Jumps

SEASON 8 – SECOND ROUND

The motivation for this problem is the game „Super Mario Bros".

There are **N** platforms at the same altitude. Each platform has a given length - platform number **i** has length equal to **a[i]**. Mario can jump from one platform to another in the following way:

If Mario is currently on a **x**-length platform, he can jump to one of the next **x** platforms. Formally, if currently Mario is on platform number **i** currently, he can reach the platforms with numbers **i + 1, i + 2, ..., i + a[i]** with one jump.

Mario is interested in the **minimum number** of jumps is to get from one given **starting** platform to a another given **end** platform. In addition, he will make **Q** such queries.

Help Mario by writing a program that can answer his queries.

Input
The first line of the file `jumps.in` contains **N** – the number of the platforms in Mario Land. The second like contains **N** numbers **a[1], a[2], ..., a[N]** – the lengths of the platforms.
The third line contains the number **Q**.
The **i**-th of the next **Q** lines contains the integers **x[i]** and **y[i]** (**x[i]** < **y[i]**) – the staring and ending platforms for the corresponding query.

Output
In the output file `jumps.out` print **Q** lines – the answers to the queries.

Constraints
$2 \le N \le 10^5$
$1 \le Q \le 10^5$
$1 \le a[i] \le 10^5$

Time limit: 1.2 sec
Memory limit: 256 MB

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Examples

Input (jumps.in)	Output (jumps.out)
5 1 5 1 3 1 5 1 5 2 3 3 5 4 5 1 2	2 1 2 1 1
9 1 2 1 2 1 2 1 2 1 4 1 6 1 5 3 8 1 9	3 3 3 5