Package 'TransP'

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Type Package

Title Implementation of Transportation Problem Algorithms

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Description Implementation of two transportation problem algorithms.
1. North West Corner Method
2. Minimum Cost Method or Least cost method.
For more technical details about the algorithms please refer below URLs.
<http://www.universalteacherpublications.com/univ/ebooks/or/Ch5/nw.htm>.
<http://personal.maths.surrey.ac.uk/st/J.F/chapter7.pdf>.

License GPL (>= 2)

LazyLoad yes

RoxygenNote 5.0.1

URL https://github.com/Somenath24/TransP

NeedsCompilation no

Repository CRAN

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R topics documented:

mincost *Implements Minimum Cost Algorithm to solve transportation problem*

Description

This function implements Minimum Cost Algorithm to resolve transportation problem and get optimized allocation matrix

Usage

```
mincost(ex_matrix)
```

Arguments

ex_matrix	A cost matrix where last column must be the supply and last row must be the demand. Input matrix should not have any missing values (NA), otherwise function will throw an error.

Details

This function takes a cost matrix (with Supply and Demand) and using North-West Corner approach gives the allocation matrix as well as the calcualted optimized cost. This function checks for degenerated problem but it can't resolve it. User need to resolve by seeing final allocation matrix. If Supply and Demand are not equal Balance Supply/Demand will be stored in Dummy variable.

Value

A List which contrains the allocation matrix and the total optimized cost.

Examples

```
## Not run:

#Input matrix where last row is the Demand and last column is the Supply
ex_matrix=data.frame(M1=c(13,10,25,17,210),M2=c(25,19,10,24,240),
                     M3=c(8,18,15,18,110),M4=c(13,5,14,13,80),M5=c(20,12,18,19,170),
                     Supply=c(430,150,100,130,810),
                     row.names = c("W1","W2","W3","W4","Demand"))

ex_matrix
         M1  M2  M3 M4  M5 Supply
W1       13  25   8 13  20    430
W2       10  19  18  5  12    150
W3       25  10  15 14  18    100
W4       17  24  18 13  19    130
Demand 210 240 110 80 170    810

mincost(ex_matrix)
```

```
$Alloc_Matrix
     M1  M2  M3 M4  M5
W1 140 140 110  0  40
W2  70   0   0 80   0
W3   0 100   0  0   0
W4   0   0   0  0 130

$Total_Cost
[1] 11570


## End(Not run)
```

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nwc *Implements North-West Corner Algorithm to solve transportation problem*

Description

This function implements North-West Corner Algorithm to solve transportation problem by optimized cost matrix and total optimized cost

Usage

```
# Get optimized cost matrix for input matrix ex_matrix
nwc(ex_matrix)
```

Arguments

ex_matrix	A cost matrix where last column must be the supply and last row must be the demand. Input matrix should not have any missing values (NA), otherwise function will throw an error.

Details

This function takes a cost matrix (with Supply and Demand) and using North-West Corner approach gives the cost allocation matrix as well as the calcualted optimized cost. This function checks for degenerated problem but it can't resolve it. User need to resolve by seeing the cost allocation matrix.

Value

A List which contrains the Cost allocation matrix and the total optimized cost.

Examples

```
## Not run:

#Input matrix where last row is the Demand and last column is the Supply
ex_matrix=data.frame(M1=c(13,10,25,17,210),M2=c(25,19,10,24,240),
                     M3=c(8,18,15,18,110),M4=c(13,5,14,13,80),M5=c(20,12,18,19,170),
                     Supply=c(430,150,100,130,810),
                     row.names = c("W1","W2","W3","W4","Demand"))

ex_matrix
         M1  M2  M3 M4  M5 Supply
W1       13  25   8 13  20    430
W2       10  19  18  5  12    150
W3       25  10  15 14  18    100
W4       17  24  18 13  19    130
Demand 210 240 110 80 170    810

nwc(ex_matrix)
$Alloc_Matrix
    M1  M2  M3 M4  M5
W1 210 220   0  0   0
W2   0  20 110 20   0
W3   0   0   0 60  40
W4   0   0   0  0 130

$Total_Cost
[1] 14720


## End(Not run)
```

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