Package: rgmpl (via r-universe)

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Type Package

Title Helps solving in R linear programming models specified in GMPL

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Description Tools that help to solve linear programming models
specified in GMPL

License GPL (>= 2)

Depends stringr, glpkAPI

RoxygenNote 6.0.1

Repository https://skranz.r-universe.dev

RemoteUrl https://github.com/skranz/rgmpl

RemoteRef master

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Contents

`glpk.solve`　　　　　*Solve a GLPK linear problem*

Description

Solve a GLPK linear problem

Usage

```
glpk.solve(lp = NULL, delete.lp = TRUE)
```

Arguments

lp   a GLPK problem generated e.g. by a call to gmpl.load.problem

delete.lp   default = TRUE shall the problem lp be removed from memory after it has been solved?

`gmpl.get.model.info`　　*Internal function that gets a list with sets, variables and parameters of a GMPL model*

Description

Internal function that gets a list with sets, variables and parameters of a GMPL model

Usage

```
gmpl.get.model.info(mod.file)
```

Arguments

mod.file   path of the .mod file in which the gmpl model is specified

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`gmpl.load.problem`　　*Load a GMPL model and data and generate a GLPK object*

Description

Load a GMPL model and data and generate a GLPK object

Usage

```
gmpl.load.problem(mod.file, dat.file)
```

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gmpl.make.dat.file   *Generates a GMPL data file*

Description

Generates a GMPL data file for the model specified in dat.file sets and param are lists that contain the values of the sets and parameters that are specified in the GMPL model

Usage

```
gmpl.make.dat.file(sets = NULL, param = NULL, mod.file, dat.file = NULL)
```

Arguments

sets	a list with the sets used by the gmpl model
param	a list with the parameters used by the gmpl model
mod.file	path of the .mod file in which the gmpl model is specified
dat.file	path of the .dat file in which the data shall be written

Examples

```
## Not run:

  # Model of power plant investments and dispatch included in package
  mod.file = paste(.path.package(package = "rgmpl"),"/data/power.mod",sep="")

  # Name of dat file, will be generated locally
  dat.file = "power.dat"

  # Example data

  # Sets
  PLANTS = c("coal","gas")
  PERIODS = 1:4
  sets = list(PLANTS=PLANTS,PERIODS=PERIODS)

  # Parameters
  fc = c(12,6)  # fixed cost
  vc = c(18,30) # variable cost
  load = c(30,50,25,20) # electricity demand
  T = length(PERIODS)
  param = list(vc=vc,fc=fc,load=load,T=T)

  # Generate a GMPL .dat file
  gmpl.make.dat.file(sets=sets,param=param,mod.file=mod.file, dat.file=dat.file)

  # Solve the model
  res = gmpl.solve(mod.file=mod.file,dat.file=dat.file, delete.lp =FALSE)
```

```
   res

   # Show production levels graphically
   library(ggplot2)
 qplot(data=res$sol$q, x=PERIODS,y=q,fill=PLANTS,geom="bar",stats="identity", xlab="Period",ylab="Production")


 ## End(Not run)
```

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gmpl.solve   *Solve a GMPL problem using glpkAPI*

Description

Solve a GMPL problem using glpkAPI

Usage

```
gmpl.solve(mod.file = NULL, dat.file = NULL, sets = NULL, param = NULL,
  lp = NULL, delete.lp = is.null(lp), adapt.sol = TRUE)
```

Arguments

mod.file	path of the .mod file in which the gmpl model is specified
dat.file	path of the .dat file in which the gmpl data is specified. If NULL generate a new .dat file from the given sets and param with the same name as the model file
sets	a list with the sets used by the gmpl model. Needed if no dat.file specified
param	a list with the parameters used by the gmpl model. Needed if no dat.file specified
lp	optional a link to the GLPK problem generated by gmpl.load.problem
delete.lp	default = TRUE if lp is given, shall it be removed from memory after it has been solved?
adapt.sol	default = TRUE shall the solution be returned in a more convenient form

Examples

```
## Not run:

   # Model of power plant investments and dispatch included in package
   mod.file = paste(.path.package(package = "rgmpl"),"/data/power.mod",sep="")

   # Name of dat file, will be generated locally
   dat.file = "power.dat"

   # Example data

   # Sets
   PLANTS = c("coal","gas")
```

```
PERIODS = 1:4
sets = list(PLANTS=PLANTS,PERIODS=PERIODS)

# Parameters
fc = c(12,6)  # fixed cost
vc = c(18,30) # variable cost
load = c(30,50,25,20) # electricity demand
T = length(PERIODS)
param = list(vc=vc,fc=fc,load=load,T=T)

# Generate a GMPL .dat file
gmpl.make.dat.file(sets=sets,param=param,mod.file=mod.file, dat.file=dat.file)

# Solve the model
res = gmpl.solve(mod.file=mod.file,dat.file=dat.file, delete.lp =FALSE)
res

# Show production levels graphically
library(ggplot2)
qplot(data=res$sol$q, x=PERIODS,y=q,fill=PLANTS,geom="bar",stats="identity", xlab="Period",ylab="Production")


## End(Not run)
```

---

paste.matrix.cols	*Paste together columns of a matrix or data.frame*

Description

Paste together columns of a matrix or data.frame

Usage

```
paste.matrix.cols(mat, cols = 1:NCOL(mat), ...)
```

Index