Lab08_22

Diego Fernández

11/5/2022

```
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//Labora
#install.packages("metaheuR_0.3.tar.gz", repos=NULL,type="source")
library(metaheuR)
```

MOCHILA

```
#KSP

n<-25
peso<-runif(n,0,100)
valor<-runif(n,0,100)
limite<- sum(peso)/2

knapsackProblem(peso,valor,limite) -> knp


#SOLUCIONES

sol1 <-rep(F,n)
sol2 <-sample(c(T,F),n,replace=T)
sol3 <-rep(T,n)


sol<- sol2

  barplot(sol)
  knp$valid(sol)
```

```
## [1] TRUE
```

```
  knp$evaluate(sol)
```

```
## [1] -398.4929
```

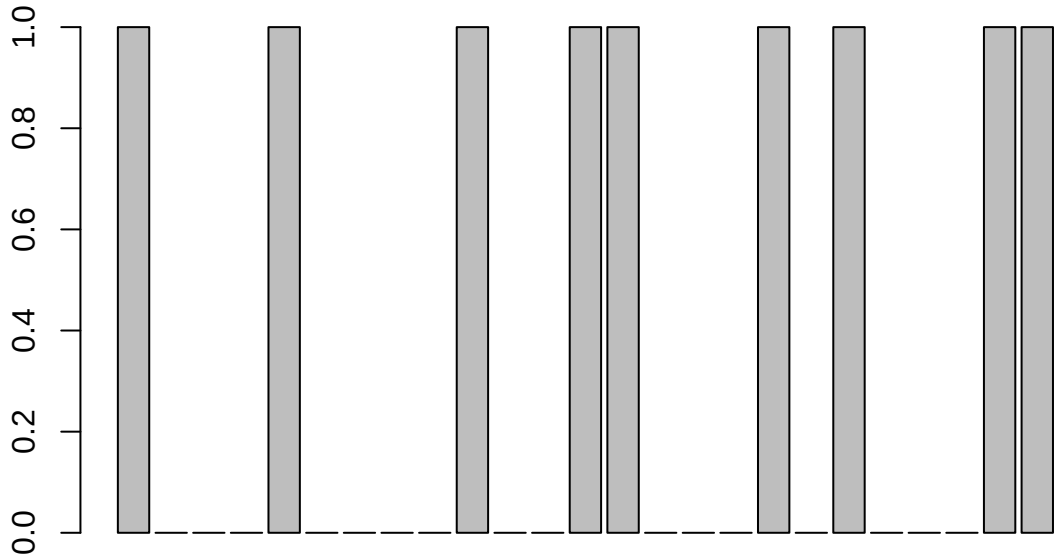
```
  knp$correct(sol) -> sol
  knp$valid(sol)
```

```
## [1] TRUE
```

```
  knp$evaluate(sol)
```

```
## [1] -398.4929
```

```
  barplot(sol)
```




```
  solini<-sol
```

```
basicLocalSearch(
  evaluate= knp$evaluate,
  initial.solution=solini,
  neighborhood=flipNeighborhood(solini),
  selector = firstImprovementSelector,


  do.log = TRUE,
  save.sols = FALSE,
  verbose = TRUE,
```

```
  non.valid = "correct",
  valid = knp$valid,
  correct = knp$correct ) -> optimo_local
```

```
## Running iteration 1. Best solution: -398.492901399732

## Running iteration 2. Best solution: -426.553962915204

## Running iteration 3. Best solution: -514.924659044482

## Running iteration 4. Best solution: -539.613575022668

## Running iteration 5. Best solution: -562.423634226434

## Running iteration 6. Best solution: -619.975060876459

## Running iteration 7. Best solution: -633.141681319103

## Running iteration 8. Best solution: -674.102637125179

## Running iteration 9. Best solution: -686.016791081056

## Running iteration 10. Best solution: -701.754893432371

## Running iteration 11. Best solution: -703.148954920471

## Running iteration 12. Best solution: -732.558715902269

## Running iteration 13. Best solution: -793.901816289872

## Running iteration 14. Best solution: -829.423072887585

## Running iteration 15. Best solution: -853.68775348179

## Running iteration 16. Best solution: -908.781991968863

## Running iteration 17. Best solution: -915.299360174686

## Running iteration 18. Best solution: -939.564040768892
```

