Coding Homework

Algorithms

Implement the method nextNum() and a minimal but effective set of unit tests. Implement in the language of your choice, Python is preferred, but Java and other languages are completely fine. Make sure your code is exemplary, as if it was going to be shipped as part of a production system.

As a quick check, given Random Numbers are [-1, 0, 1, 2, 3] and Probabilities are [0.01, 0.3, 0.58, 0.1, 0.01] if we call nextNum() 100 times we may get the following results. As the results are random, these particular results are unlikely.

-1: 1 times
0: 22 times
1: 57 times
2: 20 times
3: 0 times

Languages

Python

You may use random.random() which returns a pseudo random number between 0 and 1.

```
import random


class RandomGen(object):
  # Values that may be returned by next_num()
  _random_nums = []
  # Probability of the occurence of random_nums
  _probabilities = []


  def next_num(self):
    """
    Returns one of the randomNums. When this method is called multiple
    times over a long period, it should return the numbers roughly with
    the initialized probabilities.
    """ pass
```

Please describe how you might implement this more "pythonically"

Java

You may use Random.nextFloat() which returns a pseudo random number between 0 and 1.

```
public class RandomGen {
  // Values that may be returned by nextNum() private
  int[] randomNums;
  // Probability of the occurence of randomNums private
  float[] probabilities;

  /**
    Returns one of the randomNums. When this method is called
    multiple times over a long period, it should return the
    numbers roughly with the initialized probabilities.
   */ public int
  nextNum() {
  }
}
```