Sum (S)

Min (M)

Delta (DA) ))=

Base (A)

|  |  |  |
| --- | --- | --- |
| PK | c1 | c2 |
| k1 | x1 | 20 |
| k2 | x1 | 30 |
| k3 | x2 | 50 |
| k4 | x2 | 35 |
| k5 | x3 | 55 |

|  |  |  |
| --- | --- | --- |
| PK | c1 | c2 |
| k1 | null 🡪 x1 | null 🡪 20 |
| k2 | null 🡪 x1 | null 🡪 30 |
| k3 | x4 🡪 x2 | 50 🡪 50 |
| k4 | x3 🡪 x2 | 15 🡪 35 |
| k5 | null 🡪 x3 | null 🡪 55 |

|  |  |
| --- | --- |
| PK | cs |
| x1 | 50 |
| x2 | 85 |
| x3 | 55 |

|  |  |
| --- | --- |
| PK | cm |
| x1 | 20 |
| x2 | 35 |
| x3 | 55 |

Join (J)

di,du,dd

tp,td

|  |  |  |  |
| --- | --- | --- | --- |
| PK | A.c2 | B.c2 | c1 |
| k1\_l1 | 20 | 10 | x1 |
| k2\_l1 | 30 | 10 | x1 |
| k3\_l2 | 50 | 40 | x2 |
| k3\_l3 | 50 | 55 | x2 |
| k3\_l4 | 50 | 10 | x2 |
| k4\_l2 | 35 | 40 | x2 |
| k4\_l3 | 35 | 55 | x2 |
| k4\_l4 | 35 | 10 | x2 |
| k5\_l5 | 55 | 25 | x3 |

|  |  |  |
| --- | --- | --- |
| PK | c1 | c2 |
| l1 | x1 | 10 |
| l2 | x2 | 40 |
| l3 | x2 | 55 |
| l4 | x2 | 10 |
| l5 | x3 | 25 |

|  |  |  |
| --- | --- | --- |
| PK | c1 | c2 |
| f1 | null 🡪 x1 | null 🡪 10 |
| f2 | null 🡪 x2 | null 🡪 40 |
| f3 | x4 🡪 x2 | 50 🡪 55 |
| f4 | x3 🡪 x2 | 35 🡪 10 |
| f5 | null 🡪 x3 | null 🡪 25 |

|  |  |  |
| --- | --- | --- |
| PK | {c1,…,cn}A | {c1,..,cn}B |
| x1 | (k1,20),(k2,30) | (l1,10) |
| x2 | (k3,50),(k4,35) | (l2,40),(l3,55),(l4,10) |
| x3 | (k5,55) | (l5,25) |

Rev.-Join (RJ)

Pre Agg. (P)

pi,pu,pd

pi,pu,pd

di,du,dd

tp,td

Delta (DB)

Base (B)