Problem: `CompressedSkyMap`

AP Computer Science A

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Imagine you are an astronomer, taking digital images of the night sky. A digital image can be represented as a two-dimensional array of `double` brightness values. Most of the values are 0, since the sky is mostly dark. Anywhere the brightness is not zero is either a star, or "light pollution" which is a terrestrial source of light that will be much brighter than a star.

To save computer memory, we would like to not have to save the entire digital image (which is mostly zeros). Instead, we would like to just save a list of the stars. Each "Star" object stores the row and column in the original image, and the brightness. After we create that list, the raw 2D array is thrown away, and we just keep the list of stars.

Your task

Complete the `CompressedSkyMap` class.

- The constructor takes a "raw" 2D array of double values, and turns this into a list of stars (the instance variable).
- The `brightnessAt` method returns the brightness at a certain location in the original map. If there is a star with that row and column, return the brightness. If there is no star, return 0.
- `numStars()` returns the number of stars.
- `eliminateLightPollution` removes all stars with values above a certain maximum brightness,
- `scaleBrightness` multiplies the brightness of all the stars by a certain factor, to account for the sensitivity of the telescope.
- `printMap()` prints the star map as a 2D grid of numbers in the terminal. Note that you should not actually create another 2D array; instead just write a loop that prints numbers.

When done, run the `tester()` method in the `Tester` class to verify that `CompressedSkyMap` works as expected.