import java.util.Scanner;

class Tring {

public static void main(String args[]) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter the number of nodes: ");

int n = sc.nextInt();

// Decides the number of nodes forming the ring

int token = 0;

for (int i = 0; i < n; i++)

System.out.print(" " + i);

System.out.println(" " + 0);

try {

while (true) {

System.out.print("Enter sender: ");

int s = sc.nextInt();

System.out.print("Enter receiver: ");

int r = sc.nextInt();

System.out.print("Enter Data: ");

String d = sc.next();

System.out.print("Token passing:");

//current token not equal to sender, increment i by 1 and j by j+1%n

for (int i = token, j = token; (i % n) != s; i++, j = (j + 1) % n) {

System.out.print(" " + j + "->");

}

System.out.println(" " + s);

System.out.println("Sender " + s + " sending data: " + d);

// start forwarding from node after sender until it becomes equal to receiver and increment by i+1%n

for (int i = (s + 1) % n; i != r; i = (i + 1) % n) {

System.out.println("Data " + d + " forwarded by " + i);

}

System.out.println("Receiver " + r + " received data: " + d);

token = s;

}

} catch (Exception e) {

System.out.println("Error occurred: " + e.getMessage());

}

}

}