CS5542 BD Apps SP2016

LAB ASSIGNMENT #1

1) Write a map-reduce pseudo code for Sum of Two Matrices.

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

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

Pseudo code for Matrix Addition using Map and Reduce

Step1 : Lets take two matrix A and B with order m*n as input to map function

Step2 : In Map function, split the matrix into separate rows in the first step and then into single elements having a key value pairs as (m*n, A_{m*n}). In the same way we split the B matrix.

(This can be done with the help of two Nested For loops , One for rows and for columns)

Step3 : In the Reduce function, we add the two matrix and reduce into one matrix and now the key value pairs are (m*n, $A_{m*n} + B_{m*n}$).

(This can be done with the help of two nested For loops, one loop representing the rows and other representing the columns.)

Sample Map & Reduce functions

```
Map(int m, int n, A m*n)
{
for( int i=1, i<=m, i++)
    {
       for (int j=1,j<=n, j++)
       {
         emit (i*j, Ai*j);
       }
    }
}
```

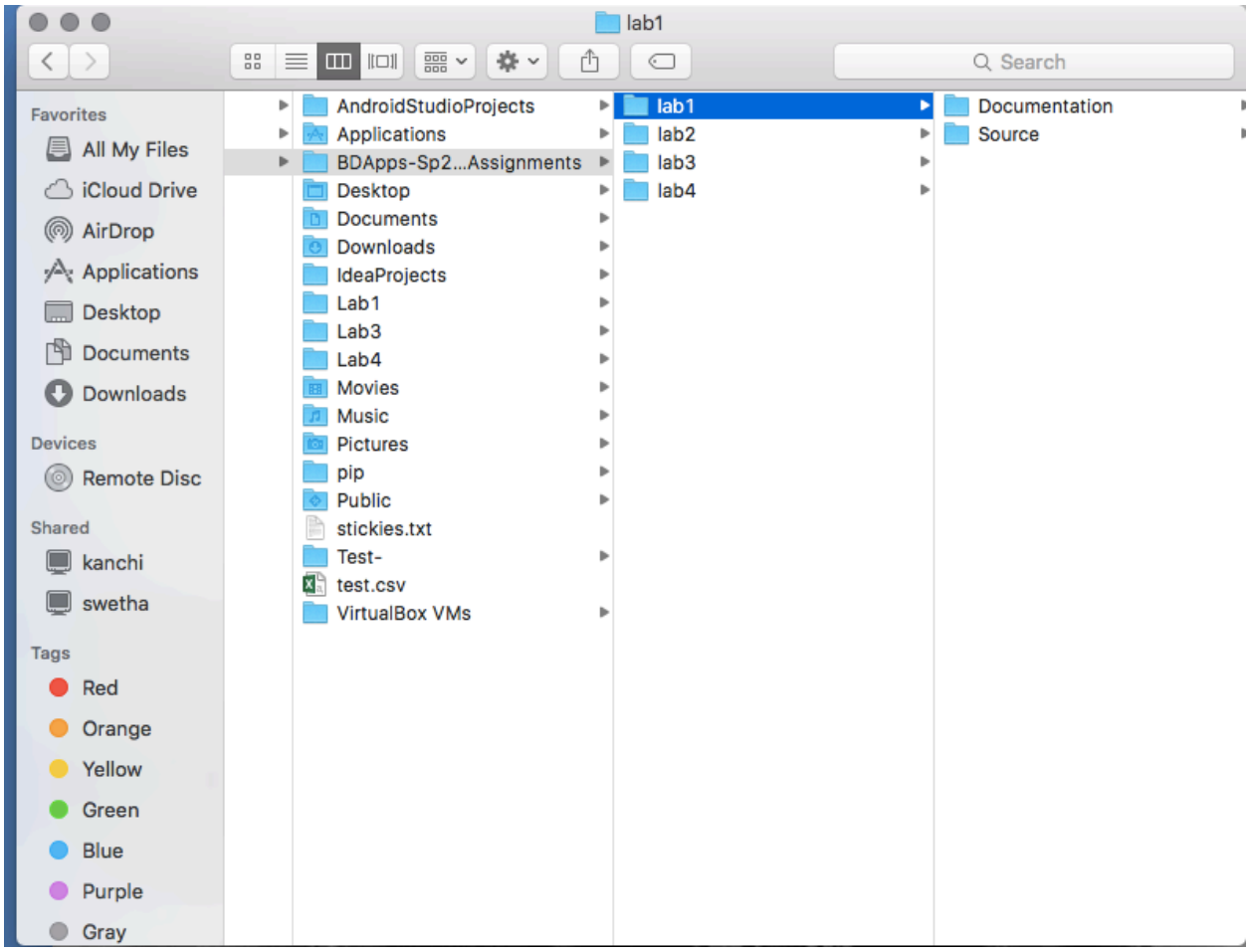
Apply the same for Matrix B

```
Reduce(int m, int n, Am*n, Bm*n)
{
        for( int i=1, i<=m, i++)
    {
      for (int j=1,j<=n, j++)
      {

        emit (i*j, Ai*j+Bi*j);
       }
    }
}
```

2)Create GitHub Account. Create a repository in remote Github. Clone it to local machine.

Create 2 (Source and Documentation) directories in local github.
Put the document with the pseudo code of question (1) under documentation directory in the local windows Github and sync it to remote Github.



3)Create ZenHub Tool Account. Create a board, 3 iterations, at least 5 tasks and show the analytics graph.