

Lab07_22

Diego Fernández

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```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

```
setwd("C://Users//diego//OneDrive//Escritorio//Universidad//2º Curso//2//Investigacion Operativa//Laboratorio")  
#install.packages("metaheuR_0.3.tar.gz", repos=NULL, type="source")  
library(metaheuR)
```

```
n <- 100
```

```
valor<-runif(n, 0, 100)
```

```
peso<-runif(n, 0, 100)
```

```
limite<-sum(peso)/2
```

```
knp<-knapsackProblem(peso,valor,limite)
```

```
sol0<-rep(F,n)
```

```
sol1 <- sample (c(T,F),n,replace=T)
```

```
barplot(sol1)
```

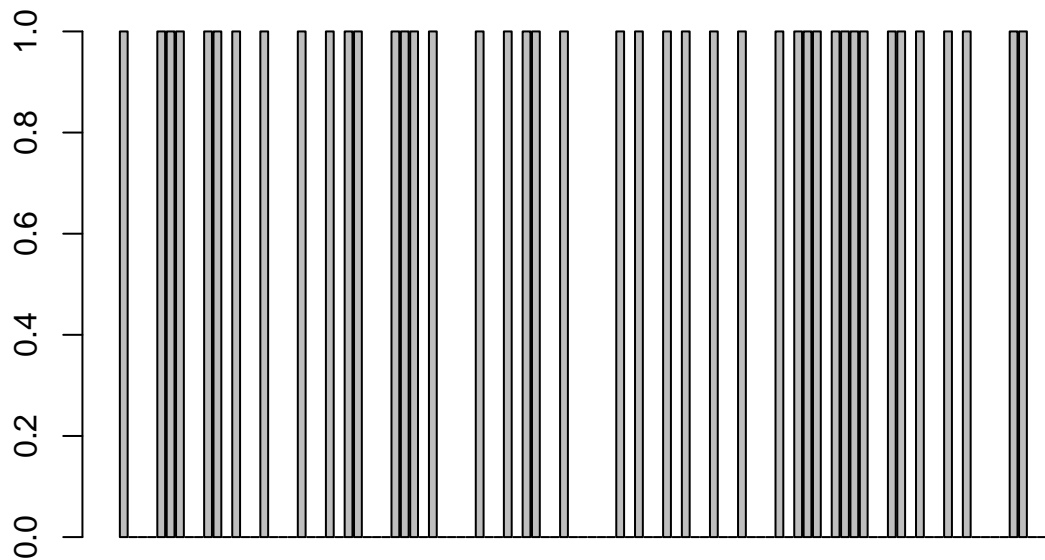
```
sol2 <- rep(T,n)
```

```
validacion <- knp$valid(sol1)
```

```
evaluacion <- knp$evaluate(sol1)
```

```
correccion <- knp$correct(sol1)
```

```
barplot(correccion)
```



```
solini <- sol1
solini
```

```
## [1] TRUE FALSE FALSE FALSE TRUE TRUE TRUE FALSE FALSE TRUE TRUE FALSE
## [13] TRUE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE
## [25] TRUE TRUE FALSE FALSE FALSE TRUE TRUE TRUE FALSE TRUE FALSE FALSE
## [37] FALSE FALSE TRUE FALSE FALSE TRUE FALSE TRUE TRUE FALSE FALSE TRUE
## [49] FALSE FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE FALSE TRUE FALSE
## [61] TRUE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE
## [73] TRUE TRUE TRUE FALSE TRUE TRUE TRUE TRUE FALSE FALSE TRUE TRUE
## [85] FALSE TRUE FALSE FALSE TRUE FALSE TRUE FALSE FALSE FALSE FALSE TRUE
## [97] TRUE FALSE FALSE FALSE
```

```
#buscar vecinos
```

```
if(knp$valid(solini)==F){
  solini <- knp$correct(solini)
}
solopt <- solini
zopt <- abs(knp$evaluate(solo))

aux <- solini
z_opt <- abs(knp$evaluate(aux))

for (j in 1:n){
```

```

aux2 <- solini
aux2[j] <- !aux2[j]

if(knp$valid(aux)){
  zaux <- abs(knp$evaluate(aux2))
  if(zaux>z_opt){
    sol_opt <- aux2
    zopt <- zaux
    print(zopt)
  }
}

}

```

```

## [1] 1833.038
## [1] 1825.658
## [1] 1815.876
## [1] 1848.941
## [1] 1816.873
## [1] 1862.482
## [1] 1880.962
## [1] 1812.707
## [1] 1855.806
## [1] 1853.066
## [1] 1880.848
## [1] 1847.676
## [1] 1834.061
## [1] 1887.828
## [1] 1824.395
## [1] 1855.933
## [1] 1841.67
## [1] 1835.669
## [1] 1844.09
## [1] 1851.021
## [1] 1809.8
## [1] 1850.283
## [1] 1855.28
## [1] 1818.217
## [1] 1838.165
## [1] 1887.566
## [1] 1877.343
## [1] 1814.823
## [1] 1813.59
## [1] 1831.231
## [1] 1902.671
## [1] 1832.832
## [1] 1810.56
## [1] 1873.647
## [1] 1872.089
## [1] 1888.434
## [1] 1823.043
## [1] 1816.383

