073  1  2   3   4   5
## 9    1  0  0  0  0  2 17102  1  2   3   4   5
## 10   1  1  1  1  0  1 17980  1  2   3   4   5
## [1] "Geração:"
## [1] 1
##      V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  1  1  1  5 18101  1  2   3   4   5
## 2    1  1  1  1  0  5 18073  1  2   3   4   5
## 3    1  1  1  1  1  1 18011  1  2   3   4   5
## 4    1  1  1  1  1  2 17993  1  2   3   4   5
## 5    1  1  1  1  1  4 17980  1  2   3   4   5
## 6    1  1  1  1  0  1 17980  1  2   3   4   5
## 7    1  1  1  0  0  1 17925  2  1   3   5   4
## 8    1  1  1  1  0  4 17907  1  2   3   4   5
## 9    1  1  0  0  0  3 17812  3  1   5   4   2
## 10   1  1  0  0  0  5 17182  1  2   3   4   5
## [1] "Geração:"
```

```
## [1] 2
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  1  1  2 17993  1  2   3   4   5
## 6   1  1  1  1  1  4 17980  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  0  0  5 17959  1  5   3   2   4
## 9   1  1  1  0  0  1 17925  2  1   3   5   4
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## [1] "Geração:"
## [1] 3
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  5   3   2   4
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  1  4 17980  1  2   3   4   5
## 8   1  1  1  1  0  1 17980  1  2   3   4   5
## 9   1  1  1  0  0  5 17959  1  5   3   2   4
## 10  1  1  1  0  0  1 17925  2  1   3   5   4
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  5   3   2   4
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  1  4 17980  1  2   3   4   5
## 8   1  1  1  1  0  1 17980  1  2   3   4   5
## 9   1  1  1  0  0  5 17959  1  5   3   2   4
## 10  1  1  1  0  0  1 17925  2  1   3   5   4
## [1] "Geração:"
## [1] 5
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  5   3   2   4
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  1  4 17980  1  2   3   4   5
## 8   1  1  1  1  0  1 17980  1  2   3   4   5
## 9   1  1  1  0  0  5 17959  1  5   3   2   4
## 10  1  1  1  0  0  1 17925  2  1   3   5   4
## [1] "Geração:"
## [1] 6
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
```
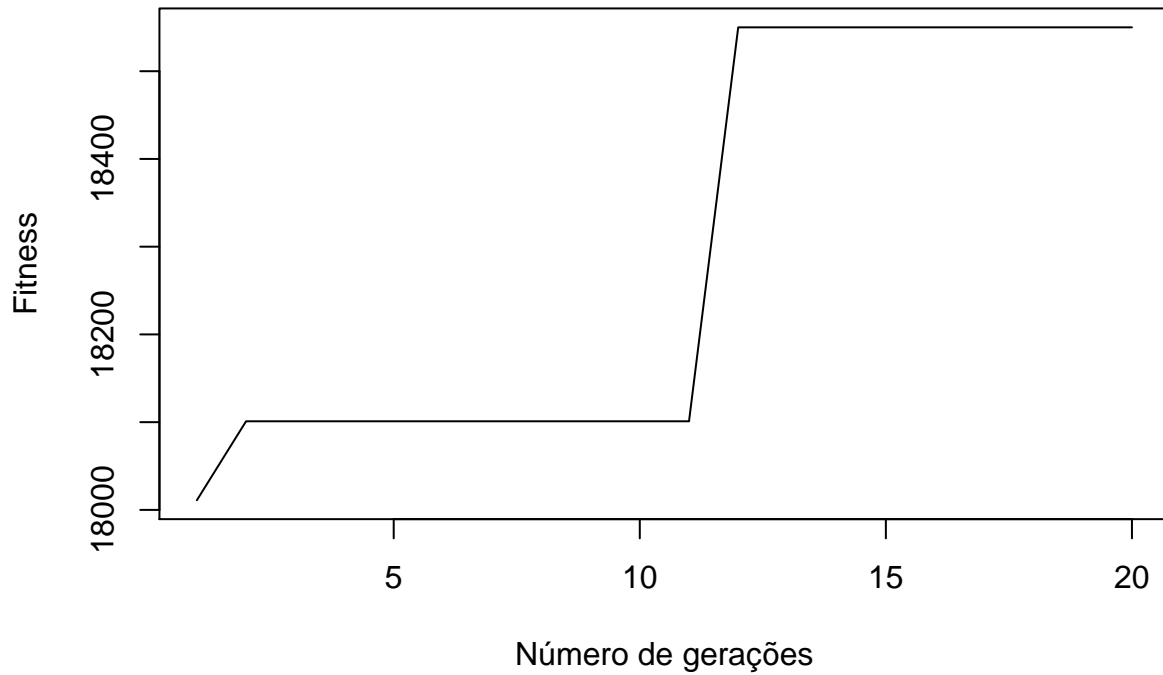
```
## 1    1   1   0   0   0   4 18550   1   3    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   5    3    2    4
## 6    1   1   1   0   0   5 18009   2   1    3    5    4
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   1   0   1 17980   1   2    3    4    5
## 10   1   1   1   0   0   5 17959   1   5    3    2    4
## [1] "Geração:"
## [1] 7
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   1   3    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   5    3    2    4
## 6    1   1   1   0   0   5 18009   2   1    3    5    4
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   1   0   1 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 8
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   1   3    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   5    3    2    4
## 6    1   1   1   0   0   5 18009   2   1    3    5    4
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   1   0   1 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 9
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   1   3    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   5    3    2    4
## 6    1   1   1   0   0   5 18009   2   1    3    5    4
## 7    1   1   1   1   1   2 17993   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   1   0   1 17980   1   2    3    4    5
## 10   1   1   1   1   0   2 17965   1   2    3    4    5
## [1] "Geração:"
## [1] 10
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   1   3    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
```

```
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## [1] "Geração:"
## [1] 11
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## [1] "Geração:"
## [1] 12
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## [1] "Geração:"
## [1] 13
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## [1] "Geração:"
## [1] 14
##      V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
```

```
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  0  0  5 17979  3  4   1   5   2
## [1] "Geração:"
## [1] 15
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  0  0  5 17979  3  4   1   5   2
## [1] "Geração:"
## [1] 16
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  0  0  5 17979  3  4   1   5   2
## [1] "Geração:"
## [1] 17
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  1  4 17980  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  0  0  5 17979  3  4   1   5   2
## [1] "Geração:"
## [1] 18
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
```

```
## 7    1  1  1  0  0  5 18009  3  4   1   5   2
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  1 17980  1  2   3   4   5
## [1] "Geração:"
## [1] 19
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  0  0  5 18009  3  4   1   5   2
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  1 17980  1  2   3   4   5
## [1] "Geração:"
## [1] 20
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  5   3   2   4
## 6    1  1  1  0  0  5 18009  2  1   3   5   4
## 7    1  1  1  0  0  5 18009  3  4   1   5   2
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  1 17980  1  2   3   4   5
```

Fitness em função das gerações


```
## [1] "popsize = 50,ngeracoes=20,p_Cross=0.9,p_Mutacao=0.9"

##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  1  1  0  2 17965  1  2   3   4   5
## 2   1  1  1  1  1  3 17660  1  2   3   4   5
## 3   1  1  1  1  0  1 17980  1  2   3   4   5
## 4   1  0  0  0  0  5 17102  1  2   3   4   5
## 5   1  1  1  0  0  3 17691  1  2   3   4   5
## 6   1  1  1  0  0  1 17925  1  2   3   4   5
## 7   1  1  1  0  0  1 17925  1  2   3   4   5
## 8   1  1  0  0  0  5 17182  1  2   3   4   5
## 9   1  1  1  1  0  5 18073  1  2   3   4   5
## 10  1  0  0  0  0  3 17102  1  2   3   4   5
## 11  1  1  1  0  0  3 17691  1  2   3   4   5
## 12  1  1  1  0  0  1 17925  1  2   3   4   5
## 13  1  1  1  1  0  5 18073  1  2   3   4   5
## 14  1  1  0  0  0  4 16902  1  2   3   4   5
## 15  1  1  1  1  1  1 18011  1  2   3   4   5
## 16  1  1  1  0  0  2 17890  1  2   3   4   5
## 17  1  1  1  0  0  3 17691  1  2   3   4   5
## 18  1  1  1  1  1  1 18011  1  2   3   4   5
## 19  1  1  1  1  1  2 17993  1  2   3   4   5
## 20  1  1  1  0  0  1 17925  1  2   3   4   5
## 21  1  1  1  1  1  4 17980  1  2   3   4   5
## 22  1  1  1  0  0  4 17834  1  2   3   4   5
## 23  1  1  1  1  1  4 17980  1  2   3   4   5
## 24  1  1  1  1  1  4 17980  1  2   3   4   5
```

```
## 25 1 1 1 0 0 5 18009 1 2 3 4 5
## 26 1 1 1 1 0 2 17965 1 2 3 4 5
## 27 1 1 0 0 0 1 17059 1 2 3 4 5
## 28 1 1 1 0 0 3 17691 1 2 3 4 5
## 29 1 0 0 0 0 4 17102 1 2 3 4 5
## 30 1 0 0 0 0 2 17102 1 2 3 4 5
## 31 1 1 0 0 0 5 17182 1 2 3 4 5
## 32 1 1 1 1 0 5 18073 1 2 3 4 5
## 33 1 1 0 0 0 4 16902 1 2 3 4 5
## 34 1 0 0 0 0 3 17102 1 2 3 4 5
## 35 1 1 1 1 1 2 17993 1 2 3 4 5
## 36 1 1 0 0 0 3 17006 1 2 3 4 5
## 37 1 1 1 1 1 4 17980 1 2 3 4 5
## 38 1 1 1 0 0 5 18009 1 2 3 4 5
## 39 1 1 0 0 0 2 17019 1 2 3 4 5
## 40 1 0 0 0 0 2 17102 1 2 3 4 5
## 41 1 1 1 1 0 5 18073 1 2 3 4 5
## 42 1 1 1 1 1 4 17980 1 2 3 4 5
## 43 1 1 1 0 0 1 17925 1 2 3 4 5
## 44 1 1 1 1 1 5 18101 1 2 3 4 5
## 45 1 1 1 1 1 3 17660 1 2 3 4 5
## 46 1 1 1 1 0 4 17907 1 2 3 4 5
## 47 1 1 1 0 0 3 17691 1 2 3 4 5
## 48 1 1 1 1 0 3 17704 1 2 3 4 5
## 49 1 1 0 0 0 3 17006 1 2 3 4 5
## 50 1 1 1 0 0 4 17834 1 2 3 4 5
## [1] "Geração:"
## [1] 1
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1  1 1 0 0 0 4 18550 1 3 4 5 2
## 2  1 1 1 1 1 5 18101 1 2 3 4 5
## 3  1 1 1 1 0 5 18073 1 2 3 4 5
## 4  1 1 1 1 1 1 18011 1 2 3 4 5
## 5  1 1 1 0 0 5 18009 1 2 3 4 5
## 6  1 1 1 1 1 2 17993 1 2 3 4 5
## 7  1 1 1 1 0 1 17980 1 2 3 4 5
## 8  1 1 1 1 1 4 17980 1 2 3 4 5
## 9  1 1 1 0 0 5 17979 3 1 4 5 2
## 10 1 1 1 1 0 2 17965 1 2 3 4 5
## 11 1 1 0 0 0 5 17931 3 1 2 5 4
## 12 1 1 1 0 0 1 17925 1 2 3 4 5
## 13 1 1 1 0 0 1 17925 1 3 2 4 5
## 14 1 1 1 1 0 4 17907 1 2 3 4 5
## 15 1 1 1 0 0 2 17890 1 2 3 4 5
## 16 1 1 1 0 0 4 17834 1 2 3 4 5
## 17 1 1 1 1 0 3 17704 1 2 3 4 5
## 18 1 1 1 0 0 3 17703 3 1 4 5 2
## 19 1 1 1 0 0 3 17691 1 2 3 4 5
## 20 1 1 1 1 1 3 17660 1 2 3 4 5
## 21 1 1 0 0 0 4 17551 2 3 4 1 5
## 22 1 1 1 0 0 1 17426 4 2 3 1 5
## 23 1 1 1 0 0 5 17308 4 1 2 5 3
## 24 1 1 1 0 0 5 17204 2 3 5 4 1
## 25 1 1 1 0 0 5 17204 2 5 3 4 1
```
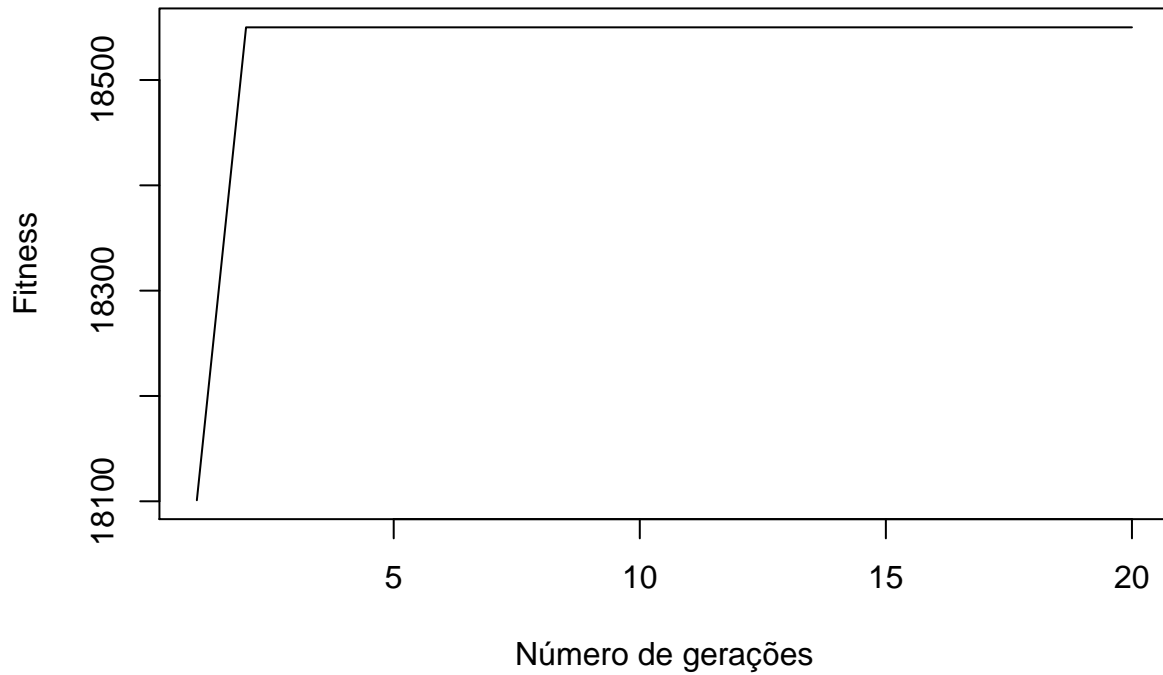
```
## 26  1  1  1  0  0  5 17195  5  2   1   3   4
## 27  1  1  0  0  0  5 17182  1  2   3   4   5
## 28  1  0  0  0  0  5 17102  1  2   3   4   5
## 29  1  0  0  0  0  3 17102  1  2   3   4   5
## 30  1  0  0  0  0  4 17102  1  2   3   4   5
## 31  1  0  0  0  0  2 17102  1  2   3   4   5
## 32  1  0  0  0  0  1 17102  1  2   3   4   5
## 33  1  0  0  0  0  3 17102  1  3   4   5   2
## 34  1  0  0  0  0  2 17102  1  3   2   4   5
## 35  1  0  0  0  0  2 17102  1  4   2   3   5
## 36  1  1  0  0  0  1 17059  1  2   3   4   5
## 37  1  1  0  0  0  1 17059  2  1   3   5   4
## 38  1  1  0  0  0  2 17019  1  2   3   4   5
## 39  1  1  0  0  0  3 17006  1  2   3   4   5
## 40  1  1  0  0  0  2 16941  4  1   5   3   2
## 41  1  1  0  0  0  2 16941  1  4   5   3   2
## 42  1  1  0  0  0  4 16902  1  2   3   4   5
## 43  1  1  0  0  0  3 16839  1  5   3   4   2
## 44  1  1  0  0  0  4 16755  5  1   3   4   2
## 45  1  1  1  0  0  5 16705  2  4   5   3   1
## 46  1  1  1  0  0  4 16478  5  3   4   1   2
## 47  1  1  0  0  0  3 16454  2  3   5   1   4
## 48  1  1  0  0  0  3 16438  4  2   5   3   1
## 49  1  1  0  0  0  4 15948  4  3   2   1   5
## 50  1  1  0  0  0  4 15948  3  4   5   2   1
## [1] "Geração:"
## [1] 2
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  3  1   4   5   2
## 7   1  1  1  0  0  5 18009  4  2   3   1   5
## 8   1  1  1  0  0  5 18009  5  2   1   3   4
## 9   1  1  1  1  1  2 17993  1  2   3   4   5
## 10  1  1  1  1  0  1 17980  1  2   3   4   5
## 11  1  1  1  1  1  4 17980  1  2   3   4   5
## 12  1  1  1  0  0  5 17979  3  1   4   5   2
## 13  1  1  1  1  0  2 17965  1  2   3   4   5
## 14  1  1  0  0  0  5 17931  3  1   2   5   4
## 15  1  1  0  0  0  5 17931  3  1   4   2   5
## 16  1  1  0  0  0  5 17931  3  1   5   2   4
## 17  1  1  1  0  0  1 17925  1  2   3   4   5
## 18  1  1  1  0  0  1 17925  1  3   2   4   5
## 19  1  1  1  0  0  1 17925  4  1   2   5   3
## 20  1  1  1  0  0  1 17925  2  3   5   4   1
## 21  1  1  1  0  0  1 17925  2  4   5   3   1
## 22  1  1  0  0  0  1 17921  3  1   2   4   5
## 23  1  1  1  1  0  4 17907  1  2   3   4   5
## 24  1  1  1  0  0  2 17890  1  2   3   4   5
## 25  1  1  1  0  0  4 17834  1  2   3   4   5
## 26  1  1  1  0  0  4 17834  2  5   3   4   1
```

