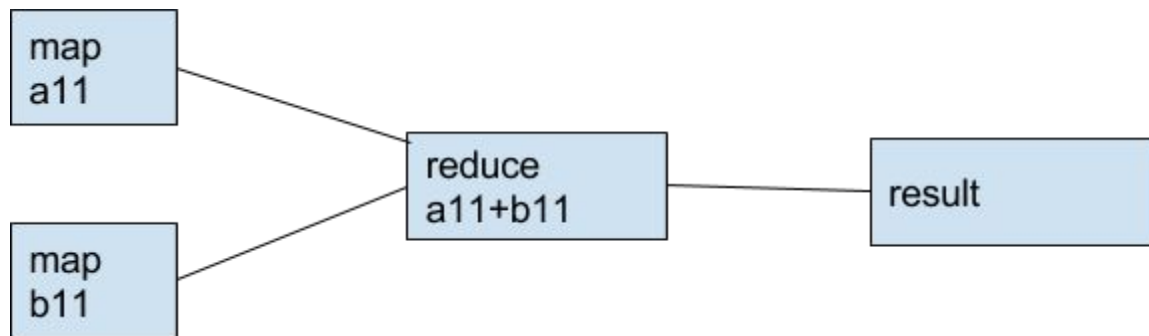


## MATRIX ADDITION IN MAPREDUCE

- Write a mapreduce pseudo code for Sum of Two Matrices.

$$\mathbf{A} + \mathbf{B} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{bmatrix} + \begin{bmatrix} b_{11} & b_{12} & \cdots & b_{1n} \\ b_{21} & b_{22} & \cdots & b_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ b_{m1} & b_{m2} & \cdots & b_{mn} \end{bmatrix}$$
$$= \begin{bmatrix} a_{11} + b_{11} & a_{12} + b_{12} & \cdots & a_{1n} + b_{1n} \\ a_{21} + b_{21} & a_{22} + b_{22} & \cdots & a_{2n} + b_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} + b_{m1} & a_{m2} + b_{m2} & \cdots & a_{mn} + b_{mn} \end{bmatrix}$$

**Solution:-**



$$C = A + B$$

the condition for addition is that they should be of same dimension

### IN THE MAP PHASE:

- for each element (i,j) of A, emit key value pair {(i,j),A[i,j]}
- for each element (i,j) of B, emit key value pair {(i,j),A[i,j]}

### IN THE REDUCE PHASE:

- Key= (i,k)
- value= SUM(A[i,j] B[i,j])