

Bowling Game Coding Exercise

Next Rev Technologies

Problem Description

Create a program, which, given a valid sequence of throws for one game of American Ten-Pin Bowling, produces the total score for the game. Your code will become the core of a bowling score management system, so make sure it fully complies with the input and output requirements, and represents your best code.

Remember: We're evaluating your design and development skills based on the code you give us. Make sure it reflects the type of code you'd write on a production software system for us. Take your time. Remember to refactor and write unit tests.

***Bonus points for deploying in a Docker container.**

Your input should be a string like the examples below.

Stuff That's Out of Scope

Here are some things that the program **does not need to do** (today):

- check for valid throws (like scores that add to 11)
- check for the correct number of throws and frames
- provide any intermediate scores – it only has to provide the final score

The Rules

To briefly summarize the scoring for this form of bowling:

- One *game* of bowling is made up of ten *frames*.
- In each frame, the bowler has two *throws* to knock down all the pins.
- Possible results for a frame:
 - *Strike* ('X'): the bowler knocks down *all 10* pins on the first throw. The frame is over early. The score for the frame is 10 plus the total pins knocked down on the *next two throws*.
 - *Spare* ('/'): the bowler knocks down *all 10* pins using two throws. The score for the frame is 10 plus the number of pins knocked down on the *next throw*.
 - *Open frame*: the bowler knocks down *less than 10* pins with his two throws. The score for the frame is the total number of pins knocked down.
- The game score is the total of all frame scores.
- Special rules for the 10th frame:
 - A strike in the tenth frame gives the bowler *two bonus throws*, to fill out the scoring formula for the last frame.
 - A spare in the tenth frame gives the bowler *one bonus throw*, to fill out the scoring formula for the last frame.
 - These throws count as part of the 10th frame.
 - The process does not repeat – for example, knocking down all 10 pins on a bonus throw does not provide any additional bonus throws.

Examples

Input String	Calculated As	Score
X-X-X-X-X-X-X-X-X-XX	$(10+10+10) + (10+10+10) + (10+10+10) + (10+10+10) + (10+10+10) + (10+10+10) + (10+10+10) + (10+10+10)$	300
45-54-36-27-09-63-81-18-90-72	$9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9$	90
5/-5/-5/-5/-5/-5/-5/-5/-5/-5/-5	$(10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5) + (10+5)$	150
45-54-36-27-09-63-81-18-90-7/-5	$9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + (10 + 5)$	96