

# Module 4

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2022-09-22

```
# install.packages("lpSolveAPI")
```

```
library(lpSolveAPI)
```

```
## Warning: package 'lpSolveAPI' was built under R version 4.1.3
```

```
lprec = make.lp(0, 9)
```

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

```
lp.control(lprec, 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"

#Plant 1 Constraints:
add.constraint(lprec, c(1,1,1,0,0,0,0,0,0), "<=", 750)
add.constraint(lprec, c(12,15,20,0,0,0,0,0,0), "<=", 13000)

#Plant 2 Constraints:
add.constraint(lprec, c(0,0,0,1,1,1,0,0,0), "<=", 900)
add.constraint(lprec, c(0,0,0,12,15,20,0,0,0), "<=", 12000)

#Plant 3 Constraints:
add.constraint(lprec, c(0,0,0,0,0,0,1,1,1), "<=", 450)
add.constraint(lprec, c(0,0,0,0,0,0,12,15,20), "<=", 5000)

```

```
solve(lprec)
```

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

```
get.objective(lprec)
```

```
## [1] 710000
```

```
get.variables(lprec)
```

```
## [1] 0.0000 400.0000 350.0000 500.0000 400.0000 0.0000 416.6667 0.0000  
## [9] 0.0000
```