

## D Leap Frog (leapfrog.{c,cc,java})

### D.1 Description

Jack and Jill play a game called “Leap Frog” in which they alternate turns jumping over each other. Both Jack and Jill can jump a maximum horizontal distance of 10 units in any single jump. You are given a list of valid positions  $x_1, x_2, \dots, x_n$  where Jack or Jill may stand. Jill initially starts at position  $x_1$ , Jack initially starts at position  $x_2$ , and their goal is to reach position  $x_n$ .

Determine the minimum number of jumps needed until either Jack or Jill reaches the goal. The two players are never allowed to stand at the same position at the same time, and for each jump, the player in the rear must hop over the player in the front.

### D.2 Input

The input file will contain multiple test cases. Each test case will begin with a single line containing a single integer  $n$  (where  $2 \leq n \leq 100000$ ). The next line will contain a list of integers  $x_1 x_2 \dots x_n$  where  $0 \leq x_1 < x_2 < \dots < x_n \leq 1000000$ . The end-of-file is denoted by a single line containing “0”.

```
6
3 5 9 12 15 17
6
3 5 9 12 30 40
```

### D.3 Output

For each input test case, print the minimum total number of jumps needed for both players such that either Jack or Jill reaches the destination, or -1 if neither can reach the destination.

```
3
-1
```