Day 12: Inheritance

HackerRank

Objective

Today, we're delving into Inheritance. Check out the attached tutorial for learning materials and an instructional video.

Task

You are given two classes, *Person* and *Student*, where *Person* is the base class and *Student* is the derived class. Completed code for *Person* and a declaration for *Student* are provided for you in the editor. Observe that *Student* inherits all the properties of *Person*.

Complete the *Student* class by writing the following:

- A *Student* class constructor, which has 4 parameters:
  1. A string, $firstName$.
  2. A string, $lastName$.
  3. An integer, $idNumber$.
  4. An integer array (or vector) of test scores, $scores$.
- A *char calculate()* method that calculates a Student object's average and returns the grade character representative of their calculated average:

Grading Scale

Letter	Average (a)
O	$90 \le a \le 100$
E	$80 \le a < 90$
A	$70 \le a < 80$
P	$55 \le a < 70$
D	$40 \le a < 55$
T	$a < 40$

Input Format

The locked stub code in the editor reads the input and calls the *Student* class constructor with the necessary arguments. It also calls the *calculate* method which takes no arguments.

The first line contains $firstName$, $lastName$, and $idNumber$, separated by a space. The second line contains the number of test scores. The third line of space-separated integers describes $scores$.

Constraints

- $1 \le \text{length of firstName, length of lastName} \le 10$
- $\text{length of idNumber} \equiv 7$
- $0 \le score \le 100$

Output Format

Output is handled by the locked stub code. Your output will be correct if your *Student* class constructor and *calculate()* method are properly implemented.

Sample Input

```
Heraldo Memelli 8135627
2
100 80
```

Sample Output

```
Name: Memelli, Heraldo
ID: 8135627
Grade: O
```

Explanation

This student had 2 scores to average: 100 and 80. The student's average grade is $\frac{(100+80)}{2} = 90$. An average grade of 90 corresponds to the letter grade O, so the *calculate()* method should return the character `'O'`.