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#include <stdio.h>

#include <stdlib.h>

#include <unistd.h> // for sleep()


#define N 5 // Number of nodes in the ring


void passToken(int nodes[], int currentHolder) {
    printf("Node %d has the token.\n", currentHolder + 1);
    printf("Node %d is sending data...\n", currentHolder + 1);
    sleep(1); // Simulate data transmission delay
    printf("Node %d has finished sending data.\n", currentHolder + 1);
    printf("Passing token to Node %d...\n\n", (currentHolder + 1) % N + 1);
}


int main() {
    int nodes[N];

    for (int i = 0; i < N; i++) {
        nodes[i] = i + 1; // Node IDs from 1 to N
    }

    printf("Starting Token Ring Network with %d nodes...\n\n", N);

    int currentHolder = 0;

    for (int i = 0; i < 2 * N; i++) { // Run the protocol for 2 full cycles

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```
    passToken(nodes, currentHolder);

    currentHolder = (currentHolder + 1) % N;
}

printf("Token passing completed.\n");

return 0;
}
```

Output

Starting Token Ring Network with 5 nodes...

Node 1 has the token.

Node 1 is sending data...

Node 1 has finished sending data.

Passing token to Node 2...

Node 2 has the token.

Node 2 is sending data...

Node 2 has finished sending data.

Passing token to Node 3...

Node 3 has the token.

Node 3 is sending data...

Node 3 has finished sending data.

Passing token to Node 4...

Node 4 has the token.

Node 4 is sending data...

Node 4 has finished sending data.

Passing token to Node 5...

Node 5 has the token.

Node 5 is sending data...

Node 5 has finished sending data.

Passing token to Node 1...

Node 1 has the token.

Node 1 is sending data...

Node 1 has finished sending data.

Passing token to Node 2...

Node 2 has the token.

Node 2 is sending data...

Node 2 has finished sending data.

Passing token to Node 3...

Node 3 has the token.

Node 3 is sending data...

Node 3 has finished sending data.

Passing token to Node 4...

Node 4 has the token.

Node 4 is sending data...

Node 4 has finished sending data.

Passing token to Node 5...

Node 5 has the token.

Node 5 is sending data...

Node 5 has finished sending data.

Passing token to Node 1...

Token passing completed.