Expo_TSP.R

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```
library(TSP)
library(gdata)
```

```
## gdata: read.xls support for 'XLS' (Excel 97-2004) files ENABLED.
##
## gdata: read.xls support for 'XLSX' (Excel 2007+) files ENABLED.
##
## Attaching package: 'gdata'
##
## The following object is masked from 'package:stats':
##
##     nobs
##
## The following object is masked from 'package:utils':
##
##     object.size
```

```
library(doParallel)
```

```
## Loading required package: foreach
## Loading required package: iterators
## Loading required package: parallel
```

```
registerDoParallel()

# Load Data ----
data = read.xls("/Users/zakrottier/Desktop/distances.xlsx", header=TRUE)

# Transform Data ----
rownames(data) = data$City
data$y = -(data$y)
data_matrix = as.matrix(data[,2:3])

# Solve TSP ----
square = ETSP(data_matrix)
tour = solve_TSP(square, two_opt=TRUE, rep=1000, start="Madison")
plot(square, tour, tour_col='red')
text(data$x, data$y, row.names(data), cex=0.5, pos=4, col="blue")
```

```
tour_length(tour)
```

```
## [1] 75.7617
```

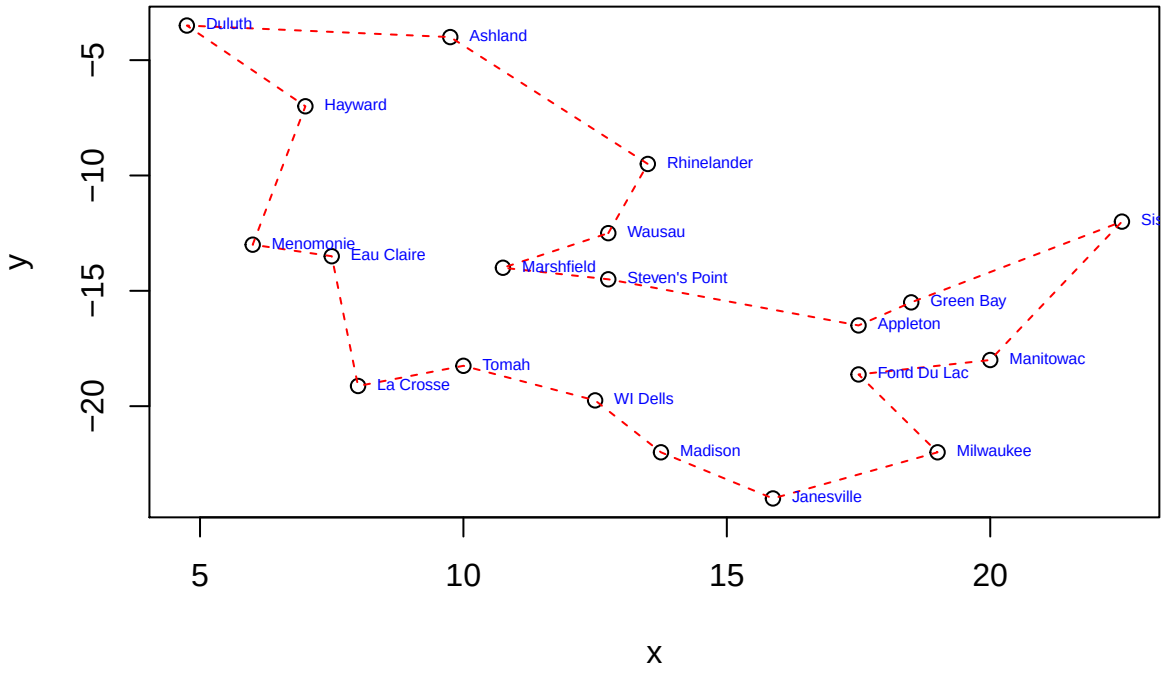
Duluth
Ashland
Hayward
Rhinelander
Wausau
Menomonie
Eau Claire
Marshfield
Steven's Point
Green Bay
Appleton
Manitowac
Fond Du Lac
Tomah
La Crosse
WI Dells
Madison
Milwaukee
Janesville
y
−5
−10
−15
−20
5
10
15
20
x

Figure 1:

```r
names(tour)
```

```
##  [1] "Wausau"         "Rhinelander"    "Ashland"        "Duluth"
##  [5] "Hayward"        "Menomonie"      "Eau Claire"     "La Crosse"
##  [9] "Tomah"          "WI Dells"       "Madison"        "Janesville"
## [13] "Milwaukee"      "Fond Du Lac"    "Manitowac"      "Sister Bay"
## [17] "Green Bay"      "Appleton"       "Steven's Point" "Marshfield"
```