```

```
## [1] 1838.897
## [1] 1869.492
## [1] 1878.994
## [1] 1842.598
## [1] 1854.937
## [1] 1902.144
## [1] 1869.838
## [1] 1813.132
## [1] 1839.846
## [1] 1865.8
## [1] 1893.534
## [1] 1878.214
## [1] 1844.603
## [1] 1849.889
## [1] 1818.578
## [1] 1864.596
## [1] 1807.228
## [1] 1878.83
## [1] 1863.913
## [1] 1847.443
```

```
n <- 7

matriz <- matrix(runif(n*n),n)

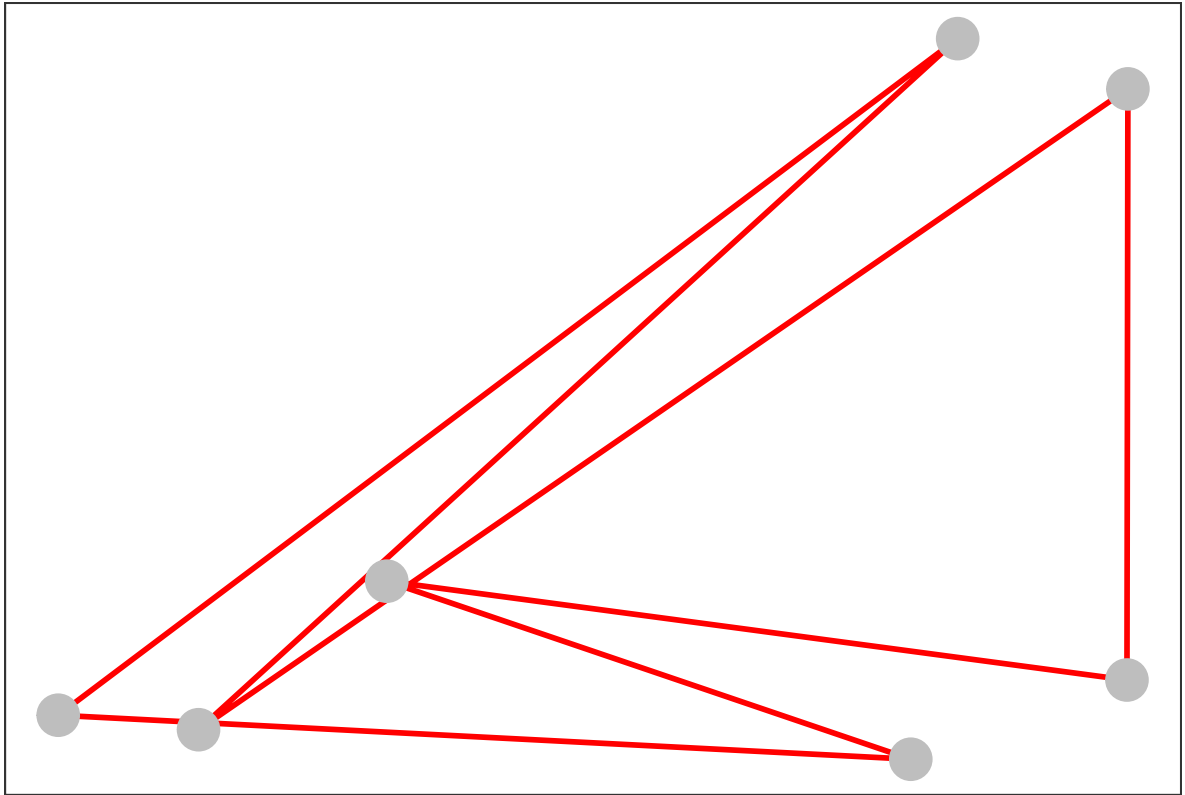
x <- runif(n)
y <- runif(n)

xy <- cbind(x,y)

objeto <- tspProblem(matriz,xy)

sol2 <- randomPermutation(n)

evaluacion2 <- objeto$evaluate(sol2)
objeto$plotSolution(sol2)
```



```
###VECINO MEJOR
```

```
solini <- sol2
vecino_mejor <- function(solini, primer){
  solopt <- solini
  zopt <- abs(objeto$evaluate(solo))
  for(i in 1:(n-1)){
    for(j in (i+1):n){
      aux <- swap(solini,i,j)
      abs(objeto$evaluate(aux)) -> zaux
      if(zaux < zopt){
        solopt <- aux
        zopt <- zaux
      }
      if(primer){

```

```

        return(solopt)
    }

}

}

}

return(solopt)
}

```