```
## 27 1 1 1 0 0 4 17834 5 3 4 1 2
## 28 1 1 0 0 0 3 17812 3 1 5 4 2
## 29 1 1 0 0 0 3 17812 1 3 4 5 2
## 30 1 1 1 1 0 3 17704 1 2 3 4 5
## 31 1 1 1 0 0 3 17703 3 1 4 5 2
## 32 1 1 1 0 0 3 17691 1 2 3 4 5
## 33 1 1 1 0 0 3 17691 1 3 2 4 5
## 34 1 1 1 0 0 3 17691 3 1 4 5 2
## 35 1 1 1 1 1 3 17660 1 2 3 4 5
## 36 1 1 0 0 0 4 17551 2 3 4 1 5
## 37 1 1 0 0 0 4 17551 3 2 4 5 1
## 38 1 1 1 0 0 5 17460 3 4 2 5 1
## 39 1 1 1 0 0 1 17426 4 2 3 1 5
## 40 1 1 1 0 0 5 17308 4 1 2 5 3
## 41 1 1 1 0 0 5 17204 2 3 5 4 1
## 42 1 1 1 0 0 5 17204 2 5 3 4 1
## 43 1 1 1 0 0 5 17204 2 5 3 1 4
## 44 1 1 1 0 0 5 17195 5 2 1 3 4
## 45 1 1 0 0 0 5 17182 1 2 3 4 5
## 46 1 1 0 0 0 5 17182 4 1 5 3 2
## 47 1 1 1 0 0 4 17137 2 4 1 5 3
## 48 1 0 0 0 0 5 17102 1 2 3 4 5
## 49 1 0 0 0 0 3 17102 1 2 3 4 5
## 50 1 0 0 0 0 4 17102 1 2 3 4 5
## [1] "Geração:"
## [1] 3
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1  1 1 0 0 0 4 18550 1 3 4 5 2
## 2  1 1 1 1 1 5 18101 1 2 3 4 5
## 3  1 1 1 1 0 5 18073 1 2 3 4 5
## 4  1 1 1 1 1 1 18011 1 2 3 4 5
## 5  1 1 1 0 0 5 18009 1 2 3 4 5
## 6  1 1 1 0 0 5 18009 3 1 4 5 2
## 7  1 1 1 0 0 5 18009 4 2 3 1 5
## 8  1 1 1 0 0 5 18009 5 2 1 3 4
## 9  1 1 1 0 0 5 18009 4 1 2 5 3
## 10 1 1 1 0 0 5 18009 2 5 3 4 1
## 11 1 1 1 1 1 2 17993 1 2 3 4 5
## 12 1 1 1 1 0 1 17980 1 2 3 4 5
## 13 1 1 1 1 1 4 17980 1 2 3 4 5
## 14 1 1 1 0 0 5 17979 3 1 4 5 2
## 15 1 1 1 1 0 2 17965 1 2 3 4 5
## 16 1 1 0 0 0 5 17931 3 1 2 5 4
## 17 1 1 0 0 0 5 17931 3 1 4 2 5
## 18 1 1 0 0 0 5 17931 3 1 5 2 4
## 19 1 1 0 0 0 5 17931 3 1 4 5 2
## 20 1 1 1 0 0 1 17925 1 2 3 4 5
## 21 1 1 1 0 0 1 17925 1 3 2 4 5
## 22 1 1 1 0 0 1 17925 4 1 2 5 3
## 23 1 1 1 0 0 1 17925 2 3 5 4 1
## 24 1 1 1 0 0 1 17925 2 4 5 3 1
## 25 1 1 1 0 0 1 17925 5 3 4 1 2
## 26 1 1 1 0 0 1 17925 2 4 1 5 3
## 27 1 1 0 0 0 1 17921 3 1 2 4 5
```

```
## 28  1  1  1  1  0  4 17907  1  2  3  4  5
## 29  1  1  1  0  0  2 17890  1  2  3  4  5
## 30  1  1  1  0  0  2 17890  2  5  3  1  4
## 31  1  1  1  0  0  2 17890  1  2  3  5  4
## 32  1  1  1  0  0  4 17834  1  2  3  4  5
## 33  1  1  1  0  0  4 17834  2  5  3  4  1
## 34  1  1  1  0  0  4 17834  5  3  4  1  2
## 35  1  1  1  0  0  4 17834  5  2  1  3  4
## 36  1  1  1  0  0  4 17834  3  1  4  5  2
## 37  1  1  0  0  0  3 17812  3  1  5  4  2
## 38  1  1  0  0  0  3 17812  1  3  4  5  2
## 39  1  1  1  1  0  3 17704  1  2  3  4  5
## 40  1  1  1  0  0  3 17703  3  1  4  5  2
## 41  1  1  1  0  0  3 17703  1  3  4  5  2
## 42  1  1  1  0  0  3 17703  4  1  3  5  2
## 43  1  1  1  0  0  3 17691  1  2  3  4  5
## 44  1  1  1  0  0  3 17691  1  3  2  4  5
## 45  1  1  1  0  0  3 17691  3  1  4  5  2
## 46  1  1  1  0  0  3 17691  3  4  2  5  1
## 47  1  1  1  0  0  3 17691  5  2  1  3  4
## 48  1  1  1  1  1  3 17660  1  2  3  4  5
## 49  1  1  0  0  0  4 17551  2  3  4  1  5
## 50  1  1  0  0  0  4 17551  3  2  4  5  1
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  3  1   4   5   2
## 7   1  1  1  0  0  5 18009  4  2   3   1   5
## 8   1  1  1  0  0  5 18009  5  2   1   3   4
## 9   1  1  1  0  0  5 18009  4  1   2   5   3
## 10  1  1  1  0  0  5 18009  2  5   3   4   1
## 11  1  1  1  0  0  5 18009  2  5   3   1   4
## 12  1  1  1  0  0  5 18009  4  1   3   5   2
## 13  1  1  1  1  1  2 17993  1  2   3   4   5
## 14  1  1  1  1  0  1 17980  1  2   3   4   5
## 15  1  1  1  1  1  4 17980  1  2   3   4   5
## 16  1  1  1  0  0  5 17979  3  1   4   5   2
## 17  1  1  1  1  0  2 17965  1  2   3   4   5
## 18  1  1  0  0  0  5 17931  3  1   2   5   4
## 19  1  1  0  0  0  5 17931  3  1   4   2   5
## 20  1  1  0  0  0  5 17931  3  1   5   2   4
## 21  1  1  0  0  0  5 17931  3  1   4   5   2
## 22  1  1  0  0  0  5 17931  1  3   2   5   4
## 23  1  1  1  0  0  1 17925  1  2   3   4   5
## 24  1  1  1  0  0  1 17925  1  3   2   4   5
## 25  1  1  1  0  0  1 17925  4  1   2   5   3
## 26  1  1  1  0  0  1 17925  2  3   5   4   1
## 27  1  1  1  0  0  1 17925  2  4   5   3   1
## 28  1  1  1  0  0  1 17925  5  3   4   1   2
```

```
## 29  1  1  1  0  0  1 17925  2  4   1   5   3
## 30  1  1  1  0  0  1 17925  3  1   4   5   2
## 31  1  1  1  0  0  1 17925  2  5   3   4   1
## 32  1  1  1  0  0  1 17925  5  2   1   3   4
## 33  1  1  0  0  0  1 17921  3  1   2   4   5
## 34  1  1  1  1  0  4 17907  1  2   3   4   5
## 35  1  1  1  0  0  2 17890  1  2   3   4   5
## 36  1  1  1  0  0  2 17890  2  5   3   1   4
## 37  1  1  1  0  0  2 17890  1  2   3   5   4
## 38  1  1  1  0  0  2 17890  3  1   4   5   2
## 39  1  1  1  0  0  2 17890  1  3   2   4   5
## 40  1  1  1  0  0  2 17890  5  2   1   3   4
## 41  1  1  1  0  0  4 17834  1  2   3   4   5
## 42  1  1  1  0  0  4 17834  2  5   3   4   1
## 43  1  1  1  0  0  4 17834  5  3   4   1   2
## 44  1  1  1  0  0  4 17834  5  2   1   3   4
## 45  1  1  1  0  0  4 17834  3  1   4   5   2
## 46  1  1  1  0  0  4 17834  1  3   2   4   5
## 47  1  1  1  0  0  4 17834  2  4   5   3   1
## 48  1  1  1  0  0  4 17834  2  4   1   5   3
## 49  1  1  0  0  0  3 17812  3  1   5   4   2
## 50  1  1  0  0  0  3 17812  1  3   4   5   2
## [1] "Geração:"
## [1] 5
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  1   4   5   2
## 8   1  1  1  0  0  5 18009  4  2   3   1   5
## 9   1  1  1  0  0  5 18009  5  2   1   3   4
## 10  1  1  1  0  0  5 18009  4  1   2   5   3
## 11  1  1  1  0  0  5 18009  2  5   3   4   1
## 12  1  1  1  0  0  5 18009  2  5   3   1   4
## 13  1  1  1  0  0  5 18009  4  1   3   5   2
## 14  1  1  1  0  0  5 18009  2  4   5   3   1
## 15  1  1  1  0  0  5 18009  5  3   4   1   2
## 16  1  1  1  0  0  5 18009  1  2   3   5   4
## 17  1  1  1  1  1  2 17993  1  2   3   4   5
## 18  1  1  1  1  0  1 17980  1  2   3   4   5
## 19  1  1  1  1  1  4 17980  1  2   3   4   5
## 20  1  1  1  0  0  5 17979  3  1   4   5   2
## 21  1  1  1  0  0  5 17979  3  4   1   2   5
## 22  1  1  1  1  0  2 17965  1  2   3   4   5
## 23  1  1  1  0  0  5 17959  3  5   1   2   4
## 24  1  1  0  0  0  5 17931  3  1   2   5   4
## 25  1  1  0  0  0  5 17931  3  1   4   2   5
## 26  1  1  0  0  0  5 17931  3  1   5   2   4
## 27  1  1  0  0  0  5 17931  3  1   4   5   2
## 28  1  1  0  0  0  5 17931  1  3   2   5   4
## 29  1  1  1  0  0  1 17925  1  2   3   4   5
```

```
## 30  1  1  1  0  0  1 17925  1  3   2   4   5
## 31  1  1  1  0  0  1 17925  4  1   2   5   3
## 32  1  1  1  0  0  1 17925  2  3   5   4   1
## 33  1  1  1  0  0  1 17925  2  4   5   3   1
## 34  1  1  1  0  0  1 17925  5  3   4   1   2
## 35  1  1  1  0  0  1 17925  2  4   1   5   3
## 36  1  1  1  0  0  1 17925  3  1   4   5   2
## 37  1  1  1  0  0  1 17925  2  5   3   4   1
## 38  1  1  1  0  0  1 17925  5  2   1   3   4
## 39  1  1  1  0  0  1 17925  4  1   3   5   2
## 40  1  1  0  0  0  1 17921  3  1   2   4   5
## 41  1  1  1  1  0  4 17907  1  2   3   4   5
## 42  1  1  0  0  0  2 17901  1  3   5   2   4
## 43  1  1  1  0  0  2 17890  1  2   3   4   5
## 44  1  1  1  0  0  2 17890  2  5   3   1   4
## 45  1  1  1  0  0  2 17890  1  2   3   5   4
## 46  1  1  1  0  0  2 17890  3  1   4   5   2
## 47  1  1  1  0  0  2 17890  1  3   2   4   5
## 48  1  1  1  0  0  2 17890  5  2   1   3   4
## 49  1  1  1  0  0  2 17890  2  4   5   3   1
## 50  1  1  1  0  0  2 17890  2  4   1   5   3
## [1] "Geração:"
## [1] 6
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  1  1  1  5 18101  1  2   3   4   5
## 5   1  1  1  1  0  5 18073  1  2   3   4   5
## 6   1  1  1  1  1  1 18011  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  1  2   3   4   5
## 8   1  1  1  0  0  5 18009  3  1   4   5   2
## 9   1  1  1  0  0  5 18009  4  2   3   1   5
## 10  1  1  1  0  0  5 18009  5  2   1   3   4
## 11  1  1  1  0  0  5 18009  4  1   2   5   3
## 12  1  1  1  0  0  5 18009  2  5   3   4   1
## 13  1  1  1  0  0  5 18009  2  5   3   1   4
## 14  1  1  1  0  0  5 18009  4  1   3   5   2
## 15  1  1  1  0  0  5 18009  2  4   5   3   1
## 16  1  1  1  0  0  5 18009  5  3   4   1   2
## 17  1  1  1  0  0  5 18009  1  2   3   5   4
## 18  1  1  1  0  0  5 18009  3  4   1   2   5
## 19  1  1  1  0  0  5 18009  3  5   1   2   4
## 20  1  1  1  0  0  5 18009  1  3   2   4   5
## 21  1  1  1  1  1  2 17993  1  2   3   4   5
## 22  1  1  1  1  0  1 17980  1  2   3   4   5
## 23  1  1  1  1  1  4 17980  1  2   3   4   5
## 24  1  1  1  0  0  5 17979  3  1   4   5   2
## 25  1  1  1  0  0  5 17979  3  4   1   2   5
## 26  1  1  1  1  0  2 17965  1  2   3   4   5
## 27  1  1  1  0  0  5 17959  3  5   1   2   4
## 28  1  1  1  0  0  5 17959  5  3   1   2   4
## 29  1  1  0  0  0  5 17931  3  1   2   5   4
## 30  1  1  0  0  0  5 17931  3  1   4   2   5
```

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## 31  1  1  0  0  0  5 17931  3  1   5   2   4
## 32  1  1  0  0  0  5 17931  3  1   4   5   2
## 33  1  1  0  0  0  5 17931  1  3   2   5   4
## 34  1  1  0  0  0  5 17931  1  3   2   4   5
## 35  1  1  1  0  0  1 17925  1  2   3   4   5
## 36  1  1  1  0  0  1 17925  1  3   2   4   5
## 37  1  1  1  0  0  1 17925  4  1   2   5   3
## 38  1  1  1  0  0  1 17925  2  3   5   4   1
## 39  1  1  1  0  0  1 17925  2  4   5   3   1
## 40  1  1  1  0  0  1 17925  5  3   4   1   2
## 41  1  1  1  0  0  1 17925  2  4   1   5   3
## 42  1  1  1  0  0  1 17925  3  1   4   5   2
## 43  1  1  1  0  0  1 17925  2  5   3   4   1
## 44  1  1  1  0  0  1 17925  5  2   1   3   4
## 45  1  1  1  0  0  1 17925  4  1   3   5   2
## 46  1  1  1  0  0  1 17925  4  2   3   1   5
## 47  1  1  1  0  0  1 17925  1  2   3   5   4
## 48  1  1  0  0  0  1 17921  3  1   2   4   5
## 49  1  1  0  0  0  1 17921  1  3   5   4   2
## 50  1  1  1  1  0  4 17907  1  2   3   4   5
## [1] "Geração:"
## [1] 7
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  1  1  1  5 18101  1  2   3   4   5
## 5   1  1  1  1  0  5 18073  1  2   3   4   5
## 6   1  1  1  1  1  1 18011  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  1  2   3   4   5
## 8   1  1  1  0  0  5 18009  3  1   4   5   2
## 9   1  1  1  0  0  5 18009  4  2   3   1   5
## 10  1  1  1  0  0  5 18009  5  2   1   3   4
## 11  1  1  1  0  0  5 18009  4  1   2   5   3
## 12  1  1  1  0  0  5 18009  2  5   3   4   1
## 13  1  1  1  0  0  5 18009  2  5   3   1   4
## 14  1  1  1  0  0  5 18009  4  1   3   5   2
## 15  1  1  1  0  0  5 18009  2  4   5   3   1
## 16  1  1  1  0  0  5 18009  5  3   4   1   2
## 17  1  1  1  0  0  5 18009  1  2   3   5   4
## 18  1  1  1  0  0  5 18009  3  4   1   2   5
## 19  1  1  1  0  0  5 18009  3  5   1   2   4
## 20  1  1  1  0  0  5 18009  1  3   2   4   5
## 21  1  1  1  0  0  5 18009  2  3   5   4   1
## 22  1  1  1  0  0  5 18009  2  4   1   5   3
## 23  1  1  1  1  1  2 17993  1  2   3   4   5
## 24  1  1  1  1  0  1 17980  1  2   3   4   5
## 25  1  1  1  1  1  4 17980  1  2   3   4   5
## 26  1  1  1  0  0  5 17979  3  1   4   5   2
## 27  1  1  1  0  0  5 17979  3  4   1   2   5
## 28  1  1  1  1  0  2 17965  1  2   3   4   5
## 29  1  1  1  0  0  5 17959  3  5   1   2   4
## 30  1  1  1  0  0  5 17959  5  3   1   2   4
## 31  1  1  0  0  0  5 17931  3  1   2   5   4
```

