# E - Sum of Subarrays

Editorial (/contests/abc423/tasks/abc423_e/editorial)

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : $475$ points

## Problem Statement

You are given an integer sequence $A = (A_1, A_2, \ldots, A_N)$ of length $N$.

$Q$ queries are given, so find the answer for each.

In the $i$-th query, integers $L_i$ and $R_i$ are given, so find $\displaystyle\sum_{l=L_i}^{R_i}\sum_{r=l}^{R_i}\sum_{j=l}^{r} A_j$ as the answer.

## Constraints

- $1 \leq N, Q \leq 3 \times 10^5$
- $1 \leq A_i \leq 100$
- $1 \leq L_i \leq R_i \leq N$
- All input values are integers.

## Input

The input is given from Standard Input in the following format:

$$
\begin{array}{llll}
N & Q & & \\
A_1 & A_2 & \ldots & A_N \\
L_1 & R_1 & & \\
L_2 & R_2 & & \\
\vdots & & & \\
L_Q & R_Q & &
\end{array}
$$

## Output

Output $Q$ lines. The $i$-th line should contain the answer to the $i$-th query.

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## Sample Input 1 Copy

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

## Sample Output 1 Copy

Copy

```
24
44
74
3
```

We explain the first query.

The value to be calculated is $\sum_{l=2}^{4}\sum_{r=l}^{4}\sum_{j=l}^{r} A_j$.

- When $l=2, r=2, \sum_{j=l}^{r} A_j = 1$.
- When $l=2, r=3, \sum_{j=l}^{r} A_j = 4$.
- When $l=2, r=4, \sum_{j=l}^{r} A_j = 7$.
- When $l=3, r=3, \sum_{j=l}^{r} A_j = 3$.

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- When $l = 3, r = 4, \sum_{j=l}^{r} A_j = 6$.
- When $l = 4, r = 4, \sum_{j=l}^{r} A_j = 3$.

From the above, the value to be calculated is $(1 + 4 + 7) + (3 + 6) + 3 = 24$.

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