User matrix

Query Access Matrix =

[[0 0 0 0 0]

[0 0 0 0 0]

[0 0 0 0 0]

[0 0 0 0 0]

[1 0 0 0 1]

[0 0 0 0 0]

[0 0 0 0 0]]

Frequency Access Matrix =

[[ 0 10 20 0]

[30 0 10 0]

[20 25 20 0]

[15 10 0 5]

[ 0 20 15 5]

[20 0 0 30]

[30 20 25 0]]

Sum of attr access by each query =

[30 40 65 30 40 50 75]

attribute affinity matrix =

[[1. 2. 3. 4. 5.]

[0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0.]]

attribute affinity matrix =

[[ 1. 2. 3. 4. 5.]

[40. 0. 0. 0. 40.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[40. 0. 0. 0. 40.]]

After shifting rows 0 and 1=

[[ 1. 2. 0. 0. 0.]

[40. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[40. 0. 0. 0. 0.]]

Best location for attribute = [3. 0. 0. 0. 0. 0.]

cont( A 0 , A 3 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 3 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 3 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 3

[[ 3. 1. 2. 0. 0.]

[ 0. 40. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 40. 0. 0. 0.]]

AA after swapping attribute 3

[[ 3. 1. 2. 4. 5.]

[ 0. 40. 0. 0. 40.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 40. 0. 0. 40.]]

Best location for attribute = [4. 0. 0. 0. 0. 0.]

cont( A 0 , A 4 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 4 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 4 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 4 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 4

[[ 4. 3. 1. 2. 0.]

[ 0. 0. 40. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 0. 0.]]

AA after swapping attribute 4

[[ 4. 3. 1. 2. 5.]

[ 0. 0. 40. 0. 40.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 0. 40.]]

Best location for attribute = [ 5. 40. 0. 0. 0. 40.]

cont( A 0 , A 5 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 5 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 5 , A 3 ) = 2 \* ( 0.0 + 3200.0 - 0.0 ) = 6400.0

cont( A 3 , A 5 , A 4 ) = 2 \* ( 3200.0 + 0.0 - 0.0 ) = 6400.0

cont( A 4 , A 5 , A 6 ) = 2 \* ( 0.0 + 0 - 0 ) = 0.0

Location of max cont = 3

CA after swapping attribute 5

[[ 4. 3. 5. 1. 2.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 0.]]

AA after swapping attribute 5

[[ 4. 3. 5. 1. 2.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 0.]]

CA after interchanging rows =

[[ 4. 3. 5. 1. 2.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0.]]

CA =

[[ 4. 3. 5. 1. 2.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0.]]

Fragments = [4] [3 5 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 1, 0, 0]

TQ = []

BQ = [5]

OQ = [1, 2, 3, 4, 6, 7]

z = [-84100.0]

Fragments = [4 3] [5 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 1, 0, 0]

TQ = []

BQ = [5]

OQ = [1, 2, 3, 4, 6, 7]

z = [-84100.0, -84100.0]

Fragments = [4 3 5] [1 2]

TA = [0, 0, 0, 0, 1, 0, 0]

TB = [0, 0, 0, 0, 1, 0, 0]

TQ = []

BQ = []

OQ = [1, 2, 3, 4, 5, 6, 7]

z = [-84100.0, -84100.0, -108900.0]

Fragments = [4 3 5 1] [2]

TA = [0, 0, 0, 0, 1, 0, 0]

TB = [0, 0, 0, 0, 0, 0, 0]

TQ = [5]

BQ = []

OQ = [1, 2, 3, 4, 6, 7]

z = [-84100.0, -84100.0, -108900.0, -84100.0]

Vertical Fragmentation not possible.