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## 32  1  1  0  0  0  5 17931  3  1   4   2   5
## 33  1  1  0  0  0  5 17931  3  1   5   2   4
## 34  1  1  0  0  0  5 17931  3  1   4   5   2
## 35  1  1  0  0  0  5 17931  1  3   2   5   4
## 36  1  1  0  0  0  5 17931  1  3   2   4   5
## 37  1  1  1  0  0  1 17925  1  2   3   4   5
## 38  1  1  1  0  0  1 17925  1  3   2   4   5
## 39  1  1  1  0  0  1 17925  4  1   2   5   3
## 40  1  1  1  0  0  1 17925  2  3   5   4   1
## 41  1  1  1  0  0  1 17925  2  4   5   3   1
## 42  1  1  1  0  0  1 17925  5  3   4   1   2
## 43  1  1  1  0  0  1 17925  2  4   1   5   3
## 44  1  1  1  0  0  1 17925  3  1   4   5   2
## 45  1  1  1  0  0  1 17925  2  5   3   4   1
## 46  1  1  1  0  0  1 17925  5  2   1   3   4
## 47  1  1  1  0  0  1 17925  4  1   3   5   2
## 48  1  1  1  0  0  1 17925  4  2   3   1   5
## 49  1  1  1  0  0  1 17925  1  2   3   5   4
## 50  1  1  1  0  0  1 17925  3  5   1   2   4
## [1] "Geração:"
## [1] 8
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  1  1  1  5 18101  1  2   3   4   5
## 5   1  1  1  1  0  5 18073  1  2   3   4   5
## 6   1  1  1  1  1  1 18011  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  1  2   3   4   5
## 8   1  1  1  0  0  5 18009  3  1   4   5   2
## 9   1  1  1  0  0  5 18009  4  2   3   1   5
## 10  1  1  1  0  0  5 18009  5  2   1   3   4
## 11  1  1  1  0  0  5 18009  4  1   2   5   3
## 12  1  1  1  0  0  5 18009  2  5   3   4   1
## 13  1  1  1  0  0  5 18009  2  5   3   1   4
## 14  1  1  1  0  0  5 18009  4  1   3   5   2
## 15  1  1  1  0  0  5 18009  2  4   5   3   1
## 16  1  1  1  0  0  5 18009  5  3   4   1   2
## 17  1  1  1  0  0  5 18009  1  2   3   5   4
## 18  1  1  1  0  0  5 18009  3  4   1   2   5
## 19  1  1  1  0  0  5 18009  3  5   1   2   4
## 20  1  1  1  0  0  5 18009  1  3   2   4   5
## 21  1  1  1  0  0  5 18009  2  3   5   4   1
## 22  1  1  1  0  0  5 18009  2  4   1   5   3
## 23  1  1  1  1  1  2 17993  1  2   3   4   5
## 24  1  1  1  1  0  1 17980  1  2   3   4   5
## 25  1  1  1  1  1  4 17980  1  2   3   4   5
## 26  1  1  1  0  0  5 17979  3  1   4   5   2
## 27  1  1  1  0  0  5 17979  3  4   1   2   5
## 28  1  1  1  1  0  2 17965  1  2   3   4   5
## 29  1  1  1  0  0  5 17959  3  5   1   2   4
## 30  1  1  1  0  0  5 17959  5  3   1   2   4
## 31  1  1  0  0  0  5 17931  3  1   2   5   4
## 32  1  1  0  0  0  5 17931  3  1   4   2   5
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## 33   1   1   0   0   0   5 17931   3   1    5    2    4
## 34   1   1   0   0   0   5 17931   3   1    4    5    2
## 35   1   1   0   0   0   5 17931   1   3    2    5    4
## 36   1   1   0   0   0   5 17931   1   3    2    4    5
## 37   1   1   1   0   0   1 17925   1   2    3    4    5
## 38   1   1   1   0   0   1 17925   1   3    2    4    5
## 39   1   1   1   0   0   1 17925   4   1    2    5    3
## 40   1   1   1   0   0   1 17925   2   3    5    4    1
## 41   1   1   1   0   0   1 17925   2   4    5    3    1
## 42   1   1   1   0   0   1 17925   5   3    4    1    2
## 43   1   1   1   0   0   1 17925   2   4    1    5    3
## 44   1   1   1   0   0   1 17925   3   1    4    5    2
## 45   1   1   1   0   0   1 17925   2   5    3    4    1
## 46   1   1   1   0   0   1 17925   5   2    1    3    4
## 47   1   1   1   0   0   1 17925   4   1    3    5    2
## 48   1   1   1   0   0   1 17925   4   2    3    1    5
## 49   1   1   1   0   0   1 17925   1   2    3    5    4
## 50   1   1   1   0   0   1 17925   3   5    1    2    4
## [1] "Geração:"
## [1] 9
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1   1   0   0   0   4 18550   1   3    4    5    2
## 2   1   1   0   0   0   4 18550   3   1    4    2    5
## 3   1   1   0   0   0   4 18550   3   1    4    5    2
## 4   1   1   0   0   0   4 18550   1   3    5    2    4
## 5   1   1   1   1   1   5 18101   1   2    3    4    5
## 6   1   1   1   1   0   5 18073   1   2    3    4    5
## 7   1   1   1   1   1   1 18011   1   2    3    4    5
## 8   1   1   1   0   0   5 18009   1   2    3    4    5
## 9   1   1   1   0   0   5 18009   3   1    4    5    2
## 10  1   1   1   0   0   5 18009   4   2    3    1    5
## 11  1   1   1   0   0   5 18009   5   2    1    3    4
## 12  1   1   1   0   0   5 18009   4   1    2    5    3
## 13  1   1   1   0   0   5 18009   2   5    3    4    1
## 14  1   1   1   0   0   5 18009   2   5    3    1    4
## 15  1   1   1   0   0   5 18009   4   1    3    5    2
## 16  1   1   1   0   0   5 18009   2   4    5    3    1
## 17  1   1   1   0   0   5 18009   5   3    4    1    2
## 18  1   1   1   0   0   5 18009   1   2    3    5    4
## 19  1   1   1   0   0   5 18009   3   4    1    2    5
## 20  1   1   1   0   0   5 18009   3   5    1    2    4
## 21  1   1   1   0   0   5 18009   1   3    2    4    5
## 22  1   1   1   0   0   5 18009   2   3    5    4    1
## 23  1   1   1   0   0   5 18009   2   4    1    5    3
## 24  1   1   1   1   1   2 17993   1   2    3    4    5
## 25  1   1   1   1   0   1 17980   1   2    3    4    5
## 26  1   1   1   1   1   4 17980   1   2    3    4    5
## 27  1   1   1   0   0   5 17979   3   1    4    5    2
## 28  1   1   1   0   0   5 17979   3   4    1    2    5
## 29  1   1   1   1   0   2 17965   1   2    3    4    5
## 30  1   1   1   0   0   5 17959   3   5    1    2    4
## 31  1   1   1   0   0   5 17959   5   3    1    2    4
## 32  1   1   0   0   0   5 17931   3   1    2    5    4
## 33  1   1   0   0   0   5 17931   3   1    4    2    5
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## 34  1  1  0  0  0  5 17931  3  1   5   2   4
## 35  1  1  0  0  0  5 17931  3  1   4   5   2
## 36  1  1  0  0  0  5 17931  1  3   2   5   4
## 37  1  1  0  0  0  5 17931  1  3   2   4   5
## 38  1  1  1  0  0  1 17925  1  2   3   4   5
## 39  1  1  1  0  0  1 17925  1  3   2   4   5
## 40  1  1  1  0  0  1 17925  4  1   2   5   3
## 41  1  1  1  0  0  1 17925  2  3   5   4   1
## 42  1  1  1  0  0  1 17925  2  4   5   3   1
## 43  1  1  1  0  0  1 17925  5  3   4   1   2
## 44  1  1  1  0  0  1 17925  2  4   1   5   3
## 45  1  1  1  0  0  1 17925  3  1   4   5   2
## 46  1  1  1  0  0  1 17925  2  5   3   4   1
## 47  1  1  1  0  0  1 17925  5  2   1   3   4
## 48  1  1  1  0  0  1 17925  4  1   3   5   2
## 49  1  1  1  0  0  1 17925  4  2   3   1   5
## 50  1  1  1  0  0  1 17925  1  2   3   5   4
## [1] "Geração:"
## [1] 10
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  1  1  1  5 18101  1  2   3   4   5
## 6   1  1  1  1  0  5 18073  1  2   3   4   5
## 7   1  1  1  1  1  1 18011  1  2   3   4   5
## 8   1  1  1  0  0  5 18009  1  2   3   4   5
## 9   1  1  1  0  0  5 18009  3  1   4   5   2
## 10  1  1  1  0  0  5 18009  4  2   3   1   5
## 11  1  1  1  0  0  5 18009  5  2   1   3   4
## 12  1  1  1  0  0  5 18009  4  1   2   5   3
## 13  1  1  1  0  0  5 18009  2  5   3   4   1
## 14  1  1  1  0  0  5 18009  2  5   3   1   4
## 15  1  1  1  0  0  5 18009  4  1   3   5   2
## 16  1  1  1  0  0  5 18009  2  4   5   3   1
## 17  1  1  1  0  0  5 18009  5  3   4   1   2
## 18  1  1  1  0  0  5 18009  1  2   3   5   4
## 19  1  1  1  0  0  5 18009  3  4   1   2   5
## 20  1  1  1  0  0  5 18009  3  5   1   2   4
## 21  1  1  1  0  0  5 18009  1  3   2   4   5
## 22  1  1  1  0  0  5 18009  2  3   5   4   1
## 23  1  1  1  0  0  5 18009  2  4   1   5   3
## 24  1  1  1  0  0  5 18009  5  3   1   2   4
## 25  1  1  1  1  1  2 17993  1  2   3   4   5
## 26  1  1  1  1  0  1 17980  1  2   3   4   5
## 27  1  1  1  1  1  4 17980  1  2   3   4   5
## 28  1  1  1  0  0  5 17979  3  1   4   5   2
## 29  1  1  1  0  0  5 17979  3  4   1   2   5
## 30  1  1  1  1  0  2 17965  1  2   3   4   5
## 31  1  1  1  0  0  5 17959  3  5   1   2   4
## 32  1  1  1  0  0  5 17959  5  3   1   2   4
## 33  1  1  1  0  0  5 17959  3  1   5   4   2
## 34  1  1  0  0  0  5 17931  3  1   2   5   4
```

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## 35  1  1  0  0  0  5  17931  3  1   4   2   5
## 36  1  1  0  0  0  5  17931  3  1   5   2   4
## 37  1  1  0  0  0  5  17931  3  1   4   5   2
## 38  1  1  0  0  0  5  17931  1  3   2   5   4
## 39  1  1  0  0  0  5  17931  1  3   2   4   5
## 40  1  1  1  0  0  1  17925  1  2   3   4   5
## 41  1  1  1  0  0  1  17925  1  3   2   4   5
## 42  1  1  1  0  0  1  17925  4  1   2   5   3
## 43  1  1  1  0  0  1  17925  2  3   5   4   1
## 44  1  1  1  0  0  1  17925  2  4   5   3   1
## 45  1  1  1  0  0  1  17925  5  3   4   1   2
## 46  1  1  1  0  0  1  17925  2  4   1   5   3
## 47  1  1  1  0  0  1  17925  3  1   4   5   2
## 48  1  1  1  0  0  1  17925  2  5   3   4   1
## 49  1  1  1  0  0  1  17925  5  2   1   3   4
## 50  1  1  1  0  0  1  17925  4  1   3   5   2
## [1] "Geração:"
## [1] 11
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4  18550  1  3   4   5   2
## 2   1  1  0  0  0  4  18550  3  1   4   2   5
## 3   1  1  0  0  0  4  18550  3  1   4   5   2
## 4   1  1  0  0  0  4  18550  1  3   5   2   4
## 5   1  1  0  0  0  4  18550  3  1   2   4   5
## 6   1  1  1  1  1  5  18101  1  2   3   4   5
## 7   1  1  1  1  0  5  18073  1  2   3   4   5
## 8   1  1  1  1  1  1  18011  1  2   3   4   5
## 9   1  1  1  0  0  5  18009  1  2   3   4   5
## 10  1  1  1  0  0  5  18009  3  1   4   5   2
## 11  1  1  1  0  0  5  18009  4  2   3   1   5
## 12  1  1  1  0  0  5  18009  5  2   1   3   4
## 13  1  1  1  0  0  5  18009  4  1   2   5   3
## 14  1  1  1  0  0  5  18009  2  5   3   4   1
## 15  1  1  1  0  0  5  18009  2  5   3   1   4
## 16  1  1  1  0  0  5  18009  4  1   3   5   2
## 17  1  1  1  0  0  5  18009  2  4   5   3   1
## 18  1  1  1  0  0  5  18009  5  3   4   1   2
## 19  1  1  1  0  0  5  18009  1  2   3   5   4
## 20  1  1  1  0  0  5  18009  3  4   1   2   5
## 21  1  1  1  0  0  5  18009  3  5   1   2   4
## 22  1  1  1  0  0  5  18009  1  3   2   4   5
## 23  1  1  1  0  0  5  18009  2  3   5   4   1
## 24  1  1  1  0  0  5  18009  2  4   1   5   3
## 25  1  1  1  0  0  5  18009  5  3   1   2   4
## 26  1  1  1  0  0  5  18009  3  1   5   4   2
## 27  1  1  1  1  1  2  17993  1  2   3   4   5
## 28  1  1  1  1  0  1  17980  1  2   3   4   5
## 29  1  1  1  1  1  4  17980  1  2   3   4   5
## 30  1  1  1  0  0  5  17979  3  1   4   5   2
## 31  1  1  1  0  0  5  17979  3  4   1   2   5
## 32  1  1  1  1  0  2  17965  1  2   3   4   5
## 33  1  1  1  0  0  5  17959  3  5   1   2   4
## 34  1  1  1  0  0  5  17959  5  3   1   2   4
## 35  1  1  1  0  0  5  17959  3  1   5   4   2
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## 36   1  1  0  0  0  5 17931  3  1   2   5   4
## 37   1  1  0  0  0  5 17931  3  1   4   2   5
## 38   1  1  0  0  0  5 17931  3  1   5   2   4
## 39   1  1  0  0  0  5 17931  3  1   4   5   2
## 40   1  1  0  0  0  5 17931  1  3   2   5   4
## 41   1  1  0  0  0  5 17931  1  3   2   4   5
## 42   1  1  0  0  0  5 17931  1  3   5   4   2
## 43   1  1  1  0  0  1 17925  1  2   3   4   5
## 44   1  1  1  0  0  1 17925  1  3   2   4   5
## 45   1  1  1  0  0  1 17925  4  1   2   5   3
## 46   1  1  1  0  0  1 17925  2  3   5   4   1
## 47   1  1  1  0  0  1 17925  2  4   5   3   1
## 48   1  1  1  0  0  1 17925  5  3   4   1   2
## 49   1  1  1  0  0  1 17925  2  4   1   5   3
## 50   1  1  1  0  0  1 17925  3  1   4   5   2
## [1] "Geração:"
## [1] 12
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  1  1  1  5 18101  1  2   3   4   5
## 8   1  1  1  1  0  5 18073  1  2   3   4   5
## 9   1  1  1  1  1  1 18011  1  2   3   4   5
## 10  1  1  1  0  0  5 18009  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  3  1   4   5   2
## 12  1  1  1  0  0  5 18009  4  2   3   1   5
## 13  1  1  1  0  0  5 18009  5  2   1   3   4
## 14  1  1  1  0  0  5 18009  4  1   2   5   3
## 15  1  1  1  0  0  5 18009  2  5   3   4   1
## 16  1  1  1  0  0  5 18009  2  5   3   1   4
## 17  1  1  1  0  0  5 18009  4  1   3   5   2
## 18  1  1  1  0  0  5 18009  2  4   5   3   1
## 19  1  1  1  0  0  5 18009  5  3   4   1   2
## 20  1  1  1  0  0  5 18009  1  2   3   5   4
## 21  1  1  1  0  0  5 18009  3  4   1   2   5
## 22  1  1  1  0  0  5 18009  3  5   1   2   4
## 23  1  1  1  0  0  5 18009  1  3   2   4   5
## 24  1  1  1  0  0  5 18009  2  3   5   4   1
## 25  1  1  1  0  0  5 18009  2  4   1   5   3
## 26  1  1  1  0  0  5 18009  5  3   1   2   4
## 27  1  1  1  0  0  5 18009  3  1   5   4   2
## 28  1  1  1  1  1  2 17993  1  2   3   4   5
## 29  1  1  1  1  0  1 17980  1  2   3   4   5
## 30  1  1  1  1  1  4 17980  1  2   3   4   5
## 31  1  1  1  0  0  5 17979  3  1   4   5   2
## 32  1  1  1  0  0  5 17979  3  4   1   2   5
## 33  1  1  1  0  0  5 17979  1  4   3   5   2
## 34  1  1  1  1  0  2 17965  1  2   3   4   5
## 35  1  1  1  0  0  5 17959  3  5   1   2   4
## 36  1  1  1  0  0  5 17959  5  3   1   2   4
```

