codility

Training center

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TASKS DETAILS

EASY

1. **FrogJmp**
Count minimal number of jumps from position X to Y.

Task Score	Correctness	Performance
44%	25%	60%

Task description

A small frog wants to get to the other side of the road. The frog is currently located at position X and wants to get to a position greater than or equal to Y. The small frog always jumps a fixed distance, D.

Count the minimal number of jumps that the small frog must perform to reach its target.

Write a function:

```
def solution(X, Y, D)
```

that, given three integers X, Y and D, returns the minimal number of jumps from position X to a position equal to or greater than Y.

For example, given:

```
X = 10
Y = 85
D = 30
```

the function should return 3, because the frog will be positioned as follows:

- after the first jump, at position 10 + 30 = 40
- after the second jump, at position 10 + 30 + 30 = 70
- after the third jump, at position 10 + 30 + 30 + 30 = 100

Assume that:

- X, Y and D are integers within the range [1..1,000,000,000];

Solution

Programming language used:	Python
Total time used:	1 minutes
Effective time used:	1 minutes
Notes:	*not defined yet*

Task timeline

01:48:59 01:49:15

Code: 01:49:15 UTC, py, final, score: **44** show code in pop-up

```
1  def solution(X, Y, D):
2      distance = Y - X
3      jumps = distance / D
4      decimal_needs = jumps % 1
5      if decimal_needs == 0:
6          return jumps
7      else:
8          return int(jumps) + 1
```

Analysis summary

- X ≤ Y.

Complexity:

- expected worst-case time complexity is O(1);
- expected worst-case space complexity is O(1).

The following issues have been detected: runtime errors.

For example, for the input `(1, 5, 2)` the solution terminated unexpectedly.

Analysis

expand all	Example tests	
▶ example example test		✔ OK
expand all	Correctness tests	
▼ simple1 simple test		✘ RUNTIME ERROR tested program terminated with exit code 1
1. 0.036 s		OK
2. 0.036 s		RUNTIME ERROR, tested program terminated with exit code 1
stderr: `Invalid result type, int expected, <class 'float'> found.`		
▶ simple2		✘ RUNTIME ERROR tested program terminated with exit code 1
▶ extreme_position no jump needed		✘ RUNTIME ERROR tested program terminated with exit code 1
▶ small_extreme_jump one big jump		✔ OK
expand all	Performance tests	
▶ many_jump1 many jumps, D = 2		✔ OK
▶ many_jump2 many jumps, D = 99		✘ RUNTIME ERROR tested program terminated with exit code 1
▶ many_jump3 many jumps, D = 1283		✔ OK
▶ big_extreme_jump maximal number of jumps		✘ RUNTIME ERROR tested program terminated with exit code 1
▶		

small_jumps many small jumps	✔ OK