CS5542 : Lab Assignment #1

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Pseudo-Code (Logic):

Listing below shows a pseudo code for the Matrix addition using MapReduce technique.
Let us consider the Matrices A and B as shown below:

$$A = \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix}$$

$$B = \begin{vmatrix} x & y & z \\ s & t & u \\ x & y & z \end{vmatrix}$$

Map Code:

The mapper class with map method will process one line at a time and emits a key-value pair for each array item with its value and the location co-ordinates (row & column).
For example, The elements from Matix A are passed to the map method and the output will emit key-value pair as $< (0,0), a >$, $< (0,1), b >$, $< (0,2), c >$, $< (1,0), d >$ ...
Matrix B elements are passed to the map phase will output as $< (0,0), x >$, $< (0,1), y >$, $< (0,2), z >$ ..

Reduce Phase:

The reducer will sum the values of same key and the output is generated as output matrix of the corresponding key and the added value.

Output $= < (0,0), a + x >, < (0,1), b + y >, < (0,2), c + z >$..