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## 37  1  1  1  0  0  5 17959  3  1   5   4   2
## 38  1  1  0  0  0  5 17931  3  1   2   5   4
## 39  1  1  0  0  0  5 17931  3  1   4   2   5
## 40  1  1  0  0  0  5 17931  3  1   5   2   4
## 41  1  1  0  0  0  5 17931  3  1   4   5   2
## 42  1  1  0  0  0  5 17931  1  3   2   5   4
## 43  1  1  0  0  0  5 17931  1  3   2   4   5
## 44  1  1  0  0  0  5 17931  1  3   5   4   2
## 45  1  1  1  0  0  1 17925  1  2   3   4   5
## 46  1  1  1  0  0  1 17925  1  3   2   4   5
## 47  1  1  1  0  0  1 17925  4  1   2   5   3
## 48  1  1  1  0  0  1 17925  2  3   5   4   1
## 49  1  1  1  0  0  1 17925  2  4   5   3   1
## 50  1  1  1  0  0  1 17925  5  3   4   1   2
## [1] "Geração:"
## [1] 13
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  1  1  1  5 18101  1  2   3   4   5
## 8   1  1  1  1  0  5 18073  1  2   3   4   5
## 9   1  1  1  1  1  1 18011  1  2   3   4   5
## 10  1  1  1  0  0  5 18009  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  3  1   4   5   2
## 12  1  1  1  0  0  5 18009  4  2   3   1   5
## 13  1  1  1  0  0  5 18009  5  2   1   3   4
## 14  1  1  1  0  0  5 18009  4  1   2   5   3
## 15  1  1  1  0  0  5 18009  2  5   3   4   1
## 16  1  1  1  0  0  5 18009  2  5   3   1   4
## 17  1  1  1  0  0  5 18009  4  1   3   5   2
## 18  1  1  1  0  0  5 18009  2  4   5   3   1
## 19  1  1  1  0  0  5 18009  5  3   4   1   2
## 20  1  1  1  0  0  5 18009  1  2   3   5   4
## 21  1  1  1  0  0  5 18009  3  4   1   2   5
## 22  1  1  1  0  0  5 18009  3  5   1   2   4
## 23  1  1  1  0  0  5 18009  1  3   2   4   5
## 24  1  1  1  0  0  5 18009  2  3   5   4   1
## 25  1  1  1  0  0  5 18009  2  4   1   5   3
## 26  1  1  1  0  0  5 18009  5  3   1   2   4
## 27  1  1  1  0  0  5 18009  3  1   5   4   2
## 28  1  1  1  0  0  5 18009  1  4   3   5   2
## 29  1  1  1  1  1  2 17993  1  2   3   4   5
## 30  1  1  1  1  0  1 17980  1  2   3   4   5
## 31  1  1  1  1  1  4 17980  1  2   3   4   5
## 32  1  1  1  0  0  5 17979  3  1   4   5   2
## 33  1  1  1  0  0  5 17979  3  4   1   2   5
## 34  1  1  1  0  0  5 17979  1  4   3   5   2
## 35  1  1  1  1  0  2 17965  1  2   3   4   5
## 36  1  1  1  0  0  5 17959  3  5   1   2   4
## 37  1  1  1  0  0  5 17959  5  3   1   2   4
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## 38  1  1  1  0  0  5 17959  3  1   5   4   2
## 39  1  1  0  0  0  5 17931  3  1   2   5   4
## 40  1  1  0  0  0  5 17931  3  1   4   2   5
## 41  1  1  0  0  0  5 17931  3  1   5   2   4
## 42  1  1  0  0  0  5 17931  3  1   4   5   2
## 43  1  1  0  0  0  5 17931  1  3   2   5   4
## 44  1  1  0  0  0  5 17931  1  3   2   4   5
## 45  1  1  0  0  0  5 17931  1  3   5   4   2
## 46  1  1  1  0  0  1 17925  1  2   3   4   5
## 47  1  1  1  0  0  1 17925  1  3   2   4   5
## 48  1  1  1  0  0  1 17925  4  1   2   5   3
## 49  1  1  1  0  0  1 17925  2  3   5   4   1
## 50  1  1  1  0  0  1 17925  2  4   5   3   1
## [1] "Geração:"
## [1] 14
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  1  1  1  5 18101  1  2   3   4   5
## 8   1  1  1  1  0  5 18073  1  2   3   4   5
## 9   1  1  1  1  1  1 18011  1  2   3   4   5
## 10  1  1  1  0  0  5 18009  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  3  1   4   5   2
## 12  1  1  1  0  0  5 18009  4  2   3   1   5
## 13  1  1  1  0  0  5 18009  5  2   1   3   4
## 14  1  1  1  0  0  5 18009  4  1   2   5   3
## 15  1  1  1  0  0  5 18009  2  5   3   4   1
## 16  1  1  1  0  0  5 18009  2  5   3   1   4
## 17  1  1  1  0  0  5 18009  4  1   3   5   2
## 18  1  1  1  0  0  5 18009  2  4   5   3   1
## 19  1  1  1  0  0  5 18009  5  3   4   1   2
## 20  1  1  1  0  0  5 18009  1  2   3   5   4
## 21  1  1  1  0  0  5 18009  3  4   1   2   5
## 22  1  1  1  0  0  5 18009  3  5   1   2   4
## 23  1  1  1  0  0  5 18009  1  3   2   4   5
## 24  1  1  1  0  0  5 18009  2  3   5   4   1
## 25  1  1  1  0  0  5 18009  2  4   1   5   3
## 26  1  1  1  0  0  5 18009  5  3   1   2   4
## 27  1  1  1  0  0  5 18009  3  1   5   4   2
## 28  1  1  1  0  0  5 18009  1  4   3   5   2
## 29  1  1  1  1  1  2 17993  1  2   3   4   5
## 30  1  1  1  1  0  1 17980  1  2   3   4   5
## 31  1  1  1  1  1  4 17980  1  2   3   4   5
## 32  1  1  1  0  0  5 17979  3  1   4   5   2
## 33  1  1  1  0  0  5 17979  3  4   1   2   5
## 34  1  1  1  0  0  5 17979  1  4   3   5   2
## 35  1  1  1  1  0  2 17965  1  2   3   4   5
## 36  1  1  1  0  0  5 17959  3  5   1   2   4
## 37  1  1  1  0  0  5 17959  5  3   1   2   4
## 38  1  1  1  0  0  5 17959  3  1   5   4   2
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## 39  1  1  0  0  0  5 17931  3  1   2   5   4
## 40  1  1  0  0  0  5 17931  3  1   4   2   5
## 41  1  1  0  0  0  5 17931  3  1   5   2   4
## 42  1  1  0  0  0  5 17931  3  1   4   5   2
## 43  1  1  0  0  0  5 17931  1  3   2   5   4
## 44  1  1  0  0  0  5 17931  1  3   2   4   5
## 45  1  1  0  0  0  5 17931  1  3   5   4   2
## 46  1  1  1  0  0  1 17925  1  2   3   4   5
## 47  1  1  1  0  0  1 17925  1  3   2   4   5
## 48  1  1  1  0  0  1 17925  4  1   2   5   3
## 49  1  1  1  0  0  1 17925  2  3   5   4   1
## 50  1  1  1  0  0  1 17925  2  4   5   3   1
## [1] "Geração:"
## [1] 15
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  0  0  0  4 18550  3  1   5   2   4
## 8   1  1  1  1  1  5 18101  1  2   3   4   5
## 9   1  1  1  1  0  5 18073  1  2   3   4   5
## 10  1  1  1  1  1  1 18011  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  1  2   3   4   5
## 12  1  1  1  0  0  5 18009  3  1   4   5   2
## 13  1  1  1  0  0  5 18009  4  2   3   1   5
## 14  1  1  1  0  0  5 18009  5  2   1   3   4
## 15  1  1  1  0  0  5 18009  4  1   2   5   3
## 16  1  1  1  0  0  5 18009  2  5   3   4   1
## 17  1  1  1  0  0  5 18009  2  5   3   1   4
## 18  1  1  1  0  0  5 18009  4  1   3   5   2
## 19  1  1  1  0  0  5 18009  2  4   5   3   1
## 20  1  1  1  0  0  5 18009  5  3   4   1   2
## 21  1  1  1  0  0  5 18009  1  2   3   5   4
## 22  1  1  1  0  0  5 18009  3  4   1   2   5
## 23  1  1  1  0  0  5 18009  3  5   1   2   4
## 24  1  1  1  0  0  5 18009  1  3   2   4   5
## 25  1  1  1  0  0  5 18009  2  3   5   4   1
## 26  1  1  1  0  0  5 18009  2  4   1   5   3
## 27  1  1  1  0  0  5 18009  5  3   1   2   4
## 28  1  1  1  0  0  5 18009  3  1   5   4   2
## 29  1  1  1  0  0  5 18009  1  4   3   5   2
## 30  1  1  1  1  1  2 17993  1  2   3   4   5
## 31  1  1  1  1  0  1 17980  1  2   3   4   5
## 32  1  1  1  1  1  4 17980  1  2   3   4   5
## 33  1  1  1  0  0  5 17979  3  1   4   5   2
## 34  1  1  1  0  0  5 17979  3  4   1   2   5
## 35  1  1  1  0  0  5 17979  1  4   3   5   2
## 36  1  1  1  1  0  2 17965  1  2   3   4   5
## 37  1  1  1  0  0  5 17959  3  5   1   2   4
## 38  1  1  1  0  0  5 17959  5  3   1   2   4
## 39  1  1  1  0  0  5 17959  3  1   5   4   2
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## 40   1  1  0  0  0  5 17931  3  1   2   5   4
## 41   1  1  0  0  0  5 17931  3  1   4   2   5
## 42   1  1  0  0  0  5 17931  3  1   5   2   4
## 43   1  1  0  0  0  5 17931  3  1   4   5   2
## 44   1  1  0  0  0  5 17931  1  3   2   5   4
## 45   1  1  0  0  0  5 17931  1  3   2   4   5
## 46   1  1  0  0  0  5 17931  1  3   5   4   2
## 47   1  1  1  0  0  1 17925  1  2   3   4   5
## 48   1  1  1  0  0  1 17925  1  3   2   4   5
## 49   1  1  1  0  0  1 17925  4  1   2   5   3
## 50   1  1  1  0  0  1 17925  2  3   5   4   1
## [1] "Geração:"
## [1] 16
##     V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  1  3   4   5   2
## 2    1  1  0  0  0  4 18550  3  1   4   2   5
## 3    1  1  0  0  0  4 18550  3  1   4   5   2
## 4    1  1  0  0  0  4 18550  1  3   5   2   4
## 5    1  1  0  0  0  4 18550  3  1   2   4   5
## 6    1  1  0  0  0  4 18550  1  3   2   5   4
## 7    1  1  0  0  0  4 18550  3  1   5   2   4
## 8    1  1  1  1  1  5 18101  1  2   3   4   5
## 9    1  1  1  1  0  5 18073  1  2   3   4   5
## 10   1  1  1  1  1  1 18011  1  2   3   4   5
## 11   1  1  1  0  0  5 18009  1  2   3   4   5
## 12   1  1  1  0  0  5 18009  3  1   4   5   2
## 13   1  1  1  0  0  5 18009  4  2   3   1   5
## 14   1  1  1  0  0  5 18009  5  2   1   3   4
## 15   1  1  1  0  0  5 18009  4  1   2   5   3
## 16   1  1  1  0  0  5 18009  2  5   3   4   1
## 17   1  1  1  0  0  5 18009  2  5   3   1   4
## 18   1  1  1  0  0  5 18009  4  1   3   5   2
## 19   1  1  1  0  0  5 18009  2  4   5   3   1
## 20   1  1  1  0  0  5 18009  5  3   4   1   2
## 21   1  1  1  0  0  5 18009  1  2   3   5   4
## 22   1  1  1  0  0  5 18009  3  4   1   2   5
## 23   1  1  1  0  0  5 18009  3  5   1   2   4
## 24   1  1  1  0  0  5 18009  1  3   2   4   5
## 25   1  1  1  0  0  5 18009  2  3   5   4   1
## 26   1  1  1  0  0  5 18009  2  4   1   5   3
## 27   1  1  1  0  0  5 18009  5  3   1   2   4
## 28   1  1  1  0  0  5 18009  3  1   5   4   2
## 29   1  1  1  0  0  5 18009  1  4   3   5   2
## 30   1  1  1  0  0  5 18009  2  3   1   5   4
## 31   1  1  1  1  1  2 17993  1  2   3   4   5
## 32   1  1  1  1  0  1 17980  1  2   3   4   5
## 33   1  1  1  1  1  4 17980  1  2   3   4   5
## 34   1  1  1  0  0  5 17979  3  1   4   5   2
## 35   1  1  1  0  0  5 17979  3  4   1   2   5
## 36   1  1  1  0  0  5 17979  1  4   3   5   2
## 37   1  1  1  0  0  5 17979  1  3   4   5   2
## 38   1  1  1  1  0  2 17965  1  2   3   4   5
## 39   1  1  1  0  0  5 17959  3  5   1   2   4
## 40   1  1  1  0  0  5 17959  5  3   1   2   4
```

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## 41 1 1 1 0 0 5 17959 3 1 5 4 2
## 42 1 1 0 0 0 5 17931 3 1 2 5 4
## 43 1 1 0 0 0 5 17931 3 1 4 2 5
## 44 1 1 0 0 0 5 17931 3 1 5 2 4
## 45 1 1 0 0 0 5 17931 3 1 4 5 2
## 46 1 1 0 0 0 5 17931 1 3 2 5 4
## 47 1 1 0 0 0 5 17931 1 3 2 4 5
## 48 1 1 0 0 0 5 17931 1 3 5 4 2
## 49 1 1 1 0 0 1 17925 1 2 3 4 5
## 50 1 1 1 0 0 1 17925 1 3 2 4 5
## [1] "Geração:"
## [1] 17
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  0  0  0  4 18550  3  1   5   2   4
## 8   1  1  1  1  1  5 18101  1  2   3   4   5
## 9   1  1  1  1  0  5 18073  1  2   3   4   5
## 10  1  1  1  1  1  1 18011  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  1  2   3   4   5
## 12  1  1  1  0  0  5 18009  3  1   4   5   2
## 13  1  1  1  0  0  5 18009  4  2   3   1   5
## 14  1  1  1  0  0  5 18009  5  2   1   3   4
## 15  1  1  1  0  0  5 18009  4  1   2   5   3
## 16  1  1  1  0  0  5 18009  2  5   3   4   1
## 17  1  1  1  0  0  5 18009  2  5   3   1   4
## 18  1  1  1  0  0  5 18009  4  1   3   5   2
## 19  1  1  1  0  0  5 18009  2  4   5   3   1
## 20  1  1  1  0  0  5 18009  5  3   4   1   2
## 21  1  1  1  0  0  5 18009  1  2   3   5   4
## 22  1  1  1  0  0  5 18009  3  4   1   2   5
## 23  1  1  1  0  0  5 18009  3  5   1   2   4
## 24  1  1  1  0  0  5 18009  1  3   2   4   5
## 25  1  1  1  0  0  5 18009  2  3   5   4   1
## 26  1  1  1  0  0  5 18009  2  4   1   5   3
## 27  1  1  1  0  0  5 18009  5  3   1   2   4
## 28  1  1  1  0  0  5 18009  3  1   5   4   2
## 29  1  1  1  0  0  5 18009  1  4   3   5   2
## 30  1  1  1  0  0  5 18009  2  3   1   5   4
## 31  1  1  1  0  0  5 18009  1  3   4   5   2
## 32  1  1  1  1  1  2 17993  1  2   3   4   5
## 33  1  1  1  1  0  1 17980  1  2   3   4   5
## 34  1  1  1  1  1  4 17980  1  2   3   4   5
## 35  1  1  1  0  0  5 17979  3  1   4   5   2
## 36  1  1  1  0  0  5 17979  3  4   1   2   5
## 37  1  1  1  0  0  5 17979  1  4   3   5   2
## 38  1  1  1  0  0  5 17979  1  3   4   5   2
## 39  1  1  1  0  0  5 17979  1  3   4   2   5
## 40  1  1  1  1  0  2 17965  1  2   3   4   5
## 41  1  1  1  0  0  5 17959  3  5   1   2   4
```

```
## 42 1 1 1 0 0 5 17959 5 3 1 2 4
## 43 1 1 1 0 0 5 17959 3 1 5 4 2
## 44 1 1 0 0 0 5 17931 3 1 2 5 4
## 45 1 1 0 0 0 5 17931 3 1 4 2 5
## 46 1 1 0 0 0 5 17931 3 1 5 2 4
## 47 1 1 0 0 0 5 17931 3 1 4 5 2
## 48 1 1 0 0 0 5 17931 1 3 2 5 4
## 49 1 1 0 0 0 5 17931 1 3 2 4 5
## 50 1 1 0 0 0 5 17931 1 3 5 4 2
## [1] "Geração:"
## [1] 18
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  0  0  0  4 18550  3  1   5   2   4
## 8   1  1  1  1  1  5 18101  1  2   3   4   5
## 9   1  1  1  1  0  5 18073  1  2   3   4   5
## 10  1  1  1  1  1  1 18011  1  2   3   4   5
## 11  1  1  1  0  0  5 18009  1  2   3   4   5
## 12  1  1  1  0  0  5 18009  3  1   4   5   2
## 13  1  1  1  0  0  5 18009  4  2   3   1   5
## 14  1  1  1  0  0  5 18009  5  2   1   3   4
## 15  1  1  1  0  0  5 18009  4  1   2   5   3
## 16  1  1  1  0  0  5 18009  2  5   3   4   1
## 17  1  1  1  0  0  5 18009  2  5   3   1   4
## 18  1  1  1  0  0  5 18009  4  1   3   5   2
## 19  1  1  1  0  0  5 18009  2  4   5   3   1
## 20  1  1  1  0  0  5 18009  5  3   4   1   2
## 21  1  1  1  0  0  5 18009  1  2   3   5   4
## 22  1  1  1  0  0  5 18009  3  4   1   2   5
## 23  1  1  1  0  0  5 18009  3  5   1   2   4
## 24  1  1  1  0  0  5 18009  1  3   2   4   5
## 25  1  1  1  0  0  5 18009  2  3   5   4   1
## 26  1  1  1  0  0  5 18009  2  4   1   5   3
## 27  1  1  1  0  0  5 18009  5  3   1   2   4
## 28  1  1  1  0  0  5 18009  3  1   5   4   2
## 29  1  1  1  0  0  5 18009  1  4   3   5   2
## 30  1  1  1  0  0  5 18009  2  3   1   5   4
## 31  1  1  1  0  0  5 18009  1  3   4   5   2
## 32  1  1  1  0  0  5 18009  1  3   4   2   5
## 33  1  1  1  1  1  2 17993  1  2   3   4   5
## 34  1  1  1  1  0  1 17980  1  2   3   4   5
## 35  1  1  1  1  1  4 17980  1  2   3   4   5
## 36  1  1  1  0  0  5 17979  3  1   4   5   2
## 37  1  1  1  0  0  5 17979  3  4   1   2   5
## 38  1  1  1  0  0  5 17979  1  4   3   5   2
## 39  1  1  1  0  0  5 17979  1  3   4   5   2
## 40  1  1  1  0  0  5 17979  1  3   4   2   5
## 41  1  1  1  1  0  2 17965  1  2   3   4   5
## 42  1  1  1  0  0  5 17959  3  5   1   2   4
```

```
## 43  1  1  1  0  0  5 17959  5  3   1   2   4
## 44  1  1  1  0  0  5 17959  3  1   5   4   2
## 45  1  1  0  0  0  5 17931  3  1   2   5   4
## 46  1  1  0  0  0  5 17931  3  1   4   2   5
## 47  1  1  0  0  0  5 17931  3  1   5   2   4
## 48  1  1  0  0  0  5 17931  3  1   4   5   2
## 49  1  1  0  0  0  5 17931  1  3   2   5   4
## 50  1  1  0  0  0  5 17931  1  3   2   4   5
## [1] "Geração:"
## [1] 19
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  0  0  0  4 18550  3  1   5   2   4
## 8   1  1  0  0  0  4 18550  1  3   5   4   2
## 9   1  1  1  1  1  5 18101  1  2   3   4   5
## 10  1  1  1  1  0  5 18073  1  2   3   4   5
## 11  1  1  1  1  1  1 18011  1  2   3   4   5
## 12  1  1  1  0  0  5 18009  1  2   3   4   5
## 13  1  1  1  0  0  5 18009  3  1   4   5   2
## 14  1  1  1  0  0  5 18009  4  2   3   1   5
## 15  1  1  1  0  0  5 18009  5  2   1   3   4
## 16  1  1  1  0  0  5 18009  4  1   2   5   3
## 17  1  1  1  0  0  5 18009  2  5   3   4   1
## 18  1  1  1  0  0  5 18009  2  5   3   1   4
## 19  1  1  1  0  0  5 18009  4  1   3   5   2
## 20  1  1  1  0  0  5 18009  2  4   5   3   1
## 21  1  1  1  0  0  5 18009  5  3   4   1   2
## 22  1  1  1  0  0  5 18009  1  2   3   5   4
## 23  1  1  1  0  0  5 18009  3  4   1   2   5
## 24  1  1  1  0  0  5 18009  3  5   1   2   4
## 25  1  1  1  0  0  5 18009  1  3   2   4   5
## 26  1  1  1  0  0  5 18009  2  3   5   4   1
## 27  1  1  1  0  0  5 18009  2  4   1   5   3
## 28  1  1  1  0  0  5 18009  5  3   1   2   4
## 29  1  1  1  0  0  5 18009  3  1   5   4   2
## 30  1  1  1  0  0  5 18009  1  4   3   5   2
## 31  1  1  1  0  0  5 18009  2  3   1   5   4
## 32  1  1  1  0  0  5 18009  1  3   4   5   2
## 33  1  1  1  0  0  5 18009  1  3   4   2   5
## 34  1  1  1  1  1  2 17993  1  2   3   4   5
## 35  1  1  1  1  0  1 17980  1  2   3   4   5
## 36  1  1  1  1  1  4 17980  1  2   3   4   5
## 37  1  1  1  0  0  5 17979  3  1   4   5   2
## 38  1  1  1  0  0  5 17979  3  4   1   2   5
## 39  1  1  1  0  0  5 17979  1  4   3   5   2
## 40  1  1  1  0  0  5 17979  1  3   4   5   2
## 41  1  1  1  0  0  5 17979  1  3   4   2   5
## 42  1  1  1  1  0  2 17965  1  2   3   4   5
## 43  1  1  1  0  0  5 17959  3  5   1   2   4
```

```
## 44  1  1  1  0  0  5 17959  5  3   1   2   4
## 45  1  1  1  0  0  5 17959  3  1   5   4   2
## 46  1  1  0  0  0  5 17931  3  1   2   5   4
## 47  1  1  0  0  0  5 17931  3  1   4   2   5
## 48  1  1  0  0  0  5 17931  3  1   5   2   4
## 49  1  1  0  0  0  5 17931  3  1   4   5   2
## 50  1  1  0  0  0  5 17931  1  3   2   5   4
## [1] "Geração:"
## [1] 20
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  1  3   4   5   2
## 2   1  1  0  0  0  4 18550  3  1   4   2   5
## 3   1  1  0  0  0  4 18550  3  1   4   5   2
## 4   1  1  0  0  0  4 18550  1  3   5   2   4
## 5   1  1  0  0  0  4 18550  3  1   2   4   5
## 6   1  1  0  0  0  4 18550  1  3   2   5   4
## 7   1  1  0  0  0  4 18550  3  1   5   2   4
## 8   1  1  0  0  0  4 18550  1  3   5   4   2
## 9   1  1  1  1  1  5 18101  1  2   3   4   5
## 10  1  1  1  1  0  5 18073  1  2   3   4   5
## 11  1  1  1  1  1  1 18011  1  2   3   4   5
## 12  1  1  1  0  0  5 18009  1  2   3   4   5
## 13  1  1  1  0  0  5 18009  3  1   4   5   2
## 14  1  1  1  0  0  5 18009  4  2   3   1   5
## 15  1  1  1  0  0  5 18009  5  2   1   3   4
## 16  1  1  1  0  0  5 18009  4  1   2   5   3
## 17  1  1  1  0  0  5 18009  2  5   3   4   1
## 18  1  1  1  0  0  5 18009  2  5   3   1   4
## 19  1  1  1  0  0  5 18009  4  1   3   5   2
## 20  1  1  1  0  0  5 18009  2  4   5   3   1
## 21  1  1  1  0  0  5 18009  5  3   4   1   2
## 22  1  1  1  0  0  5 18009  1  2   3   5   4
## 23  1  1  1  0  0  5 18009  3  4   1   2   5
## 24  1  1  1  0  0  5 18009  3  5   1   2   4
## 25  1  1  1  0  0  5 18009  1  3   2   4   5
## 26  1  1  1  0  0  5 18009  2  3   5   4   1
## 27  1  1  1  0  0  5 18009  2  4   1   5   3
## 28  1  1  1  0  0  5 18009  5  3   1   2   4
## 29  1  1  1  0  0  5 18009  3  1   5   4   2
## 30  1  1  1  0  0  5 18009  1  4   3   5   2
## 31  1  1  1  0  0  5 18009  2  3   1   5   4
## 32  1  1  1  0  0  5 18009  1  3   4   5   2
## 33  1  1  1  0  0  5 18009  1  3   4   2   5
## 34  1  1  1  1  1  2 17993  1  2   3   4   5
## 35  1  1  1  1  0  1 17980  1  2   3   4   5
## 36  1  1  1  1  1  4 17980  1  2   3   4   5
## 37  1  1  1  0  0  5 17979  3  1   4   5   2
## 38  1  1  1  0  0  5 17979  3  4   1   2   5
## 39  1  1  1  0  0  5 17979  1  4   3   5   2
## 40  1  1  1  0  0  5 17979  1  3   4   5   2
## 41  1  1  1  0  0  5 17979  1  3   4   2   5
## 42  1  1  1  1  0  2 17965  1  2   3   4   5
## 43  1  1  1  0  0  5 17959  3  5   1   2   4
## 44  1  1  1  0  0  5 17959  5  3   1   2   4
```

