AGGRCOW - Aggressive cows

no tags

Farmer John has built a new long barn, with N (2 <= N <= 100,000) stalls. The stalls are located along a straight line at positions x1,...,xN (0 <= xi <= 1,000,000,000).

His C (2 <= C <= N) cows don't like this barn layout and become aggressive towards each other once put into a stall. To prevent the cows from hurting each other, FJ want to assign the cows to the stalls, such that the minimum distance between any two of them is as large as possible. What is the largest minimum distance?

Input

t – the number of test cases, then *t* test cases follows.
* Line 1: Two space-separated integers: N and C
* Lines 2..N+1: Line i+1 contains an integer stall location, xi

Output

For each test case output one integer: the largest minimum distance.

Example

Input:

```
1
5 3
1
2
8
4
9
```

Output:

```
3
```

Output details:

FJ can put his 3 cows in the stalls at positions 1, 4 and 8,
resulting in a minimum distance of 3.

Submit solution! (/submit/AGGRCOW/)

Added by:	Roman Sol (/users/turbo)
Date:	2005-02-16
Time limit:	2s
Source limit:	10000B
Memory limit:	1536MB
Cluster:	Cube (Intel Pentium G860 3GHz) (/clusters/)
Languages:	All
Resource:	USACO February 2005 Gold Division

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Vicky (/users/vikram_111): 2015-08-14 16:22:36
@sanyam jain can u provide me a topcoder link whrere u found tutorials

SANYAM JAIN (/users/jsanyam): 2015-08-11 20:26:24
Tutorial on topcoder is really wonderful. :)

Parikshit (/users/prikshit_47): 2015-08-05 07:28:29
thanx topcoder ;)

Saksham (/users/saksham2405): 2015-08-04 01:22:25
Yeah topcoder rocks!!

anshal dwivedi (/users/anshal): 2015-08-03 22:10:45
AC in one go...! thanks to topcoder...

Sumit Paroothi (/users/paroothisumit): 2015-08-03 20:25:20
awesome question ..if ever there was one!!!

Vikrant Singh (/users/vsingh0075): 2015-08-02 22:27:10
Too tough !


Krzysztof Strojny (/users/vreal): 2015-07-09 20:58:31

Can someone please look at my solution? I have no clue why it's not working (edit: forgot to delete package name, silly mistake)

Last edit: 2015-07-13 22:40:21

pbd (/users/pbd): 2015-07-04 20:17:00
All hail topcoder.

Shashank kumar (/users/undetermined): 2015-06-29 15:18:48
you have to find the largest possible distance not minimum possible distance got two wrong answers for that .
And yeah ! one more thing when required no . of cows exceeds the given number or is equal that is good you just have to increase the mid value but when it is less than given number then decrease it .

Submit solution! (/submit/AGGRCOW/)