Payment matrix

Query Access Matrix =

[[0 0 0 0 0 0 0 0]

[0 0 0 0 0 0 0 0]

[0 0 0 0 0 0 0 0]

[0 0 0 0 0 0 0 0]

[0 0 0 0 0 0 0 0]

[0 0 1 0 0 0 0 0]

[0 0 0 0 0 0 0 0]]

Frequency Access Matrix =

[[ 0 10 20 0]

[30 0 10 0]

[20 25 20 0]

[15 10 0 5]

[ 0 20 15 5]

[20 0 0 30]

[30 20 25 0]]

Sum of attr access by each query =

[30 40 65 30 40 50 75]

attribute affinity matrix =

[[1. 2. 3. 4. 5. 6. 7. 8.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]]

attribute affinity matrix =

[[ 1. 2. 3. 4. 5. 6. 7. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 50. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

After shifting rows 0 and 1=

[[1. 2. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [ 3. 0. 0. 50. 0. 0. 0. 0. 0.]

cont( A 0 , A 3 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 3 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 3 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 3

[[ 3. 1. 2. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[50. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 3

[[ 3. 1. 2. 4. 5. 6. 7. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[50. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [4. 0. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 4 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 4 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 4 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 4 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 4

[[ 4. 3. 1. 2. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 50. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 4

[[ 4. 3. 1. 2. 5. 6. 7. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 50. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [5. 0. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 5 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 5 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 5 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 5 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 4 , A 5 , A 6 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 5

[[ 5. 4. 3. 1. 2. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 50. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 5

[[ 5. 4. 3. 1. 2. 6. 7. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 50. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [6. 0. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 6 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 6 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 6 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 6 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 4 , A 6 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 5 , A 6 , A 7 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 6

[[ 6. 5. 4. 3. 1. 2. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 50. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 6

[[ 6. 5. 4. 3. 1. 2. 7. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 50. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [7. 0. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 7 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 7 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 7 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 7 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 4 , A 7 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 5 , A 7 , A 6 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 6 , A 7 , A 8 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 7

[[ 7. 6. 5. 4. 3. 1. 2. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 50. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 7

[[ 7. 6. 5. 4. 3. 1. 2. 8.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 50. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [8. 0. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 8 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 8 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 8 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 8 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 4 , A 8 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 5 , A 8 , A 6 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 6 , A 8 , A 7 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 7 , A 8 , A 9 ) = 2 \* ( 0.0 + 0 - 0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 8

[[ 8. 7. 6. 5. 4. 3. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 50. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 8

[[ 8. 7. 6. 5. 4. 3. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 50. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

CA after interchanging rows =

[[ 8. 7. 6. 5. 4. 3. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 50. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

CA =

[[ 8. 7. 6. 5. 4. 3. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 50. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0. 0.]]

Fragments = [8] [7 6 5 4 3 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 0, 1, 0]

TQ = []

BQ = [6]

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0]

Fragments = [8 7] [6 5 4 3 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 0, 1, 0]

TQ = []

BQ = [6]

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0]

Fragments = [8 7 6] [5 4 3 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 0, 1, 0]

TQ = []

BQ = [6]

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0, -78400.0]

Fragments = [8 7 6 5] [4 3 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 0, 1, 0]

TQ = []

BQ = [6]

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0, -78400.0, -78400.0]

Fragments = [8 7 6 5 4] [3 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 0, 0, 0, 1, 0]

TQ = []

BQ = [6]

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0, -78400.0, -78400.0, -78400.0]

Fragments = [8 7 6 5 4 3] [1 2]

TA = [0, 0, 0, 0, 0, 1, 0]

TB = [0, 0, 0, 0, 0, 0, 0]

TQ = [6]

BQ = []

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0, -78400.0, -78400.0, -78400.0, -78400.0]

Fragments = [8 7 6 5 4 3 1] [2]

TA = [0, 0, 0, 0, 0, 1, 0]

TB = [0, 0, 0, 0, 0, 0, 0]

TQ = [6]

BQ = []

OQ = [1, 2, 3, 4, 5, 7]

z = [-78400.0, -78400.0, -78400.0, -78400.0, -78400.0, -78400.0, -78400.0]

Vertical Fragmentation not possible.