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## 45  1  1  1  0  0  5 17959  3  1  5  4  2
## 46  1  1  0  0  0  5 17931  3  1  2  5  4
## 47  1  1  0  0  0  5 17931  3  1  4  2  5
## 48  1  1  0  0  0  5 17931  3  1  5  2  4
## 49  1  1  0  0  0  5 17931  3  1  4  5  2
## 50  1  1  0  0  0  5 17931  1  3  2  5  4

## [1] "popsize = 50,ngeracoes=20,p_Cross=0.1,p_Mutacao=0.05"

##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  0  0  0  0  5 17102  1  2   3   4   5
## 2   1  1  1  1  0  5 18073  1  2   3   4   5
## 3   1  0  0  0  0  5 17102  1  2   3   4   5
## 4   1  1  1  0  0  5 18009  1  2   3   4   5
## 5   1  1  1  1  0  5 18073  1  2   3   4   5
## 6   1  1  0  0  0  4 16902  1  2   3   4   5
## 7   1  1  1  0  0  2 17890  1  2   3   4   5
## 8   1  1  1  1  0  1 17980  1  2   3   4   5
## 9   1  1  1  1  0  4 17907  1  2   3   4   5
## 10  1  1  1  1  1  3 17660  1  2   3   4   5
## 11  1  1  1  1  1  3 17660  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  1  1 18011  1  2   3   4   5
## 14  1  1  1  1  0  4 17907  1  2   3   4   5
## 15  1  1  1  0  0  3 17691  1  2   3   4   5
## 16  1  1  1  0  0  5 18009  1  2   3   4   5
## 17  1  0  0  0  0  4 17102  1  2   3   4   5
## 18  1  1  1  1  1  2 17993  1  2   3   4   5
## 19  1  1  1  1  1  3 17660  1  2   3   4   5
## 20  1  1  0  0  0  5 17182  1  2   3   4   5
## 21  1  0  0  0  0  2 17102  1  2   3   4   5
## 22  1  1  1  0  0  4 17834  1  2   3   4   5
## 23  1  1  1  1  1  2 17993  1  2   3   4   5
## 24  1  1  1  1  1  5 18101  1  2   3   4   5
## 25  1  1  0  0  0  5 17182  1  2   3   4   5
## 26  1  1  1  0  0  2 17890  1  2   3   4   5
## 27  1  1  1  1  1  5 18101  1  2   3   4   5
## 28  1  1  0  0  0  1 17059  1  2   3   4   5
## 29  1  0  0  0  0  4 17102  1  2   3   4   5
## 30  1  1  1  1  0  1 17980  1  2   3   4   5
## 31  1  1  1  1  1  1 18011  1  2   3   4   5
## 32  1  0  0  0  0  4 17102  1  2   3   4   5
## 33  1  1  0  0  0  5 17182  1  2   3   4   5
## 34  1  1  1  0  0  5 18009  1  2   3   4   5
## 35  1  1  1  0  0  4 17834  1  2   3   4   5
## 36  1  1  0  0  0  5 17182  1  2   3   4   5
## 37  1  1  1  1  0  1 17980  1  2   3   4   5
## 38  1  1  0  0  0  4 16902  1  2   3   4   5
## 39  1  1  1  0  0  1 17925  1  2   3   4   5
## 40  1  1  1  1  0  4 17907  1  2   3   4   5
## 41  1  1  1  0  0  3 17691  1  2   3   4   5
## 42  1  1  1  1  0  3 17704  1  2   3   4   5
## 43  1  0  0  0  0  2 17102  1  2   3   4   5
## 44  1  0  0  0  0  2 17102  1  2   3   4   5
## 45  1  1  1  0  0  4 17834  1  2   3   4   5
```

```
## 46  1 0 0 0 0 1 17102 1 2  3  4  5
## 47  1 1 1 0 0 2 17890 1 2  3  4  5
## 48  1 1 1 1 1 4 17980 1 2  3  4  5
## 49  1 1 1 0 0 1 17925 1 2  3  4  5
## 50  1 0 0 0 0 2 17102 1 2  3  4  5
## [1] "Geração:"
## [1] 1
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## 11  1  1  1  0  0  2 17890  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  0  3 17704  1  2   3   4   5
## 14  1  1  1  0  0  3 17691  1  2   3   4   5
## 15  1  1  1  1  1  3 17660  1  2   3   4   5
## 16  1  1  0  0  0  5 17182  1  2   3   4   5
## 17  1  1  1  0  0  2 17145  3  5   2   4   1
## 18  1  0  0  0  0  5 17102  1  2   3   4   5
## 19  1  0  0  0  0  4 17102  1  2   3   4   5
## 20  1  0  0  0  0  2 17102  1  2   3   4   5
## 21  1  0  0  0  0  1 17102  1  2   3   4   5
## 22  1  1  0  0  0  1 17059  1  2   3   4   5
## 23  1  1  0  0  0  4 16902  1  2   3   4   5
## 24  1  0  0  0  0  3 13706  4  1   5   3   2
## 25  1  1  1  1  1  5 18101  1  2   3   4   5
## 26  1  1  1  1  0  5 18073  1  2   3   4   5
## 27  1  1  1  1  1  1 18011  1  2   3   4   5
## 28  1  1  1  0  0  5 18009  1  2   3   4   5
## 29  1  1  1  1  1  2 17993  1  2   3   4   5
## 30  1  1  1  1  0  1 17980  1  2   3   4   5
## 31  1  1  1  1  1  4 17980  1  2   3   4   5
## 32  1  1  1  0  0  1 17925  1  2   3   4   5
## 33  1  1  1  1  0  4 17907  1  2   3   4   5
## 34  1  1  1  0  0  2 17890  1  2   3   4   5
## 35  1  1  1  0  0  4 17834  1  2   3   4   5
## 36  1  1  1  1  0  3 17704  1  2   3   4   5
## 37  1  1  1  0  0  2 17145  3  5   2   4   1
## 38  1  1  1  1  1  3 17660  1  2   3   4   5
## 39  1  1  0  0  0  5 17182  1  2   3   4   5
## 40  1  0  0  0  0  5 17102  1  2   3   4   5
## 41  1  0  0  0  0  4 17102  1  2   3   4   5
## 42  1  0  0  0  0  2 17102  1  2   3   4   5
## 43  1  0  0  0  0  1 17102  1  2   3   4   5
## 44  1  1  0  0  0  4 18550  3  1   2   5   4
## 45  1  1  0  0  0  4 16902  1  2   3   4   5
## 46  1  0  0  0  0  5 17102  1  2   3   4   5
```

```
## 47  1  1  1  1  0  5 18073  1  2  3  4  5
## 48  1  0  0  0  0  5 17102  1  2  3  4  5
## 49  1  1  1  0  0  5 18009  1  2  3  4  5
## 50  1  1  1  1  0  5 18073  1  2  3  4  5
## [1] "Geração:"
## [1] 2
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## 11  1  1  1  0  0  2 17890  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  0  3 17704  1  2   3   4   5
## 14  1  1  1  0  0  3 17691  1  2   3   4   5
## 15  1  1  1  1  1  3 17660  1  2   3   4   5
## 16  1  1  0  0  0  5 17182  1  2   3   4   5
## 17  1  1  1  0  0  2 17145  3  5   2   4   1
## 18  1  0  0  0  0  5 17102  1  2   3   4   5
## 19  1  0  0  0  0  4 17102  1  2   3   4   5
## 20  1  0  0  0  0  2 17102  1  2   3   4   5
## 21  1  0  0  0  0  1 17102  1  2   3   4   5
## 22  1  1  0  0  0  1 17059  1  2   3   4   5
## 23  1  1  0  0  0  4 16902  1  2   3   4   5
## 24  1  1  0  0  0  4 16727  1  4   2   3   5
## 25  1  1  0  0  0  1 15809  5  3   2   4   1
## 26  1  0  0  0  0  5 14342  3  4   2   1   5
## 27  1  0  0  0  0  2 14342  3  5   4   2   1
## 28  1  0  0  0  0  3 13706  4  1   5   3   2
## 29  1  1  0  0  0  4 18550  3  1   2   5   4
## 30  1  1  1  1  1  5 18101  1  2   3   4   5
## 31  1  0  0  0  0  5 14342  3  4   2   1   5
## 32  1  1  1  1  1  1 18011  1  2   3   4   5
## 33  1  1  1  0  0  5 18009  1  2   3   4   5
## 34  1  1  1  1  1  2 17993  1  2   3   4   5
## 35  1  1  1  1  0  1 17980  1  2   3   4   5
## 36  1  1  1  1  1  4 17980  1  2   3   4   5
## 37  1  1  1  0  0  1 17925  1  2   3   4   5
## 38  1  1  1  1  0  4 17907  1  2   3   4   5
## 39  1  1  1  0  0  2 17890  1  2   3   4   5
## 40  1  1  1  0  0  4 17834  1  2   3   4   5
## 41  1  1  1  1  0  3 17704  1  2   3   4   5
## 42  1  1  1  0  0  3 17691  1  2   3   4   5
## 43  1  1  1  1  1  3 17660  1  2   3   4   5
## 44  1  1  0  0  0  5 17182  1  2   3   4   5
## 45  1  1  1  0  0  2 17145  3  5   2   4   1
## 46  1  0  0  0  0  5 17102  1  2   3   4   5
## 47  1  0  0  0  0  4 17102  1  2   3   4   5
```

```
## 48   1   0   0   0   0   2 17102   1   2    3    4    5
## 49   1   0   0   0   0   1 17102   1   2    3    4    5
## 50   1   1   0   0   0   1 15809   5   3    2    4    1
## [1] "Geração:"
## [1] 3
##      V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1    1   1   0   0   0   4 18550   3   1    2    5    4
## 2    1   1   1   1   1   5 18101   1   2    3    4    5
## 3    1   1   1   1   0   5 18073   1   2    3    4    5
## 4    1   1   1   1   1   1 18011   1   2    3    4    5
## 5    1   1   1   0   0   5 18009   1   2    3    4    5
## 6    1   1   1   1   1   2 17993   1   2    3    4    5
## 7    1   1   1   1   0   1 17980   1   2    3    4    5
## 8    1   1   1   1   1   4 17980   1   2    3    4    5
## 9    1   1   1   0   0   1 17925   1   2    3    4    5
## 10   1   1   1   1   0   4 17907   1   2    3    4    5
## 11   1   1   1   0   0   2 17890   1   2    3    4    5
## 12   1   1   1   0   0   4 17834   1   2    3    4    5
## 13   1   1   1   1   0   3 17704   1   2    3    4    5
## 14   1   1   1   0   0   3 17691   1   2    3    4    5
## 15   1   1   1   1   1   3 17660   1   2    3    4    5
## 16   1   1   0   0   0   5 17182   1   2    3    4    5
## 17   1   1   1   0   0   2 17145   3   5    2    4    1
## 18   1   0   0   0   0   5 17102   1   2    3    4    5
## 19   1   0   0   0   0   4 17102   1   2    3    4    5
## 20   1   0   0   0   0   2 17102   1   2    3    4    5
## 21   1   0   0   0   0   1 17102   1   2    3    4    5
## 22   1   0   0   0   0   3 17102   1   3    4    5    2
## 23   1   1   0   0   0   1 17059   1   2    3    4    5
## 24   1   1   0   0   0   4 16902   1   2    3    4    5
## 25   1   1   0   0   0   4 16727   1   4    2    3    5
## 26   1   1   0   0   0   4 15948   3   4    2    5    1
## 27   1   1   0   0   0   1 15809   5   3    2    4    1
## 28   1   0   0   0   0   5 14342   3   4    2    1    5
## 29   1   0   0   0   0   2 14342   3   5    4    2    1
## 30   1   0   0   0   0   3 13706   4   1    5    3    2
## 31   1   0   0   0   0   5 13706   4   2    3    5    1
## 32   1   1   0   0   0   4 18550   3   1    2    5    4
## 33   1   1   1   1   1   5 18101   1   2    3    4    5
## 34   1   1   1   1   0   5 18073   1   2    3    4    5
## 35   1   1   1   1   1   1 18011   1   2    3    4    5
## 36   1   1   1   0   0   5 18009   1   2    3    4    5
## 37   1   1   1   1   1   2 17993   1   2    3    4    5
## 38   1   1   1   1   0   1 17980   1   2    3    4    5
## 39   1   1   1   1   1   4 17980   1   2    3    4    5
## 40   1   1   1   0   0   1 17925   1   2    3    4    5
## 41   1   1   1   1   0   4 17907   1   2    3    4    5
## 42   1   1   1   0   0   2 17890   1   2    3    4    5
## 43   1   1   1   0   0   4 17834   1   2    3    4    5
## 44   1   1   1   1   0   3 17704   1   2    3    4    5
## 45   1   0   0   0   0   5 13706   4   2    3    5    1
## 46   1   1   1   1   1   3 17660   1   2    3    4    5
## 47   1   1   0   0   0   5 17182   1   2    3    4    5
## 48   1   1   1   0   0   2 17145   3   5    2    4    1
```

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## 49  1  0  0  0  0  5 17102  1  2   3   4   5
## 50  1  0  0  0  0  4 17102  1  2   3   4   5
## [1] "Geração:"
## [1] 4
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## 11  1  1  1  0  0  2 17890  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  0  3 17704  1  2   3   4   5
## 14  1  1  1  0  0  3 17691  1  2   3   4   5
## 15  1  1  1  1  1  3 17660  1  2   3   4   5
## 16  1  1  0  0  0  5 17182  1  2   3   4   5
## 17  1  1  1  0  0  2 17145  3  5   2   4   1
## 18  1  0  0  0  0  5 17102  1  2   3   4   5
## 19  1  0  0  0  0  4 17102  1  2   3   4   5
## 20  1  0  0  0  0  2 17102  1  2   3   4   5
## 21  1  0  0  0  0  1 17102  1  2   3   4   5
## 22  1  0  0  0  0  3 17102  1  3   4   5   2
## 23  1  1  0  0  0  1 17059  1  2   3   4   5
## 24  1  1  0  0  0  4 16902  1  2   3   4   5
## 25  1  1  0  0  0  4 16727  1  4   2   3   5
## 26  1  1  0  0  0  4 15948  3  4   2   5   1
## 27  1  1  0  0  0  1 15809  5  3   2   4   1
## 28  1  0  0  0  0  5 14342  3  4   2   1   5
## 29  1  0  0  0  0  2 14342  3  5   4   2   1
## 30  1  0  0  0  0  3 13706  4  1   5   3   2
## 31  1  0  0  0  0  5 13706  4  2   3   5   1
## 32  1  0  0  0  0  4 13706  4  3   5   1   2
## 33  1  0  0  0  0  1 12922  5  2   1   3   4
## 34  1  1  0  0  0  4 18550  3  1   2   5   4
## 35  1  0  0  0  0  1 12922  5  2   1   3   4
## 36  1  1  1  1  0  5 18073  1  2   3   4   5
## 37  1  1  1  1  1  1 18011  1  2   3   4   5
## 38  1  1  1  0  0  5 18009  1  2   3   4   5
## 39  1  1  1  1  1  2 17993  1  2   3   4   5
## 40  1  1  1  1  0  1 17980  1  2   3   4   5
## 41  1  1  1  1  1  4 17980  1  2   3   4   5
## 42  1  1  1  0  0  1 17925  1  2   3   4   5
## 43  1  1  1  1  0  4 17907  1  2   3   4   5
## 44  1  1  1  0  0  2 17890  1  2   3   4   5
## 45  1  1  1  0  0  4 17834  1  2   3   4   5
## 46  1  1  1  1  0  3 17704  1  2   3   4   5
## 47  1  1  1  0  0  3 17691  1  2   3   4   5
## 48  1  1  1  1  1  3 17660  1  2   3   4   5
## 49  1  1  0  0  0  5 17182  1  2   3   4   5
```

