Integer Programming

Brandy Via

Let's define the variables first x1 is number of workers started on Sunday x2 is number of workers started on Monday x3 is number of workers started on Tuesday x4 is number of workers started on Wednesday x5 is number of workers started on Thursday x6 is number of workers started on Friday x7 is number of workers started on Saturday

```
library(lpSolveAPI)
x <- read.lp("schedule.lp")
x
```

```
## Model name:
##            x1   x2   x3   x4   x5   x6   x7
## Minimize  775  750  775  800  800  800  800
## Sun         1    0    0    1    1    1    1  >=  18
## Mon         1    1    0    0    1    1    1  >=  27
## Tues        1    1    1    0    0    1    1  >=  22
## Wed         1    1    1    1    0    0    1  >=  26
## Thur        1    1    1    1    1    0    0  >=  25
## Fri         0    1    1    1    1    1    0  >=  21
## Sat         0    0    1    1    1    1    1  >=  19
## Kind      Std  Std  Std  Std  Std  Std  Std
## Type      Int  Int  Int  Int  Int  Int  Int
## Upper     Inf  Inf  Inf  Inf  Inf  Inf  Inf
## Lower       0    0    0    0    0    0    0
```

```
solve(x)
```

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

```
#Total Cost
get.objective(x)
```

```
## [1] 25675
```

```
#Number of workers started on Sun-Sat
get.variables(x)
```

```
## [1]  1 13  2  2  7  0  8
```

```
#Number of workers required on Sun-Sat
get.constraints(x)
```

```
## [1] 18 29 24 26 25 24 19
```
