Welcome Tutorial :-)
Tutorial 12

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1. Let X_N denote X in Morris' algorithm after N updates. Prove that

$$E[2^{2X_N}] = \frac{3}{2}N^2 + \frac{3}{2}N + 1.$$

2. In count sketch for item frequency, please give reason for $t = O(\log(1/\delta))$.

3. In Morris++ algorithm, do we estimate the count via using the same space complexity if we output 25% percentile estimate from all the t Morris+ instantiations?