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## 50   1  1  1  0  0  2 17145  3  5   2   4   1
## [1] "Geração:"
## [1] 5
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## 11  1  1  1  0  0  2 17890  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  0  3 17704  1  2   3   4   5
## 14  1  1  1  0  0  3 17691  1  2   3   4   5
## 15  1  1  1  1  1  3 17660  1  2   3   4   5
## 16  1  1  0  0  0  5 17182  1  2   3   4   5
## 17  1  1  1  0  0  2 17145  3  5   2   4   1
## 18  1  0  0  0  0  5 17102  1  2   3   4   5
## 19  1  0  0  0  0  4 17102  1  2   3   4   5
## 20  1  0  0  0  0  2 17102  1  2   3   4   5
## 21  1  0  0  0  0  1 17102  1  2   3   4   5
## 22  1  0  0  0  0  3 17102  1  3   4   5   2
## 23  1  0  0  0  0  2 17102  1  5   4   2   3
## 24  1  1  0  0  0  1 17059  1  2   3   4   5
## 25  1  1  0  0  0  2 17019  1  2   3   5   4
## 26  1  1  0  0  0  4 16902  1  2   3   4   5
## 27  1  1  0  0  0  4 16727  1  4   2   3   5
## 28  1  1  0  0  0  4 15948  3  4   2   5   1
## 29  1  1  0  0  0  1 15809  5  3   2   4   1
## 30  1  0  0  0  0  5 14342  3  4   2   1   5
## 31  1  0  0  0  0  2 14342  3  5   4   2   1
## 32  1  0  0  0  0  3 14342  3  5   2   1   4
## 33  1  0  0  0  0  3 13706  4  1   5   3   2
## 34  1  0  0  0  0  5 13706  4  2   3   5   1
## 35  1  0  0  0  0  4 13706  4  3   5   1   2
## 36  1  0  0  0  0  4 13706  4  5   1   2   3
## 37  1  0  0  0  0  1 12922  5  2   1   3   4
## 38  1  1  0  0  0  4 18550  3  1   2   5   4
## 39  1  1  1  1  1  5 18101  1  2   3   4   5
## 40  1  1  1  1  0  5 18073  1  2   3   4   5
## 41  1  1  1  1  1  1 18011  1  2   3   4   5
## 42  1  1  1  0  0  5 18009  1  2   3   4   5
## 43  1  1  1  1  1  2 17993  1  2   3   4   5
## 44  1  1  1  1  0  1 17980  1  2   3   4   5
## 45  1  1  1  1  1  4 17980  1  2   3   4   5
## 46  1  1  1  0  0  1 17925  1  2   3   4   5
## 47  1  0  0  0  0  2 17102  1  5   4   2   3
## 48  1  1  1  0  0  2 17890  1  2   3   4   5
## 49  1  1  1  0  0  4 17834  1  2   3   4   5
## 50  1  1  1  1  0  3 17704  1  2   3   4   5
```

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## [1] "Geração:"
## [1] 6
##     V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  1  1  2 17993  1  2   3   4   5
## 7   1  1  1  1  0  1 17980  1  2   3   4   5
## 8   1  1  1  1  1  4 17980  1  2   3   4   5
## 9   1  1  1  0  0  1 17925  1  2   3   4   5
## 10  1  1  1  1  0  4 17907  1  2   3   4   5
## 11  1  1  1  0  0  2 17890  1  2   3   4   5
## 12  1  1  1  0  0  4 17834  1  2   3   4   5
## 13  1  1  1  1  0  3 17704  1  2   3   4   5
## 14  1  1  1  0  0  3 17691  1  2   3   4   5
## 15  1  1  1  1  1  3 17660  1  2   3   4   5
## 16  1  1  0  0  0  5 17182  1  2   3   4   5
## 17  1  1  1  0  0  2 17145  3  5   2   4   1
## 18  1  0  0  0  0  5 17102  1  2   3   4   5
## 19  1  0  0  0  0  4 17102  1  2   3   4   5
## 20  1  0  0  0  0  2 17102  1  2   3   4   5
## 21  1  0  0  0  0  1 17102  1  2   3   4   5
## 22  1  0  0  0  0  3 17102  1  3   4   5   2
## 23  1  0  0  0  0  2 17102  1  5   4   2   3
## 24  1  1  0  0  0  1 17059  1  2   3   4   5
## 25  1  1  0  0  0  2 17019  1  2   3   5   4
## 26  1  1  0  0  0  4 16902  1  2   3   4   5
## 27  1  1  0  0  0  4 16727  1  4   2   3   5
## 28  1  1  0  0  0  4 15948  3  4   2   5   1
## 29  1  1  0  0  0  1 15809  5  3   2   4   1
## 30  1  0  0  0  0  5 14342  3  4   2   1   5
## 31  1  0  0  0  0  2 14342  3  5   4   2   1
## 32  1  0  0  0  0  3 14342  3  5   2   1   4
## 33  1  0  0  0  0  3 13706  4  1   5   3   2
## 34  1  0  0  0  0  5 13706  4  2   3   5   1
## 35  1  0  0  0  0  4 13706  4  3   5   1   2
## 36  1  0  0  0  0  4 13706  4  5   1   2   3
## 37  1  0  0  0  0  1 12922  5  2   1   3   4
## 38  1  1  0  0  0  4 18550  3  1   2   5   4
## 39  1  1  1  1  1  5 18101  1  2   3   4   5
## 40  1  1  1  1  0  5 18073  1  2   3   4   5
## 41  1  1  1  1  1  1 18011  1  2   3   4   5
## 42  1  1  1  0  0  5 18009  1  2   3   4   5
## 43  1  1  1  1  1  2 17993  1  2   3   4   5
## 44  1  1  1  1  0  1 17980  1  2   3   4   5
## 45  1  1  1  1  1  4 17980  1  2   3   4   5
## 46  1  1  1  0  0  1 17925  1  2   3   4   5
## 47  1  1  1  1  0  4 17907  1  2   3   4   5
## 48  1  1  1  0  0  2 17890  1  2   3   4   5
## 49  1  1  1  0  0  4 17834  1  2   3   4   5
## 50  1  1  1  1  0  3 17704  1  2   3   4   5
## [1] "Geração:"
```

```
## [1] 7
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  1  1  1  5 18101  1  2   3   4   5
## 3   1  1  1  1  0  5 18073  1  2   3   4   5
## 4   1  1  1  1  1  1 18011  1  2   3   4   5
## 5   1  1  1  0  0  5 18009  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  3  5   2   4   1
## 7   1  1  1  1  1  2 17993  1  2   3   4   5
## 8   1  1  1  1  0  1 17980  1  2   3   4   5
## 9   1  1  1  1  1  4 17980  1  2   3   4   5
## 10  1  1  1  1  0  2 17965  1  2   3   4   5
## 11  1  1  1  0  0  1 17925  1  2   3   4   5
## 12  1  1  1  1  0  4 17907  1  2   3   4   5
## 13  1  1  1  0  0  2 17890  1  2   3   4   5
## 14  1  1  1  0  0  4 17834  1  2   3   4   5
## 15  1  1  1  1  0  3 17704  1  2   3   4   5
## 16  1  1  1  0  0  3 17691  1  2   3   4   5
## 17  1  1  1  1  1  3 17660  1  2   3   4   5
## 18  1  1  0  0  0  5 17182  1  2   3   4   5
## 19  1  1  0  0  0  5 17182  3  4   2   5   1
## 20  1  1  1  0  0  2 17145  3  5   2   4   1
## 21  1  0  0  0  0  5 17102  1  2   3   4   5
## 22  1  0  0  0  0  4 17102  1  2   3   4   5
## 23  1  0  0  0  0  2 17102  1  2   3   4   5
## 24  1  0  0  0  0  1 17102  1  2   3   4   5
## 25  1  0  0  0  0  3 17102  1  3   4   5   2
## 26  1  0  0  0  0  2 17102  1  5   4   2   3
## 27  1  0  0  0  0  4 17102  1  3   4   5   2
## 28  1  0  0  0  0  4 17102  1  5   4   2   3
## 29  1  0  0  0  0  5 17102  3  4   2   1   5
## 30  1  0  0  0  0  2 17102  3  5   4   2   1
## 31  1  0  0  0  0  5 17102  3  5   2   1   4
## 32  1  0  0  0  0  1 17102  4  1   5   3   2
## 33  1  0  0  0  0  4 17102  4  2   3   5   1
## 34  1  0  0  0  0  1 17102  4  3   5   1   2
## 35  1  0  0  0  0  1 17102  4  5   1   2   3
## 36  1  0  0  0  0  3 17102  5  2   1   3   4
## 37  1  1  0  0  0  1 17059  1  2   3   4   5
## 38  1  1  0  0  0  1 17059  3  1   2   5   4
## 39  1  1  0  0  0  2 17019  1  2   3   5   4
## 40  1  1  0  0  0  3 17006  1  4   2   3   5
## 41  1  1  0  0  0  4 16902  1  2   3   4   5
## 42  1  1  0  0  0  4 16902  1  2   3   5   4
## 43  1  1  0  0  0  4 16902  5  3   2   4   1
## 44  1  1  0  0  0  4 16902  3  1   2   5   4
## 45  1  1  1  0  0  2 16866  4  1   5   3   2
## 46  1  1  0  0  0  4 16727  1  4   2   3   5
## 47  1  1  0  0  0  4 15948  3  4   2   5   1
## 48  1  1  0  0  0  1 15809  5  3   2   4   1
## 49  1  0  0  0  0  5 14342  3  4   2   1   5
## 50  1  0  0  0  0  2 14342  3  5   4   2   1
## [1] "Geração:"
## [1] 8
```

```
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  3  1   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  2   3   4   5
## 6    1  1  1  0  0  5 18009  3  5   2   4   1
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  0  1 17980  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## 11   1  1  1  0  0  1 17925  1  2   3   4   5
## 12   1  1  1  1  0  4 17907  1  2   3   4   5
## 13   1  1  1  0  0  2 17890  1  2   3   4   5
## 14   1  1  1  0  0  4 17834  1  2   3   4   5
## 15   1  1  1  1  0  3 17704  1  2   3   4   5
## 16   1  1  1  0  0  3 17691  1  2   3   4   5
## 17   1  1  1  1  1  3 17660  1  2   3   4   5
## 18   1  1  0  0  0  5 17182  1  2   3   4   5
## 19   1  1  0  0  0  5 17182  3  4   2   5   1
## 20   1  1  1  0  0  2 17145  3  5   2   4   1
## 21   1  0  0  0  0  5 17102  1  2   3   4   5
## 22   1  0  0  0  0  4 17102  1  2   3   4   5
## 23   1  0  0  0  0  2 17102  1  2   3   4   5
## 24   1  0  0  0  0  1 17102  1  2   3   4   5
## 25   1  0  0  0  0  3 17102  1  3   4   5   2
## 26   1  0  0  0  0  2 17102  1  5   4   2   3
## 27   1  0  0  0  0  4 17102  1  3   4   5   2
## 28   1  0  0  0  0  4 17102  1  5   4   2   3
## 29   1  0  0  0  0  5 17102  3  4   2   1   5
## 30   1  0  0  0  0  2 17102  3  5   4   2   1
## 31   1  0  0  0  0  5 17102  3  5   2   1   4
## 32   1  0  0  0  0  1 17102  4  1   5   3   2
## 33   1  0  0  0  0  4 17102  4  2   3   5   1
## 34   1  0  0  0  0  1 17102  4  3   5   1   2
## 35   1  0  0  0  0  1 17102  4  5   1   2   3
## 36   1  0  0  0  0  3 17102  5  2   1   3   4
## 37   1  1  0  0  0  1 17059  1  2   3   4   5
## 38   1  1  0  0  0  1 17059  3  1   2   5   4
## 39   1  1  0  0  0  2 17019  1  2   3   5   4
## 40   1  1  0  0  0  3 17006  1  4   2   3   5
## 41   1  1  0  0  0  4 16902  1  2   3   4   5
## 42   1  1  0  0  0  4 16902  1  2   3   5   4
## 43   1  1  0  0  0  4 16902  5  3   2   4   1
## 44   1  1  0  0  0  4 16902  3  1   2   5   4
## 45   1  1  1  0  0  2 16866  4  1   5   3   2
## 46   1  1  0  0  0  4 16727  1  4   2   3   5
## 47   1  1  1  0  0  4 16478  3  4   5   2   1
## 48   1  1  0  0  0  4 15948  3  4   2   5   1
## 49   1  1  0  0  0  1 15809  5  3   2   4   1
## 50   1  0  0  0  0  3 15066  2  5   3   1   4
## [1] "Geração:"
## [1] 9
##     V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
```

```
## 1    1  1  0  0  0  4 18550  3  1   2   5   4
## 2    1  1  1  1  1  5 18101  1  2   3   4   5
## 3    1  1  1  1  0  5 18073  1  2   3   4   5
## 4    1  1  1  1  1  1 18011  1  2   3   4   5
## 5    1  1  1  0  0  5 18009  1  2   3   4   5
## 6    1  1  1  0  0  5 18009  3  5   2   4   1
## 7    1  1  1  1  1  2 17993  1  2   3   4   5
## 8    1  1  1  1  0  1 17980  1  2   3   4   5
## 9    1  1  1  1  1  4 17980  1  2   3   4   5
## 10   1  1  1  1  0  2 17965  1  2   3   4   5
## 11   1  1  1  0  0  1 17925  1  2   3   4   5
## 12   1  1  1  1  0  4 17907  1  2   3   4   5
## 13   1  1  1  0  0  2 17890  1  2   3   4   5
## 14   1  1  1  0  0  4 17834  1  2   3   4   5
## 15   1  1  1  1  0  3 17704  1  2   3   4   5
## 16   1  1  1  0  0  3 17691  1  2   3   4   5
## 17   1  1  1  0  0  3 17691  1  3   2   4   5
## 18   1  1  1  1  1  3 17660  1  2   3   4   5
## 19   1  1  0  0  0  5 17182  1  2   3   4   5
## 20   1  1  0  0  0  5 17182  3  4   2   5   1
## 21   1  1  1  0  0  2 17145  3  5   2   4   1
## 22   1  0  0  0  0  5 17102  1  2   3   4   5
## 23   1  0  0  0  0  4 17102  1  2   3   4   5
## 24   1  0  0  0  0  2 17102  1  2   3   4   5
## 25   1  0  0  0  0  1 17102  1  2   3   4   5
## 26   1  0  0  0  0  3 17102  1  3   4   5   2
## 27   1  0  0  0  0  2 17102  1  5   4   2   3
## 28   1  0  0  0  0  4 17102  1  3   4   5   2
## 29   1  0  0  0  0  4 17102  1  5   4   2   3
## 30   1  0  0  0  0  5 17102  3  4   2   1   5
## 31   1  0  0  0  0  2 17102  3  5   4   2   1
## 32   1  0  0  0  0  5 17102  3  5   2   1   4
## 33   1  0  0  0  0  1 17102  4  1   5   3   2
## 34   1  0  0  0  0  4 17102  4  2   3   5   1
## 35   1  0  0  0  0  1 17102  4  3   5   1   2
## 36   1  0  0  0  0  1 17102  4  5   1   2   3
## 37   1  0  0  0  0  3 17102  5  2   1   3   4
## 38   1  1  0  0  0  1 17059  1  2   3   4   5
## 39   1  1  0  0  0  1 17059  3  1   2   5   4
## 40   1  1  0  0  0  2 17019  1  2   3   5   4
## 41   1  1  0  0  0  3 17006  1  4   2   3   5
## 42   1  1  0  0  0  4 16902  1  2   3   4   5
## 43   1  1  0  0  0  4 16902  1  2   3   5   4
## 44   1  1  0  0  0  4 16902  5  3   2   4   1
## 45   1  1  0  0  0  4 16902  3  1   2   5   4
## 46   1  1  1  0  0  2 16866  4  1   5   3   2
## 47   1  1  0  0  0  4 16727  1  4   2   3   5
## 48   1  1  1  0  0  4 16478  3  4   5   2   1
## 49   1  1  0  0  0  4 15948  3  4   2   5   1
## 50   1  1  0  0  0  1 15809  5  3   2   4   1
## [1] "Geração:"
## [1] 10
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
```

```
## 2    1  1  1  1  1  5 18101  1  2    3    4    5
## 3    1  1  1  1  0  5 18073  1  2    3    4    5
## 4    1  1  1  1  1  1 18011  1  2    3    4    5
## 5    1  1  1  0  0  5 18009  1  2    3    4    5
## 6    1  1  1  0  0  5 18009  3  5    2    4    1
## 7    1  1  1  1  1  2 17993  1  2    3    4    5
## 8    1  1  1  1  0  1 17980  1  2    3    4    5
## 9    1  1  1  1  1  4 17980  1  2    3    4    5
## 10   1  1  1  1  0  2 17965  1  2    3    4    5
## 11   1  1  1  0  0  1 17925  1  2    3    4    5
## 12   1  1  1  1  0  4 17907  1  2    3    4    5
## 13   1  1  1  0  0  2 17890  1  2    3    4    5
## 14   1  1  1  0  0  4 17834  1  2    3    4    5
## 15   1  1  1  0  0  4 17834  4  1    5    3    2
## 16   1  1  1  0  0  4 17834  3  4    5    2    1
## 17   1  1  1  1  0  3 17704  1  2    3    4    5
## 18   1  1  1  0  0  3 17691  1  2    3    4    5
## 19   1  1  1  0  0  3 17691  1  3    2    4    5
## 20   1  1  1  0  0  3 17691  3  5    2    4    1
## 21   1  1  1  1  1  3 17660  1  2    3    4    5
## 22   1  1  0  0  0  5 17182  1  2    3    4    5
## 23   1  1  0  0  0  5 17182  3  4    2    5    1
## 24   1  1  0  0  0  5 17182  1  2    3    5    4
## 25   1  1  0  0  0  5 17182  1  4    2    3    5
## 26   1  1  1  0  0  2 17145  3  5    2    4    1
## 27   1  0  0  0  0  5 17102  1  2    3    4    5
## 28   1  0  0  0  0  4 17102  1  2    3    4    5
## 29   1  0  0  0  0  2 17102  1  2    3    4    5
## 30   1  0  0  0  0  1 17102  1  2    3    4    5
## 31   1  0  0  0  0  3 17102  1  3    4    5    2
## 32   1  0  0  0  0  2 17102  1  5    4    2    3
## 33   1  0  0  0  0  4 17102  1  3    4    5    2
## 34   1  0  0  0  0  4 17102  1  5    4    2    3
## 35   1  0  0  0  0  5 17102  3  4    2    1    5
## 36   1  0  0  0  0  2 17102  3  5    4    2    1
## 37   1  0  0  0  0  5 17102  3  5    2    1    4
## 38   1  0  0  0  0  1 17102  4  1    5    3    2
## 39   1  0  0  0  0  4 17102  4  2    3    5    1
## 40   1  0  0  0  0  1 17102  4  3    5    1    2
## 41   1  0  0  0  0  1 17102  4  5    1    2    3
## 42   1  0  0  0  0  3 17102  5  2    1    3    4
## 43   1  0  0  0  0  3 17102  1  2    3    4    5
## 44   1  0  0  0  0  2 17102  3  4    2    1    5
## 45   1  0  0  0  0  1 17102  3  5    4    2    1
## 46   1  0  0  0  0  5 17102  4  1    5    3    2
## 47   1  0  0  0  0  3 17102  4  3    5    1    2
## 48   1  0  0  0  0  4 17102  5  2    1    3    4
## 49   1  0  0  0  0  1 17102  1  2    5    4    3
## 50   1  1  0  0  0  1 17059  1  2    3    4    5
## [1] "Geração:"
## [1] 11
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
```