Driver matrix

Query Access Matrix =

[[0 0 0 0 0 0 0]

[0 0 0 0 0 0 0]

[0 0 0 0 1 1 0]

[0 0 0 0 0 0 0]

[1 0 0 0 1 0 0]

[0 0 0 0 0 0 0]

[0 0 0 0 0 0 0]]

Frequency Access Matrix =

[[ 0 10 20 0]

[30 0 10 0]

[20 25 20 0]

[15 10 0 5]

[ 0 20 15 5]

[20 0 0 30]

[30 20 25 0]]

Sum of attr access by each query =

[30 40 65 30 40 50 75]

attribute affinity matrix =

[[1. 2. 3. 4. 5. 6. 7.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0. 0.]]

attribute affinity matrix =

[[ 1. 2. 3. 4. 5. 6. 7.]

[ 40. 0. 0. 0. 40. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 40. 0. 0. 0. 105. 65. 0.]

[ 0. 0. 0. 0. 65. 65. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

After shifting rows 0 and 1=

[[ 1. 2. 0. 0. 0. 0. 0.]

[40. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[40. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [3. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 3 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 3 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 3 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 3

[[ 3. 1. 2. 0. 0. 0. 0.]

[ 0. 40. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 40. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 3

[[ 3. 1. 2. 4. 5. 6. 7.]

[ 0. 40. 0. 0. 40. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 40. 0. 0. 105. 65. 0.]

[ 0. 0. 0. 0. 65. 65. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [4. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 4 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 4 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 4 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 4 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 4

[[ 4. 3. 1. 2. 0. 0. 0.]

[ 0. 0. 40. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 4

[[ 4. 3. 1. 2. 5. 6. 7.]

[ 0. 0. 40. 0. 40. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 0. 105. 65. 0.]

[ 0. 0. 0. 0. 65. 65. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [ 5. 40. 0. 0. 0. 105. 65. 0.]

cont( A 0 , A 5 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 5 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 5 , A 3 ) = 2 \* ( 0.0 + 5800.0 - 0.0 ) = 11600.0

cont( A 3 , A 5 , A 4 ) = 2 \* ( 5800.0 + 0.0 - 0.0 ) = 11600.0

cont( A 4 , A 5 , A 6 ) = 2 \* ( 0.0 + 11050.0 - 0.0 ) = 0.0

Location of max cont = 3

CA after swapping attribute 5

[[ 4. 3. 5. 1. 2. 0. 0.]

[ 0. 0. 40. 40. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 105. 40. 0. 0. 0.]

[ 0. 0. 65. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 5

[[ 4. 3. 5. 1. 2. 6. 7.]

[ 0. 0. 40. 40. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 105. 40. 0. 65. 0.]

[ 0. 0. 65. 0. 0. 65. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [ 6. 0. 0. 0. 0. 65. 65. 0.]

cont( A 0 , A 6 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 6 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 6 , A 3 ) = 2 \* ( 0.0 + 11050.0 - 0.0 ) = 22100.0

cont( A 3 , A 6 , A 4 ) = 2 \* ( 11050.0 + 2600.0 - 5800.0 ) = 15700.0

cont( A 4 , A 6 , A 5 ) = 2 \* ( 2600.0 + 0.0 - 0.0 ) = 5200.0

cont( A 5 , A 6 , A 7 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 3

CA after swapping attribute 6

[[ 4. 3. 6. 5. 1. 2. 0.]

[ 0. 0. 0. 40. 40. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 65. 105. 40. 0. 0.]

[ 0. 0. 65. 65. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 6

[[ 4. 3. 6. 5. 1. 2. 7.]

[ 0. 0. 0. 40. 40. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 65. 105. 40. 0. 0.]

[ 0. 0. 65. 65. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [7. 0. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 7 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 7 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 7 , A 3 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 3 , A 7 , A 4 ) = 2 \* ( 0.0 + 0.0 - 11050.0 ) = -22100.0

cont( A 4 , A 7 , A 5 ) = 2 \* ( 0.0 + 0.0 - 5800.0 ) = -11600.0

cont( A 5 , A 7 , A 6 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 6 , A 7 , A 8 ) = 2 \* ( 0.0 + 0 - 0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 7

[[ 7. 4. 3. 6. 5. 1. 2.]

[ 0. 0. 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 65. 105. 40. 0.]

[ 0. 0. 0. 65. 65. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 7

[[ 7. 4. 3. 6. 5. 1. 2.]

