

Package: TransP (via r-universe)

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Type Package

Title Implementation of Transportation Problem Algorithm

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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>>.

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LazyLoad yes

RoxygenNote 5.0.1

Repository <https://somenath24.r-universe.dev>

RemoteUrl <https://github.com/somenath24/transp>

RemoteRef HEAD

RemoteSha 35fbde71628c9d898c56619ed4d90ed4d4447851f

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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 calculated 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 contains 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)

```

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 calculated 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 contains 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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