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Daily Coding Problem

Blog

Daily Coding Problem #71

Problem

This problem was asked by Two Sigma.

Using a function `rand7()` that returns an integer from 1 to 7 (inclusive) with uniform probability, implement a function `rand5()` that returns an integer from 1 to 5 (inclusive).

Solution

This problem is simpler than going from `rand5()` to `rand7()`. We'll do something similar:

- Roll `rand7()`.
- If the result is between 1 and 5, then return it.

- If the result is 6 or 7, then reroll.

Since the distribution of [1, 5] is uniform -- each has a 1/7 chance of being rolled, then our rand5() will be uniform.

```python
def rand5():
    r = rand7()
    if 1 <= r <= 5:
        return r
    return rand5()
```

This could potentially take forever (although with a very low probability), if we keep on getting 6 or 7s.