[ 0. 0. 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 65. 105. 40. 0.]

[ 0. 0. 0. 65. 65. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

CA after interchanging rows =

[[ 7. 4. 3. 6. 5. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 65. 65. 0. 0.]

[ 0. 0. 0. 65. 105. 40. 0.]

[ 0. 0. 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

CA =

[[ 7. 4. 3. 6. 5. 1. 2.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 65. 65. 0. 0.]

[ 0. 0. 0. 65. 105. 40. 0.]

[ 0. 0. 0. 0. 40. 40. 0.]

[ 0. 0. 0. 0. 0. 0. 0.]]

Fragments = [7] [4 3 6 5 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 1, 0, 1, 0, 0]

TQ = []

BQ = [3, 5]

OQ = [1, 2, 4, 6, 7]

z = [-50625.0]

Fragments = [7 4] [3 6 5 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 1, 0, 1, 0, 0]

TQ = []

BQ = [3, 5]

OQ = [1, 2, 4, 6, 7]

z = [-50625.0, -50625.0]

Fragments = [7 4 3] [6 5 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 0, 1, 0, 1, 0, 0]

TQ = []

BQ = [3, 5]

OQ = [1, 2, 4, 6, 7]

z = [-50625.0, -50625.0, -50625.0]

Fragments = [7 4 3 6] [5 1 2]

TA = [0, 0, 1, 0, 0, 0, 0]

TB = [0, 0, 1, 0, 1, 0, 0]

TQ = []

BQ = [5]

OQ = [1, 2, 3, 4, 6, 7]

z = [-50625.0, -50625.0, -50625.0, -84100.0]

Fragments = [7 4 3 6 5] [1 2]

TA = [0, 0, 1, 0, 1, 0, 0]

TB = [0, 0, 0, 0, 1, 0, 0]

TQ = [3]

BQ = []

OQ = [1, 2, 4, 5, 6, 7]

z = [-50625.0, -50625.0, -50625.0, -84100.0, -70225.0]

Fragments = [7 4 3 6 5 1] [2]

TA = [0, 0, 1, 0, 1, 0, 0]

TB = [0, 0, 0, 0, 0, 0, 0]

TQ = [3, 5]

BQ = []

OQ = [1, 2, 4, 6, 7]

z = [-50625.0, -50625.0, -50625.0, -84100.0, -70225.0, -50625.0]

Vertical Fragmentation not possible.

Cab matrix

Query Access Matrix =

[[0 0 0 0 0 0]

[1 0 1 1 0 0]

[0 0 0 0 0 0]

[0 0 0 0 0 0]

[0 0 0 0 0 0]

[0 0 0 0 0 0]

[1 0 0 1 0 0]]

Frequency Access Matrix =

[[ 0 10 20 0]

[30 0 10 0]

[20 25 20 0]

[15 10 0 5]

[ 0 20 15 5]

[20 0 0 30]

[30 20 25 0]]

Sum of attr access by each query =

[30 40 65 30 40 50 75]

attribute affinity matrix =

[[1. 2. 3. 4. 5. 6.]

[0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0.]

[0. 0. 0. 0. 0. 0.]]

attribute affinity matrix =

[[ 1. 2. 3. 4. 5. 6.]

[115. 0. 40. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 0. 40. 40. 0. 0.]

[115. 0. 40. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

After shifting rows 0 and 1=

[[ 1. 2. 0. 0. 0. 0.]

[115. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 0. 0. 0. 0. 0.]

[115. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [ 3. 40. 0. 40. 40. 0. 0.]

cont( A 0 , A 3 , A 1 ) = 2 \* ( 0 + 10800.0 - 0 ) = 21600.0

cont( A 1 , A 3 , A 2 ) = 2 \* ( 10800.0 + 0.0 - 0.0 ) = 21600.0

cont( A 2 , A 3 , A 4 ) = 2 \* ( 0.0 + 10800.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 3

[[ 3. 1. 2. 0. 0. 0.]

[ 40. 115. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 40. 0. 0. 0. 0.]

