

Homework 5

Program Description

1. **Program** Transpose
declare

$A : \text{array } [1..N, 1..N] \text{ of integer}$
 $p, q : \text{integer}$

initially

$A = B$
 $p = 1$
 $q = N$

always
assign

$\langle \parallel i, j : 1 \leq i, j < (p + 1) :: B[i, j] := A[j, i] \rangle$
 \parallel
 $\langle \parallel i, j : (q - 1) < i, j \leq N :: B[i, j] := A[j, i] \rangle$
 \parallel
 $p, q := p + 1, q - 1 \text{ if } p \leq q$

2. formal specification
3. explanation