

Register for Certification exam

Course outline

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Week 6: Greedy Algorithms

Week 6 Quiz

Week 6 Programming Assignment

☐ Week 6 Programming Assignment

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TEXT TRANSLATION

Week 6 Programming Assignment

Due on 2019-03-18, 23:59 IST

- Select your language (C/C++/Java/Python2/Python3)
- Paste your code into the submission window.
- There are some public test cases and some (hidden) private test cases.
- "Compile and run" will evaluate your submission against the public test cases.
- "Submit" will evaluate your submission against the hidden private test cases and report a score on 100. There are 10 private testcases in all, each with equal weightage. You will only get a score on 100. You will not get feedback on which private testcases passed or failed.
- Ignore warnings about "Presentation errors".

The Siruseri Sports Stadium

(IARCS OPC Archive, K Narayan Kumar, CMI)

The bustling town of Siruseri has just one sports stadium. There are a number of schools, colleges, sports associations, etc. that use this stadium as the venue for their sports events.

Anyone interested in using the stadium has to apply to the Manager of the stadium indicating both the starting date (a positive integer S) and the length of the sporting event in days (a positive integer D) they plan to organise. Since these requests could overlap it may not be possible to satisfy everyone.

It is the job of the Manager to decide who gets to use the stadium and who does not. The Manager, being a genial man, would like to keep as many organisations happy as possible and hence would like to allocate the stadium so that maximum number of events are held.

Suppose, for example, the Manager receives the following 4 requests:

Event No.	Starting Date	Length
1	2	5
2	9	7
3	15	6
4	9	3

He would allot the stadium to events 1, 4 and 3. Event 1 begins on day 2 and ends on day 6, event 4 begins on day 9 and ends on day 11 and event 3 begins on day 15 and ends on day 20. You can verify that it is not possible to schedule all the 4 events (since events 2 and 3 overlap and only one of them can get to use the stadium).

Your task is to help the manager find the best possible allotment (i.e., the maximum number of events that can use the stadium).

Input format

The first line of the input will contain a single integer N ($N \leq 100000$) indicating the number of events for which the Manager has received a request. Lines 2,3,...,N+1 describe the requirements of the N events. Line $i+1$ contains two integer S_i and D_i indicating the starting date and the duration of event i . You may assume that $1 \leq S_i \leq 1000000$ and $1 \leq D_i \leq 1000$.

Output format

Your output must consist of a single line containing a single integer M , indicating the maximum possible number of events that can use the stadium.

Constraints

The range of values over which your program is to be tested is mentioned above. In addition, 50% of the test cases will also satisfy $N \leq 10000$.

Example:

We now illustrate the input and output formats using the example described above.

Sample input:

```
4
2 5
9 7
15 6
9 3
```

Sample output:

```
3
```

Select the Language for this assignment.

You may submit any number of times before the due date. The final submission will be considered for grading.

Assignment will be evaluated only after submitting using Submit button below. If you only save as or compile and run the Program, your assignment will not be graded and you will not see your score after the deadline.

Save as Draft

Compile & Run

Submit

Reset

Sample Test Cases		
	Input	Output
Test Case 1	4	3
	2 5	
	9 7	
	15 6	
	9 3	
	20	
	51292 123	
	82060 781	
	4014 289	
	5471 658	
	24984 124	
	91152 365	
	5097 867	
	66146 79	
	33650 371	
Test Case 2	79414 760	18
	93160 548	
	80928 410	
	81547 853	
	65682 31	
	21133 869	
	95357 424	
	28343 416	
	22557 709	
	48704 27	
	1366 39	
	20	
	86723 265	
	80493 236	
	41604 107	
Test Case 3	53387 734	19
	73571 236	
	52909 420	
	22583 185	
	49962 478	
	44849 101	
	62555 279	
	28615 791	
	14964 265	
	43778 167	
	97225 755	
	93279 561	
	96064 1	
	33826 556	
	11236 781	
	33014 975	
	82514 584	

End

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