

Activities

Firefox Web Browser

Sun 19:58

Problems - MakeMyTrip Java Developer Hiring Challenge - Mozilla Firefox

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Problems - MakeMyTrip

ThoughtWorks Application

Java Round up to Lower v

Converting an int to a l

string - Convert charac

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Max. Marks 100.00

3 Questions

Total Marks: 300.0

3 Programming Questions

1. Poisonous gas

2. Candles

3. Bob And Array Queries

Question 3

Bob And Array Queries

Bob has an array $A[]$ of N integers. Initially, all the elements of the array are zero. Bob asks you to perform Q operations on this array.

There are three types of operations that can be performed:

1. 1 X: Update the value of $A[X]$ to $2 * A[X] + 1$.

2. 2 X: Update the value $A[X]$ to $\lfloor A[X]/2 \rfloor$, where $\lfloor \cdot \rfloor$ is Greatest Integer Function.

3. 3 X Y: Take all the $A[i]$ such that $X \leq i \leq Y$ and convert them into their corresponding binary strings. Now concatenate all the binary strings and find the total no. of '1' in the resulting string.

Note: It is guaranteed that there is at least 1 type-3 query in the every test case. All the array elements will fit into 64 bit integers.

Input Format:

First line consists of two space-separated integers N and Q .

Next, Q lines consist of Q operations of either of the 3 types as described above.

Output Format:

For each type-3 query print the answer that is the no. of '1' in the resulting string.

Constraints:

$1 \leq N, Q \leq 500000$

$1 \leq X \leq Y \leq N$

Sample Input

5 5
1 1
1 1
1 2
1 3
3 2 4

Sample Output

3
2

Explanation

Initially, $A=[0,0,0,0,0]$

After 1st query, $A=[1,0,0,0,0]$

After 2nd query, $A=[1,0,0,0]$

After 3rd query, $A=[1,1,0,0]$

For 4th query, no. of '1' in binary representation of $A[1]+A[2]+A[3]+A[4]=1$. So, answer=3.

For 5th query, answer is 2.

Note: Your code should be able to convert the sample input into the sample output. However this is not enough to pass the challenge because the code will be run on multiple test cases. Therefore, your code must solve this problem statement.

Time Limit: 1.0 sec for each input file