

# Disjoint Set

## (disjoint\_set.cpp/c)

Time Limit : 3 sec , Memory Limit : 131072 KB

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Write a program which manipulates a disjoint set  $S = S_1, S_2, \dots, S_k$ .

First of all, the program should read an integer  $n$ , then make a disjoint set where each element consists of  $0, 1, \dots, n - 1$  respectively.

Next, the program should read an integer  $q$  and manipulate the set for  $q$  queries. There are two kinds of queries for different operations:

- $unite(x, y)$ : unites sets that contain  $x$  and  $y$ , say  $S_x$  and  $S_y$ , into a new set.
- $same(x, y)$ : determine whether  $x$  and  $y$  are in the same set.

Input (disjoint\_set.in)

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```
n q
com1 x1 y1
com2 x2 y2
...
comq xq yq
```

In the first line,  $n$  and  $q$  are given. Then,  $q$  queries are given where  $com$  represents the type of queries. '0' denotes  $unite$  and '1' denotes  $same$  operation.

Output (disjoint\_set.out)

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For each  $same$  operation, print 1 if  $x$  and  $y$  are in the same set, otherwise 0, in a line.

### Constraints

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- $1 \leq n \leq 10000$
- $1 \leq q \leq 100000$
- $x \neq y$

### Sample Input

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```
5 12
0 1 4
0 2 3
1 1 2
1 3 4
1 1 4
1 3 2
0 1 3
1 2 4
1 3 0
0 0 4
1 0 2
1 3 0
```

## Sample Output

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```
0
0
1
1
1
0
1
1
```