[ 40. 115. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 3

[[ 3. 1. 2. 4. 5. 6.]

[ 40. 115. 0. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 40. 0. 40. 0. 0.]

[ 40. 115. 0. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [ 4. 115. 0. 40. 115. 0. 0.]

cont( A 0 , A 4 , A 1 ) = 2 \* ( 0 + 10800.0 - 0 ) = 21600.0

cont( A 1 , A 4 , A 2 ) = 2 \* ( 10800.0 + 28050.0 - 10800.0 ) = 56100.0

cont( A 2 , A 4 , A 3 ) = 2 \* ( 28050.0 + 0.0 - 0.0 ) = 56100.0

cont( A 3 , A 4 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 2

CA after swapping attribute 4

[[ 3. 4. 1. 2. 0. 0.]

[ 40. 115. 115. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 40. 40. 0. 0. 0.]

[ 40. 115. 115. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 4

[[ 3. 4. 1. 2. 5. 6.]

[ 40. 115. 115. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 40. 40. 40. 0. 0. 0.]

[ 40. 115. 115. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [5. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 5 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 5 , A 2 ) = 2 \* ( 0.0 + 0.0 - 10800.0 ) = -21600.0

cont( A 2 , A 5 , A 3 ) = 2 \* ( 0.0 + 0.0 - 28050.0 ) = -56100.0

cont( A 3 , A 5 , A 4 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 4 , A 5 , A 6 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 5

[[ 5. 3. 4. 1. 2. 0.]

[ 0. 40. 115. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 40. 40. 40. 0. 0.]

[ 0. 40. 115. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 5

[[ 5. 3. 4. 1. 2. 6.]

[ 0. 40. 115. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 40. 40. 40. 0. 0.]

[ 0. 40. 115. 115. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

Best location for attribute = [6. 0. 0. 0. 0. 0. 0.]

cont( A 0 , A 6 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 6 , A 2 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 2 , A 6 , A 3 ) = 2 \* ( 0.0 + 0.0 - 10800.0 ) = -21600.0

cont( A 3 , A 6 , A 4 ) = 2 \* ( 0.0 + 0.0 - 28050.0 ) = -56100.0

cont( A 4 , A 6 , A 5 ) = 2 \* ( 0.0 + 0.0 - 0.0 ) = 0.0

cont( A 5 , A 6 , A 7 ) = 2 \* ( 0.0 + 0 - 0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 6

[[ 6. 5. 3. 4. 1. 2.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 40. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

AA after swapping attribute 6

[[ 6. 5. 3. 4. 1. 2.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 40. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]]

CA after interchanging rows =

[[ 6. 5. 3. 4. 1. 2.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 40. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]]

CA =

[[ 6. 5. 3. 4. 1. 2.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 0. 0. 0. 0.]

[ 0. 0. 40. 40. 40. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 40. 115. 115. 0.]

[ 0. 0. 0. 0. 0. 0.]]

Fragments = [6] [5 3 4 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 1, 0, 0, 0, 0, 1]

TQ = []

BQ = [2, 7]

OQ = [1, 3, 4, 5, 6]

z = [-46225.0]

Fragments = [6 5] [3 4 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [0, 1, 0, 0, 0, 0, 1]

TQ = []

BQ = [2, 7]

OQ = [1, 3, 4, 5, 6]

z = [-46225.0, -46225.0]

Fragments = [6 5 3] [4 1 2]

TA = [0, 1, 0, 0, 0, 0, 0]

TB = [0, 1, 0, 0, 0, 0, 1]

TQ = []

BQ = [7]

OQ = [1, 2, 3, 4, 5, 6]

z = [-46225.0, -46225.0, -65025.0]

Fragments = [6 5 3 4] [1 2]

TA = [0, 1, 0, 0, 0, 0, 1]

TB = [0, 1, 0, 0, 0, 0, 1]

TQ = []

BQ = []

OQ = [1, 2, 3, 4, 5, 6, 7]

z = [-46225.0, -46225.0, -65025.0, -108900.0]

Fragments = [6 5 3 4 1] [2]

TA = [0, 1, 0, 0, 0, 0, 1]

TB = [0, 0, 0, 0, 0, 0, 0]

TQ = [2, 7]

BQ = []

OQ = [1, 3, 4, 5, 6]

z = [-46225.0, -46225.0, -65025.0, -108900.0, -46225.0]

Vertical Fragmentation not possible.