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```
## 3    1  1  1  1  1  5 18101  1  2   3   4   5
## 4    1  1  1  1  0  5 18073  1  2   3   4   5
## 5    1  1  1  1  1  1 18011  1  2   3   4   5
## 6    1  1  1  0  0  5 18009  1  2   3   4   5
## 7    1  1  1  0  0  5 18009  3  5   2   4   1
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  1  4 17980  1  2   3   4   5
## 11   1  1  1  1  0  2 17965  1  2   3   4   5
## 12   1  1  1  0  0  1 17925  1  2   3   4   5
## 13   1  1  1  1  0  4 17907  1  2   3   4   5
## 14   1  1  1  0  0  2 17890  1  2   3   4   5
## 15   1  1  1  0  0  4 17834  1  2   3   4   5
## 16   1  1  1  0  0  4 17834  4  1   5   3   2
## 17   1  1  1  0  0  4 17834  3  4   5   2   1
## 18   1  1  1  1  0  3 17704  1  2   3   4   5
## 19   1  1  1  0  0  3 17691  1  2   3   4   5
## 20   1  1  1  0  0  3 17691  1  3   2   4   5
## 21   1  1  1  0  0  3 17691  3  5   2   4   1
## 22   1  1  1  1  1  3 17660  1  2   3   4   5
## 23   1  1  0  0  0  5 17182  1  2   3   4   5
## 24   1  1  0  0  0  5 17182  3  4   2   5   1
## 25   1  1  0  0  0  5 17182  1  2   3   5   4
## 26   1  1  0  0  0  5 17182  1  4   2   3   5
## 27   1  1  1  0  0  2 17145  3  5   2   4   1
## 28   1  0  0  0  0  5 17102  1  2   3   4   5
## 29   1  0  0  0  0  4 17102  1  2   3   4   5
## 30   1  0  0  0  0  2 17102  1  2   3   4   5
## 31   1  0  0  0  0  1 17102  1  2   3   4   5
## 32   1  0  0  0  0  3 17102  1  3   4   5   2
## 33   1  0  0  0  0  2 17102  1  5   4   2   3
## 34   1  0  0  0  0  4 17102  1  3   4   5   2
## 35   1  0  0  0  0  4 17102  1  5   4   2   3
## 36   1  0  0  0  0  5 17102  3  4   2   1   5
## 37   1  0  0  0  0  2 17102  3  5   4   2   1
## 38   1  0  0  0  0  5 17102  3  5   2   1   4
## 39   1  0  0  0  0  1 17102  4  1   5   3   2
## 40   1  0  0  0  0  4 17102  4  2   3   5   1
## 41   1  0  0  0  0  1 17102  4  3   5   1   2
## 42   1  0  0  0  0  1 17102  4  5   1   2   3
## 43   1  0  0  0  0  3 17102  5  2   1   3   4
## 44   1  0  0  0  0  3 17102  1  2   3   4   5
## 45   1  0  0  0  0  2 17102  3  4   2   1   5
## 46   1  0  0  0  0  1 17102  3  5   4   2   1
## 47   1  0  0  0  0  5 17102  4  1   5   3   2
## 48   1  0  0  0  0  3 17102  4  3   5   1   2
## 49   1  0  0  0  0  4 17102  5  2   1   3   4
## 50   1  0  0  0  0  1 17102  1  2   5   4   3
## [1] "Geração:"
## [1] 12
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
```

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## 4    1  1  1  1  0  5 18073  1  2   3   4   5
## 5    1  1  1  1  1  1 18011  1  2   3   4   5
## 6    1  1  1  0  0  5 18009  1  2   3   4   5
## 7    1  1  1  0  0  5 18009  3  5   2   4   1
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  1  4 17980  1  2   3   4   5
## 11   1  1  1  1  0  2 17965  1  2   3   4   5
## 12   1  1  1  0  0  1 17925  1  2   3   4   5
## 13   1  1  1  1  0  4 17907  1  2   3   4   5
## 14   1  1  1  0  0  2 17890  1  2   3   4   5
## 15   1  1  1  0  0  4 17834  1  2   3   4   5
## 16   1  1  1  0  0  4 17834  4  1   5   3   2
## 17   1  1  1  0  0  4 17834  3  4   5   2   1
## 18   1  1  1  1  0  3 17704  1  2   3   4   5
## 19   1  1  1  0  0  3 17691  1  2   3   4   5
## 20   1  1  1  0  0  3 17691  1  3   2   4   5
## 21   1  1  1  0  0  3 17691  3  5   2   4   1
## 22   1  1  1  1  1  3 17660  1  2   3   4   5
## 23   1  1  0  0  0  5 17182  1  2   3   4   5
## 24   1  1  0  0  0  5 17182  3  4   2   5   1
## 25   1  1  0  0  0  5 17182  1  2   3   5   4
## 26   1  1  0  0  0  5 17182  1  4   2   3   5
## 27   1  1  1  0  0  2 17145  3  5   2   4   1
## 28   1  0  0  0  0  5 17102  1  2   3   4   5
## 29   1  0  0  0  0  4 17102  1  2   3   4   5
## 30   1  0  0  0  0  2 17102  1  2   3   4   5
## 31   1  0  0  0  0  1 17102  1  2   3   4   5
## 32   1  0  0  0  0  3 17102  1  3   4   5   2
## 33   1  0  0  0  0  2 17102  1  5   4   2   3
## 34   1  0  0  0  0  4 17102  1  3   4   5   2
## 35   1  0  0  0  0  4 17102  1  5   4   2   3
## 36   1  0  0  0  0  5 17102  3  4   2   1   5
## 37   1  0  0  0  0  2 17102  3  5   4   2   1
## 38   1  0  0  0  0  5 17102  3  5   2   1   4
## 39   1  0  0  0  0  1 17102  4  1   5   3   2
## 40   1  0  0  0  0  4 17102  4  2   3   5   1
## 41   1  0  0  0  0  1 17102  4  3   5   1   2
## 42   1  0  0  0  0  1 17102  4  5   1   2   3
## 43   1  0  0  0  0  3 17102  5  2   1   3   4
## 44   1  0  0  0  0  3 17102  1  2   3   4   5
## 45   1  0  0  0  0  2 17102  3  4   2   1   5
## 46   1  0  0  0  0  1 17102  3  5   4   2   1
## 47   1  0  0  0  0  5 17102  4  1   5   3   2
## 48   1  0  0  0  0  3 17102  4  3   5   1   2
## 49   1  0  0  0  0  4 17102  5  2   1   3   4
## 50   1  0  0  0  0  1 17102  1  2   5   4   3
## [1] "Geração:"
## [1] 13
##     V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1    1  1  0  0  0  4 18550  3  1   2   5   4
## 2    1  1  0  0  0  4 18550  3  1   4   5   2
## 3    1  1  1  1  1  5 18101  1  2   3   4   5
## 4    1  1  1  1  0  5 18073  1  2   3   4   5
```

```
## 5    1  1  1  1  1  1 18011  1  2  3  4  5
## 6    1  1  1  0  0  5 18009  1  2  3  4  5
## 7    1  1  1  0  0  5 18009  3  5  2  4  1
## 8    1  1  1  1  1  2 17993  1  2  3  4  5
## 9    1  1  1  1  0  1 17980  1  2  3  4  5
## 10   1  1  1  1  1  4 17980  1  2  3  4  5
## 11   1  1  1  1  0  2 17965  1  2  3  4  5
## 12   1  1  1  0  0  1 17925  1  2  3  4  5
## 13   1  1  1  1  0  4 17907  1  2  3  4  5
## 14   1  1  1  0  0  2 17890  1  2  3  4  5
## 15   1  1  1  0  0  4 17834  1  2  3  4  5
## 16   1  1  1  0  0  4 17834  4  1  5  3  2
## 17   1  1  1  0  0  4 17834  3  4  5  2  1
## 18   1  1  1  1  0  3 17704  1  2  3  4  5
## 19   1  1  1  0  0  3 17691  1  2  3  4  5
## 20   1  1  1  0  0  3 17691  1  3  2  4  5
## 21   1  1  1  0  0  3 17691  3  5  2  4  1
## 22   1  1  1  1  1  3 17660  1  2  3  4  5
## 23   1  1  0  0  0  5 17182  1  2  3  4  5
## 24   1  1  0  0  0  5 17182  3  4  2  5  1
## 25   1  1  0  0  0  5 17182  1  2  3  5  4
## 26   1  1  0  0  0  5 17182  1  4  2  3  5
## 27   1  1  1  0  0  2 17145  3  5  2  4  1
## 28   1  0  0  0  0  5 17102  1  2  3  4  5
## 29   1  0  0  0  0  4 17102  1  2  3  4  5
## 30   1  0  0  0  0  2 17102  1  2  3  4  5
## 31   1  0  0  0  0  1 17102  1  2  3  4  5
## 32   1  0  0  0  0  3 17102  1  3  4  5  2
## 33   1  0  0  0  0  2 17102  1  5  4  2  3
## 34   1  0  0  0  0  4 17102  1  3  4  5  2
## 35   1  0  0  0  0  4 17102  1  5  4  2  3
## 36   1  0  0  0  0  5 17102  3  4  2  1  5
## 37   1  0  0  0  0  2 17102  3  5  4  2  1
## 38   1  0  0  0  0  5 17102  3  5  2  1  4
## 39   1  0  0  0  0  1 17102  4  1  5  3  2
## 40   1  0  0  0  0  4 17102  4  2  3  5  1
## 41   1  0  0  0  0  1 17102  4  3  5  1  2
## 42   1  0  0  0  0  1 17102  4  5  1  2  3
## 43   1  0  0  0  0  3 17102  5  2  1  3  4
## 44   1  0  0  0  0  3 17102  1  2  3  4  5
## 45   1  0  0  0  0  2 17102  3  4  2  1  5
## 46   1  0  0  0  0  1 17102  3  5  4  2  1
## 47   1  0  0  0  0  5 17102  4  1  5  3  2
## 48   1  0  0  0  0  3 17102  4  3  5  1  2
## 49   1  0  0  0  0  4 17102  5  2  1  3  4
## 50   1  0  0  0  0  1 17102  1  2  5  4  3
## [1] "Geração:"
## [1] 14
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1  2   5   4
## 2   1  1  0  0  0  4 18550  3  1  4   5   2
## 3   1  1  1  1  1  5 18101  1  2  3   4   5
## 4   1  1  1  1  0  5 18073  1  2  3   4   5
## 5   1  1  1  1  1  1 18011  1  2  3   4   5
```

```
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  5   2   4   1
## 8   1  1  1  1  1  2 17993  1  2   3   4   5
## 9   1  1  1  1  0  1 17980  1  2   3   4   5
## 10  1  1  1  1  1  4 17980  1  2   3   4   5
## 11  1  1  1  1  0  2 17965  1  2   3   4   5
## 12  1  1  1  0  0  1 17925  1  2   3   4   5
## 13  1  1  1  1  0  4 17907  1  2   3   4   5
## 14  1  1  1  0  0  2 17890  1  2   3   4   5
## 15  1  1  1  0  0  4 17834  1  2   3   4   5
## 16  1  1  1  0  0  4 17834  4  1   5   3   2
## 17  1  1  1  0  0  4 17834  3  4   5   2   1
## 18  1  1  1  1  0  3 17704  1  2   3   4   5
## 19  1  1  1  0  0  3 17691  1  2   3   4   5
## 20  1  1  1  0  0  3 17691  1  3   2   4   5
## 21  1  1  1  0  0  3 17691  3  5   2   4   1
## 22  1  1  1  1  1  3 17660  1  2   3   4   5
## 23  1  1  0  0  0  5 17182  1  2   3   4   5
## 24  1  1  0  0  0  5 17182  3  4   2   5   1
## 25  1  1  0  0  0  5 17182  1  2   3   5   4
## 26  1  1  0  0  0  5 17182  1  4   2   3   5
## 27  1  1  1  0  0  2 17145  3  5   2   4   1
## 28  1  0  0  0  0  5 17102  1  2   3   4   5
## 29  1  0  0  0  0  4 17102  1  2   3   4   5
## 30  1  0  0  0  0  2 17102  1  2   3   4   5
## 31  1  0  0  0  0  1 17102  1  2   3   4   5
## 32  1  0  0  0  0  3 17102  1  3   4   5   2
## 33  1  0  0  0  0  2 17102  1  5   4   2   3
## 34  1  0  0  0  0  4 17102  1  3   4   5   2
## 35  1  0  0  0  0  4 17102  1  5   4   2   3
## 36  1  0  0  0  0  5 17102  3  4   2   1   5
## 37  1  0  0  0  0  2 17102  3  5   4   2   1
## 38  1  0  0  0  0  5 17102  3  5   2   1   4
## 39  1  0  0  0  0  1 17102  4  1   5   3   2
## 40  1  0  0  0  0  4 17102  4  2   3   5   1
## 41  1  0  0  0  0  1 17102  4  3   5   1   2
## 42  1  0  0  0  0  1 17102  4  5   1   2   3
## 43  1  0  0  0  0  3 17102  5  2   1   3   4
## 44  1  0  0  0  0  3 17102  1  2   3   4   5
## 45  1  0  0  0  0  2 17102  3  4   2   1   5
## 46  1  0  0  0  0  1 17102  3  5   4   2   1
## 47  1  0  0  0  0  5 17102  4  1   5   3   2
## 48  1  0  0  0  0  3 17102  4  3   5   1   2
## 49  1  0  0  0  0  4 17102  5  2   1   3   4
## 50  1  0  0  0  0  1 17102  1  2   5   4   3
## [1] "Geração:"
## [1] 15
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
```

```
## 7    1  1  1  0  0  5 18009  3  5    2    4    1
## 8    1  1  1  1  1  2 17993  1  2    3    4    5
## 9    1  1  1  1  0  1 17980  1  2    3    4    5
## 10   1  1  1  1  1  4 17980  1  2    3    4    5
## 11   1  1  1  1  0  2 17965  1  2    3    4    5
## 12   1  1  1  0  0  1 17925  1  2    3    4    5
## 13   1  1  1  1  0  4 17907  1  2    3    4    5
## 14   1  1  1  0  0  2 17890  1  2    3    4    5
## 15   1  1  1  0  0  4 17834  1  2    3    4    5
## 16   1  1  1  0  0  4 17834  4  1    5    3    2
## 17   1  1  1  0  0  4 17834  3  4    5    2    1
## 18   1  1  1  1  0  3 17704  1  2    3    4    5
## 19   1  1  1  0  0  3 17691  1  2    3    4    5
## 20   1  1  1  0  0  3 17691  1  3    2    4    5
## 21   1  1  1  0  0  3 17691  3  5    2    4    1
## 22   1  1  1  1  1  3 17660  1  2    3    4    5
## 23   1  1  0  0  0  5 17182  1  2    3    4    5
## 24   1  1  0  0  0  5 17182  3  4    2    5    1
## 25   1  1  0  0  0  5 17182  1  2    3    5    4
## 26   1  1  0  0  0  5 17182  1  4    2    3    5
## 27   1  1  1  0  0  2 17145  3  5    2    4    1
## 28   1  0  0  0  0  5 17102  1  2    3    4    5
## 29   1  0  0  0  0  4 17102  1  2    3    4    5
## 30   1  0  0  0  0  2 17102  1  2    3    4    5
## 31   1  0  0  0  0  1 17102  1  2    3    4    5
## 32   1  0  0  0  0  3 17102  1  3    4    5    2
## 33   1  0  0  0  0  2 17102  1  5    4    2    3
## 34   1  0  0  0  0  4 17102  1  3    4    5    2
## 35   1  0  0  0  0  4 17102  1  5    4    2    3
## 36   1  0  0  0  0  5 17102  3  4    2    1    5
## 37   1  0  0  0  0  2 17102  3  5    4    2    1
## 38   1  0  0  0  0  5 17102  3  5    2    1    4
## 39   1  0  0  0  0  1 17102  4  1    5    3    2
## 40   1  0  0  0  0  4 17102  4  2    3    5    1
## 41   1  0  0  0  0  1 17102  4  3    5    1    2
## 42   1  0  0  0  0  1 17102  4  5    1    2    3
## 43   1  0  0  0  0  3 17102  5  2    1    3    4
## 44   1  0  0  0  0  3 17102  1  2    3    4    5
## 45   1  0  0  0  0  2 17102  3  4    2    1    5
## 46   1  0  0  0  0  1 17102  3  5    4    2    1
## 47   1  0  0  0  0  5 17102  4  1    5    3    2
## 48   1  0  0  0  0  3 17102  4  3    5    1    2
## 49   1  0  0  0  0  4 17102  5  2    1    3    4
## 50   1  0  0  0  0  1 17102  1  2    5    4    3
## [1] "Geração:"
## [1] 16
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1    2    5    4
