Assignment 4: Heart Start Co.

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Module formulation for the shipping data of Heart Start Co. is given below, and read through the LP file.

```
/* Objective function */
min: 622 xA1 + 614 xA2 + 630 xA3 + 641 xB1 +  645 xB2 + 649 xB3;

/* Constraints */
xA1 + xA2 + xA3 + xA4 = 100;
xB1 + xB2 + xB3 + xB4 = 120;
xA1 + xB1 = 80;
xA2 + xB2 = 60;
xA3 + xB3 = 70;
xA4 + xB4 = 10;
```

```
library(lpSolveAPI)
x <- read.lp("C:/Users/Z/Desktop/AED.lp")
x
```

```
## Model name:
##            xA1   xA2   xA3   xB1   xB2   xB3   xA4   xB4
## Minimize   622   614   630   641   645   649     0     0
## R1           1     1     1     0     0     0     1     0  =  100
## R2           0     0     0     1     1     1     0     1  =  120
## R3           1     0     0     1     0     0     0     0  =   80
## R4           0     1     0     0     1     0     0     0  =   60
## R5           0     0     1     0     0     1     0     0  =   70
## R6           0     0     0     0     0     0     1     1  =   10
## Kind       Std   Std   Std   Std   Std   Std   Std   Std
## Type      Real  Real  Real  Real  Real  Real  Real  Real
## Upper      Inf   Inf   Inf   Inf   Inf   Inf   Inf   Inf
## Lower        0     0     0     0     0     0     0     0
```

Including Plots

You can also embed plots, for example:

```
solve(x)
```

```
## [1] 0
```

```
get.objective(x)
```

```
## [1] 132790

get.variables(x)

## [1]  0 60 40 80  0 30  0 10

get.constraints(x)

## [1] 100 120  80  60  70  10

get.sensitivity.objex(x)

## $objfrom
## [1]  6.22e+02 -1.00e+30  6.18e+02 -1.00e+30  6.33e+02  6.49e+02 -1.90e+01
## [8] -1.00e+30
##
## $objtill
## [1] 1.00e+30 6.26e+02 6.30e+02 6.41e+02 1.00e+30 6.61e+02 1.00e+30
1.90e+01
##
## $objfromvalue
## [1]  4e+01 -1e+30 -1e+30 -1e+30  3e+01 -1e+30  1e+01 -1e+30
##
## $objtillvalue
## [1] NA NA NA NA NA NA NA NA

get.sensitivity.rhs(x)

## $duals
##  [1]  614  633    8    0   16 -633    0    0    0    0   12    0   19    0
##
## $dualsfrom
##  [1]  1.0e+02  1.2e+02  8.0e+01 -1.0e+30  7.0e+01  1.0e+01 -3.0e+01 -
1.0e+30
##  [9] -1.0e+30 -1.0e+30 -4.0e+01 -1.0e+30 -3.0e+01 -1.0e+30
##
## $dualstill
##  [1] 1.0e+02 1.2e+02 8.0e+01 1.0e+30 7.0e+01 1.0e+01 4.0e+01 1.0e+30
1.0e+30
## [10] 1.0e+30 3.0e+01 1.0e+30 1.0e+01 1.0e+30
```