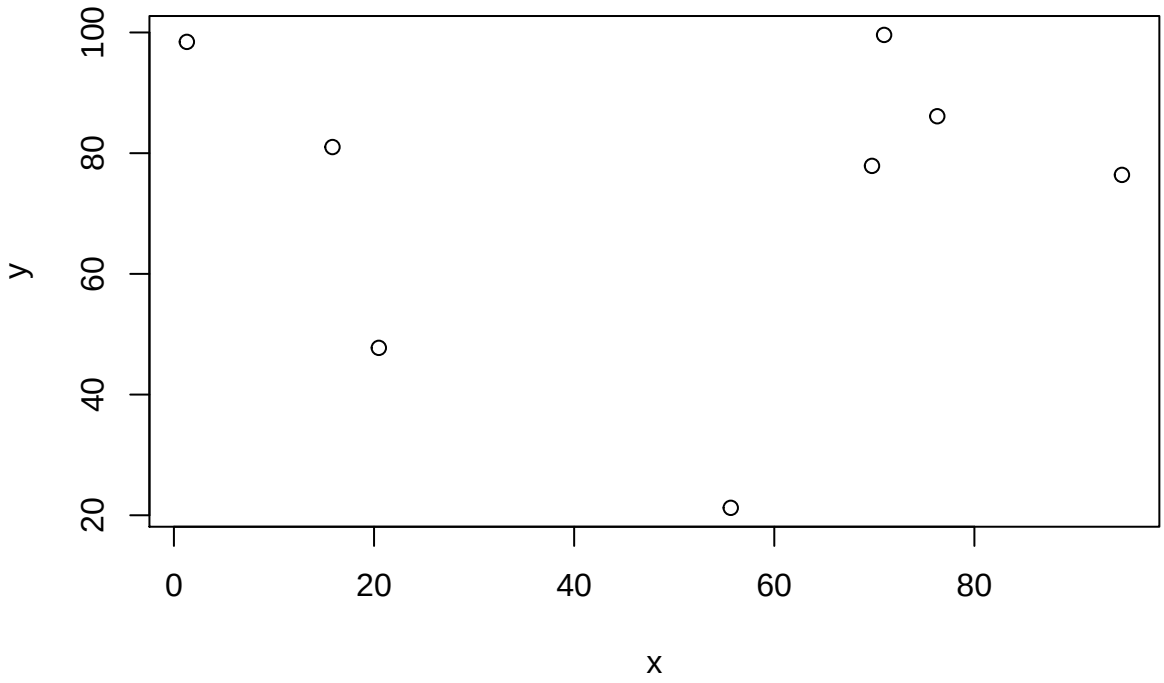
```
  soluc <- optimo_local@solution

  z<-optimo_local@evaluation
```

VIAJERO

```r
n <- 8

matriz <- matrix(runif(n*n,0,100),n)
x <- runif(n,0,100)
y <- runif(n,0,100)
plot(x,y)
```



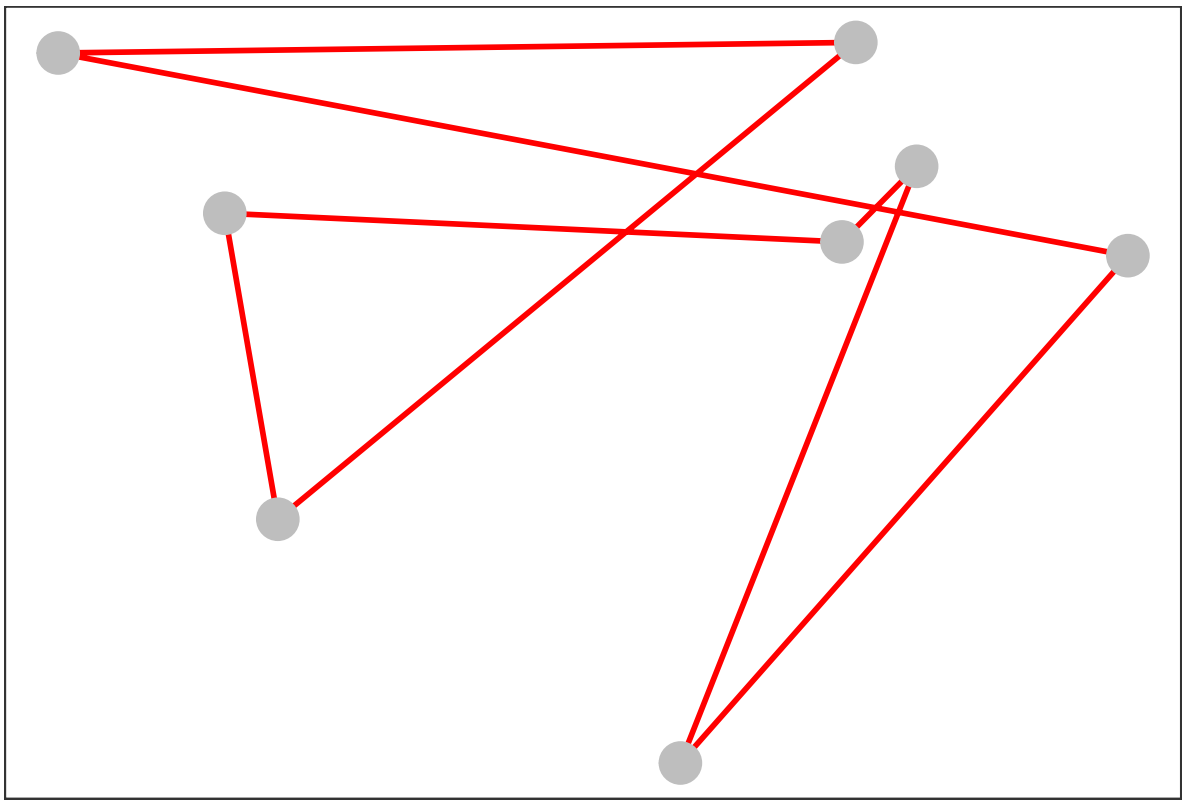

```r
tspProblem(matriz,cbind(x,y)) -> tspP

   ##Soluciones (permutaciones n! o (n-1)!)

  permutation(1:n) ->a
  randomPermutation(n) ->b
  tspP$evaluate(a)
```

```
## [1] 453.5053
```