## 2   1  1  0  0  0  4 18550  3  1    4    5    2
## 3   1  1  1  1  1  5 18101  1  2    3    4    5
## 4   1  1  1  1  0  5 18073  1  2    3    4    5
## 5   1  1  1  1  1  1 18011  1  2    3    4    5
## 6   1  1  1  0  0  5 18009  1  2    3    4    5
## 7   1  1  1  0  0  5 18009  3  5    2    4    1
```

```
## 8    1  1  1  1  1  2 17993  1  2   3   4   5
## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  1  4 17980  1  2   3   4   5
## 11   1  1  1  1  0  2 17965  1  2   3   4   5
## 12   1  1  1  0  0  1 17925  1  2   3   4   5
## 13   1  1  1  1  0  4 17907  1  2   3   4   5
## 14   1  1  1  0  0  2 17890  1  2   3   4   5
## 15   1  1  1  0  0  2 17890  3  2   1   4   5
## 16   1  1  1  0  0  4 17834  1  2   3   4   5
## 17   1  1  1  0  0  4 17834  4  1   5   3   2
## 18   1  1  1  0  0  4 17834  3  4   5   2   1
## 19   1  1  1  1  0  3 17704  1  2   3   4   5
## 20   1  1  1  0  0  3 17691  1  2   3   4   5
## 21   1  1  1  0  0  3 17691  1  3   2   4   5
## 22   1  1  1  0  0  3 17691  3  5   2   4   1
## 23   1  1  1  1  1  3 17660  1  2   3   4   5
## 24   1  1  0  0  0  5 17182  1  2   3   4   5
## 25   1  1  0  0  0  5 17182  3  4   2   5   1
## 26   1  1  0  0  0  5 17182  1  2   3   5   4
## 27   1  1  0  0  0  5 17182  1  4   2   3   5
## 28   1  1  1  0  0  2 17145  3  5   2   4   1
## 29   1  0  0  0  0  5 17102  1  2   3   4   5
## 30   1  0  0  0  0  4 17102  1  2   3   4   5
## 31   1  0  0  0  0  2 17102  1  2   3   4   5
## 32   1  0  0  0  0  1 17102  1  2   3   4   5
## 33   1  0  0  0  0  3 17102  1  3   4   5   2
## 34   1  0  0  0  0  2 17102  1  5   4   2   3
## 35   1  0  0  0  0  4 17102  1  3   4   5   2
## 36   1  0  0  0  0  4 17102  1  5   4   2   3
## 37   1  0  0  0  0  5 17102  3  4   2   1   5
## 38   1  0  0  0  0  2 17102  3  5   4   2   1
## 39   1  0  0  0  0  5 17102  3  5   2   1   4
## 40   1  0  0  0  0  1 17102  4  1   5   3   2
## 41   1  0  0  0  0  4 17102  4  2   3   5   1
## 42   1  0  0  0  0  1 17102  4  3   5   1   2
## 43   1  0  0  0  0  1 17102  4  5   1   2   3
## 44   1  0  0  0  0  3 17102  5  2   1   3   4
## 45   1  0  0  0  0  3 17102  1  2   3   4   5
## 46   1  0  0  0  0  2 17102  3  4   2   1   5
## 47   1  0  0  0  0  1 17102  3  5   4   2   1
## 48   1  0  0  0  0  5 17102  4  1   5   3   2
## 49   1  0  0  0  0  3 17102  4  3   5   1   2
## 50   1  0  0  0  0  4 17102  5  2   1   3   4
## [1] "Geração:"
## [1] 17
##    V1 V2 V3 V4 V5 V6     V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  5   2   4   1
## 8   1  1  1  1  1  2 17993  1  2   3   4   5
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## 9    1  1  1  1  0  1 17980  1  2   3   4   5
## 10   1  1  1  1  1  4 17980  1  2   3   4   5
## 11   1  1  1  1  0  2 17965  1  2   3   4   5
## 12   1  1  1  0  0  1 17925  1  2   3   4   5
## 13   1  1  1  1  0  4 17907  1  2   3   4   5
## 14   1  1  1  0  0  2 17890  1  2   3   4   5
## 15   1  1  1  0  0  2 17890  3  2   1   4   5
## 16   1  1  1  0  0  4 17834  1  2   3   4   5
## 17   1  1  1  0  0  4 17834  4  1   5   3   2
## 18   1  1  1  0  0  4 17834  3  4   5   2   1
## 19   1  1  1  1  0  3 17704  1  2   3   4   5
## 20   1  1  1  0  0  3 17691  1  2   3   4   5
## 21   1  1  1  0  0  3 17691  1  3   2   4   5
## 22   1  1  1  0  0  3 17691  3  5   2   4   1
## 23   1  1  1  1  1  3 17660  1  2   3   4   5
## 24   1  1  0  0  0  5 17182  1  2   3   4   5
## 25   1  1  0  0  0  5 17182  3  4   2   5   1
## 26   1  1  0  0  0  5 17182  1  2   3   5   4
## 27   1  1  0  0  0  5 17182  1  4   2   3   5
## 28   1  1  1  0  0  2 17145  3  5   2   4   1
## 29   1  0  0  0  0  5 17102  1  2   3   4   5
## 30   1  0  0  0  0  4 17102  1  2   3   4   5
## 31   1  0  0  0  0  2 17102  1  2   3   4   5
## 32   1  0  0  0  0  1 17102  1  2   3   4   5
## 33   1  0  0  0  0  3 17102  1  3   4   5   2
## 34   1  0  0  0  0  2 17102  1  5   4   2   3
## 35   1  0  0  0  0  4 17102  1  3   4   5   2
## 36   1  0  0  0  0  4 17102  1  5   4   2   3
## 37   1  0  0  0  0  5 17102  3  4   2   1   5
## 38   1  0  0  0  0  2 17102  3  5   4   2   1
## 39   1  0  0  0  0  5 17102  3  5   2   1   4
## 40   1  0  0  0  0  1 17102  4  1   5   3   2
## 41   1  0  0  0  0  4 17102  4  2   3   5   1
## 42   1  0  0  0  0  1 17102  4  3   5   1   2
## 43   1  0  0  0  0  1 17102  4  5   1   2   3
## 44   1  0  0  0  0  3 17102  5  2   1   3   4
## 45   1  0  0  0  0  3 17102  1  2   3   4   5
## 46   1  0  0  0  0  2 17102  3  4   2   1   5
## 47   1  0  0  0  0  1 17102  3  5   4   2   1
## 48   1  0  0  0  0  5 17102  4  1   5   3   2
## 49   1  0  0  0  0  3 17102  4  3   5   1   2
## 50   1  0  0  0  0  4 17102  5  2   1   3   4
## [1] "Geração:"
## [1] 18
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  5   2   4   1
## 8   1  1  1  1  1  2 17993  1  2   3   4   5
## 9   1  1  1  1  0  1 17980  1  2   3   4   5
```

```
## 10  1 1 1 1 1 4 17980  1 2 3 4 5
## 11  1 1 1 1 0 2 17965  1 2 3 4 5
## 12  1 1 1 0 0 1 17925  1 2 3 4 5
## 13  1 1 0 0 0 1 17921  3 1 5 2 4
## 14  1 1 1 1 0 4 17907  1 2 3 4 5
## 15  1 1 1 0 0 2 17890  1 2 3 4 5
## 16  1 1 1 0 0 2 17890  3 2 1 4 5
## 17  1 1 1 0 0 4 17834  1 2 3 4 5
## 18  1 1 1 0 0 4 17834  4 1 5 3 2
## 19  1 1 1 0 0 4 17834  3 4 5 2 1
## 20  1 1 1 1 0 3 17704  1 2 3 4 5
## 21  1 1 1 0 0 3 17691  1 2 3 4 5
## 22  1 1 1 0 0 3 17691  1 3 2 4 5
## 23  1 1 1 0 0 3 17691  3 5 2 4 1
## 24  1 1 1 1 1 3 17660  1 2 3 4 5
## 25  1 1 0 0 0 5 17182  1 2 3 4 5
## 26  1 1 0 0 0 5 17182  3 4 2 5 1
## 27  1 1 0 0 0 5 17182  1 2 3 5 4
## 28  1 1 0 0 0 5 17182  1 4 2 3 5
## 29  1 1 1 0 0 2 17145  3 5 2 4 1
## 30  1 0 0 0 0 5 17102  1 2 3 4 5
## 31  1 0 0 0 0 4 17102  1 2 3 4 5
## 32  1 0 0 0 0 2 17102  1 2 3 4 5
## 33  1 0 0 0 0 1 17102  1 2 3 4 5
## 34  1 0 0 0 0 3 17102  1 3 4 5 2
## 35  1 0 0 0 0 2 17102  1 5 4 2 3
## 36  1 0 0 0 0 4 17102  1 3 4 5 2
## 37  1 0 0 0 0 4 17102  1 5 4 2 3
## 38  1 0 0 0 0 5 17102  3 4 2 1 5
## 39  1 0 0 0 0 2 17102  3 5 4 2 1
## 40  1 0 0 0 0 5 17102  3 5 2 1 4
## 41  1 0 0 0 0 1 17102  4 1 5 3 2
## 42  1 0 0 0 0 4 17102  4 2 3 5 1
## 43  1 0 0 0 0 1 17102  4 3 5 1 2
## 44  1 0 0 0 0 1 17102  4 5 1 2 3
## 45  1 0 0 0 0 3 17102  5 2 1 3 4
## 46  1 0 0 0 0 3 17102  1 2 3 4 5
## 47  1 0 0 0 0 2 17102  3 4 2 1 5
## 48  1 0 0 0 0 1 17102  3 5 4 2 1
## 49  1 0 0 0 0 5 17102  4 1 5 3 2
## 50  1 0 0 0 0 3 17102  4 3 5 1 2
## [1] "Geração:"
## [1] 19
##    V1 V2 V3 V4 V5 V6      V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  5   2   4   1
## 8   1  1  1  0  0  5 18009  4  1   5   3   2
## 9   1  1  1  1  1  2 17993  1  2   3   4   5
## 10  1  1  1  1  0  1 17980  1  2   3   4   5
```

```
## 11  1  1  1  1  1  4 17980  1  2  3   4   5
## 12  1  1  1  1  0  2 17965  1  2  3   4   5
## 13  1  1  1  0  0  1 17925  1  2  3   4   5
## 14  1  1  0  0  0  1 17921  3  1  5   2   4
## 15  1  1  1  1  0  4 17907  1  2  3   4   5
## 16  1  1  1  0  0  2 17890  1  2  3   4   5
## 17  1  1  1  0  0  2 17890  3  2  1   4   5
## 18  1  1  1  0  0  2 17890  3  5  2   4   1
## 19  1  1  1  0  0  4 17834  1  2  3   4   5
## 20  1  1  1  0  0  4 17834  4  1  5   3   2
## 21  1  1  1  0  0  4 17834  3  4  5   2   1
## 22  1  1  1  0  0  4 17834  1  3  2   4   5
## 23  1  1  1  1  0  3 17704  1  2  3   4   5
## 24  1  1  1  0  0  3 17691  1  2  3   4   5
## 25  1  1  1  0  0  3 17691  1  3  2   4   5
## 26  1  1  1  0  0  3 17691  3  5  2   4   1
## 27  1  1  1  0  0  3 17691  3  2  1   4   5
## 28  1  1  1  1  1  3 17660  1  2  3   4   5
## 29  1  1  0  0  0  5 17182  1  2  3   4   5
## 30  1  1  0  0  0  5 17182  3  4  2   5   1
## 31  1  1  0  0  0  5 17182  1  2  3   5   4
## 32  1  1  0  0  0  5 17182  1  4  2   3   5
## 33  1  1  0  0  0  5 17182  3  1  5   2   4
## 34  1  1  1  0  0  2 17145  3  5  2   4   1
## 35  1  0  0  0  0  5 17102  1  2  3   4   5
## 36  1  0  0  0  0  4 17102  1  2  3   4   5
## 37  1  0  0  0  0  2 17102  1  2  3   4   5
## 38  1  0  0  0  0  1 17102  1  2  3   4   5
## 39  1  0  0  0  0  3 17102  1  3  4   5   2
## 40  1  0  0  0  0  2 17102  1  5  4   2   3
## 41  1  0  0  0  0  4 17102  1  3  4   5   2
## 42  1  0  0  0  0  4 17102  1  5  4   2   3
## 43  1  0  0  0  0  5 17102  3  4  2   1   5
## 44  1  0  0  0  0  2 17102  3  5  4   2   1
## 45  1  0  0  0  0  5 17102  3  5  2   1   4
## 46  1  0  0  0  0  1 17102  4  1  5   3   2
## 47  1  0  0  0  0  4 17102  4  2  3   5   1
## 48  1  0  0  0  0  1 17102  4  3  5   1   2
## 49  1  0  0  0  0  1 17102  4  5  1   2   3
## 50  1  0  0  0  0  3 17102  5  2  1   3   4
## [1] "Geração:"
## [1] 20
##    V1 V2 V3 V4 V5 V6    V7 V8 V9 V10 V11 V12
## 1   1  1  0  0  0  4 18550  3  1   2   5   4
## 2   1  1  0  0  0  4 18550  3  1   4   5   2
## 3   1  1  1  1  1  5 18101  1  2   3   4   5
## 4   1  1  1  1  0  5 18073  1  2   3   4   5
## 5   1  1  1  1  1  1 18011  1  2   3   4   5
## 6   1  1  1  0  0  5 18009  1  2   3   4   5
## 7   1  1  1  0  0  5 18009  3  5   2   4   1
## 8   1  1  1  0  0  5 18009  4  1   5   3   2
## 9   1  1  1  1  1  2 17993  1  2   3   4   5
## 10  1  1  1  1  0  1 17980  1  2   3   4   5
## 11  1  1  1  1  1  4 17980  1  2   3   4   5
```

```
## 12 1 1 1 1 0 2 17965 1 2 3 4 5
## 13 1 1 1 0 0 1 17925 1 2 3 4 5
## 14 1 1 0 0 0 1 17921 3 1 5 2 4
## 15 1 1 0 0 0 1 17921 1 3 2 4 5
## 16 1 1 1 1 0 4 17907 1 2 3 4 5
## 17 1 1 1 0 0 2 17890 1 2 3 4 5
## 18 1 1 1 0 0 2 17890 3 2 1 4 5
## 19 1 1 1 0 0 2 17890 3 5 2 4 1
## 20 1 1 1 0 0 4 17834 1 2 3 4 5
## 21 1 1 1 0 0 4 17834 4 1 5 3 2
## 22 1 1 1 0 0 4 17834 3 4 5 2 1
## 23 1 1 1 0 0 4 17834 1 3 2 4 5
## 24 1 1 1 1 0 3 17704 1 2 3 4 5
## 25 1 1 1 0 0 3 17691 1 2 3 4 5
## 26 1 1 1 0 0 3 17691 1 3 2 4 5
## 27 1 1 1 0 0 3 17691 3 5 2 4 1
## 28 1 1 1 0 0 3 17691 3 2 1 4 5
## 29 1 1 1 1 1 3 17660 1 2 3 4 5
## 30 1 1 0 0 0 5 17182 1 2 3 4 5
## 31 1 1 0 0 0 5 17182 3 4 2 5 1
## 32 1 1 0 0 0 5 17182 1 2 3 5 4
## 33 1 1 0 0 0 5 17182 1 4 2 3 5
## 34 1 1 0 0 0 5 17182 3 1 5 2 4
## 35 1 1 1 0 0 2 17145 3 5 2 4 1
## 36 1 0 0 0 0 5 17102 1 2 3 4 5
## 37 1 0 0 0 0 4 17102 1 2 3 4 5
## 38 1 0 0 0 0 2 17102 1 2 3 4 5
## 39 1 0 0 0 0 1 17102 1 2 3 4 5
## 40 1 0 0 0 0 3 17102 1 3 4 5 2
## 41 1 0 0 0 0 2 17102 1 5 4 2 3
## 42 1 0 0 0 0 4 17102 1 3 4 5 2
## 43 1 0 0 0 0 4 17102 1 5 4 2 3
## 44 1 0 0 0 0 5 17102 3 4 2 1 5
## 45 1 0 0 0 0 2 17102 3 5 4 2 1
## 46 1 0 0 0 0 5 17102 3 5 2 1 4
## 47 1 0 0 0 0 1 17102 4 1 5 3 2
## 48 1 0 0 0 0 4 17102 4 2 3 5 1
## 49 1 0 0 0 0 1 17102 4 3 5 1 2
## 50 1 0 0 0 0 1 17102 4 5 1 2 3
```

Fitness em função das gerações