Part 1

See README.txt

Part 2

1. The algorithm is right when every element needed to be exchanged should be touched and only be touched once.

Prove by contradiction:

Let there be a n x n Matrix A, which has been run by the algorithm P-Transpose(A)

Assume there is an element at position Aab which isn’t transposed with Aba. 1<= a<= n and 1<=b <=n. Which means it will not be touched inside the loop. In the algorithm the for loop traverses elements when i from 1 to j - 1 and j from 2 to n, which is the lower triangle of matrix A. Also, the upper triangle will be touch while doing the exchange Aij to Aji. Therefore the only possible : a =b. Aab = Aba, which is not touch by the algorithm, is the diagonal of matrix A, so it doesn’t need to be transposed. It contradicts to the assumption. Therefore P-Transpose(A) is correct.

b)

work= O(n^2)

span = O(1)

Parallelism = W/D = O(n^2)

c)

work= O(n^2)

span = O(n)

Parallelism = W/D = O(n)

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