

Dilshan's Juice Bar's Menu

Dilshan is an aspiring chef who is planning to open his own juice bar. He has a list of ingredients with I number of items. The list also contains the sweetness value for each ingredient. Now he wants to divide the menu of his juice bar based on the sweetness value of each juice. So, he has created C number of sections for his menu. He wants to find out how many types of juices he can prepare that falls under each section in his menu, using the available ingredients.

The sweetness of an ingredient is defined by a single integer value, i . There won't be multiple ingredients with the same sweetness value.

A juice is prepared by adding equal amounts of one or more ingredients together. The sweetness value of a juice is the sum of sweetness values of each ingredient of that juice. A juice can have any number of ingredients between 1 and I .

A menu section is defined by 2 integers, the starting sweetness value (S) & ending sweetness value (E) for that section.

Given the sweetness value for each ingredient & the starting and ending values for each section, you have to find out the number of juices that can be created for each menu section.

Input Format

First line contains 2 integers, I & C .

Next line contains I space separated integers (sweetness value of each ingredient), with the i^{th} of them being I_i .

C lines follow, with the j^{th} of them having 2 integers, S_j and E_j , the starting and ending sweetness value for the j^{th} section.

Constraints

- $1 \leq I \leq 20$
- $1 \leq C \leq 10^6$
- $1 \leq I_i \leq 10^8$
- $0 \leq S_j < E_j \leq 10^8$

Limits

- Time Limit: 1s
- Memory Limit: 256MB

Output Format

C lines, with j^{th} of them having a single number, the **Number of juices** that can be created for the j^{th} section in the menu.

Sample Input 0

```
5 4
3 4 7 12 16
1 4
7 8
```

10 20
100 150

Sample Output 0

2
2
11
0

Explanation 0

There are 4 sections.

1. Between 1 & 4: **2**

1. {3} - 3

2. {4} - 4

2. Between 7 & 8: **2**

1. {7} - 7

2. {3, 4} - 7

3. Between 10 & 20: **11**

1. {12} - 12

2. {16} - 16

3. {3, 7} - 10

4. {3, 12} - 15

5. {3, 16} - 19

6. {4, 7} - 11

7. {4, 12} - 16

8. {4, 16} - 20

9. {7, 12} - 19

10. {3, 4, 7} - 14

11. {3, 4, 12} - 19

4. Between 100 & 150: **0**

Sample Input 1

5 2
1 2 3 4 5
1 5
7 8

Sample Output 1

Explanation 1

There are 2 sections.

1. Between 1 & 5: **9**

1. {1} - 1
2. {2} - 2
3. {3} - 3
4. {4} - 4
5. {5} - 5
6. {1, 2} - 3
7. {1, 3} - 4
8. {1, 4} - 5
9. {2, 3} - 5

2. Between 7 & 8: **6**

1. {2, 5} - 7
2. {3, 4} - 7
3. {3, 5} - 8
4. {1, 2, 4} - 7
5. {1, 2, 5} - 8
6. {1, 3, 4} - 8