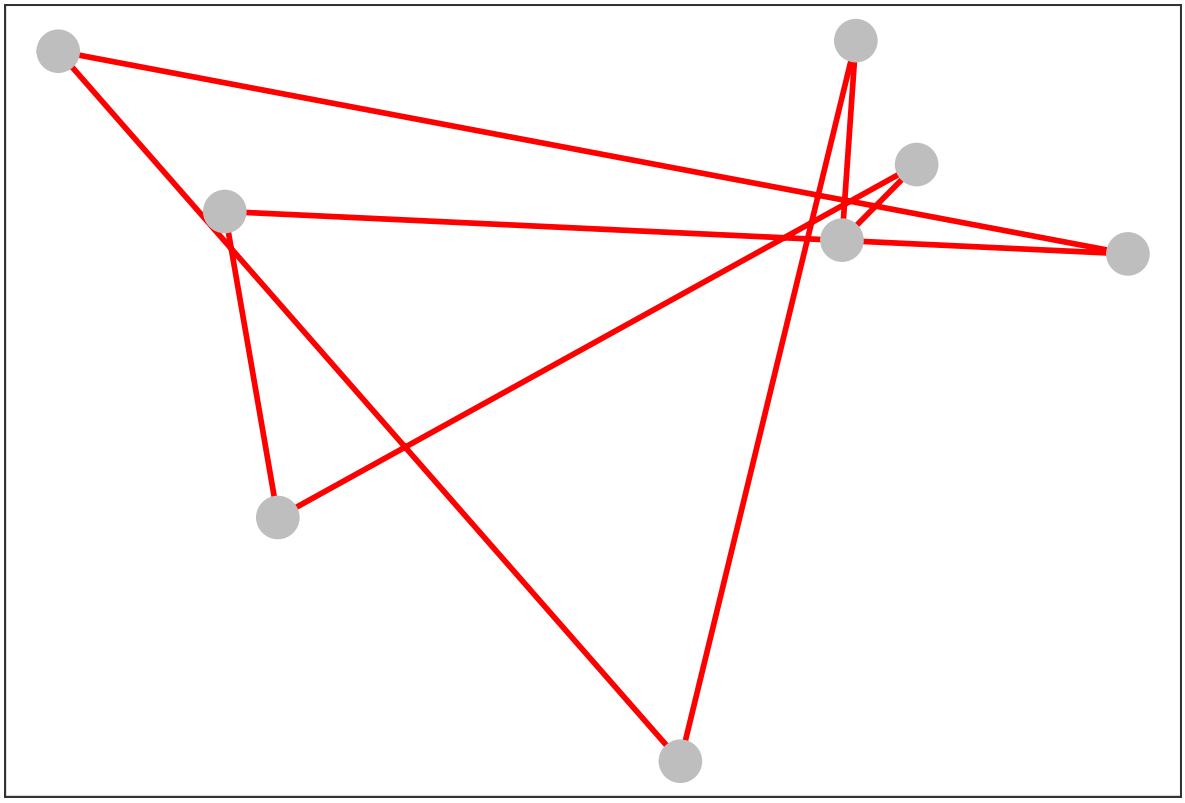
```
tspP$plotSolution(a)
```



```
tspP$evaluate(b)
```

```
## [1] 526.5752
```

```
tspP$plotSolution(b)
```



```
 solini<-a
```

```
basicLocalSearch(
  evaluate= tspP$evaluate,
  initial.solution=solini,
  neighborhood=swapNeighborhood(solini),
  selector = firstImprovementSelector,


  do.log = TRUE,
  save.sols = FALSE,
  verbose = TRUE ) -> optimo_local
```

```
## Running iteration 1. Best solution: 453.505259077065

## Running iteration 2. Best solution: 441.698875115253

## Running iteration 3. Best solution: 392.665753117763

## Running iteration 4. Best solution: 368.153279973194

## Running iteration 5. Best solution: 351.232517836615

## Running iteration 6. Best solution: 266.398656088859
```

```
soluc <- optimo_local@solution

z<-optimo_local@evaluation
```