Owner matrix

Query Access Matrix =

[[1 1 0 1]

[0 0 0 0]

[0 0 0 0]

[0 0 0 0]

[0 0 0 0]

[0 0 0 0]

[0 0 0 0]]

Frequency Access Matrix =

[[ 0 10 20 0]

[30 0 10 0]

[20 25 20 0]

[15 10 0 5]

[ 0 20 15 5]

[20 0 0 30]

[30 20 25 0]]

Sum of attr access by each query =

[30 40 65 30 40 50 75]

attribute affinity matrix =

[[1. 2. 3. 4.]

[0. 0. 0. 0.]

[0. 0. 0. 0.]

[0. 0. 0. 0.]

[0. 0. 0. 0.]]

attribute affinity matrix =

[[ 1. 2. 3. 4.]

[30. 30. 0. 30.]

[30. 30. 0. 30.]

[ 0. 0. 0. 0.]

[30. 30. 0. 30.]]

After shifting rows 0 and 1=

[[ 1. 2. 0. 0.]

[30. 30. 0. 0.]

[30. 30. 0. 0.]

[ 0. 0. 0. 0.]

[30. 30. 0. 0.]]

Best location for attribute = [3. 0. 0. 0. 0.]

cont( A 0 , A 3 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 3 , A 2 ) = 2 \* ( 0.0 + 0.0 - 2700.0 ) = -5400.0

cont( A 2 , A 3 , A 4 ) = 2 \* ( 0.0 + 0.0 - 2700.0 ) = 0.0

Location of max cont = 1

CA after swapping attribute 3

[[ 3. 1. 2. 0.]

[ 0. 30. 30. 0.]

[ 0. 30. 30. 0.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 0.]]

AA after swapping attribute 3

[[ 3. 1. 2. 4.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 30.]]

Best location for attribute = [ 4. 30. 30. 0. 30.]

cont( A 0 , A 4 , A 1 ) = 2 \* ( 0 + 0.0 - 0 ) = 0.0

cont( A 1 , A 4 , A 2 ) = 2 \* ( 0.0 + 2700.0 - 0.0 ) = 5400.0

cont( A 2 , A 4 , A 3 ) = 2 \* ( 2700.0 + 2700.0 - 2700.0 ) = 5400.0

cont( A 3 , A 4 , A 5 ) = 2 \* ( 2700.0 + 0 - 0 ) = 5400.0

Location of max cont = 2

CA after swapping attribute 4

[[ 3. 4. 1. 2.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 30.]]

AA after swapping attribute 4

[[ 3. 4. 1. 2.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 30.]]

CA after interchanging rows =

[[ 3. 4. 1. 2.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]]

CA =

[[ 3. 4. 1. 2.]

[ 0. 0. 0. 0.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]

[ 0. 30. 30. 30.]]

Fragments = [3] [4 1 2]

TA = [0, 0, 0, 0, 0, 0, 0]

TB = [1, 0, 0, 0, 0, 0, 0]

TQ = []

BQ = [1]

OQ = [2, 3, 4, 5, 6, 7]

z = [-90000.0]

Fragments = [3 4] [1 2]

TA = [1, 0, 0, 0, 0, 0, 0]

TB = [1, 0, 0, 0, 0, 0, 0]

TQ = []

BQ = []

OQ = [1, 2, 3, 4, 5, 6, 7]

z = [-90000.0, -108900.0]

Fragments = [3 4 1] [2]

TA = [1, 0, 0, 0, 0, 0, 0]

TB = [1, 0, 0, 0, 0, 0, 0]

TQ = []

BQ = []

OQ = [1, 2, 3, 4, 5, 6, 7]

z = [-90000.0, -108900.0, -108900.0]

Vertical Fragmentation not possible.

Cab-Driver matrix

There is no any query that uses the attribute related to drive table

. so there is no any need to fragment this table