Attending Workshops

A student signed up for n workshops and wants to attend the maximum number of workshops where no two workshops overlap. You must do the following:

Implement 2 structures:

1. *struct Workshop* having the following members:
    - The workshop's start time.
    - The workshop's duration.
    - The workshop's end time.
2. *struct Available_Workshops* having the following members:
    - An integer, n (the number of workshops the student signed up for).
    - An array of type *Workshop* array having size n.

Implement 2 functions:

1. *Available_Workshops* initialize (int start_time[], int duration[], int n)*
   Creates an *Available_Workshops* object and initializes its elements using the elements in the $start\_time[]$ and $duration[]$ parameters (both are of size n). Here, $start\_time[i]$ and $duration[i]$ are the respective start time and duration for the i^{th} workshop. This function must return a pointer to an *Available_Workshops* object.
2. *int CalculateMaxWorkshops(Available_Workshops* ptr)*
   Returns the maximum number of workshops the student can attend—without overlap. The next workshop cannot be attended until the previous workshop ends.

Note: An array of unknown size (n) should be declared as follows:

```
DataType* arrayName = new DataType[n];
```

Input Format

Input from stdin is handled by the locked code in the editor; you simply need to write your functions to meet the specifications of the problem statement above.

Constraints

- $1 \leq N \leq 10^5$
- $0 \leq start\_time_i \leq 10^3$
- $0 \leq duration_i \leq 10^3$

Output Format

Output to stdout is handled for you.

Your *initialize* function must return a pointer to an *Available_Workshops* object.
Your *CalculateMaxWorkshops* function must return maximum number of non-overlapping workshops the student can attend.

Sample Input

```
6
1 3 0 5 5 8
1 1 6 2 4 1
```

Sample Output

CalculateMaxWorkshops should return 4.

Explanation

The first line denotes n, the number of workshops.
The next line contains n space-separated integers where the i^{th} integer is the i^{th} workshop's start time.
The next line contains n space-separated integers where the i^{th} integer is the i^{th} workshop's duration.

The student can attend the workshops $0, 1, 3,$ and 5 without overlap, so *CalculateMaxWorkshops* returns 4 to *main* (which then prints 4 to stdout).