

mbruner3_mod4

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```
library(lpSolveAPI)
```

defining decision variables and objective function

```
factory <- make.lp(9, 9)
lp.control(factory, sense = "max")
```

```
## $anti.degen
## [1] "fixedvars" "stalling"
##
## $basis.crash
## [1] "none"
##
## $bb.depthlimit
## [1] -50
##
## $bb.floorfirst
## [1] "automatic"
##
## $bb.rule
## [1] "pseudononint" "greedy"      "dynamic"      "rcostfixing"
##
## $break.at.first
## [1] FALSE
##
## $break.at.value
## [1] 1e+30
##
## $epsilon
##      epsb      epsd      epsel      epsint  epsperturb  epspivot
##      1e-10      1e-09      1e-12      1e-07      1e-05      2e-07
##
## $improve
## [1] "dualfeas" "thetagap"
##
## $infinite
## [1] 1e+30
##
```

```

## $maxpivot
## [1] 250
##
## $mip.gap
## absolute relative
##      1e-11      1e-11
##
## $negrange
## [1] -1e+06
##
## $obj.in.basis
## [1] TRUE
##
## $pivoting
## [1] "devex"      "adaptive"
##
## $presolve
## [1] "none"
##
## $scalelimit
## [1] 5
##
## $scaling
## [1] "geometric"    "equilibrate" "integers"
##
## $sense
## [1] "maximize"
##
## $simplextype
## [1] "dual"      "primal"
##
## $timeout
## [1] 0
##
## $verbose
## [1] "neutral"

```

```
set.objfn(factory, c(420, 420, 420, 360, 360, 360, 300, 300, 300))
```

set constraints

```

add.constraint(factory, c(20, 0, 0, 15, 0, 0, 12, 0, 0), "<=", 13000)
add.constraint(factory, c(0, 20, 0, 0, 15, 0, 0, 12, 0), "<=", 12000)
add.constraint(factory, c(0, 0, 20, 0, 0, 15, 0, 0, 12), "<=", 12000)
add.constraint(factory, c(1, 1, 1), indices = c(1, 4, 7), "<=", 750)
add.constraint(factory, c(1, 1, 1), indices = c(2, 5, 8), "<=", 900)
add.constraint(factory, c(1, 1, 1), indices = c(3, 6, 9), "<=", 450)
add.constraint(factory, c(1, 1, 1), indices = c(1, 4, 7), "<=", 900)
add.constraint(factory, c(1, 1, 1), indices = c(2, 5, 8), "<=", 1200)
add.constraint(factory, c(1, 1, 1), indices = c(3, 6, 9), "<=", 750)

```

Solve LP model

```
solve(factory)
```

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

```
get.objective(factory)
```

```
## [1] 774000
```

```
get.variables(factory)
```

```
## [1] 350 0 450 400 400 0 0 500 0
```